15 – Private Settlement Phase

SUMMARY

As described in the Introduction chapter, competing companies would first serve governments in the International Base and then be naturally positioned to serve private settlers as the base expands into a settlement. People from certain wealthy nations will be over-represented and they will likely cluster in parts of the International Base until they become numerous enough to consider branching off into their own colony.

WHAT IS SPACE SETTLEMENT?

As mentioned previously, private settlement will be the natural outgrowth of the International Lunar Base. As flight rates go up and as the companies at the base transition to routine production, wealthy private settlers will begin to afford to settle down in some portion of the base.

What is Space Settlement?

When one thinks about "space settlement" one often thinks of something very large and expensive. Who's going to pay for such large infrastructure? How will the settlement pay to sustain itself? Will they mine some valuable mineral? Will they pay for themselves by producing intellectual property?

But private settlement won't be anywhere as difficult as many presume. Perhaps a historic reference point will help.

When did English people start settling North America? All Googling of that question yields the specific date of 1607. But why?

In 1607, English people landed at a place which they called Jamestown, Virginia. They numbered 104 settlers. More people arrived and their little town grew to about 1,000 before settlers began moving to other towns. So, that's a pretty straightforward explanation for why 1607 is the answer to when the English settled North America.

But wait a minute. Those weren't the first English there. In 1587, Roanoke, VA was settled by 107 people, but, because it vanished within a couple of years, it is not credited with being the first settlement because settlement requires permanence.

Now, Jamestown didn't have a child born in 1607 but rather, a baby girl, Virginia Laydon was born two years later in 1609. So, why does Google say that English settlement started before there were births? Simply because, when you settle down, that's settlement.

Now, isn't 104 people too few to be called a settlement? Apparently not. There is really no lower limit for when settlement starts only that it grows and becomes permanent.

So, the actual definition of "settlement" is this:

A place, typically one that has hitherto been uninhabited, where people establish a community.

There's no requirement for children and there's no specification of the minimum necessary size. So, what exactly does "space settlement" mean?

At its core, settlement means "to settle down". And what does that mean? It means to establish one's home. It is not a transient place where one lives, but one's home for an indefinite period of time. Yes, one may eventually move away...but then one may not. Bases in Antarctica are well established, but no one sells their home and moves to Antarctica. Rather, that is a base, and people's families remain back at home.

"Settling down" is also often used to refer to starting a family. For example, someone might date around and not commit. But, when they have found "the right one", tie the knot, and establish a family, they are often described as having "settled down".

Settlement Without Children?

Sun City – Summerlin, NV (pop. 12,500)

But what is a family? Yes, families can include children, but they don't necessarily have to have children. Couples who are married but have no children are still a family. Retired couples whose children have "flown the coup" are still a family. And if those retired couples move to a retirement community that community can grow even though no one is having children. To say that a large retirement community with many homes, community activities, and whatnot is not a "settlement" because they don't have children is just not being reasonable.

Above is an image of Sun City – Summerlin, NV (population 12,500). There are no children here but there are groceries stores, restaurants, community activities, and they are governed under city ordinances, and they elect their own local officials. If a community of this size existed on the Moon or Mars, it would clearly be considered a true space settlement.

But we do want space settlements to encompass the entirety of the human social possibilities including children. But, until we conduct animal studies to determine how to safely have pregnancy and childhood, then the first private settlers may well include a disproportionate number of older, wealthy retirees.

So, these pages propose that actual space settlement could start with as little as a few couples who move off Earth for an indefinite period and that this humble start be the beginning of an increasingly large community. These couples are called the Initial Permanent Crew.

The Historic Significance of Space Settlement

To be historically significant, an initial, small settlement must go on to become a large, sustained settlement. Roanoke Island is a historic footnote because the little colony there didn't survive or go on to play a significant historic role. The history of the founding of Plymouth Colony on the other hand is celebrated each year in America during Thanksgiving. The difference is that the latter went on to be part of something much bigger.

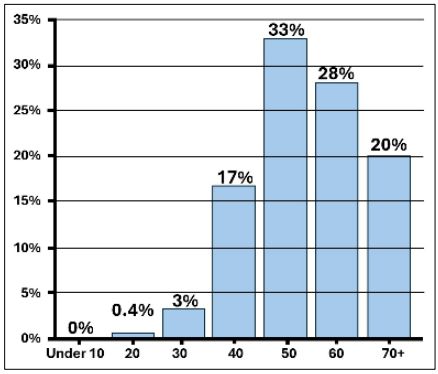
These pages describe how an Initial Crew of four couples could be a small, tentative, initial settlement. But that scenario won't become historically significant unless the population there grows in an increasing manner. The Innovative Plan describes an immediate follow-on phase with an International Lunar Base and Exploration Phase. This would provide the revenue to the participating companies and the flight rate to bring down the costs to the point where wealthy individuals might be able to move and settle down on the Moon. With mastering the development of even more in situ resources beyond water, the amount of material needing to be shipped from Earth would become increasingly less thereby reducing the cost to sustain the settlement.

RETIREES

Over-Represented Among Settlers

Who will the initial settlers be? Most of them will have three characteristics in common:

- They will have lived long enough to save up enough money to afford the ticket and living costs.
- They will be free of child-rearing responsibilities.
- They will be free of occupational responsibilities.



Millionaires tend to be older.

Retirees fit this profile perfectly. There can be little doubt that retirees will be over-represented among the first settlers.

