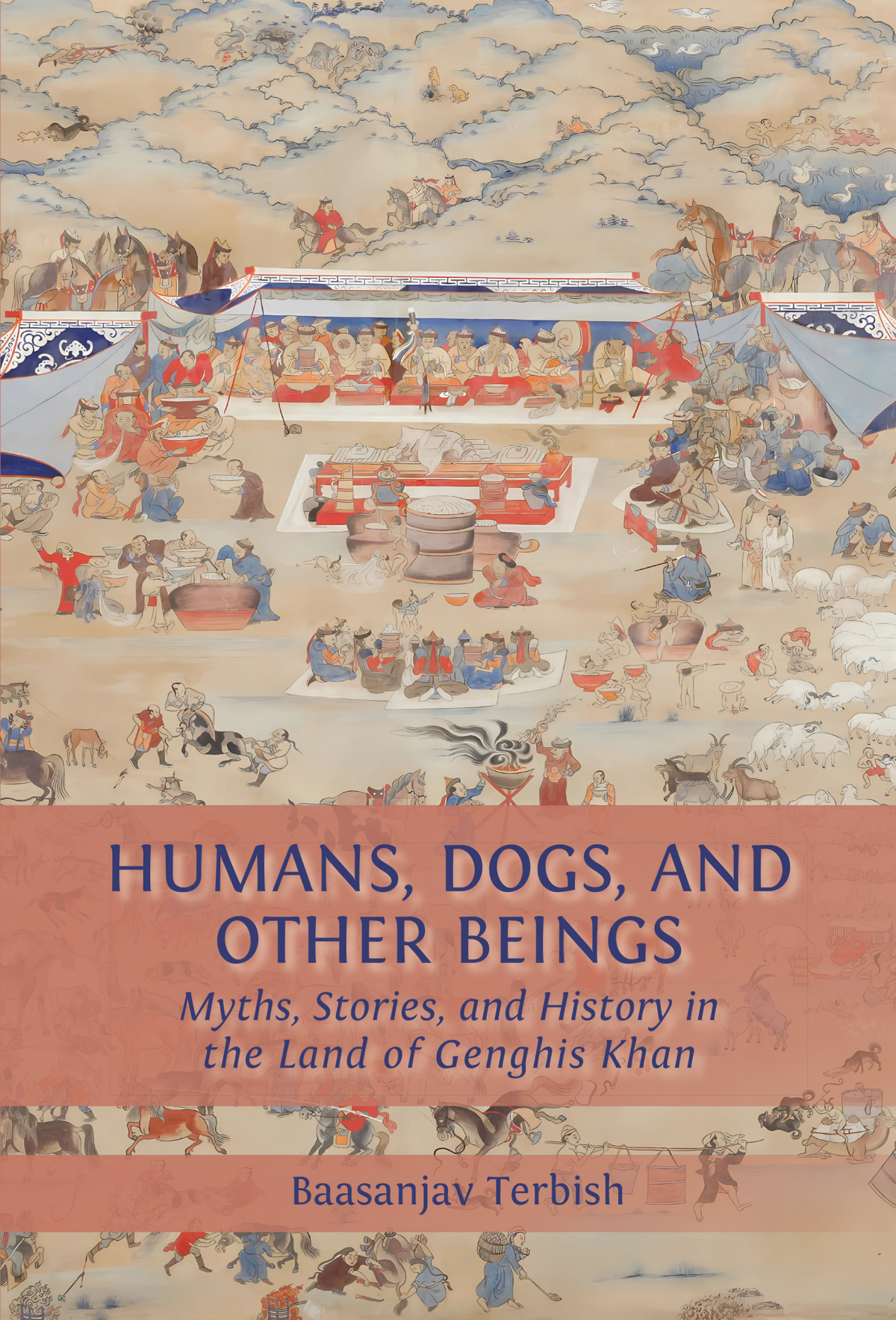

HUMANS, DOGS, AND OTHER BEINGS

Myths, Stories, and History in the Land of Genghis Khan

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3. The Marmot

In the summer of 1347, a devastating and unprecedented deadly disease broke out in the port city of Constantinople, the vibrant heartbeat of the Byzantine Empire. The Grim Reaper spared no one, claiming the souls of both the humble and the influential, including the teenage son of Emperor John VI Kantakouzenos, considered God's chosen ruler and his viceroy on Earth. This calamity cast a dark shadow over the once-thriving city, claiming countless lives in its wake and instilling widespread panic that paralyzed the metropolis.

In fact, the plague struck two other major Byzantine cities, Pera and Trebizond, simultaneously. Not only that, other European port cities such as Venice, Genoa, Mallorca, Marseille, Sicily, and Cyprus were also affected by the plague, which ravaged through the continent, wiping out entire communities in its path. Between 1347 and 1351, approximately 25 million lives were lost in Europe alone, later earning the epidemic the grim moniker, the Black Death. Globally, the plague's toll is estimated to have ranged from 75 to 200 million lives. To put this into perspective, this represented about a quarter to more than half of the total world population at that time. In today's world, this figure would be equivalent to approximately 1.7 billion to 4.4 billion people. The Black Death's impact was so profound that it reshaped the economic, political, religious, and demographic landscapes of the affected societies, triggering significant environmental changes. The staggering death toll led to the abandonment of settlements and untended fields, allowing forests and wilderness to reclaim these once-cultivated lands sustaining thriving communities.

While contemporaries in Europe attributed the plague to celestial alignments, divine wrath, or scapegoated groups like Jews, modern epidemiological research identifies the true culprit: *Yersinia pestis*, a

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bacterium responsible for the plague. This zoonotic disease spreads to humans primarily through the bite of an infected flea, direct contact with an infected animal, or, in its pneumonic form, via respiratory droplets from an infected individual. Although both zoonotic, plague differs fundamentally from COVID-19, as it is caused by a bacterium rather than a virus. Recent research suggests that *Yersinia pestis* may have arrived in Constantinople and other port cities on grain shipment boats from the Black Sea region after the Golden Horde Mongols lifted their siege on the port city of Caffa in Crimea in 1347. During the siege of Caffa, Mongol soldiers were reportedly afflicted by the disease, suggesting that the plague was rampant in this crucial trade node, through which shipments of grain arrived in Southern Europe. After the Mongol siege ended, it is believed that fleas infected with *Yersinia pestis*—latching onto black rats and possibly the bodies of sailors—hitchhiked their way to European destinations aboard merchant grain ships, bringing the plague to the continent.[1]

Strikingly, the role of marmots, cute-looking creatures carrying deadly fleas, in this tragic story remained little noticed until recently. Despite being hunted by Mongols and their ancestors for centuries, if not millennia, marmots historically served as one of the primary carriers of the plague across Inner Asia. There are several possible scenarios for what might have happened in Caffa under the Mongol siege. It is highly plausible that the two-year siege of the port city actually delayed the arrival of the plague on European soil via grain shipment boats until the siege was lifted.[2] During the siege, it is possible that Mongol cavalrymen became infected with the plague from local sources. Another possibility is that the Mongols, already infected by sick marmots, either introduced or supplemented the existing plague in Caffa. In any case, when the Mongols lifted the siege, Caffa is believed to have opened the floodgates for the devastating pandemic that ensued once the merchant boats, loaded with grain, arrived at their intended destinations across Europe.[3]

Following the structure which we have adopted throughout this book, this chapter examines the human-marmot relationship in two

1 Benedictow, *The Black Death, 1346-1353.*
2 Barker, 'Laying the corpses to rest'.
3 Benedictow, *The Black Death, 1346-1353*.

conceptually parallel yet closely interlinked contexts: cosmology and historical reality. Divided into four parts, the chapter explores various facets of this relationship, where the marmot figures both as a cosmological being embedded in cultural imaginations and as a biological species intertwined with the history of Mongol society. Part I explores the marmot's place within cosmology and its use in traditional medicine. Part II delves into the plague in Mongolia's history and its treatment by modern medicine. Part III explores both scientific and pseudoscientific perspectives on the plague and the marmot throughout Mongolia's socialist and post-socialist eras. The Conclusion wraps up the chapter and provides reflections on potential future scenarios concerning the plague.

Part I

The Marmot in Cosmology and Traditional Medicine

Once upon a time, when the earth was scorched by seven suns and life was parched by a devastating drought, there lived an archer named Erhii Mergen, meaning 'Erhii the Skillful'. He took upon himself the daunting task of remedying this dire situation. Erhii vowed that unless he brought down the suns, he would sacrifice his very humanity by cutting off his thumbs and turning into a rodent. With dogged determination, he relentlessly pursued the suns, skillfully shooting them down one by one from the heavens. However, when aiming at the seventh and final sun, he missed, resulting in his transformation into a marmot, destined to dwell underground in darkness.

This popular Mongol legend, which has several versions, narrates the origin of the marmot and explains certain characteristics of this rodent.[4] The marmot has some body parts referred to as *hün mah*, or 'human meat', reflecting its human origin. It possesses four claws, a consequence of Erhii the Skillful's sacrifice in severing his own thumbs. In the Mongolian language, the human thumb is also called *erhii huruu*, or 'Erhii finger', in homage to Erhii.

4 Potanin, *Ocherki Severo-Zapadnoi Mongolii*, 179-80.

The Marmot in Cosmology

In contemporary times, although the explanation of the marmot's human origin has been dismissed as a myth, many Mongols continue to take *bolson yavdal* stories seriously. In these stories, the marmot, imbued with the enigmatic essence of potent 'human meat', assumes various cosmological forms. To understand the marmot's diverse cosmological forms, the concept of a chimera proves insightful. Derived from the Greek term, 'chimera' denotes an entity formed from disparate elements. Anthropologist Carlo Severi employs this term to describe religious images and artefacts, defining chimera as 'an amalgamation, within a single image, of the varied features of multiple beings'.[5] Unlike the monstrous chimeras in Greek mythology or the composite creatures found in medieval European bestiaries, the Mongol marmot aligns more with Severi's concept. It can be seen as a combination of various beings, with diverse features in a single image.

