

Moon Miners’ Manifesto



& The Moon Society Journal

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185

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In FOCUS: Collaboration is in the air

The “Big Tent” philosophy has always been around, but not always shared. Long an unwritten philosophy guiding the annual International Space Development Conferences, sponsored by NSS, with all other space groups welcome to participate, there have been some directives aimed at excluding “certain parties.” But at least one such directive was successfully resisted (“refused”) by the ISDC ‘98 committee, which was vindicated by the subsequent reconciliation between NSS and the Space Frontier Foundation at that event, leading to significant collaboration.

Last year saw the formation of the Space Exploration Alliance, an ad hoc group of 14 members, joined together in common front support for the President’s new Moon, Mars, and Beyond space initiative. Last year as well, both NSS and the Moon Society cosponsored the 7th Mars Society Convention. Next year’s ISDC in Los Angeles, will, be a joint effort with the Planetary Society, a first.

At this year’s ISDC, the Moon Society signed an affiliation agreement with NSS. What’s going on? While turf protectionism is far from dead, the momentum for practical and pragmatic synergy is building.

No single group, however, can do justice to all the vectors of developing a spacefaring civilization that are

Its Time has Come, Long Overdue

worthy of dedicated attention and focus. Separate groups focused on individual destinations, on near term steps, on far term propulsion development - these are all needed!

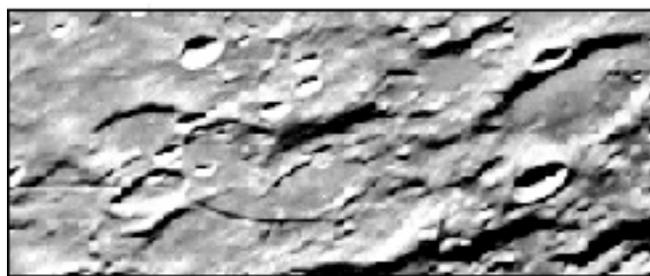
Yet there are inevitably many overlapping areas between any two or more groups where they can best promote their goals by pragmatic ad hoc collaboration. This can be in the form of specific projects, development of joint position papers and press releases, sharing resources, sharing expenses. Not to collaborate is a waste of talent, effort, and money in duplication.

And much is to be gained. Projects will advance more quickly, gaining access to a greater talent pool. Joint position papers and press releases will get across to the public, the media, and importantly to Congress, that “these guys finally have their act together.” Congress cannot be blamed for lukewarm support of the space program when all it hears is a discordant cacophony of voices.

No one is so naive to believe that disagreements on goals and priorities will disappear. But filing them in the “minority report” area will help. Collaboration will remain partial, but hopefully, its extent and significance will grow. This creates “a win-win situation” for all space organizations willing to take the synergy plunge. [⇒ p. 2, col. 2]

The Formidable Lunar Highlands

There are places in the Lunar Highlands that we will want to integrate into our frontier economy. Much of this area is crater-pocked to the saturation point. The challenge facing us now, and *something we can do without waiting for further data*, is to develop overlay maps of the highlands that highlight contiguous areas less difficult to traverse as targets for early development. Pages 3-5, this issue.



Moon Miners' Manifesto

Moon Miners' MANIFESTO/ Moon Soc. Journal is published every month except in January and July.

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• **Moon Miners' Manifesto CLASSICS:** Beginning with 'July 2004, we have begun an effort to re-edit, reformat, re-illustrate and republish the timeless articles of MMM's first ten years, with the intention of publishing two issues, each covering one year, in PDF format only, for free downloading, each January and July.

• **MMM's VISION:** "expanding the human economy through off-planet resources"; the early era of heavy reliance on Lunar materials; earliest use of Mars system and asteroidal resources; and the establishment of the permanent settlements necessary to support such an economy.

• **MMM's MISSION:** to encourage "spin-up" entrepreneurial development of the novel technologies needed and promote the economic-environmental rationale of space and lunar settlement.

• **MMM retains its editorial independence.** MMM serves several groups each with its own philosophy, agenda, and programs. Participation in this newsletter, while it suggests overall satisfaction with themes and treatment, requires no other litmus test. Any presumption that participating organizations can be labeled by indirect mutual association is unwarranted.

• For the current space news and near-term developments, read *Ad Astra*, the magazine of the **National Space Society**, in which we recommend and encourage membership.

• **The Lunar Reclamation Society** is an independently incorporated non-profit membership organization engaged in public outreach, freely associated with the National Space Society, insofar as LRS goals include those in NSS vision statement. LRS serves as NSS' Milwaukee chapter

=> www.lunar-reclamation.org

• **The National Space Society** is a grassroots pro-space membership organization, with 10,000 members and 40 chapters, dedicated to the creation of a spacefaring civilization.

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• **MMM's desktop publication** has received computer hardware and software support from the **Space Frontier Foundation**, 16 First Ave., Nyack NY 10960; 800-78-SPACE - SFF seeks to open the space frontier to human settlement as rapidly as possible. openfrontier@delphi.com => www.space-frontier.org

• **The Moon Society** is "dedicated to overcoming the business, financial, and technological challenges necessary to establish a permanent, self-sustaining human presence on the Moon." — See contact information on page 9.

• **NSS chapters** and **Other Societies** with a compatible focus are welcome to join the MMM family. For special chapter/group rates, write the Editor, or call (414)-342-0705.

• **Publication Deadline:** Final draft is prepared ASAP after the 20th of each month. Articles needing to be keyed in or edited are due on the **15th**, Sooner is better! - No compensation is paid.

✓ **EMAIL** to KokhMMM@aol.com (*preferred*)

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⇒ IN FOCUS Editorial continued from p. 1.

The form and "rules" that collaboration should take should be above all pragmatic and fluid. Thinking outside the "merger box," we need to keep things loose, looking for new terms, letting definitions fit reality not forcing reality to fit established outdated paradigms. This is a hard sell for those current space group leaders, whose thought patterns are petrified. If they can't be shown the light, those leaders must be bypassed, with all due respect and gratitude for all that they have done and accomplished.

