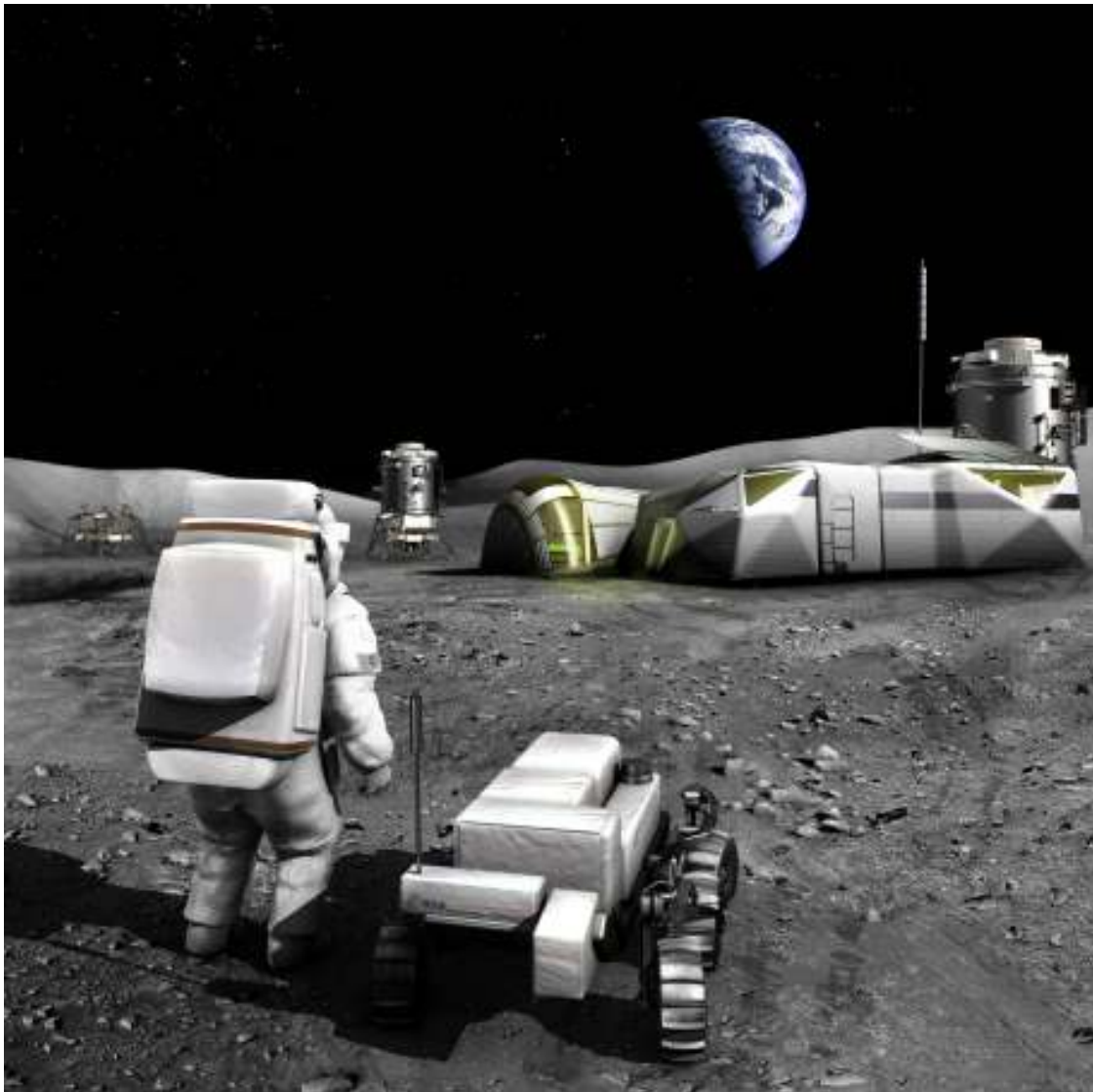


## Luna



**Figure 1: Early survey outpost (ESA, AOES)**

When the 21<sup>st</sup> century started 12 people had walked on the moon. When it ended more than 150 million people were calling it home.

The Lunar territories get power from a number of orbiting solar arrays, beaming it down to rectenna fields on the surface. There is always at least two over the horizon. In addition, there are some extensive collector fields on the surface that provide auxiliary power for the two week periods when the sun is up. For emergency power there are a number of nuclear reactors and distributed battery farms.