Multiple forms or aspects of the marmot are revealed through *bolson yavdal* stories in which the marmot figures: as an actual living marmot, as a Marmot Lord (*Noyon Tarvaga*), as a 'horse marmot' (*morin tarvaga*), and as a nonhuman spirit being (*lusyn am'tan*). These multiple aspects of what Mongols perceive when they think of the marmot do not organically turn into one another (in other words: shape-shift), nor do they directly communicate with each other in a cosmological sense. The image of the marmot embodies fantastical, as well as physical aspects of this animal. To perceive its different aspects or forms, one needs to deconstruct the chimera-marmot with the help of *bolson yavdal* stories that portray the marmot as a representative of multiple supernatural forms. In 'ordinary' locations marmots are generally not expected to appear in diverse supernatural forms. However, in certain sacred places marmots are believed to emerge in various forms and are protected by local supernatural entities, making them dangerous to hunt. Hence, nomads not only avoid hunting in such perilous places but also refrain from harming any marmot that behaves or appears uncharacteristically, such as albino marmots, even in 'ordinary' locations.

5 Severi, *The Chimera Principle*, 67.

An illustrative *bolson yavdal* from the socialist era, set in a location teeming with marmots, recounts the story of a man who purportedly killed a Marmot Lord (*Noyon Tarvaga*, a deity revered as the guardian of marmot colonies). Such 'Lord' or 'Master of the Animal' figures are common in hunting societies worldwide, often manifesting as giant representatives of specific animal species, as exemplified by *Noyon Tarvaga* in the Mongolian context. According to the story, on a scorching summer day, when idleness pervaded his home, a man ventured out to hunt marmots. Having killed several marmots and tasted blood in his mouth, the man couldn't believe his luck and decided to continue killing as many animals as he could. Happy as a dog with two tails, he shot dead one marmot after another, unable to stop, all the while wondering whether he could take down the local Marmot Lord. Finally, he spotted an uncharacteristically huge marmot poking its head just out of a burrow and sent a bullet right through its forehead. Triumphant with a howling success, the man returned home, only to witness his children falling gravely ill, one after another. Panic-stricken, he sought help from a neighbor, a seer. Following the seer's counsel, the man meticulously prepared a marmot carcass, filled it with specified materials, and conducted a magical ritual at the very spot where he had slain the Marmot Lord. It was only after this ritual that his children recovered.

Across Mongolia, a rich array of *bolson yavdal* stories can be heard, recounting how Mongols faced supernatural consequences—such as illnesses and even death—for harming unusual marmots and those protected by the supernatural, which do not exist in nature but live on in people's fertile imaginations and the stories they share.

In another related story said to have happened in the socialist era, a man, who had abstained from meat for a considerable time, developed an intense craving for marmot meat—a desire termed *mahsah* in Mongolian, derived from *mah*, or 'meat'. Despite warnings from friends against hunting near a certain sacred mountain, the man dismissed the prohibition as mere superstition. With the anticipation of a delicious meal, he aimed his rifle at what he perceived as a living barbecue (*horhog*) on four legs. However, every time he prepared to shoot, his vision blurred, revealing a colossal, hazy black hand shielding the marmot. Undeterred, he persisted in chasing marmots, but the mysterious vision also persisted, prompting his retreat in fear.

That night, he had nightmares. Seeking counsel, he approached a local elder, who was a monk in his youth. After hearing the man's account, the elder imparted wisdom: 'You are fortunate not to have harmed any marmots, for what you witnessed was the spiritual guardian of the sacred mountain safeguarding its creatures. But now, having angered the deity, it will pursue you and your family. Before it's too late, relocate your family where the deity's influence cannot harm you'. Troubled and alarmed, the man heeded the elder's advice, moving to a new place where his nightmares ceased, and life regained its equilibrium. I learned of this *bolson yavdal* story from my mother, who had heard it from her father, originally from Western Mongolia.

However, not all marmots are dangerous to hunt. A particular type of marmot that appears to be potentially spiritually beneficial for hunters is known as the 'horse marmot' (*morin tarvaga*), often found in 'normal' places. These are indeed larger than average marmots. When their skins are removed, they reveal yellow fat instead of the white fat found in regular-sized marmots. Hunters who have killed these 'horse marmots' often interpret it as an auspicious sign, heralding good fortune and abundance, and indeed, many *bolson yavdal* stories are about nomads who have benefitted from these marmots.

That said, not all Mongols approve of hunting marmots. Elders, in particular, warn against disturbing marmot colonies, not only due to the risk of disease but also because they believe these creatures hold ancient knowledge of the land and are deeply connected to its spiritual energy. Any unnecessary disturbance of marmots, especially excessive hunting, is thought to disrupt this natural balance, potentially provoking nature's wrath. Some even believe that such disruptions may awaken dormant forces, leading to the spread of plague or other misfortunes that affect both the environment and human life.

My father was one of them. He never ate marmot meat himself and often rebuked his younger kinsmen for going marmot hunting. Following the collapse of state socialism, which coincided with droughts, harsh winters, and the spread of various zoonotic diseases, he attributed these hardships primarily to the fact that people had begun hunting marmots excessively, disturbing the delicate balance of nature.

Many Mongols also hold a belief in the existence of 'marmot persons' (*tarvagan hün*), a term that carries a couple of meanings. Firstly, it refers to diminutive individuals with conditions like dwarfism, and secondly,

it denotes mythical 'tiny' people believed to be the same size as actual marmots. In *bolson yavdal* stories, mythical 'marmot persons' dwell underground in spiritually significant locations.[6] They are believed to ride miniature horses, don Mongol traditional attire, and safeguard ancient treasures, much like leprechaun fairies in Irish folklore. Although tales of these beings have always captivated herding communities, a significant incident in the early 1990s marked a turning point.

It was an ordinary day in post-socialist Ulaanbaatar, much like any other. Bureaucrats crammed into state offices, shuffling stacks of paper, factories hummed along in their daily grind, national shops opened with empty shelves, and prostitutes lined up in the central Lenin Park. What began as an unremarkable day quickly took an unexpected turn. A truck driver on the outskirts of the city claimed to have seen a 'marmot person', dressed in a traditional robe and hat, carrying a small knife, running across the road before diving into a burrow. By midday, the story had become national news, spreading like wildfire and turning the sighting location into a go-to spot for curious crowds and TV crews. Bureaucrats left their offices, workers deserted their factories, and students skipped school, all drawn by the allure of witnessing this bewildering event. I vividly recall this episode from my high school days, when our teacher sternly warned us against truancy. Despite the admonition, some classmates couldn't resist the temptation, driven by the desire to witness a national news story unfold. My younger sister, two years my junior, watched her classmates hatch a plan to lure the elusive 'marmot person' out of the burrows and bring him to their class for a closer medical examination. Needless to say, no one ever saw the marmot person again, as if the earth had quietly inhaled and taken him with it, leaving only a whisper that spread from mouth to mouth.

Traditional Knowledge of the Plague

Let's explore how Mongols understood the plague and the benefits of marmot meat—a knowledge rooted in cosmological thinking and religious dogma.

As nomads, whose livelihood and survival depend on animals, Mongols possess an intimate knowledge of their herd animals, including

6 In some regions of Mongolia, these beings are not referred to as 'marmot persons' but as 'tiny people' (*jijig hün*).

their anatomy. They must deal not only with injuries and diseases that affect their livestock but also with those that can be transmitted to humans, including foot-and-mouth, brucellosis, anthrax, rabies, and others. True to their self-designated name meaning 'wise hominin', *Homo sapiens*, as exemplified by Mongol nomads, often demonstrate wisdom when diagnosing and treating illnesses in the animals they rely for sustenance and care, necessitating practical knowledge, reasoning, and effective solutions.

However, historically, when it comes to diagnosing human diseases, people lacked proper understanding until the advent of modern medicine. This problem with traditional medicine arises from at least two factors. Firstly, unlike animals, humans can articulate their symptoms and provide detailed information about their ailments. Therefore, diagnosing human diseases requires a deeper understanding of human anatomy, psychology, and complex needs. Secondly, human diseases are often social constructs: their classification and treatment are influenced by religious, social, and other factors unique to different societies. In the past, our ancestors relied on limited medical knowledge, different conceptions of 'health' and 'well-being', superstitions, and beliefs rooted in mythology when treating illnesses. As a result, traditional methods of healing often fell short in accurately diagnosing and treating a myriad of human ailments.

To understand how Mongols might have perceived and treated the plague, it is useful to first examine the fundamentals of traditional Mongol medicine, which is primarily derived from the Tibetan medical tradition, supplemented by local folk practices. Traditional Mongol medicine incorporates symbolic elements and concepts that do not align with modern scientific understanding. Reflecting the Buddhist philosophy that views the universe and all living beings as intimately interconnected, this system adopts a holistic approach, seeing human health as intricately linked to cosmic elements and energies.

These include the five elements—Earth, Water, Fire, Air, and Space—as well as the three energies, Tripa, Lung, and Pekan. Illness is traditionally understood as a result of imbalances among these elements and energies, and the goal of treatment is to restore harmony within the body by addressing these symbolic factors.

Reflecting an understanding of health within its cultural and religious framework, this system lacks the microbiological knowledge central

to modern medicine. For instance, it is unaware of microorganisms, which comprise 99.99 percent of all the organisms on the planet and play critical roles in causing diseases and maintaining bodily functions, such as digestion. Additionally, its reliance on symbolic generalizations, universal associations, and magical rituals can limit its efficacy in treating certain illnesses.

For instance, if a patient is diagnosed with a disease understood to be caused by 'the lack of Water', the medical practitioner might try to restore balance by increasing Water levels through specific substances and healing techniques believed to enhance the patient's 'fluidity'. It is worth noting that, similar to diseases being attributed certain elemental qualities (Fire, Water, etc.), the classification of 'medicinal' substances, herbs, and meats is also based on symbolism. This way of cosmological thinking underscores the potential pitfalls within the system, as 'medicinal' substances may be categorized not solely based on their physiological effects but often influenced by mythical stories and religious doctrines.