The momentum for "talking" between groups is building. We'll be watching to see where it leads. **PK**

Our Apologies for a Late and Short MMM

The story behind the tardiness of this issue of Moon Miners' Manifesto and its abbreviated length, 12 pages instead of the customary 20, can be summed up in one word: "fatigue," Fatigue with a capital F that led to a comedy of mistakes with serious consequences.

The editor has simply taken on too many commitments and obligations. President of the Lunar Reclamation Society, Editor and principal contributor to MMM, President of the Moon Society, Co-chair of a busy local social organization, webmaster for four local organization websites, and three national ones.

The good news, is that much of the the initial action items I had voluntarily assumed in taking on these various roles have been dispatched with care - to the point that I can continue to tackle the remainder at a more leisurely pace, with more attention to rest.

In the meantime, leading up to ISDC, I was super busy preparing exhibit materials, my one talk, and the Moon Society - NSS affiliation negotiations. I arrived at ISDC very tired, proceeding to burn the candle at both ends, getting up with the roosters as usual and taking in the night parties in order to "network."

On my way home from the airport in Milwaukee, at a city bus transfer corner where I thought I was alone, I set down my briefcase (laptop inside) in order to get my blazer out of my big wheeled bag - I was chilled. Later, as the bus approached, I went to gather up my stuff, and alas, the briefcase *and laptop* were gone. I had heard nothing, seen nothing - extreme fatigue.

I have a new laptop now, courtesy of my home equity account, but I lost some files, including the nearly finished MMM #185 and the files from which I had been putting it together. *I had to start over from scratch.*

It was simply too much. So I decided, to avoid further delays, and failing even further behind, and thus subjecting myself to even more pressure, to bite the bullet and cut eight pages (two full sheets) from this issue. I am sure that our readers will understand.

I am okay.

The editor.

How and Why we will Also Settle the Lunar Highlands both Nearside and Farside

by Peter Kokh

In last month's MMM, in "Maritime Luna," I tried to lay out the case why the Moon's nearside "mareplex" should be the site of our first lunar outpost, *picked to have all the advantages necessary to evolve into our first major settlement on the Moon*, one actively developing local resources as a basis for industries that will support its own needs as well as income-earning exports. It is our firm belief that the Nearside Maria will be home of the great bulk of the Lunar Frontier population for as far as we can see into the future.

That said, there are many reasons, access to water-ice and other comet-derived volatiles in the polar regions being just the most obvious, that we will also establish scattered outposts in the Highland areas of both the Nearside and Farside. So if last month's article was the *Yin*, this one is the *Yang*. Balance is essential.

Above all everyone should come to realize that "The" Moonbase is just as absurd and indefensible a goal as "The" Space Station. Activists who fall into the "The" trap, unwittingly become part of the problem, all their best of intentions notwithstanding. We must get beyond thinking in "The" terms. "The" is an alias for "first and last."

If we fail to realize that, we seriously undercut our very own dreams. The "first step" then inevitably gets short-designed to become the "only step." History is ample testimony to that. "Those who would ignore history are doomed to repeat it." Dismount the high horse.

Key to the Moon's "high land" regions is Ease of Access

The 61% of Nearside, and the vast majority of Farside (and of the Southern Hemisphere) are "highlands." The highlands represent the more ancient original lunar surface sculpted by an early era of wholesale bombardment by the leftover debris of planet formation. Most of this crater-saturated crust remains. After this era of major cratering, a lesser number of larger impacters erased some of this early crust, creating the great basins, most of which were, still later, filled with lava flows, forming the familiar low-lying maria, or "seas." In general, the highland areas that remain, are, in comparison to the maria, much more hostile to overland transport and travel. Steep gradients and large scale impact debris abound.

Now if it is a question of putting a first moonbase in a highland area, the ability to go overland to other areas of the Moon from the point being considered, may not be a paramount consideration. Myopia. If we do not want to be limited to *access from or through space*, by landers and suborbital hoppers, we must tackle the overland transportation challenge posed by the lay of the "high" lands.

This suggests two pragmatic approaches:

1. We develop overland transport designed for handling this kind of terrain.
2. We try to identify contiguous (inter-continuous) areas where the gradients are low, and the "roughness" of the terrain is considerably lower and more negotiable.

1. Lunar Transport Vehicles for Rough Terrain

This is an area that has not been given much attention. Designs for Lunar Rovers, pressurized or not, commonly include large steel mesh tires to handle small boulders and rocks of a foot or less in height. That will do for the maria areas we are familiar with, as well as the one inter-crater "plain" visited on the Descartes mission. But much of the highland surface has abundant impact debris of larger scale. Finding a negotiable route will be torturous.

In MMM #79 Oct '94 before "Wild Wild West" we posted this concept for a go-anywhere vehicle, the "spider."



"One model from nature of a creature that can go just about anywhere is the spider. [snip] the mobility architecture of the "Daddy Longlegs" or "Harvestman". The Spider's "body" would consist of two superable components: the "trunk" would contain the "hips" for the six legs and associated "musculature", and the power, fuel, and motive plants. Underslung by a "dead man's winch" would be the crew cabin. This position gives it shielding protection from the locomotive complex above as well as an unobstructed view of the terrain below. If power should fail, the crew cabin would automatically winch to the surface in a controlled descent. This deployment could be overridden, if there was any reason to remain aloft.

"The scale of such a contraption ... the larger the better within practical limits. The legs ... long enough to elevate the central pod complex some dozens of meters above terrain obstacles below. This height would also be of great advantage in scouting a pathway ahead. The computer-controlled gait could bionically mimic that of real spiders and include a cautious grope as well as a trot ... when the going permits."

Decades down the road, when the growth of inter-settlement traffic warrants, a team of spider-cranes could deploy the pylons and cable for elevated cableways. We invite further development of these concepts as well as of whole new highland-suitable transport designs.