Off-Earth Retirement

It is anticipated that private settlers will start arriving on the Moon and during the International Lunar Exploration Phase. They will not only pay for their own transport but would have to pre-pay for their housing and life support for the remainder of their life (freeloading one's oxygen is not an allowable option). These private settlers could arrive in two phases:

1) **The Early (Founder) Private Settlers:** This would be a unique and very historic group of people. They would fully pay their way and be willing to contribute their skills (usually voluntarily) for the purpose of playing a historic role in getting the settlement ready to grow its population. Those private settlers with certain anticipated needed skills (e.g. dentists) would find themselves being pushed towards the front of the line.
2) **The Later (Regular) Private Settlers:** This group includes those who may have higher quality of life requirements and/or who would rather be fully retired than be doing a lot of work in their retirement. And/or it may be that their spouses will want to wait until the lunar settlement has a lot of amenities.

Staffing

It is understandable that some will question how an initial settlement would be able to provide the services needed and desired by settlers, especially retirees who may be used to having a lot of conveniences. To understand how this can be addressed, consider the likely order in which settlement will occur. It would start with the Initial Crew who are highly trained and who require no amenities but are happy to be fulfilling their life dream. The next phase would be up to 1,000 international astronauts, also fairly young, healthy, and happy to suffer some deprivation for the purpose of building up the infrastructure necessary for settlement. Likewise, the Early Private Settlers will be a select group of people. They would need to be healthy to not burden the lunar medical system with conditions that it is not prepared to meet. Paying their own way, they would need to be wealthy. But they cannot be part of this group unless they are also willing to give their skills and experience for the growth of the base in preparation for the next phase. An organization would determine which settler goes when based upon a roadmap of what skills are needed at what point of development and settlement size. Later settlers can be more typical of retirees with higher expectations and poorer health. By the time that they arrive the quality of life and medical care will be at a level which they expect.

Quality of Life

Some people object that retirees would not want to settle the Moon because the quality of life would be so poor that it couldn't compete with the quality of retirement opportunities on Earth. But the belief that off-Earth settlement must be cramped, dangerous, deprived lifestyle fails to take into the account the many things which could easily be done to address the quality-of-life issues in an off-Earth settlement. There are also several unique experiences that only a lunar settlement could provide which would not be available on Earth. Then, there is the common mistake of presuming that off-Earth retirees would be typical of on-Earth retirees. There are about 1.4 billion people between the ages of 55 and 70. Certainly, among such a large group are those with wealth and who would be attracted to the opportunity to play a historic role in helping humanity start to move off Earth.

For later settlers, they could have very large living areas, be part of a community more exclusive than any on Earth with the best entertainment and fine dining. From the Moon, they could attend their loved ones' events on Earth via telepresence. Large habitats could provide many of the activities found on Earth such as swimming, golfing, and

visiting the spa. And the 1/6th gravity would allow older people to have a mobility and to do feats which they were unable to do even in their youth (e.g. effortlessly leaping to great heights).

Partial Gravity & Older Settlers

Older people would receive special benefits from living in the 1/6th gravity of the Moon. For starters, the pain of arthritis would be relieved by having less weight bearing down on their feet, knees, and backs. They would be able to more easily arise from a seated position. But more than this, older people on the Moon would be able to do unimaginable feats such as back flips.

Very importantly, older people would be able to be active in a manner that they had never been before. They would be able to jump higher than they've ever been able to jump before. The dance classes would be particularly popular as everyone would be able to be airborne longer than even Baryshnikov (literally!). Physical activity is very important for maintaining health during older age.

Certainly, osteoporosis is a concern in the elderly and 1/6th gravity could speed this process. But the increased activity including impact exercise would help and momentum is maintained on the Moon so the impacts should have the same effect as on Earth. With exercise being more fun, the amount of exercise done each day would likely increase and, with the new type of exercise equipment being used on the International Space Station, bone mineral density loss has almost stopped.

MOTIVATIONS FOR SETTLING SPACE

Given that it is cheaper to retire on Earth and there are many wonderful places on Earth to retire to, what would motivate retirees to settle down on the Moon? Certainly, the activities described above would be attractive, but attractive enough to justify the expense? And certainly, retirees don't retire to make a profit. They retire expecting to spend money not make money.

There are three non-economic but still powerful reasons that would attract certain people to retire on the Moon:

- **Personal significance:** People who are part of the initial settlement will know that their story will be going down into history. Later generations would know what their ancestors did to help humanity move off Earth. So, one can retire on Earth to relative

insignificance or retire on the Moon and literally make history. For some, this will be fairly strong motivation.

- **Prestige:** Not everyone is wealthy enough or skilled enough to be part of the first settlers to move off Earth. Thousands of people apply to a few astronaut slots. Here is an opportunity for someone who has "made it" to demonstrate to their peers and family the ability and courage to do what few can do. Off-Earth settlements can only be populated by the wealthy and successful. The typical net worth of the settlement citizenry will likely be higher than any community on Earth. Being part of such a community would be noteworthy and hence attractive to many.
- **Unique Experiences:** Living on the Moon would allow the settler to not only do unbelievable activities such as flying but to tour the Moon as well.

For Retirees, the Moon Has the Advantage

Compared to Mars, the Moon offers retirees certain advantages. The most significant will be proximity to the grandkids. This factor alone will probably make settlement on Mars less likely than settlement on the Moon. The round-trip time delay for telecommunications between the Moon and Earth is about 2.6 seconds. This is short enough to allow telepresence at family events such as graduations, weddings, and holiday gatherings. For Mars, it averages 25 minutes which limits communications to sending video emails. Business consulting is likewise better from the Moon than Mars. Also, the Moon's 1/6th gravity allows for more amazing activities than can be done on Mars (38% of Earth's gravity). Finally, anyone would find the six month-long confinement in a craft going to Mars pretty inconvenient. For the Moon, the trip is only for three days. And more passengers on a shorter trip means a cheaper ticket.