To illustrate this point, let's take a brief detour to examine a specific case from the late nineteenth and early twentieth centuries, when Mongolia faced a widespread syphilis epidemic that affected all social classes and genders. The sole available treatment to restore the balance of energies in the patient's body and rid it of syphilis was offered by monks specialized in Tibetan medicine. This disease, characterized by skin lesions and damage to soft tissues, was seen as an ailment linked to cosmic imbalances in both Tripa (associated with the Fire element) and Pekan (associated with Water and Earth) energies, rather than being attributed to a tiny bacterium called *Treponema pallidum*.

Based on this symbolic diagnosis, monastic treatments for syphilis involved the ritualized burning of incense (representing the Fire element), washing patients with holy water (representing the Water element), and reciting health-bringing prayers. In the initial stages, monks often administered high doses of mercury (associated with the Earth element), a practice resulting in patients losing teeth and hair, enduring severe and prolonged diarrhea, developing mental illness, and experiencing an overall deterioration of health, yet offering limited effectiveness. In the later stages of syphilis, which was inevitable given the nature of the initial treatment, when patients developed soft tissue damage in the face and brain, causing bone lesions, and felt basically

ready to be airlifted to the next life, the advanced monastic treatment was enhanced with poplar (associated with the Air element) and the root of sarsaparilla (associated with the Fire element) to turbocharge the process.

Among these 'medicinal' substances, mercury—associated with the mystical power of Buddhist Tantra and believed to balance the three fundamental energies (Tripa, Lung, and Pekan) —was the most dangerous. Treating syphilis with high doses of mercury, an extremely toxic element, merely superficially burned away syphilitic lesions, while seriously poisoning the patient's body. Guiding the treatment process with theories about balancing these three energies was as insightful as explaining the disease with the nursery rhyme 'Three Blind Mice', ultimately leading the treatment down a blind alley. Consequently, when Mongolia's living god, Javzandamba Hutugtu VIII, contracted syphilis, the monastic doctors were unable to treat him. If any mortal at his audience had dared to look at his blessed face, they would have noticed that the living god's blank stare into the air was not meditation, but a sign that he had lost his eyesight, thanks to progressive syphilis. Even the erection of a towering eighty-four feet statue of Avalokitesvara, a bodhisattva embodying the compassion of all Buddhas, in the brand-new temple of Megzed Janraiseg ('Eye-Opening bodhisattva') built in 1913 in Urga, proved futile in halting the deteriorating eyesight of the promiscuous monarch. In this case, all the combined powers of the Buddhas and bodhisattvas, the mystical forces of Tantra, mercury, and the medicinal knowledge diligently passed down from infallible elders through generations proved to be of little help in treating the divine Javzandamba Hutugtu.

However, it does not do justice to Buddhist medicine to accuse it alone of utilizing symbolism. In medieval Europe, for example, medical practices were influenced by misogynistic and patriarchal values intertwined with phallic symbolism, particularly in their approach to women's health. The pharmacopoeia of that time was notably infused with phallic-looking ingredients such as cucumbers, horns, and various gourd varieties. These items were routinely prescribed for women's gynecological ailments, grounded in the belief that a sick woman simply required a remedy reminiscent of an erect penis. Thus, prescribing a suggestively shaped vegetable was thought to suffice in addressing

women's health concerns.[7] Given the state of medicinal knowledge at that time, patients often faced a higher risk of dying when treated by doctors than if they were left alone to allow the body's natural healing processes to take over.

It would not be inaccurate to assert that 'traditional medicine is to modern medicine as astrology is to astronomy'. This analogy implies that traditional medicine, like astrology, often relies on symbols, gods, the alignment of stars, tradition, and magic without necessarily adhering to the rigorous scientific methods employed by modern medicine or astronomy, which include systematic observation, measurement, experimental verification, and the formulation, testing, and continuous modification of hypotheses based on new empirical evidence. That said, I wish to make one important point without sounding overly critical of traditional medicine or too eager to embrace all the claims of modern science. While traditional medicine in Mongolia, particularly the Tibetan-inspired approach, has not always lived up to its self-promoted image of infallibility and has room for improvement, its holistic view of health—emphasizing the interconnectedness of body, mind, and spirit—and certain herbal remedies have demonstrated effectiveness and are increasingly being integrated into biomedical practices. Conversely, as modern medicine advances, it has at times faltered with misdiagnoses, overprescription, and unforeseen side effects, revealing the complexity of human biology and highlighting our ongoing gaps in understanding. However, as it continually improves through meticulous research, self-correction, and collaboration, scientifically-grounded medicine is poised to gain even deeper knowledge of human biology and psychology, developing increasingly personalized and efficient treatments—something that cannot be said for non-biomedical, indigenous medicine.

If we are to return to the topic of the treatment of the plague, although we do not have precise knowledge of how the Mongols historically understood the cause of the plague, we have no reason to doubt that they perceived it similarly to other diseases. They likely interpreted it through a religious lens, where illnesses were often attributed to disrupted energy balance, displeased gods, or jealous spirits. However,

7 Gilbert, *The Very Secret Lives of Medieval Women.*

a poor understanding of the cause of a disease does not always lead to equally ineffective methods of containment. Containment measures, such as fleeing to the steppe for their lives or quarantining after infection, may not save the afflicted individuals but can minimize the disease's spread, constituting a positive outcome when viewed from a societal perspective. As early as the thirteenth century, Mongols were recorded to have isolated themselves from outsiders during disease outbreaks. The reason for this behavior was a belief that an evil spirit or some harmful wind might accompany strangers or outsiders.[8]

The first Mongol documented to have acknowledged the connection between the plague and the marmot is the Tu (Mongour) monk and polymath Sum-pa mKhan-po Ishi-Baljur (1704-87), who referred to the plague as 'marmot poison' (*tarvagany hor*).[9] While this monk might not have had knowledge of the spread and epidemiology of *Yersinia pestis*, he correctly recognized that contact with sick marmots made people gravely ill or 'poisoned', which fits with Mongol Buddhist medical tradition that categorizes plague and rabies as diseases related to a poisoning of the body (*dug nad*) that requires the restoration of the balance of energies. Hence, the Mongol name for the plague, presumably coined no later than the eighteenth century, is 'disease of marmots' (*tarvagany* övchin) or 'marmot plague' (*tarvagany tahal*).

Having some knowledge about the association of certain diseases with animals does not imply the ability to cure them, especially within the context of magical medicine. There is no evidence to suggest that Mongols were able to cure marmot plague victims, and local doctors were reportedly ineffective against serious zoonotic diseases, just as they were against venereal diseases that are now curable with antibiotics.

One ritual that has been traditionally performed by Mongols and continues to this day in the treatment of serious diseases is called *seterleh*, which may offer some clues about how the plague was treated before the introduction of modern medicine. This ritual involves the consecration of a dog or livestock from the patient's family herd by a Buddhist monk. In exchange for the life of the afflicted person, the consecrated animal is spared from future slaughter and dedicated to the gods. These consecrated animals, believed to be under the protection

8 Rubruck, *William of Rubruck's Account of the Mongols*.
9 Atwood, *Encyclopedia of Mongolia and the Mongol Empire*, 345; Norov, 'Mongolian Buddhist scholars work on infectious diseases', 5.

of supernatural powers, roam freely, are treated well by humans, and are expected to die a natural death. Some medicinal rituals also involve actual animal sacrifices to the gods, but dogs were spared due to the ban on their sacrificial slaughter (see Chapter 2). However, attempting to cure serious illness by bribing gods with a dog or offering a scapegoat is as effective as asking Santa Claus for presents or praying to a tooth fairy for wealth and health.

A commonly known method of preventing the plague involved letting sick marmots cure themselves. A nomad would place saksaul (*Haloxylon ammodendron*) as an offering at the entrance of a marmot burrow. However, the healing power of this desert-steppe plant is rooted in religious myth rather than pharmaceutical qualities. According to legend, a swallow once discovered an elixir that could cure sick marmots. While flying with the elixir in its beak, a bumblebee stung the swallow, causing the elixir to drop onto a saksaul bush. This event miraculously imbued all saksaul plants with healing powers, as it often occurs in religious myths. Consequently, there is a widespread belief that during a plague outbreak, a knowledgeable marmot would bite off some saksaul and bring the plant to its burrow. However, attempting to suppress the plague within the marmot population using this method, with the hope of preventing its transmission to humans, is as effective as expecting church mice to resurrect the dead with holy water and a cross.

The most efficient traditional method for protecting oneself from the plague involved a preventative measure based on the observation of marmot behavior. Hunters keenly observed the behavior of sentinel marmots, who acted as lookouts at burrow exits, alerting the rest of the colony to approaching predators or other dangers. In Mongol belief, these sentinel marmots can communicate not only with their colonies but also alert hunters about the spread of disease through signs of illness. If a sentinel marmot doesn't make a loud warning call to the colony and seems oblivious to danger, or appears sluggish with slow or unsteady movements, this indicates to the hunter that it may be diseased and should be avoided. A marmot crossing the grassland steppe on its own, rather than remaining near burrows, is another sign that something is wrong. Such solitary marmots are to be avoided and not targeted for hunting.[10]

10 Fijn and Terbish, 'The survival of the marmot'.

The Use of Marmot Parts in Traditional Medicine

In traditional medicine, almost no part of the marmot—bones, pelt, meat, fat, and internal organs—goes to waste. People wear marmot anklebones as talismans against malignant spirits, bad fortune, and disease. Women seeking pregnancy or those already pregnant and aiming for a healthy gestation are often advised to wear anklebone talismans. A mixture created by grinding marmot bones and diluting them in holy water is believed to be beneficial for healing fractured bones.