2. Mapping smoother, low gradient highland areas.

We now have fairly good **altimetry data** covering the whole Moon, from *Lunar Prospector*. That data should allow us to produce lunar map overlays color-shading areas of low gradient changes. These areas will be scattered and in general, not that extensive, including the so-called "inter

crater plains." Where we find relatively large contiguous areas of such topography, we may have found highland areas especially favorable for development, even if access to the main nearside mareplex is difficult. Such a larger highland "transportation valley" could have its own regional spaceport for access by landers from Earth (or elsewhere) as well as by suborbital hoppers from elsewhere on the Moon.

But altimetry data alone do not guarantee smooth going for wheeled lunar transports. On a large scale, the terrain may appear smooth. But on a scale relevant to transportation, it can still be rough, saturated with boulders of a size that cannot be simply wheeled over. The great radio telescope at Arecibo on the north coast of Puerto Rico has done a 70 cm wavelength radar mapping of the nearside with a spatial resolution of 300 meters, which shows areas smooth on the 70 cm scale (28") as dark, and areas rough on that scale as bright. For an example, check out

<http://www.lpod.org/LPOD-2005-05-26.htm>.

Now we can argue about whether that is the appropriate scale, but right now we have such a map and one of different scale would be just a proposed project. So we need a capable person to create overlays of those bright and dark areas to further filter the information from the altimetry data. *Then we will have a map which shows which areas of the highlands should be prioritized for early development, and which are best left to future pioneers..*

So this is a project, one of minimal cost, which can be done now, this year. Until we have that map, discussions of highland settlements remain, in our opinion, a matter of "gigo," "garbage in, garbage out."

That said, Madhu Thangavelu has in fact tried to follow altimetry clues in plotting future lunar railroad routes expanding from the South Pole northwards to the North Pole. This exciting plan is contained in the book

The Moon: Resources, Future Development & Colonization, by David Schrank, Burton Sharpe, Bonnie Cooper, and Madhu Thangavelu; John Wiley & Sons 1999; ISBN: 0471976350

The route proposed follows 15° West (or 345°) via Mare Nubium, Mare Imbrium, along Plato's west rim, etc.

Now we can revisit this first routing map given the new radar roughness data. That first attempt may be vindicated to some extent. Railroad bed placement requires more careful routing and a more extensive construction effort than do highways, especially those not built for speed.

Access given, what types of highland sites are attractive?

a) the Poles: Polar sites, of course, given the promised availability of frozen water ice and other comet-derived volatiles (carbon oxide and nitrogen oxide ices) and very local not quite total availability of sunlight *at or immediately above the horizon, are on everyone's list*. But it behooves us first to fly, and land, ground truth probes, that can drill into the regolith in permanently shaded crater areas and withdraw and analyze drill cores. What percentage of water-ice is there in the soil? How hard is it? What kind of mining and

recovery efforts seem most practical, energy efficient, and breakdown free? Until we have encouraging answers to all these questions and several more, talk of polar moonbases is fine, but planning to go there is pre-mature. Again a case of "gigo - garbage in, garbage out." It is our read of the Lunar Prospector data that the find of polar ice will be vindicated. The radar scans that did not see ice layers mean little, as no one seriously proposed that that is what Lunar Prospector had found. Once we have designed, built, and flown such a "ground truth lander" or two or three, the findings, even if positive, may be discouraging for a near term assault on the polar ice resources. The technological difficulties of mining and producing water and hydrogen from such a resource may be more ambitious than we expected, and best left until lunar settlement (elsewhere) has reached a higher level of development and is able to provide on location support.

b) locations of concentrated elements, otherwise rare

Not having undergone billions of years of tectonic processing in the presence of water (a hydrosphere), the Moon, unlike Earth, has not evolved concentrated "ores." That said, the mantle magmas on cooling, have separated out elements that are "insoluble" in the hot mix. So in the maria especially, we will find regions richer in this set of elements and regions richer in other sets, while all basaltic. KREEP, an acronym for Potassium (K), rare earth elements (REE) and Phosphorus (P) is the most widely known. This kind of mining diversity will be found in the mareplex.

But what about in the highlands? Since the highlands sport the great bulk of still exposed impact features, the chances of finding non-native, asteroid-donated lodes of elements in which the Moon in general is deficient, is much greater than in the highlands. Finding a feature on the Moon analogous to the 2 billion year old large astrobleme at Sudbury 200 miles east of Sault Ste. Marie in Ontario, Canada, would be tantamount to winning the Cosmic Jackpot. It is difficult to imagine how lunar industry can develop beyond the early Industrial Age (mid 19th C) level without access to copper, lead, zinc, gold, silver, and platinum. But the six Apollo and two Soviet Luna sites sampled so far show these elements present only in parts per billion. To gain insight into what is needed to detect such unique lodes from orbit, we will be taking in part of the Planetary & Terrestrial Mining Symposium in Sudbury, June 5-9, for one day.

We had early on detected Thorium in and around the large Van de Graff crater NE of Mare Ingenii on the Farside, but Lunar Prospector found vastly more in the much larger region surrounding Mare Imbrium. Thorium mined to breed into fissionable Uranium 233 might someday be a huge industry on the Moon, fueling nuclear rockets opening up Mars and the asteroids. But not a highland venture.