On Luna transport between colonies is usually by suborbital shuttle. Within colonies maglev transport is most common for longer trips (such as between different "cities") and light rail within the neighborhood.

Luna is a major importer of nitrogen, water, carbon compounds and other volatiles from the outer system. Enormous processing caverns outside the main habitats convert them to chemicals suitable for introduction into the biosphere.



**Figure 2: Mike mak, Moon Ladder.**

## ***The Japanese Lunar Territories***



Japan has extensive holdings on Luna. Much is underground inside excavated tunnels and chambers. The underground complex is often called “the rabbit warren” after the Japanese myth that the moon is inhabited by a jade rabbit. Lunar Japanese sometimes call themselves “Guests of Chang’e” or tennin, in reference to their mythological forebears.

## **Kaguya**



The main lunar settlement, located under the south part of Mare Vaporum. From the surface Earth is almost exactly overhead. The crater Hyginus D is used as the main spaceport and entrance to the underground settlement.

Kaguya consists of hundreds of underground domes, each an outdoor environment surrounded by living space. The living space is in turn surrounded by life support, industry and storage. Each dome can be sealed off in case of outbreak, accidents or other threats. They are often semi-self-sufficient in terms of resources, again as a precaution. The domes are linked by a high-speed subway and emergency access tunnels. The older domes were small and cramped, but newer domes are enormous and house plausible environments. Some are parks or “wilderness”, a few are entirely urban and some specialized (e.g. for industry, entertainment or equipment testing).

Across the territories the climate is synchronized. Although “southern” and “northern” domes have different climate and different domes may have different weather, there is an overall seasonality intended to maintain proper Japanese seasons. This affects food, holidays and many other aspects of society, keeping it together (and, as returnists love to point out, prepares the luna-born for the eventual return to Earth).



### **Tsuki-no-Miyako**

Literally “the capital of the Moon” (from “the tale of the bamboo cutter”, where Kaguya is the main character). A huge underground environment used as a park and seat of higher government functions. In a series of caves various national treasures and shrines have been relocated, including the fabled but never seen Imperial Cave where the imperial court lives.

**Ume, Azami, Ran, Jindai, Kiku, Ajisai, Ayame, Yuri, Momo, Fuyo, Himawari**

Secondary settlements linked to Kaguya.

### **Shinsei**

“Nova city” is built near the big energy farms in Mare Vaporum. One section, “Mount Eboshi” is built under a diamond dome on top of a sizeable hill. This allows a spectacular view of the energy farms stretching to the horizon, with the Earth overhead. Mount Eboshi is a popular vacation spot.

### **Houyi**

The main launch installation near Hyginus D, named after the archer husband of Chang’e. Also known as “engineer’s town”, because of its technical university, aerospace cluster of companies and massive chemical industries.

### **Hagoromo 1-6**

The “feather mantles”, a series of habitats receiving and processing raw materials for the biosphere construction. The Hagoromo Consortium is the most powerful civil engineering organization on Luna, with sizeable investments in orbit and on Earth.

### **Kibo**

The first settlement, near the rim of the Shackleton crater on the lunar South Pole. These days a backwater, mostly used as a refuelling stop for shuttles or a base for maintenance activities in the south hemisphere.



**Figure 3: Azami hydrosphere processing plant during testing (G-Cans)**



## Society

The enormous push to bring Japan to space and to build the amazing lunar territories has not been without costs. The great lift disrupted society on a fundamental level, and would probably not have been possible for any other nation.

The whole project has turned the society into a “doken kokka”, a construction economy. The government, the financial institutions and the construction companies have formed an iron triangle dominating all aspects of the economy. There is an endless push for more, better and safer space: the politicians decide, the finance world pays for it (using investments from the people, such as pension funds), the companies build it – and provide a nice safety net for bureaucrats after retirement. The whole system is very similar to how Japan was run before the internationalist revolution, but now ten times as strong. While there are no shortage of critics their views are largely unheard – the popular view is that more space is good no matter what. Orbital investors are concerned that the economy is eroding and that corruption is spreading.