In the not-so-recent past, women who experienced multiple miscarriages were encouraged to carry the tail of a female marmot as a talisman. Similarly, in some cases, men carried a male marmot's fluffy tail—often tucked inside their underwear—believing it could enhance their reproductive vitality. However, these tails could also harbor infected fleas, posing a serious health risk. This beautiful tradition is being revived today in some places, but there is a caveat for those practicing or thinking of practicing it: if not careful, instead of stiffening the penis, one could end up contracting *Yersinia pestis*. Additionally, the tails of 'horse marmots' are sometimes hung inside *ger*s to ward off diseases and misfortunes, while back braces made from marmot skin are believed to alleviate back pain. Needless to say, the efficacy of these methods remains scientifically unproven; one might as well attach a skunk's tail to one's underwear or wear amulets made of rat's teeth to improve fertility and ward off disease.

In Mongol cuisine, marmot meat is used in baked or boiled dishes, but in traditional medicine, various body parts may be consumed raw. The most potent meat, believed to be beneficial for one's health, is the so-called *hün mah*, or 'human meat', which includes the collarbone, small reddish meat from the marrowbones, some small pieces attached to the marmot's kidneys, meat around the neck, and the lymph glands. Believed to be parts of the mythological archer Erhii the Skillful, these mouth-watering bits can potentially harbor the plague, directly delivering the consumer to the bosom of *Yersinia pestis*. While considered a taboo to partake in everyday life, as it would equate to cannibalism, *hün mah* is revered for its purported medicinal properties precisely due to its taboo nature. It is believed to be beneficial for various ailments, such as injuries, gallbladder problems, kidney issues, thyroid disorders, osteoporosis, and pancreatic conditions, among other illnesses.

In traditional societies, taboo substances are often viewed as potent medicine. Rooted in religious and spiritual concepts, taboos are linked to mystery and secrecy, and the act of using these substances challenges societal norms believed to be meant for ordinary mortals. Hence, in some cultures, breaking certain taboos is thought to bring the practitioner supernatural transformative experiences associated with healing or spiritual growth. No wonder, taboo substances are typically derived from rare or dangerous sources, seen as harnessing the power of nature and gods. Traditional societies pass down knowledge and practices through generations, and substances like the marmot's 'human meat', or mercury, or any number of other dangerous substances, used for healing over time, become deeply ingrained in cultural heritage, reinforcing their perceived medicinal value.

The least dangerous way of administering marmot meat for 'medicinal' purposes is to eat boiled marmot liver, believed to be good for fractured bones. Although boiling marmot organs is the best way to avoid direct contact with *Yersinia pestis*, as the bacterium dies in boiling water, its medicinal effectiveness in healing broken or fractured bones is likely no more effective as chewing bull's testicles or sucking on a lollipop. After all, both provide some nutrients that may contribute to tissue repair and growth.

Marmot fat is used for healing wounds or burns, and, when processed, it serves as a remedy for respiratory conditions such as breathing difficulties, impaired lung function, and other respiratory symptoms. Imagine the following scenario: A man armed with marmot fat applies it to a burn on his hand, hoping for miraculous healing overnight. Unsurprisingly, the burn persists, appearing red, swollen, and blistered, causing him considerable discomfort. Slightly disappointed, the man takes a deep breath, hoping the marmot fat might help with his breathing difficulty. With a sigh, he realizes it's yet another folk remedy that fails to fulfill its promises, at least as far as he is concerned. 'Maybe it just works alright on other people; otherwise, how do you explain the ancient wisdom passed down from infallible ancestors concerning the miraculous healing powers of marmot fat?' thinks the man to himself, trying not to get entangled in his caravan of thoughts. He concludes, 'The same ancestors who knew everything there was to know about the universe. They even knew that the world is flat and is supported by four giant elephants that stand on an even

bigger and fatter turtle swimming across the universal ocean. If they knew about this, how could they not know about such trivial things like the healing quality of marmot fat?'[11]

Eating marmot meat is regarded by many Mongols as a medicinal therapy in itself. The preparation of *horhog*, a traditional dish, involves a meticulous preparation. The process unfolds as follows: first, the marmot carcass is suspended from a pole, gently swaying in the breeze. To ensure cleanliness and to sear it from the outside, a blowtorch is deftly wielded, flames dancing as they purify the carcass by eliminating any remaining fur and fleas. Meanwhile, rocks, glowing red from the heart of the fire, are carefully chosen and inserted into the marmot's headless neck cavity. This method allows the meat to cook from the inside out, infusing it with flavors as ancient as the legend of Erhii the Skillful itself. The opening, now filled with hot rocks, is securely sealed with rope, trapping the heat and the essence of the cooking process. Once the marmot is thoroughly cooked, nomads gather around to relish the choicest pieces of meat and exchange news or *bolson yavdal* stories. The hot rocks assume a new purpose, becoming tools for therapeutic juggling, their warmth seeping into the hands of those who skillfully manipulate them. These warmed stones are also strategically positioned on the body to alleviate discomfort. Furthermore, sitting on these warm stones with bare buttocks is employed by some as a remedy for conditions such as radiculitis and various forms of cold. Next time you encounter Mongols sitting on stones, naked from the waist down but clothed above, don't ridicule them or assume they are trying to communicate with the spirits of the earth. Consider it an improvised nomadic approach to hot stone therapy, similar to practices in Scandinavian countries, with the only difference being the absence of saunas, requiring nomads to utilize whatever materials are at hand.

11 While applying marmot fat or any other animal fat is not a recommended method for modern wound care, Mongol herders employ a traditional practice to address the following condition in herd animals in the summer. In situations where animals have not shed their winter hair, indicating a struggle to gain weight for the upcoming winter, herders cook a broth with a high concentration of marmot fat. According to nomads, this marmot fat broth improves the condition of underweight animals, assisting them in shedding their winter coat and gaining weight. Though this practice requires scientific investigation, there is a possibility that the high concentration of fat, containing acids, cholesterol, and other nourishing substances, may contribute to the well-being of underweight animals.

Hunting the Marmot

Traditionally, hunters used bows and arrows or handheld weapons like bolos to capture marmots.[12] Fire was also employed to smoke marmots out of their burrows or block their escape routes, facilitating easier retrieval.

In the nineteenth century, the introduction of Russian-made rifles revolutionized hunting strategies. Hunters could now wait near marmot burrows, shooting them as they emerged, or approach them closely and take precise shots. The latter technique was observed by Russian scholar Sevyan Vainshtein in Tuva at the close of the nineteenth century. Notably, Tuva, a Russia's ethnic republic but once part of Mongolia until 1911, is now recognized as a favorite hunting ground for Vladimir Putin. There, he has been photographed in various 'sexy' chest-beating poses, such as sitting half-naked on horseback, sunbathing bare-chested, or holding a rifle while shirtless. Vainshtein's observations included hunters not bare-chested like Putin but clad in unique costumes. These outfits comprised a white jacket made from goat or deer hide, paired with a cone-shaped hat featuring horns or long ears, resembling a mammal's silhouette. If Putin had adhered to the local hunting dress code, photographs of him resembling a horny animal would have been more fitting. This attire was specifically designed to startle and agitate the marmot initially. The hunter would hold a stick with fine white hair on the end, twirling and jerking it alluringly to simulate the tail, keeping the aroused marmot still long enough for the hunter to aim and fire the rifle. Similar hunting costumes from the Paleolithic era have been discovered in Siberian rock engravings, highlighting the ancient origins of this hunting costume and technique, albeit with a bow and arrow.[13]

More recently, in 1989, British ethnomusicologist Carol Pegg observed the marmot hunt as a kind of 'dance' in Western Mongolia. This 'dance' involved running in circles, abruptly stopping, and then resuming until the hunter was pegged within close proximity to the marmot.[14] If executed correctly, the marmot didn't flee but sat barking, akin to an

12 Braae, *Among the Herders of Inner Mongolia*, 443-44.

13 Jacobson-Tepfer and Meacham, *Archaeology and Landscape in the Mongolian Altai*, 49, Fig. 3.38; Vainshtein, *Nomads of South Siberia*, 182.

14 Pegg, *Mongolian Music, Dance and Oral Narrative*, 246.

intrigued spectator in a deadly performance, responding to the hunter's movements. This method, known as *hoshgoruulah*, or 'making a marmot bark', might also involve specially trained dogs following the hunter or being held on a leash, enhancing the deception. Some herders used non-threatening herd animals such as sheep or camels to discreetly approach marmots.

Another tactic involved horsemen galloping toward the marmot, forcing it into a burrow. Reminiscent of scenes from Western movies depicting Native American warriors using tricks to ambush a wagon of terrified settlers, one horseman would dismount and lie on the ground with a rifle, while the other continued galloping, tricking the marmot into believing the danger had passed. When the curious marmot checked, the hunter would shoot it.

The least labor-intensive method employed traps or snares made from materials like wire or rope, strategically placed near the marmot's burrow entrance.

Similar to many traditional activities centered around interacting with nature and the animal kingdom, hunting was steeped in religious significance. Hunters engaged in rituals to seek approval from deities for their marmot hunts and to shield themselves from supernatural forces. These rituals included the use of containers or homemade vessels known as *anchny ongon* to attract spiritual entities that would assist in the hunt. Moreover, some hunters would drip blood from the captured marmot onto their firearms, believing that it transferred the prey's life force onto the weapon, thereby enhancing the fortune (*hishig*) of future hunts. However, this practice also meant that they were directly exposed to the risk of contracting the plague.

While marmot hunting took place as it does today throughout Mongolia, the most valuable thick pelts were found in the forested and mountainous regions of Northern and Western Mongolia. In rural communities, knowledge about hunting marmots was typically passed down from fathers to sons. Marmot hunting was seasonal, occurring in late summer and autumn when marmots were heavier and fattier in preparation for hibernation. These traditional techniques and knowledge, passed down through generations, some of which were recorded by scholars like Vainshtein and Pegg, continue to be practiced by hunters today.