There are isolated mare flows within the highlands. Might these be mineralogically and chemically any different from those in the principal nearside maria? Unlikely, but evidence from orbit should be looked at.

c) Unusually spectacular Scenic Attractions: There will be plenty for tourists, both from Earth and from among the pioneers to visit and appreciate in the craters, rilles, ridges, scarps and other features within the mare areas or in the immediate hinterlands to satisfy most of them for some time to come. Still, on Earth, we have a breed of tourists that craves to go off the beaten path, to see things "out of the question" for the rest of us softies. Serving this elite clientele is big business. In time, access will be forged for tourists to visit the best the highlands have to offer, and predictably, remoteness, will be as attractive as the scenic speciality of the site itself. If two or more such treasures are to be found in a "doable cluster," that will help.

d) Scientific assets: We may need to put **observatories** intended for dedicated research on certain objects within certain lati-tude ranges, either north or south. But that gives enormous leeway to actual siting of the facility in question. For large array type **radio interferometer installations** modeled after, but larger than that at Socorro, New Mexico, or patterned after the suggested Cyclops array, only a rather spacious site in *deep* farside out of sight of either L4 or L5, and there are not many such places. Mare Ingenii / Thomson Crater complex looks to us to be the best bet even if it is 30 some degrees south of the lunar equator.

e) Isolation for Isolation' Sake On Earth, especially in the more recently settled areas of North America, but also elsewhere, we have seen many instances of "Intentional Communities." Under strong determined leadership, a band of followers tries to extract itself from the ambient (objectionable) culture and set up an isolated community where it can do its thing without interference. Jonestown, the Branch Davidians in Waco come to mind, but there are many many instances with less tragic results. Among those that have had some measure of success are the Amish communities. But in all most cases, isolation is incomplete, and the culture becomes diluted, and eventually fails.

If isolation is the key, what better place to shepherd one's followers than the Moon? (Actually, a high inclination orbit asteroid like Hidalgo or Pallas would be much more out of the way and much less likely to be contaminated by unwelcome visitors.) On the Moon, there are many nooks and crannies in the maria complex that will be sufficiently off the beaten path for generations to come baring unexpected mineral finds. So that in itself will not draw most cult leaders to the highlands. Yet some will want the ultimate in isolation and the northern hemisphere farside highlands look like the ultimate boondocks.

Now there are also well established religious intentional communities, such as the Benedictine and Carthusian (Trappist) Monks. These all male celibate communities dedicate themselves to useful work that they can pursue in isolation, yet earn the income needed to sustain the community. Manning farside SETI posts might be appealing.

For cultural isolation, nothing will beat the Moon's farside from which Earth can never be seen. Out of sight, Out of Mind. The Farside is the "Obliviside."

It all comes down to transportation:

It a settlement is to be served only from or via space, then the availability or feasibility of surface transport for supplies and local products is of no concern. But that seems like a dead-end mentality. As the settlement population grows, and the number of settlement locations multiplies, and the trade between them develops, overland routes and the vehicles that ply them will be developed.

It is short-sighted to plan any outpost where overland access is an uncertain eventuality. But if we do the mapping project suggested above, we will be able to identify many suitable highland areas for future development.

A bigger obstacle seems to be a general failure of the imagination. Even most space enthusiasts think of lunar settlement as involving a few thousand people at best. Our read is in the high hundreds of thousands, if not more. if so, while there will certainly be regional space-ports, surface transportation of people and goods is absolutely essential. It will include roads, cableways, railroads, maglevs, and systems we cannot yet imagine. (Star Trek Transporters not among them, unfortunately.)

Just as in the western United States, northern Canada, or much of Australia, there will still remain major trackless boondocks on the Moon. The reason is simple: inaccessibility. We need to determine the whereabouts, extent, and boundaries of pockets of accessibility in the lunar highlands. <MMM>

Relevant Reading from MMM Issues Past

- #10 NOV '87, Farside: Front-Line 21st C Astronomy
- #15 MAY '88, "Rural Luna"
- #66 JUN '93, p 5. Superconductivity
- #79 OCT '94, p 13. Lunar Roads; p 15. Lunar Waysides; Service Center & Inns
- #81 DEC '94, p 3. Rural Luna: Surface Vehicles & Transportation; p 4. Over the Road Trucking Rigs; p 5. Toad-mobile Conversions; p 6. Beyond the Beaten Path: Skimmers; Spiders; Camping Under the Stars
- #82 FEB '95, p 7. Rural Luna: The Beaten Path
- #83 MAR '95, p 5. Rural Luna: "Tarns"
- #84 APR '95, p 7. Rural Luna, Tarntecture, Ghost Towns
- #85 MAY '95 p 7. Rural Luna: Wasyside Tarns; Farm Tarns; Mining Tarns
- #86 JUN '95, p 7. Science Tarns, Recluse Tarns; p. 8. Relayside; p 9. Rural Luna's role in Moon as "World"
- #98 SEP' 96, p 15. Advantages of Farside for Radio Telescopes, W. Cochran
- #119 OCT '98, p 8. Mini-Magnetospheres on Farside;
- #131 DEC '99, p 8. Settlement as Intentional Community
- #135 MAY '00, p 10. First Moon TourS - Farside "Loop"
- #140 APR '01, p4. Transportation and Town Sites

The Moon Society



JOURNAL

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Please make NEWS submissions to KokhMMM@aol.com

The Moon Society was formed in July, 2000 as a broad-based membership organization with local chapters, to spearhead a drive for further exploration and utilization of the Moon in cooperation with other like-focused organizations and groups.

Artemis Society International was formed in August 1994 as a forum for supporters and participants in the **Artemis Project™** quest to establish a commercial Moon base as a first step to a permanent, self-supporting lunar community. **ASI** does not engage in any form of commercial business directly, but seeks to build a Project support business team. Registered trademarks of the **Artemis Project™** belong to **The Lunar Resources Company®**

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Moon Society Program Services
PO Box 080395, Milwaukee, WI 53208, USA

OUR LOGO above, shows the Moon in its natural beauty, empty and deceptively barren, waiting for human settlers to shelter and to mother as an adopted new human home world. We have work to do!

The Moon Society & National Space Society Sign an Historic Agreement by which the Moon Society becomes an Autonomous Affiliate of NSS

From Peter Kokh, President, The Moon Society

2005.05.22 - On the final day of the 24th Annual International Space Development Conference of the National Space Society, held at the Sheraton National Hotel in Arlington, Virginia just across the Potomac River from Washington, DC, Moon Society President, Peter Kokh, and Chairman of the Moon Society Board of Directors, Randall Severy, signed a simple document by which the two organizations recognized a new status of close collaboration. The Moon Society will remain independently incorporated, and be listed, not as an "at large special interest group" or as an "at large chapter" but simply as an "affiliate" organization. Signing for the National Space Society was Gary Barnhard, chair of the NSS Executive Committee.