During and after the great move the strongly nationalist government strongly encouraged the preservation and furthering of national culture to keep society together. Communities were given significant weight allowances to bring with them local shrines and subsidies to reconstruct them on Luna. The national treasures that could be moved were gently moved, and emplaced in their new refuge under great traditionalist celebrations. The shrines left on earth were either protected by nanotech mothballing and priestly blessings, or are still tended by the cadre of remaining priests. The living national treasures were not just brought over to Luna but their crafts were strongly encouraged. There has been a resurgence in woodblock printing, papercraft,

swordsmithing, pottery (using both imported Earth clay and the new space clays), kabuki, puppet theatre and shakuhachi. Regular festivals around the shrines are encouraged to bring together people, build community spirit and keep the true Japan alive.

Psychologists point to mortality salience theory: when people are reminded of their mortality or threats, they tend to become more conservative. They cleave to the tried and tested, avoiding the too unfamiliar. The result has been not just a resurgence of political conservatism but even hints of neofeudalism. Although there is absolutely no constitutional support for it, certain families, corporations and institutions have formed an “emergent aristocracy” that act not just like an upper class but seem to develop behavior and styles mirroring traditional nobility – with silent but firm public support. Democrats are deeply worried by the tendency.



Lunar society is highly regimented and collectivistic. There is a strong sense of “us vs. the universe” – while outsiders are not necessarily enemies, they are not part of the national struggle for security. Luna is a sufficiently harsh place to challenge even an advanced society like Japan, and it is only over the last 25 years the lunar territories have become truly pleasant to live in. This has also fostered a strong sense of progress, something unusual in the post-Spamocalypse era. Political and cultural appeals to Yamato-damashii, the “Japanese spirit”, are common. This is often subtly contrasted with the tradition-less, incoherent and muddled “culture” of the internationalists. There is a sense of (or at least public image) of certainty and decisiveness linked to modern Japan, keeping dissent and caution out of public political discussion.

Politics is dominated by the nationalist, mildly conservative Liberal Democratic Party, often ruling in alliance with Komeito (centrist, religious) and the New Nippon Party (strongly

nationalist, urges a return to Earth). The opposition consists mainly of the Democratic Party (social democrats) and the Open Sea Alliance (pro-enhancement internationalist liberals).



**Figure 4: Dandella GPS locator.**

A notable subset of the Japanese are hikikomori, recluses who rarely if ever leave their homes. The original phenomenon consisted in withdrawing from social life due to extreme social expectations, fear of failure and an unwillingness to grow up and conform to a social role. Over time this state has changed, and most of the current hikikomori are rather living their lives in virtuality. They may socialize online (sometimes with a number of persona-software masks as protection or even using AI-support, but often completely normally) or prefer a completely solipsist lifestyle. Some are rather normal people cocooning to an extreme degree, others virtual reality or telepresence addicts. There have been various official programs to "solve" the problem and resocialize people, but cynical observers think having the nonconformists playing games helps ensure social stability. The "Amaeru debate" has been ongoing for the last decade, where different groups are debating what should be done (if anything) to prevent the Japanese from becoming spoiled and dependent, or whether there exists a techno-social solution that might actually bring the "hikikomori generation" into a full symbiosis with a truly Japanese super-welfare state.

## **Lifestyle**

The low gravity makes walking tricky. Many have adopted a dignified, slow pace or aim for geisha-like gliding. Many youngsters have learned to zigzag jump between floors and walls, a behavior their elders frown on (not just out of dignity: the number of fractures and dislocations due to mis-jumps is high. As the joke goes, no Japanese boy can grow up without at least one or



two hospital stays). In school there are walking lessons, teaching the “correct” namba walking style.

“Gravity trains” and “gravity wheels” are a way of getting 1 G (or higher) environments. A train or centrifuge runs through a circular tunnel at sufficient speed to provide pseudogravity. Access is through strangely tilted stairs or escalators along hallways from the axis. These environments are used both for acclimatization, exercise (very popular), sports (lunar gravity sumo is just pointless), expensive living space and even more expensive “retreats” where small parks surround traditional onsen. The sizeable angular momentum is also used as a flywheel construction for electricity grid regularization and emergency energy storage. Most gravity environments are fairly small, but Kaguya sports several recently built systems that rival space habitats in size.

Bonsai gardening has been very popular, especially during the times when greenery was at a premium. Today many proudly continue the practice, using biotechnology and microtechnology to not just create bonsai but entire mini-worlds. Others have turned to the new possibilities of “real” gardening with relish, and several bio-caverns are busy allotments.