Sacred Places

Many Mongols are wary of places believed to be under supernatural protection. These include 'wrathful places' (where protectors are unpacified shamanic spirits), sacred locales (guarded by powerful and ill-tempered Buddhist deities), cemeteries (inhabited by ghosts), and haunted grounds (a playground for various malevolent spirits and beings), which are all considered exceptionally dangerous. Nomads avoid hunting marmots or any game in these perilous places and try not to enter them without good reason, harboring an instinctive, animal-level fear of such areas.

When nomads venture into these areas—whether in search of lost cattle, to take a shortcut, or for any number of other reasons—their behavior closely resembles that of chimps venturing beyond their own territories. Chimps become animated, but upon entering the neighbors' territory, they suddenly become quiet, cautious not to attract attention. If they encounter foreigners, they make a considerable commotion, screaming, twirling branches, and drumming on trees. This seemingly exaggerated behavior can be explained by the fact that it is usually during such encounters that chimps venturing into their neighbors' territory get attacked, raped, or killed. In a similar vein, upon entering a 'foreign' territory—a wrathful shamanic land, or a location not under full Buddhist jurisdiction, or an area guarded by exceptionally angry Buddhist deities, or a haunted place—Mongol nomads exercise caution, refraining from singing or speaking loudly to avoid detection by potentially unfriendly and 'lethal' supernatural entities. If they believe they have encountered such entities, they chimp up by reciting powerful Buddhist mantras, attempting to intimidate and ward off any unfriendly forces. While subtler than screaming and twirling branches, the essence of the nomads' actions remains the same, reflecting the closeness between humans and chimps.

Let's not forget our other close evolutionary cousin—the bonobo. In stark contrast to territorial chimps, when bonobos encounter unfamiliar members of their species, there might be initial screaming, but soon it resembles less a battleground and more a picnic where everyone is having sex with each other. The Mongols also can exhibit bonobo-like behavior when encountering non-human entities, such as gods and

spirits, in 'ordinary' places where they seek supernatural cooperation. In Chapter 2, we explored a shamanic hunting tradition where a hunter envisions his hunting trip as a temporary 'marriage' to the enchanting daughter or sister of the shamanic Lord of the Forest. To demonstrate his dedication to this spiritual 'bride' and ensure a successful expedition, the hunter refrains from engaging in sexual intercourse with a human female, whether it is his wife or girlfriend, prior to the expedition. In essence, his entire hunting experience transforms into an imaginary love affair with the unseen spirit.

These examples illustrate how humans may perceive the same landscapes differently depending on the religious lenses they view them through and whether they anticipate supernatural hostility or cooperation.

The Impact of Buddhism on Animals and Locations

Before the advent of Buddhism, as noted in Chapter 2, shamanism endowed animals with spiritual powers, placing them on par with humans. As cosmological equals or near-equals, humans and animals communicated directly through rituals, during which animals often offered themselves as a 'gift of meat' to humans. This was especially true for wild animals, including marmots. Some remnants of this worldview still persist today among certain groups, such as the Darhad in Northern Mongolia, who venerate shamanic spirits of nature.[15]

15 The history of shamanism among the Darhad is complex. They inhabit the Shishget region in Hövsgöl Province, historically one of Mongolia's most remote areas. During the Manchu Qing period, the Darhad Great Ecclesiastical Estate (*Darhad Ih Shavi*) existed in the flat steppe areas of Shishget, belonging to the Javzandamba Hutugtu, the head of Mongolia's Buddhist establishment. Despite this, Buddhism and shamanism coexisted, with the former relegating the latter to the fringes of society, particularly towards the taiga forest. During the socialist period, Buddhism in Shishget was systematically and harshly persecuted. In contrast, shamanism, already marginalized and not viewed as a political rival to the socialist regime, was kept under pressure, with individual shamans being allowed to practice their trade, as long as they did it in secrecy behind closed doors. After the collapse of state socialism, there was a resurgence in shamanism, accompanied by various shamanic spirits and ghosts of forgotten shamans reemerging. See Peredsen, *Not Quite Shamans*; Hangartner, *The Constitution and Contestation of Darhad Shaman's Power.*

One of the main changes introduced by Buddhism was the substitution of shamanic spirits (*ongod*) with Buddhist deities or the incorporation of these spirits into the Buddhist pantheon, which enabled them to assume roles as new guardians of their traditional territories. The only exceptions are the afore-mentioned sacred places believed to be protected by unpacified shamanic spirits or hungry ghosts.

During this transformation across Mongolia, without shamanic spirits to elevate their status and with humans placed above the animal kingdom by Buddhism, wild animals lost their powers in the new Buddhist world. Consequently, their ability to protect themselves by instilling fear in humans diminished, and humans no longer felt the need to communicate with them directly. Instead, Buddhism required humans to communicate with Buddhist or shamanic-turned-Buddhist deities. The only sanctuary offering wild animals some supernatural protection from hunters became these sacred places. Hence, in the majority of *bolson yavdal* stories, the clashes between wild animals, such as marmots, and humans resulting in misfortunes occur in these types of locations. Otherwise, hunting or even poaching in ordinary Buddhified places does not constitute a spiritual offense.

Part II

History: The Marmot, the Plague Control, and Modern Medicine

A man becomes infected from a sick marmot he hunted. Initially, he is exposed to the bubonic form when handling the dead marmot and putting its severed tail inside his underwear, thus acquiring its fleas. Then, he unknowingly exposes himself to the septicemic form while skinning the marmot with his injured hands. Just before cooking the raw meat, he ingests a small piece of fatty tissue attached to the marmot's kidneys for medicinal purposes, thus acquiring the digestive form of the plague. The man, content with the process, believes he successfully juggled three balls with one hand, reaping triple benefits: (1) improving his health through the consumption of raw meat as prescribed in folk medicine, (2) enjoying a delicious dinner, and (3)

enhancing his manhood by cushioning his penis with a pad made from the marmot's tail. However, not long after, he experiences nausea and begins coughing (pneumonic form). A race ensues among these forms of plague to determine which will claim the victim's life first.

This is one possible—albeit exaggerated for emphasis—infection scenario where a man acquires all four forms of plague by handling a sick marmot in various ways and exposing himself to *Yersinia pestis*, the plague bacterium.

Yersinia Pestis

There are two kinds of marmot in Mongolia: *Marmota sibirica* and *Marmota baibacina*. Referred to as *tarvaga* in Mongolian, both kinds host the bacterium *Yersinia pestis*.

Yersinia pestis, responsible for causing plague in humans, has afflicted civilizations across Eurasia since ancient times. Evidence suggests that the bacteria were present in the Eurasian population about 4000 years ago. In an archaeological site near the Volga River, ancient teeth extracted from the skeletons of a human couple contained traces of the bacteria.[16]

In the annals of modern epidemiology, the bacterium was first identified in rats as the primary carriers of the disease. In 1898, Paul-Louis Simond conclusively argued that the plague is transmitted to humans when fleas, infected with *Yersinia pestis*, jump from a rat to a human and bite the human.

In addition to rats, marmots are another primary natural host of *Yersinia pestis*, serving as a transmitter of the plague to humans. This classifies the plague as a zoonotic disease, similar to COVID-19 and others that originate in animals and then jump to infect the human population. The plague manifests in four forms: bubonic, pneumonic, septicemic, and digestive.

The bubonic form is transmitted from infected marmots to humans through marmot fleas. This form is called bubonic because it can lead to buboes at the lymph nodes, neck, armpits, and groin. Bubonic plague is not typically transmissible between humans, as for it to occur, the bacteria must be directly introduced from the source of the infection

16 Spyrou et al., 'Analysis of 3800-year-old *Yersinia pestis* genomes'.

into the target body. If the victim neither recovers nor succumbs to the bubonic form in about a week, the disease could progress to their lungs, transforming into the pneumonic form and becoming transmissible through the air from an infected person to another. By becoming airborne, it increases its transmission potential.

The initial bubonic form could also progress into the septicemic form, where the disease enters the victim's bloodstream. At this stage, mottled blue-black patches may appear all over the body, signifying extensive hemorrhaging.

All three forms are highly lethal, often mutating from bubonic to pneumonic and/or septicemic during a plague outbreak. If left untreated with modern methods, the survival rate for the bubonic form is about twenty percent. The pneumonic form presents the most distressing demise, with a person typically spending days coughing up blood until they drown in it. In contrast, the septicemic form offers a faster and relatively easier way to go to the heavens, with a survival rate of zero percent.

Beyond bubonic, pneumonic, and septicemic types of plague, there is a fourth type—digestive plague. This plague is contracted by consuming the raw meat or fat of an infected animal, such as the marmot. When infected, the human victim's symptoms not only fail to significantly differ from the bubonic form, but also various forms may strike the victim in various combinations. Consider the above-recounted possible infection scenario, which could be adapted into a movie story titled *A Million Ways to Die in Mongolia*, drawing inspiration from the movie *A Million Ways to Die in the West* (2014).

Beyond the marmot, *Yersinia pestis* can also be carried in Mongolia by various rodents, including jerboas, ground squirrels, pikas, hamsters, and gerbils, none of which are consumed by Mongols today. Historically, however, it is documented that Mongols consumed jerboas and ground squirrels, blissfully unaware of the lethal repercussions, as reported by Muslim, Russian, and Mongol sources in the thirteenth century. Interestingly, mammals such as corsac foxes, Siberian polecats, and mountain weasels have also been found infected by plague bacteria, likely contracted from entering and sometimes sheltering in marmot

burrows.[17] Since the plague is part of a larger ecosystem, eradicating it is nearly as impossible as catching a rainbow; different strains can appear in spectra of species and become dispersed among them at any time.