Text of the Signed Document:

"On this 22nd day of May, 2005, gathered together at the 24th Annual International Space Development Conference in Arlington, Virginia, The National Space Society and The Moon Society hereby enter into a new relationship, wherein the Moon Society will continue the pursuit of its goals as an autonomous affiliate organization of The National Space Society. The Moon Society will offer NSS chapters, and NSS members at large, the opportunity to participate in its various programs and projects, and agrees to collaborate with the National Space Society in all* areas of mutual interest.

*[Appended Memorandum of Understanding] While aggressively pursuing public outreach and education, the Moon Society has historically, and deliberately avoided political activism. That said, the Moon Society is willing to work with NSS in drafting new legislation proposals, and will encourage those of its members so inclined to participate in NSS organized political initiatives."

Key Points of our Proposal to the National Space Society

Moon Society – NSS Talks and a firm decision

The Moon Society had, over the past year and a half, given due and careful consideration to the proposal that we seek an institutional association with the National Space Society. It had become our firm belief that this association is in the interests of both societies. Collaboration will make all our efforts more productive as well as sending the right message to the Space supporting community at large, and to Congress.

Preliminary talks with NSS leading up to ISDC 2004 and since, were quietly suspended on the Moon Society's part because of the uncertainties arising from the governance issues under consideration within NSS. By the beginning of the new year, the dust had now settled, and the

Society Leadership Council became confident that NSS has a bright future, one to which we firmly wish to contribute. It is the firm desire of the Moon Society to remain an independently incorporated organization that runs its internal affairs with full autonomy and, as a 501 c3, does not have to file a financial report with NSS. Currently, the Space Nursing Society and several NSS Chapters fit that mold.

The "Pigeonhole" Designation is the Key

An important issue to the Moon Society has been the particular pigeonhole under which we will be filed. To call us a chapter, even an at large and/or special interest chapter seems awkward because we have chapters of our own just as does NSS Australia, which while associated with NSS, remains fully independent.

Our request for a unique classification, "affiliate" seemed appropriate, and would also fit Space Nursing Society and NSS-Australia. This request has been approved by both the NSS Chapters Assembly and by key NSS leaders and now goes to the NSS Executive Committee with their endorsement and recommendation.

The Moon Society and a possible NSS "Moon Section"

The Moon Society would not oppose the creation of a separate Moon Section within NSS; indeed, we would welcome it. This would be a special interest group of NSS members who wanted to pursue Moon-related projects without joining the Moon Society. This is not only legitimate but potentially very productive. Small Group Dynamics virtually guarantees that in each group only a small number of people will form the active core. If there are two groups with like focus, that doubles the number of active people involved. Two heads are better than one, as the old saying goes. An NSS Moon Section would give birth to additional Moon-focused projects in which members of both groups could participate and collaborate. More gets done. NSS in the past has offered little in the way of projects as menu options for individual member activity. An affiliated Moon Society, alongside a new NSS Moon Section, would start addressing that need. Whether such a development occurs remains to be seen.

We would also invite the formation of an NSS Mars Section, as the Moon Society is now actively collaborating with the Mars Society on several fronts.

Exchanging "first time, first year" membership breaks.

If Moon Society members who have not previously belonged to NSS, receive the current break in joining NSS, a \$20 rate (vs. the posted \$45.) The Moon Society would offer a first year first time membership rate of \$20 (vs. the posted \$35). This has not yet been formally agreed to, but we have every reason to expect that it will be so.

Policy Statements and Position Papers

We would like to be invited to have input (not necessarily a vote) on a regular basis in the formulation of new NSS position papers where the subject matter is of direct interest to us. We will then cosign any new position papers whose final version we can live with. The effect of this is to get across to the public, and Congress, that we have our act together. This was not part of the short Memorandum of Understanding signed today, but NSS Leaders appear to be open to this.

The Moon Society, Ad Astra, and Moon Miners' Manifesto

We would like to have ads in Ad Astra for Moon Miners' Manifesto and for our various projects that might be of interest to NSS members who would be welcome to participate whether they join the Moon Society or not. We may from time to time submit articles of interest to Ad Astra for the editor's consideration. The idea is to allow us to reach the large numbers of NSS members who are enthused about the Moon.

Another option to realize this goal is under examination by ourselves and NSS leaders as we speak: finding a way to get Moon Miners' Manifesto, including the Moon Society Journal centerfold section, in the hands of all NSS members. There are a lot of technical and practical issues to be considered before such an exciting development can become a reality. All that can be said now, is that both sides will be looking at these options over the coming months..

www.moonsociety.org and www.nss.org

We have proposed that both websites trade graphic links. The details are to be worked out. As you see on our front page, we have taken the first step.

Moon Society Chapters in the context of affiliation with NSS

Our chartered chapters, *should they so choose* (and if they include 3 NSS members), should be listed on their own in the NSS Chapter list. This would be a plus for NSS which would stand to gain a vigorous chapter in St. Louis, where it now has no organized presence. Others may follow.

NSS Chapters and the Moon Society

Currently three NSS Chapters are listed on the Moon Society website as collaborating or partnering NSS chapters: Oregon L5 (because of its strong lavatube interest) and the Lunar Reclamation Society (because it publishes Moon Miners' Manifesto which has served Artemis Society International, and its successor in membership services, The Moon Society, since 1995) have enjoyed a decade of informal collaboration with the Moon Society. The relationship has no formalities, no requirements, and each NSS chapter is free to define it in whatever pragmatic way they wish. It is about working together on projects, not legalities. Recently, the Minnesota Space Frontier Society

requested to come aboard in this informal association. We would welcome any other NSS chapters with a strong interest in the Moon to actively collaborate in our projects and various endeavors, again with no legal or formal constraints. See www.moonsociety.org/chapters/ for the list.

Our Collaborative Public Posture

In today's climate, it is essential for space organizations to close ranks. While keeping the special focus around which each may be organized, it is in everyone's interest to seek to collaborate on projects and publicity (including press releases and position papers) whenever their separate interests converge. A big plus and incentive for collaboration is that the public and congress are sure to take notice that "those feuding space societies finally seem to have gotten their act together. Maybe it's worth listening to what they agree on."