Imported earth soil from the Home Islands is highly valued and a real status symbol in one’s garden. It is expensive enough that adulteration is a problem, and the authorities are worried about the risk of biological contamination. Most people make do with small bubble mementos enclosing parts of Earth life – a beautiful fall leaf, a pebble, a beetle encased in diamondoid.

## **Technology**

Lunar Japan is not pro-enhancement. While germline modifications and some forms of gene therapy are allowed, they are seen as kludges and unnatural. Neural implants are more accepted, but still relatively rare – as are syntronics. Enhancement is seen as internationalist, subtly incompatible with being truly Japanese and fitting in. Instead external technologies like wearables, AI and smart environments are popular to extend people’s potential.

To the Japanese, the line between AI and kamis is blurred. An AI is just a human-made spirit, worth as much (or as little) respect as any other spirit. Japan is clearly the leading nation in creating human-like AI, and gives full citizenship to sufficiently sane and humanoid AIs. Cyberanimism is alive and thriving, and there is even a smallish sect arguing that humans have a moral duty to give all of nature a spirit by imbuing it with nanotechnological minds.

## **Beisutsukai monasteries**

*Probability theory is a secret of the universe.*

A development of the 2070’s, beisutsukai literally means “Bayes-user”. It is often translated into English as “Bayescrafter”. Beisutsukai is a movement seeking greater rationality and truthfulness, focusing on a practical understanding of probability, cognitive bias, psychology, philosophy and economics. It began as a movement among academics fed up with the rising irrationality of society and the disaster of the Spamocalypse but soon turned into something not unlike a spiritual movement.

At the monasteries workshops are held, teaching Bayesian mathematics and philosophy in combination with various meditation, yogic exercises and software rituals. The movement has many similarities with Zen Buddhism: a minimalist aesthetics, seeking to avoid distractions, a fondness for logical puzzles and riddles and the aim of clear thinking. Whether they both aim at the same goal has long been a matter of contention; the beisutsukai and Buddhists agree that they are compatible, but often disagree over whether rationality is enough.

Beisutsukai has become popular across human space, although most monasteries are on Luna. Elsewhere people participate using virtual monasteries and online courses, trying to overcome their human irrationality and become truly clear-thinking. Orbital beisutsukai are often interested in using rationality enhancements of various kinds.

## **The ichthyologist union**

There are a number of ocean domes, maintaining more or less realistic sea environments. To an island nation used to fresh seafood they are very important culturally and practically. The lunar oceanographers have an association, semi-jokingly called the Ichthyologist Union, which represents their views on the shared aquatic resources, ecosystems and how they ought to be handled. The Union has a sizeable clout, and generally favors massive expansion of the sea domes.



## ***The Australian Territories***



The other major presence on Luna is Australia. Partially because a similar evacuation as Japan's was considered, partially as an industrial project of Davson Devtek sponsored by the giant Cardinal Investments Group. Davson Devtek in turn was linked to various aerospace companies who wanted to ensure access to matter for space construction independently of NEO-gathering, and the Kilotronics consortium that wanted to build lunar solar farms. The whole effort soon became almost completely corporate and industrial, with only a token number of migrants.

Botany Bay Base, B<sup>3</sup>, is the "capital" of the lunar territories. Far smaller than the Japanese efforts it is still a sizeable environment with 200,000 inhabitants. It is located near the edge of the Hevelius crater, with good access to both upland volcanic material and the Oceanus Procellarum. Australia also maintains an outpost near Shackleton (Mawson Base) and another one near the north pole (Wilkins Base) as shuttle refueling stops. There is a research station at Copernicus, Wall-Udell Base, which is shared with Japanese researchers.

People in the "Upback" are mostly involved in engineering and maintaining the diverse infrastructure on and around the Moon. B<sup>3</sup> has a slightly more diverse composition, with a notable contingent of ex-orbital internationalists who want to "get away from it all" by living in the simpler lunar world.

A popular indoor sport is boomerang; the low gravity allows special "moon throwing" tricks and long distance throwing (in the vacuum on the surface boomerangs, being airfoils, do not work). The annual Lunar Boomerang Championships is one of the most popular events in B<sup>3</sup>.

## ***The Lunar Parks***

The areas around the old landing sites and unmanned probes were all designated heritage of humanity sites and visits restricted. Over time this view has shifted, and today only Tranquility base (Apollo 11) remains totally untouched. The others are in principle "open air museums", where visits are allowed.