The unique relationship between marmots and fleas (*O. silantiewi*) is influenced by the intercontinental climate on the Mongolian Plateau, which is dry with extreme temperature fluctuations. *Yersinia pestis* has adapted to marmot hibernation, during which marmots plug up their burrows with soil, organic matter, and their own feces. During hibernation (typically from October-November to March-April, depending on seasonal conditions), marmot flea larvae feed on the blood by damaging the skin around the marmot's mouth, eyes, and anus. When a flea ingests *Yersinia pestis*, the bacteria multiply, obstructing the flea's gastrointestinal tract. Consequently, fleas disgorge some bacteria into any marmot they bite.[18] The plague can remain dormant within marmot burrows for over a year.

The Marmot in History

Archaeological evidence from various sites suggests that marmots have held cultural significance and served as a popular food source on the Mongolian Plateau for millennia. One of the most revealing discoveries comes from Southern Siberia near Lake Baikal, where marmot bones were found in graves dating back to the Early Neolithic period (between 10,000 BCE and 6000 BCE). Particularly striking was the excavation of 643 marmot incisors at one site and 152 incisors at another. This abundance of marmot teeth implies their diverse applications, including their use as decorative elements in clothing and jewelry.[19] One can almost visualize a Neolithic person strutting around, proudly wearing a marmot tooth necklace or a similar ornament, showcasing the ancient craftsmanship and presumably other ideas associated with the ornamentation of their time.

Within the present-day borders of Mongolia, marmot-tooth pendants were discovered in burial sites at Chandmani Uul in Northwest Mongolia, dating back to the period transitioning from the eighth to the fifth

17 Galdan et al., 'Plague in Mongolia'.
18 Orloski and Lathrop, 'Plague: a veterinary perspective'; Suntsov, 'Recent speciation of plague microbe'.
19 Masuda et al., 'Ancient DNA analysis of marmot tooth remains'.

centuries BCE.[20] Moreover, evidence from summer campsites originating from the Xiongnu period sheds light on the seasonal consumption of marmots. Marmot bones found at these sites exhibit distinct cut marks, indicating their significant role as a food source during specific times of the year.[21] These discoveries collectively underscore the integral part marmots played in the cultural, culinary, and artistic dimensions of ancient societies inhabiting the Mongolian Plateau.

The earliest documentation of marmot hunting and consumption among the Mongols can be traced back to *The Secret History of the Mongols*, which recounts the story of Höelün and her sons, including Temüjin (the future Genghis Khan), and how they made a living after being abandoned by their people following the death of Höelün's husband, Yesügei. Apart from fishing and hunting jerboas, Höelün's sons relied on marmot hunting for sustenance.[22] As Genghis Khan grew older, the metaphor of marmot hunting, which had aided his family's survival during his challenging childhood years, became a recurring theme. This is evident in a decree he issued in 1205 to his loyal general, Sübedei, a key figure in the Mongol Empire's expansion, to hunt down and capture three godless fugitives, Godu, Gal, and Chilagun: 'If they [Godu, Gal, and Chilagun] have wings and fly up into heaven, then you, Sübedei, will you not become a falcon and fly to catch them? If they become marmots and dig with their claws into the earth [to hide], will you not become a spade sounding them out and reaching down to strike them?'[23]

Muslim and Christian observers who traveled as envoys to Mongol territories or served as vassals to the Mongols also documented the Mongols' consumption of marmots. Plano Carpini, who journeyed to Mongol territories as a papal envoy of Pope Innocent IV, provides the following information:

> They (Mongols) eat dormice and all kinds of mice with short tails. There are also marmots there which they call sogur and these congregate in one burrow in the winter, twenty or thirty of them together, and they sleep for six months; these they catch in great quantities.[24]

20 Atwood, *Encyclopedia of Mongolia and the Mongol Empire*, 440.
21 Houle and Broderick, 'Settlement patterns and domestic economy of the Xiongnu in Khanu Valley, Mongolia'.
22 *The Secret History of the Mongols* §89-90.
23 Ibid. §199.
24 Dawson, *The Mongol Mission*, 100.

Foreigners frequently expressed strong disdain for the Mongols' penchant for marmots, a meat consumed not only by ordinary Mongols but also served on the imperial table. As these foreigners rendered their observations on paper, they must have still been under the impression of how, wide-eyed and bewildered, they watched the Mongols devour large rodents with gusto, their eyes closed. In a fourteenth-century culinary book titled *Yin-shan-cheng-yao* ('Proper and Essential Things of the Emperor's Food and Drink'), a list of animals that delighted the Mongol Yuan Emperor's palate included marmot meat.[25] This culinary compilation of fine dining, presented to the last Yuan Emperor, Togon Tömör, in 1330 by Hu Ssu-hui, the chief imperial dietary physician, reflected the imperial preference for marmot delicacies.

Marmots were not merely hunted for their meat; their fur and pelts were also highly valued by the Mongols, who used them for clothing. An illustrative instance occurred in 1285 when General Bayan, the conqueror of South China under Genghis Khan's grandson Kubilai, returned to Mongolia after quelling a crisis caused by the rebellion of several frontier Mongol princes. Faced with severe supply shortages in Mongolia, Bayan instructed his troops to augment their diet with steppe roots and their clothing with marmot skins, which required hunting a large number of rodents.[26]

Marmot fur and skin were also used as offerings to the supernatural. The *Yuan-shi*, the official dynastic history of the Mongols composed in 1370 during the succeeding Ming court, documents that during the Yuan dynasty, the Mongol Emperor erected ancestral temples in Beijing, where offerings included marmot pelts, alongside furs from other wild animals.[27]

After the fall of the Yuan dynasty in 1368, which redirected the Mongols' focus to their ancestral land of Mongolia, this enduring practice of marmot hunting and consumption is detailed in the *Halha Jirum*, an eighteenth-century code of laws. It included a specific provision that prohibited hunters from abandoning marmots inside their burrows after smoking them. Hunters were required to excavate the deceased or injured marmots.[28]

25 Buell, 'Pleasing the palate of the qan', 58, 65.
26 Atwood, *Encyclopedia of Mongolia and the Mongol Empire*, 38.
27 Jagchid and Hyer, *Mongolia's Culture and Society*, 38, 40, 45.
28 Zhamtsarano, *Khalkha Dzhirum*, 38.

The Plague in the Times of the Mongol Empire

After uniting all the steppe tribes in 1206 through dynastic ties, military campaigns, and diplomacy, Genghis Khan went on to create the largest land empire in history, which was further expanded by his descendants. However, the Mongols' impact on the conquered territories extended beyond violence and destruction. They were prolific city builders, facilitated trade and cultural exchange, promoted religious tolerance, and introduced administrative innovations, establishing what is known as Pax Mongolica or the 'Mongol Peace'. This period ushered in political stability and connectivity across Eurasia by uniting previously disconnected regions and warring peoples under a single Mongol rule.

Drawing parallels from our experience with the COVID-19 pandemic, we understand all too well that globalization and connectivity also facilitate the rapid spread of diseases. Pax Mongolica was no exception. It accelerated commercial and demographic exchanges across vast territories, fostering conditions conducive to the spread of diseases.

While the Mongols lacked an understanding of germ theory or disease transmission mechanisms, they recognized the concept of contamination and the importance of isolating themselves from outsiders during times of illness. This awareness is evident in accounts from William of Rubruck, a Franciscan missionary who visited Mongol territory in 1253-55. According to his observations:

> When anyone sickens he lies on his couch, and places a sign over his dwelling that there is a sick person therein, and that no one shall enter. So no one visits a sick person, save him who serves him. And when anyone from the great *ordu* (someone from one of the great households) is ill, they place guards all around the *ordu*, who permit no one to pass those bounds. For they fear lest an evil spirit or some wind should come with those who enter. They call, however, their priests, who are these same soothsayers.[29]

It is clear from this passage that the Mongols self-isolated and connected illnesses with spiritual imbalance and, to protect themselves from sick individuals, they tried to distance such people.

29 Rubruck, *William of Rubruck's Account of the Mongols.*

The nomadic lifestyle that Mongols led offered little opportunity for a plague or any infectious disease to develop into anything resembling an epidemic, let alone pandemic, affecting large populations. There would have been isolated outbreaks and deaths, concluding the matter. However, when the Mongols embarked on their conquest campaigns, outbreaks could escalate into epidemics among the sedentary populations they were conquering. This provided the plague with more opportunities to spread to a broader populace. During the empire-building phase, disease-avoidance practices mentioned by Rubruck would not have been confined to nomadic camps but would have also been implemented on a large scale during military campaigns.

During the conquest of Baghdad in 1258, Genghis Khan's grandson Hülegü led a force of 100,000 men marching west from Mongolia. Following Mongol military protocol, Hülegü brought his own food supplies, including livestock and substantial quantities of grain escorted by rats, as well as dried meats, including cured marmot.[30] Vulnerable to attacks by plague-bearing rodents both from within and outside the army, this vast military campaign resembled a metaphorical sitting duck, susceptible to the invisible pathogen from the very start. Historical records indicate that in 1257, Hülegü's army had to relocate its camp at least five times while preparing to assault the city. These actions may reflect the Mongols' attempts to reposition themselves, possibly to contain or stay ahead of outbreaks of disease. In the course of the actual siege in 1258, numerous city dwellers were reported to have died of 'pestilence'.[31] Whether this army brought the plague from Mongolia or contracted it en route to Baghdad remains unclear. Whatever the case, according to some scholars, this moment marked the transfer of the Black Death from the East.[32]

However, determining the exact origin of the Black Death remains a formidable challenge because it likely involved complex patterns and a multitude of variables. The disease might have originated from several species of rodents simultaneously, including rats and marmots. According to Monica Green, an authority on the subject, the strain of the bacterium that caused the Black Death originated in Central Asia

30 Montefiore, *The World*, 344.
31 Frankopan, *The Earth Transformed*, 294.
32 Montefiore, *The World*, 344.

a century before reaching Europe, implying that the Mongols began spreading it in the thirteenth century wherever the hooves of their military horses reached.[33] If this theory holds water, various local outbreaks across Eurasia that came under Mongol rule emerged from Central Asia and were spread by the Mongols as they moved around; these local outbreaks occurred intermittently for more than a century. The Black Death could have resulted from the convergence of these various local epidemics facilitated by events such as the movement of armies and refugees, cross-continental grain trade and shipments hitch-hiked by rodents, and the Mongol horse relay system (which not only allowed swift communication but also facilitated the efficient transportation of pathogens across the vast Mongol Empire). The 1340s also marked one of the most tumultuous decades in global military history, with wars erupting not only in Europe but also in territories dominated by the Mongols and North Africa—regions severely affected by the Black Death in the first wave. Engaging in wars imposes strain on conflicting sides, even in the best of times, but during this particular period, the challenges faced by all warring parties would have been exceptionally demanding, implying that respective populations would have been exhausted and more susceptible to diseases. Each variable served to magnify the problems caused by other variables, leading to a cascading effect, with the Black Death representing culmination.