Summary:

This is the 21st Century and the time for "turf-protectionism" is past. Our needs are better served by active and creative collaboration. At the same time, we strongly affirm the need and right to form a plurality of space interest societies. Getting humanity into space has many fronts and vectors and no one society can effectively and appropriately focus due attention on all of them. Additionally, a plurality of societies gives opportunity to more people to contribute in leadership positions. Our diversity is healthy, but it is productive only to the extent that we cross-fertilize one another's efforts in an ever expanding list of collaborations. The Moon Society looks forward to a productive future as an independent affiliate of the National Space Society.

Words of Thanks

Our affiliation initiative was launched by Gregory R. Bennett over a year and a half ago. It was his insights and inspiration as founder and first President of the Moon Society, and continued input as President Emeritus and Board member that have helped lead to this day.

We also owe many thanks to former board member, Arthur P. Smith, now NSS Vice-President for Chapters, and to NSS Board Members Larry Ahearn, Jeffrey Liss, and Bruce Mackenzie for their great helpfulness and inputs. Indeed, even the events leading up to this day have been demonstrations of collaboration. It bodes well!

Photo of Moon Society / MMM Exhibit at ISDC 2005

www.moonsociety.org/photos/isdc05/tms_mmm_exhibit.gif

Taken by Ben Huset, Minnesota Space Frontier Society (an NSS chapter newly aboard as a Moon Society partner)



Bay Area Moon Society

San Francisco - San Jose South Metro Area
<http://www.moonsociety.org/chapters/bams/>
Meeting the 4th Tuesday of Every Month
Contact: Jonathan Andrew Goff - Chapter Leader
jongoff@myrealbox.com

Moon Society St. Louis

<http://www.moonsociety.org/chapters/stlouis/>
Regularly scheduled monthly meeting: 2nd Wednesday of the month 7:30 PM - Buder Branch Public Library, 4401 S. Hampton, in the basement conference room
Contact: Keith Wetzel - President
kawetzel@swbell.net

**Calling all Moon Society PDF File Readers
Nominations, Please!
Especially for Treasurer**

This reminder will come too late for those who get their MMM in the mail. There are only two weeks as of this posting, until the deadline for nominations closes for the Moon Society Board (3 spots) and Officers (both Vice-President and Treasurer are up for reelection.)

Of especial importance is finding a qualified and capable replacement for our current Treasurer. R. Scotty Gammenthaller.

We all know how, in theory, to manage our check books. Some of us may have served as treasurer of another organization. Very helpful, but not a legal requirement, is accounting experience. The job involves posting membership and renewal dues to the account and producing periodic balance sheets showing income and expenditures.

Our bank account will remain where it is in Plano, Texas, but can be managed online from a distance. The Society P.O. Box will also remain in Plano, but Scotty will continue to accept, and reroute as necessary, any incoming mail. Scotty's service to the Society has been outstanding; but he now finds himself too overburdened with his day job. It is time to let him retire, but I am sure we will be calling on him for guidance in many areas.

So if you have the needed expertise, and believe you can dedicate the time, or know someone else that fits that description, please send email ASAP to

elections@moonsociety.org



Lunar Reclamation Society, Inc.
P.O. Box 2102
Milwaukee
WI 53201
www.lunar-reclamation.org

Ad Astra per Ardua Nostra

To the Stars through our own hard work!

New list - 2004 LRS OFFICERS / Contact Information

PRES. / MMM Editor - *Peter Kokh NSS
 < kokhmmm@aol.com > 414-342-0705
VICE-PRES. Doug Armstrong NSS 414-273-1126
SECRETARY. - James Schroeter NSS
 < James_Schroeter@excite.com > 262-675-0941
TREAS./ Database - *Robert Bialecki 414-372-9613
Newsletter Mailing - Carol Nelson 414-466-2081
 (* Board Members, & Ken Paul < kenpaul@cape-mac.org >

LRS News

• **ISDC '05:** Peter went to "the ISDC in DC" and signed an agreement making the Moon Society an affiliate of NSS.

On the way home, at a city bus transfer corner in Milwaukee, his computer was snatched, contributing considerably to the tardiness of this issue.

NSS seems to be rebounding from its troubling organizational crisis last year.

• **MMM in NSS's Future?:** Peter has been asked by NSS Executive Director George Whitesides to explore the challenges raised by the idea of sending MMM to all NSS members. That would increase the circulation from the low hundreds to over ten thousand, something we would not want to handle in Milwaukee. The Moon Society's interests must be protected as well as minimizing the burden on our chapter volunteers. This will be a discussion item at the June meeting.

LRS JUNE & SUMMER Events



Saturday, JUNE 14 th, 1-4 pm

LRS Meeting, Mayfair Mall, Garden Suites Room G110

AGENDA: www.lunar-reclamation.org/page4.htm

Updates: ISDC '05 update; Moon Society update, Return to Spaceflight; NASA's Moon plans, Summer Field Trip

The June 14th Meeting is our last until September 10th

Possible Field Trip: Under discussion is a weekend night field trip to Charlotte & Gene's "Black Sky" home 4 miles East of West Bend for a pot-luck dinner and back yard stargazing. Several dates are under consideration.