Periodic outbreaks of the plague affected most parts of the Mongol Empire and its off-shoots, both before and after the Black Death. In the Yuan, which likely suffered the most due to its large populations residing in dense settlements, a series of epidemics struck Henan province from 1313, with coastal provinces experiencing outbreaks in 1345-46. The most devastating wave occurred in 1351, spreading throughout Yuan China yearly and lasting until 1362, leading to a catastrophic population decline.[34]

In the Chagatai state, besides the outbreak of the plague in the 1250s, evidence of the epidemic surfaced in Nestorian Christian graves dating back to the late 1330s, a decade before the outbreak of the Black Death in Europe. Discovered near Issyk-Kul in 2022 (now in Kyrgyzstan), this

33 Green, 'The four Black Deaths'.
34 Atwood, *Encyclopedia of Mongolia and the Mongol Empire*, 41.

burial site contained human teeth samples containing *Yersinia pestis* DNA.[35]

The impact of the plague was also deeply felt in the Golden Horde. Özbeg, the ruler of the Golden Horde, had expanded into Europe and designated Caffa as Genoese territory and Tana as Venetian territory in Crimea. However, tensions escalated after Özbeg's death in 1343, leading to a Genoese killing of a Muslim that, in turn, prompted Özbeg's son, Janibeg, to besiege Caffa. Upon Janibeg's return in 1346, the plague struck his camp, resulting in a devastating loss—twelve percent of the Golden Horde's population is believed to have succumbed to the disease.[36] Saray, the capital of the Golden Horde, was again stuck by the plague in 1364.

The plague not only spread extensively across Mongol-controlled territories but also far beyond. Once it reached Europe, the death toll was of biblical proportions, claiming fifty percent of England's six million people, seventy-five percent of Venice's population, and ninety-eight percent of parts of Mamluk Egypt in North Africa. Furthermore, pandemics continued to resurge over the next centuries, perpetuating the devastation, albeit to a lesser extent.[37]

The Plague in the Ecological History of the Mongol Empire

In the thirteenth century, the Mongols' head-spinning military success relied not on superior technology or wonder weapons but on efficient organization, iron discipline, and hardy Mongolian ponies, which enabled the Mongol Empire to expand at breakneck speed in all directions. Constantly on the move and wielding unparalleled striking power, Mongol cavalrymen were like medieval 'terminators', materializing without warning in the most unexpected places, descending upon their enemies with the sudden, ferocious force of a thunderstorm unleashed from a clear sky. However, the Mongol expansion may not have been solely due to Genghis Khan's leadership genius and the skills of his troops; recent research indicates that climate played a significant role. Between 1211 and 1225, a period corresponding to Genghis Khan's rapid

35 Spyrou et al., 'Analysis of 3800-year-old Yersinia pestis genomes'.
36 Montefiore, *The World*, 364-65.
37 Ibid., 364.

ascent and his military successes, the typically cold and arid Mongolian Plateau experienced unusually heavy rainfall and mild temperatures. Although this did not transform Mongolia into a tropical paradise, the warmer climate spurred the growth of essential grasslands, leading to an expansion in the size of livestock herds, especially those of ponies, providing a solid foundation for the Mongol Empire.

In Mongolia, children start riding horses at around the age three or four, and in no time, they become adept horse riders. For many nomads, their horses become like an extension of their limbs, offering stability and speed. Hence, when mounted, nomads feel like a fish in water—they can eat, drink, flirt, party, fight, and take a nap without dismounting. Nomads become so accustomed to constant riding that when nature calls while in the *ger*, they prefer saddling up instead of walking a short distance to defecate. Horsemanship, true for contemporary Mongols, echoes the historical habits of Mongols in the past.

Under Genghis Khan, each Mongol cavalryman owned multiple ponies (at least two, usually four to seven remounts), enabling them to ride without stopping, and the additional grass resulting from the warmer climate provided the energy required for the Empire's remarkable expansion.[38] Genghis Khan effectively harnessed this abundant supply of horses to create the most formidable cavalry force in history.

This radical climatic change at the regional level, unprecedented in more than a thousand years, occurred against the backdrop of global warming from about 950 CE to 1250 CE, also known as the Little Optimum. This period resulted in an extended growing season, leading to a more reliable food supply and a subsequent global population increase over those three centuries. This growth, in turn, spurred a significant surge in urbanization, creating paradises for germs and other contagious diseases.

In Mongolia, the mild climate and flourishing grasslands not only facilitated the growth of horse herds but also supported a population explosion of various species, including those carrying the plague, such as marmots. The impact of this change on *Yersinia pestis* and the fleas that carry it, remains unclear. However, what is becoming increasingly

38 Pederson et al., 'Pluvials, droughts, the Mongol Empire, and modern Mongolia'.

apparent, thanks to the latest developments in medicine and science allowing us to examine DNA, is that an event called polytomy occurred sometime around the 1250s. It appears that *Yersinia pestis* diverged into three and subsequently four distinct lineages (a process called polytomy) at that moment. The bacterium that caused the Black Death can be traced back to that climactic event that geneticists have called the 'Big Bang', which marked the end of the Little Optimum.[39]

The Little Optimum, however, does not imply the absence of climatic fluctuations during this period. Periodic droughts, cold spells, and abundant rainfalls occurred, intensifying especially from the end of this period. These changes would have affected the pathogenic landscape and posed challenges to rodent species such as marmots by weakening them and making them more susceptible to the plague bacterium. While the Mongols may have thrived in optimal climatic conditions under Genghis Khan for empire building, the regions facing Mongol attacks did not necessarily share the same auspicious climate for resisting invasion. Central Asia, for example, had already been grappling with prolonged drought and water scarcity before the Mongol invasion, affecting resistance negatively. At the beginning of the fourteenth century, the Eurasian landmass underwent a sharp cooling trend marked by cold and humid conditions, resulting in more outbreaks of the plague, extensively documented in Chinese annals and potentially impacting regions beyond.

In the turbulent period prior to and during the 1340s, marked by the Black Death, Europe also faced adverse weather conditions, leading in lower crop yields. This not only weakened the population, making them susceptible to diseases, but also exposed them to overseas grain shipments, which carried rodents hosting the plague.

This climatic fluctuation with unpredictable weather formed the backdrop against which all other events unfolded, as mentioned above—plague outbreaks, harvest failures in certain regions making them dependable on foreign grain shipments, the weakening of the populations in affected areas, the political unification and internal splitting of the Eurasian landmass, and large-scale wars.[40]

39 Green, 'Putting Asia on the Black Death map'; Green, 'The four Black Deaths'.
40 Frankopan, *The Earth Transformed*, 302-14.

The Plague in Mongolia's Post-Imperial History

The Yuan dynasty in China collapsed in 1368 amid widespread social unrest and a weakened, corrupt central government. The situation was exacerbated by outbreaks of diseases, famine, natural disasters such as droughts and floods, and price inflation, all of which fueled rebellions. This event marked a pivotal moment not only in Mongolia's history but also in the annals of epidemics and pandemics. As the Yuan court retreated to Mongolia, the Mongol state deflated into a regional power, losing its symbolic influence over other Genghisid states and their offshoots in Russia, Persia, and Central Asia.

These Genghisid states also grappled with profound challenges in the aftermath of the Black Death. The Golden Horde in Russia, for example, plunged into anarchy in 1359 before its capital, Saray, was once again struck by the plague in 1364. This period coincided with the extinction of the Batu line after 1360 and of the Orda line a bit earlier, setting the stage for ceaseless struggle for the leadership among the descendants of their brothers. This gave rise to the 'Time of Troubles', involving several khans concurrently holding sway. The heightened competition for power and domination reflected a stark reality: there were fewer rewards and benefits available than in the past, and resources were rapidly dwindling.[41]

In addition to existential struggles, these Genghisid states underwent Islamization, leading to significant changes in dietary habits, including the prohibition of consuming 'impure' animals like marmots in adherence to Islamic laws. This religious and cultural transformation, coupled with the fragmentation of the Islamized Genghisid states into smaller polities, restricted the flow of goods, people, and pathogens. Consequently, these changes potentially impeded the spread of local epidemics into global pandemics, marking a departure from the earlier period of Pax Mongolica when interconnectedness facilitated the movement of diseases on an intercontinental scale.

In post-Yuan Mongolia itself, Mongols reverted to their traditional lifestyle while splintering into numerous groups and fiefdoms, periodically attempting political reunification by means of sword and

41 Ibid., 311.

arrows. In 1640, the Halha Mongols and the Oirats, each consisting of a patchwork of fiefdoms, made peace with one another and established an alliance in response to the threat posed by the rising Manchu Qing dynasty. However, this alliance among militant and mutually suspicious fiefdoms proved as fragile as a marriage in a loveless, dysfunctional family and was just as destined to fail. Following tensions among the Halha fiefdoms and between the Halha and the Oirats, the Oirats, led by the ambitious Galdan Boshogtu Khan, invaded Mongolia in 1688, pillaging and burning the holiest of Buddhist temples. This prompted many Halhas flee to Inner Mongolia, which had been conquered by the Manchu Qing in 1634-36. In Inner Mongolia, the Halha refugees appealed to the Manchu Emperor Kangxi for protection, a situation reminiscent of a group of mice quarreling with another group of mice and seeking refuge from a hungry cat. After considerable hesitation, the 'cat' acquiesced to the 'mice's' plea for protection. In 1691, at the (not-so-great) Doloonnuur Convention, the Halhas officially submitted to the Manchu Emperor for full protection, marking the commencement of spending next two centuries in a metaphorical mousetrap.