U.S. CHAPTERS



NSS
Chapter Events
MMM
6 Chapters Strong
Space Chapters HUB Website:
[<http://nsschapters.org/hub/>]

MINNESOTA



Minnesota Space Frontier Society
c/o Dave Buth 433 South 7th St. #1808
Minneapolis, MN 55415

Tom Greenwalt (w) 763-784-6244 (h) 763-442-6015
 David Buth (w) (612) 333-1872, (h) (763) 536-1237
 Email: tomg@mnsfs.org [www.mnsfs.org/]

MN SFS News & Pictures

• **Ben's pages of Pix from ISDC in DC**

<http://marvin.freemars.org/mnfan/ISDC/2005-DC/>

Ben writes: "I met MER's Steve Squires, the guy in charge of the Mars Rovers, last weekend and I even lent him my green laser pointer that he used for a presentation when no other one could be found.

www.freemars.org/mnfan/ISDC/2005-DC/100_1563.jpg

"Also got to meet Konrad Danenberg, one of the few surviving members of Dr. Wernher Von Braun's Rocket team.

www.freemars.org/mnfan/ISDC/2005-DC/100_1454.jpg

"He also borrowed my laser pointer for a presentation. as pictured here."

www.freemars.org/mnfan/ISDC/2005-DC/100_1459.jpg

OREGON



Oregon L5 Society
P.O. Box 86, Oregon City, OR 97045

voice mail / (503) 655-6189 -- FAX (503)-251-9901

[<http://www.OregonL5.org/>]

Allen G. Taylor <allen.taylor@ieee.org>

Bryce Walden <moonbase@comcast.net>

(LBRT - Oregon Moonbase) moonbase@comcast.net



Meetings 3rd Sat. each month at 2 p.m.

Bourne Plaza, 1441 SE 122nd, Portland, downstairs

May 21 - June 18 - July 16

Sheboygan Space Society



728 Center St., Kiel WI 54042-1034

c/o Will Foerster 920-894-2376 (h) <willf@tcei.com>
SSS Sec. Harald Schenk <hschenk@excel.net>

>>> **DUES:** "SSS" c/o B. P. Knier
22608 County Line Rd, Elkhart Lake WI 53020

[<http://www.tcei.com/sss/>]

 We meet the **3rd Thursday** of the month at 7-9pm

MAY 19th: UW-Sheboygan, Room 6101, **Sheboygan**

JUN 16th The Stoelting House, **Kiel**

JULY 21st: UW-Sheboygan, Room 6101, **Sheboygan**

Philadelphia Area Space Alliance



PO Box 1715, Philadelphia, PA 19105

c/o Earl Bennett, EarlBennett@erols.com
215/633-0878 (H), 610/640-2345(W)

[<http://pasa01.tripod.com/>]

 **PASA regular** business luncheon/formal meeting from 1-3 pm, the **3rd Saturday** of every month at the **Liberty One** food court on the second level, 16th and S. Market. Go toward the windows on the 17th street side and go *left*. Look for table sign. Parking at Liberty One on 17th St. Call Earl or Mitch 215-625-0670 to verify all meetings.

For May: we had no formal meeting as many of our members will be at NSS' International Space Development Conference in Washington and at the Balticon science fiction convention the next week end in Baltimore.

June Meeting: on the 18th. at the Food Court.

April Meeting Notes: We had a rather excited and enjoyable gathering on the Twenty third due to a number of events: past president Michelle Baker came again to be in touch with members who are going to the ISDC among other things, and we had an appearance by Gary Fisher, who brought a video of a beer(!) commercial that featured a Mars Like back-ground. More later. We had a number of renewals and the addition of our "non member attendee" as I have called her to our regular membership. Janice Guidotti

has decided to join us and will now give reports on environmental impacts and how remote sensing can be, or should be, used to gather data, or has provided data already, on various Earth and other worlds environments. Thank you Janice! We also had a visit from Dennis Pearson who drove down from the Allentown, Pa., area to attend and bring some of his material used in a display of a Moon Rock on loan from NASA. that he had requested for a Fair in his area. Dennis posed for pictures and has offered to lend the display elements (sorry, no moon rock for Super Science Weekend) and I have to get them. Thank you, Dennis!

Gary Fisher gave a brief update on the crewing of the M.D.R.S. and the continued problems with an Earthly technology: the diesel generator. This device is having problems due primarily to the rather dusty and gritty location. Many things have been tried, these people have tried to fix this for over a year (two, three?) now and have had little success in this. The initially expensive solar panels, however, keep on trucking along. Due to my own interests in alternative energy and space combined, I suggested a few sources, Like ads in Home Power Magazines and from Real Goods who might have something useful. Gary knew of Real Goods but pointed out that purchasing requires a good deal of money, not currently available, for the needed amount of arrays and storage needed. O.K. I understand this as did many of our members. He also reported on his upcoming presentation at the International Space Development Conference where he will speak on The Mars Homestead Project. This should be well attended as many people want to look beyond the flight to Mars and get to how to live on it.

In addition; Gary gave us a website (over 18 only!) for a beer company's Mars like background; h-e-l-l-o.org. This is for Heiniken (?) Beer and involves several scenes, its a commercial I think, and our subject appears as one of them. Also: Spirit and Opportunity are Going, And Going, And,... And finally Architect Georgi Petrov will give , or maybe has now, a report on The Mars Homestead Project at the I.C.E.S. conference which deals with Earth and Space environmental systems. I will also mention the Mars Homestead logo is being decided by a contest held by the Mars Foundation. Go to our site for links. Thank you Gary.

Hank Smith , our Science Fiction Outreach Coordinator, reported on upcoming Sci Fi events and the lack of a contract at this time for a venue for the two thousand five Philcon. There is the possibility that it will be held in early 2006, a shift that is not unprecedented. More from Hank later on this. He will attend both the ISDC, and then Balticon, as will Dotty and Larry. Thank you Hank.

Dorothy gave us a short report from the May National Geographic on the discovery of a Nickel Iron Meteorite found on Mars! Now if we send lots of Tonka Rovers to pregather them....

Larry reported on our low hit rates but may see an improvement soon: I gave him the first batch of pictures to

add to our site and the members have also given some advice as to what they would like to see. He also talked on getting in on Yahoo Groups to improve our circulation.

Mitch Gordon talked of "Lunar Tourism" from The Futurist Magazine for May-June, by Patrick Collins of Tokyo University. He expects this by 2020. It's in the "Economics" section of the publication. Some material on Terraforming was reprised from the quarterly Ad Astra as well. Mitch is stil lworking on having a presentation, especially by Gary Fisher, for university student, at Drexel University or the University of Pennsylvania.

Earl Bennett gave a brief technical report as well as having passed several publications out to be scanned by our members in attendance. The reports included " The Ubiquitous Invisible Sensor" from Sensors, a trade publication, which speaks of a topic many of us are familiar with from science fiction: the spreading of sensor networks and communications nodes throughout the world and space, so that everywhere is accessible and examinable by those who are connected to the system. For us ,the science fiction readers, this is usually just a given in some stories while others, like Vernor Vinges' "A Brightness in the Sky" has it as a specific element that part of the plot hinges on. The editorial makes interesting reading and I wonder if the various people mentioned are also readers. It would be interesting to find out if any started out reading the Robert Forward article in a 1970s Analog on his future Star Probes. Visionary indeed! The Editorial is by Barbara G. Goode, Editor In Chief, in the April Issue. sensorsmag.com.

Air Force Horizons a limited circulation adjunct to NASA Tech Briefs, had an article on the applications of nanotechnology from the Air Force Research Laboratory. Title:Nanoscience and Technology for the Air Force, which was written by a number of authors and researchers in the various fields covered. They are part of the Nano Science and Technology Working Group, a part of the services efforts in this wide field. The article includes pictures of some current work and what some of the future possibilities may be. A number of examples are given including: terra bit per square c.m. storage, allowing for processing by proces-sors with pentabyte per second computational rates on a desk top, doubling the payload lift capabilities of a given size launch vehicle (cargo to gross vehicle weights) and much more. This was in the April issue with much more.

Janice Guidotti also reported on the loss of ice coverage that can be seen from space: she brought Earth-day images that compared what could be seen in 1972 from an Apollo flight image and one recently made.(2004). If its not global warming then something else is still removing the ice. Not good for us. A related environmental show on PBS. also showed this with the perils of New Orleans having just passed and the projection that Florida will suffer cata-strophically in the next fifty years.

And finally: I am now group treasurer and , in that

capacity, am delighted on the renewal and new membership rate. We are currently at our previous member rate even after purging some who had fallen by the way previously. Now if I can get Gerard and his friend to join... We also discussed the merits of the I-Max Theaters and Michelle Baker highly recommends going to a Three D equipped one to view "Aliens of the Deep" if you can, go see it in three d. We may even do a day trip to see this "From the Oceans, From the Stars" delight. Earl Bennett.

CALI FORNIA



**OASIS: Organization for the Advancement of Space Industrialization and Settlement
Greater Los Angeles Chapter of NSS
P.O. Box 1231, Redondo Beach, CA 90278**

Events Hotline/Answering Machine:(310) 364-2290
Odyssey Ed: Kat Tanaka - odyssey_editor@yahoo.com
[<http://www.oasis-nss.org/>]
oasis@oasis-nss.org
Odyssey Newsletter Online
<http://www.oasis-nss.org/articles.html>

 **Regular Meeting 3 pm 3rd Sat. each month**
Microcosm, 401 Coral Circle, El Segundo.

• **May 21st - June 18th - July 16th**
Information: OASIS Hotline, 310/364-2290; website.

Recurring Events

Fridays -- Mike Hodel's Hour 25 webcast. The world of science fact and fiction with interviews, news, radio dramas, artists, writers, stories, reviews, and much more. Information: <http://www.hour25online.com/>.

SOLAR SYSTEM AMBASSADORS
www.jpl.nasa.gov/ambassador/

Michelle Baker Princeton/Philadelphia chaos@cybernet.net	Bill Higgins Chicago, IL higgins@fnal.gov
Bill Hensley Kenosha, WI hensley@acronet.net	Harold Schenk Sheboygan, WI hschenk@excel.net

Attn: MNSFS, Oregon L5, OASIS: If a member of your chapter is a JPL Solar Syestem Ambassador and you would like him or her to be listed above, please email MMM c/o kokhmmm@aol.com

NAME _____
 STREET _____
 CITY/ST/ZIP _____
 PHONE #S _____

* **\$45 National Space Society** dues includes **Ad Astra**
 * **\$20 NSS** dues if under 22 / over 64. *State age* _____
 600 Pennsylvania Ave SE #201, Washington DC 20003

Moon Society dues include **Moon Miners' Manifesto**

- **Electronic (pdf) MMM \$35** Students/Seniors: **\$20**
 - **Hardcopy MMM: U.S. & Canada \$35** Elsewhere: **\$60**
- P.O. Box 940825, Plano, TX 75094-0825, USA

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Moon Society and National Space Society sign Historic Affiliation Agreement
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Reminder: Nominations Please!
- p 9. LRS News; MMM NSS Chapters News

Member Dues -- MMM/MMR Subscriptions:
 Send proper dues to address in chapter news section

.-> for those outside participating chapter areas <=
 \$15 Individual Subscriptions to MMM/MMR: Outside North America \$50 Surface Mail -- Payable to "LRS", PO Box 2102, Milwaukee WI 53201

CHICAGO SPACE FRONTIER L5
 \$15 annual dues

LUNAR RECLAMATION SOC. (NSS-Milwaukee)
 \$15 reg. -\$20 family - \$12 student/senior

MINNESOTA SPACE FRONTIER SOCIETY
 \$25 Regular Dues

OREGON L5 SOCIETY
 \$25 for all members

O.A.S.I.S. L5 (Los Angeles)
 \$25 regular dues with MMM

PHILADELPHIA AREA SPACE ALLIANCE
 Annual dues for all with MMM \$25, due in March or \$6 times each quarter before the next March

SHEBOYGAN SPACE SOCIETY (WI)
 \$15 regular, \$10 student, \$1/extra family member
 "SSS" c/o B. P. Knier, 22608 County Line Rd, Elkhart Lake WI 53020

Moon Miners' MANIFESTO

Lunar Reclamation Society Inc.
 PO Box 2102, Milwaukee WI 53201-2102.

Address Service Requested

==> Mail Carrier, Time Sensitive Material <==



If Expiration date is highlighted, this is your last copy.
 Please renew promptly so as not to miss an issue !