Under Manchu Qing rule, various Mongol groups were pacified, divided, and confined to fixed territories, limiting their interactions and exchanges. Over the six centuries from post-imperial disintegration to submission to the Manchu Qing dynasty until the early twentieth century, there were no significant plague epidemics in Mongolia. Localized outbreaks persisted, but Mongols presumably managed to control the plague using familiar methods: by relocating, avoiding areas with confirmed or suspected plague outbreaks, staying away from strangers, and quarantining themselves when afflicted by the plague.

Compared to the imperial period, Mongolia also experienced relatively stable climate conditions from the fourteenth century to the twentieth century, with less radical changes. That said, due to its continental nature the country did witness some fluctuations and variations in its climate over this period. The sixteenth and seventeenth centuries saw relatively warm and wet conditions, while the eighteenth century brought colder and drier weather. The nineteenth century, on the other hand, was marked by severe winters (known as *dzud*) and dry summers, posing significant challenges for the nomadic herding communities. These fluctuations inevitably impacted the ecosystem

and the prevalence of plague outbreaks in the region. In certain years, there were presumably more cases of infected nomads than in others. However, due to the country's landlocked position and its division into disconnected territories and sub-territories, and considering Mongols lived in small nomadic communities, the plague never escalated into an epidemic, even if there was a possibility for it to do so.

All this changed on the eve of Mongolia's proclamation of independence from the Manchu Qing in 1911 when the plague caused a regional outbreak, known as the Manchurian Plague. The plague spread in a social context that breached Mongolia's relative isolation, allowing the bacterium to travel from the Mongolia-Manchurian border by rail and eventually infect densely populated settlements in China. The outbreak was precipitated by the development of new dyes by the German chemical industry that could transform cheap marmot fur into imitation sabre, otter, and mink fur, increasing the demand for marmot skins. This attracted a large number of migrant Chinese unskilled laborers to the Mongolia-Manchurian border region who began hunting marmots indiscriminately. These inexperienced hunters not only handled infected marmots casually but also lived and slept in cramped and unhygienic conditions—ideal hotbeds for disease. From there, it was a small step to the outbreak of the plague, which started in the autumn of 1910. By January 1911, more than 10,000 people had died in Manchuria. Manchuria's railway network facilitated the disease's spread as thousands of migrant laborers returned to their homes for the New Year Festival. By the time it finally waned in March-April 1911, the Manchurian Plague had claimed more than 60,000 lives. The situation could have been much worse had it not been for the prompt measures taken by the authorities armed with modern medical knowledge, who established makeshift plague hospitals and imposed strict quarantine.[42]

The Control of the Plague During the Socialist Period

The Manchu Qing's plunge into an existential crisis animated Mongolia's elites to take advantage of the situation, akin to mice starting to play when the cat is away. Mongolia liberated itself from the self-imposed shackles

42 Spyrou et al., 'Analysis of 3800-year-old *Yersinia pestis* genomes'.

of the Manchu Qing in 1911, only to submit itself to another foreign empire, the Soviet Union, a decade later, remaining only nominally independent. This new period marked another phase of isolation for Mongolia, as it became cut off—this time by the Soviet Union—from the rest of the world.

Despite the challenges faced by this landlocked country, there was a benefit from a broader regional health perspective. Mongolia's geographic isolation meant that potential plague outbreaks were scientifically monitored and confined to one of the world's most sparsely populated regions with the help of modern epidemiological knowledge and procedures imported from the Soviet Union.

The fight against the plague began in earnest in 1931, inaugurated by the publication in Ulaanbaatar of the first popular book on the dangers and causes of the plague.[43] This was followed by the establishment in the same year of the Marmot Plague Control Laboratory in Ulaanbaatar, with help from the Soviet Union. Initially run by Soviet experts, the laboratory underwent expansion and transformation, becoming the Marmot Plague Control Center in 1940. This evolution involved the integration of more Mongol personnel into its operations. Under the guidance of Soviet doctors and epidemiologists, the Marmot Plague Control Center developed a systematic approach, employing cutting-edge techniques to combat contagious zoonotic diseases. Whenever provinces or smaller administrative units reported confirmed or suspected plague outbreaks, swift isolation measures were implemented. Those who had contact with plague patients were quarantined, and patients received antibiotic treatment in regional hospitals.

Given the politicization of every aspect of life under socialism, the control of the plague had a comprehensive ideological aspect which went hand in hand with its practical aspect. Its ideological goal was to instill a rational, scientific way of thinking on the population and fight against traditional medicine and superstition, defined as the enemies of scientific progress and hence communism. It was in this environment that the marmot was stripped of its mythical chimera-skins and labeled as a biological species harboring a dangerous zoonotic disease. This

43 *Chium-a Kemeku Tarbagan-u Miljan Ebedchin-u Tuhai.*

mirrored the way dogs were similarly divested of their cosmological roles and reduced to germ carriers (see Chapter 2).

Despite these measures, plague cases were recorded almost every year during the socialist period, indicating that the *Homo Sovieticus Mongolicus* wasn't following the Party instructions to the letter. The high mortality rate in confirmed cases resulted not only from citizens failing to fully heed the Party's advice to stop eating raw marmot meat or using marmot tails to pamper their penises, but also from the power of misplaced human optimism—the belief that contracting the plague or being unlucky is something that happens to others, not to themselves. This misplaced optimism among Mongol comrades is humorously illustrated in the following joke:

> A herder commits a banal crime against the socialist state and is duly sentenced to death. The day before his execution, his wife visits to bid him a tearful goodbye. With misplaced optimism, the man reassures her, 'Don't cry, my love. There's no certainty the execution will proceed tomorrow. Even if it does, there's no guarantee the firearms won't malfunction. And even if they don't, there's no guarantee the bullets will find their mark. And even if they do, there's no guarantee I won't survive. So, don't worry. I'm sure nothing serious will happen to me and everything will be alright'.

To this should be added the fact that, the sparse distribution of healthcare facilities across Mongolia's vast territory made it challenging for infected nomads to receive timely medical care. This challenge was further compounded by the presence of plague foci covering extensive areas of the country. Nevertheless, the modern plague control system ensured vigilant monitoring of local outbreaks, effectively bringing them under control and preventing their spread to neighboring provinces and beyond.

The Marmot as a State Commodity

From the socialist state's viewpoint, marmot hunting carried substantial economic significance, bringing much-needed foreign currency to Mongolia's coffers. This demand for marmot skins was largely driven by foreign markets. However, industrial-scale hunting had commenced before the socialist regime was established, kicking off in the late

nineteenth century to meet the growing demands for marmot skins in Russia and China. The surge, as mentioned, was fueled by revolutionary skin processing techniques pioneered by the German chemical industry.

For instance, between 1906-10, Mongolia exported a staggering thirteen million marmot pelts to Russia, a stark contrast to the mere 30,000 exported in 1865.[44] This commercial success, however, had a darker side. On the other side of the Mongol-Manchurian border, intensive marmot hunting by Chinese unskilled laborers, eager to cash in on the bounty, inadvertently caused the outbreak of the Great Manchurian Plague in 1910-11.

Upon seizing power, the Mongolian people's government capitalized on the marmot-skin craze in 1920s Germany, transforming marmot skin export into a major trade item. During the socialist period, Mongolia's annual marmot skin trade averaged over 1.2 million skins.[45] While demand eventually decreased slightly, it persisted, continuing to impact marmot hunting in Mongolia. The state's annual purchases of marmot skins from hunters declined from over a million to fewer than 700,000 between 1960 and 1990, although this still constituted a significant quantity.[46]

Under socialist rule, the state monopolized all economic activities, including the procurement and pricing of marmot skins, which became heavily regulated in the 1930s. Private hunters were banned from profiteering by selling marmot skins on the black market, as skins were declared a state-owned resource. Many collective farms had mobile shopping units called *agant* that sold, among other items, bullets and had quotas for procuring marmot pelts each year, established to regulate the number of marmots harvested annually. While many nomads hunted marmots and sold the skins to these *agant* shops, some were employed as full-time hunters by the state and provided with salaries and equipment.

While setting annual quotas for marmot skins, the state also sought to control wildlife populations by preserving the country's natural habitats through the establishment of protected areas where hunting was strictly prohibited. These designated zones served as essential sanctuaries for

44 Summers, *The Great Manchurian Plague*, 119-20.
45 Wingard and Zahler, 'Silent steppe'.
46 Atwood, *Encyclopedia of Mongolia and the Mongol Empire*, 229.

wildlife, ensuring that the broader environment remained wild and thriving.

In theory, communist society was envisioned as a utopian state where the needs of every laborer and herder would be fully satisfied. However, in practice, it was marred by chronic shortages and distribution failures. In Mongolian, many phrases draw upon the nomadic heritage and center around animal husbandry and hunting. One particularly vivid expression is 'a fox dies of hunger by looking at the bull dangling its testicles'. This phrase conjures an image of a hungry fox staring at a bull's loosely hanging testicles, hoping they might drop off soon, offering a satisfying meal. It is used to illustrate situations where someone clings to an unrealistic hope for too long. During the socialist era in Mongolia, most citizens found themselves in a similar situation to these hungry foxes, relying on the economically impotent socialist state to provide them with a satisfying life. However, rather than passively waiting for metaphorical juicy testicles to fall onto their dinner plates, some enterprising *Homo Sovieticus Mongolicus* took matters into their own hands. This proactive approach gave rise to an underground economy, an attempt to compensate for shortages in goods, food, and monetary income. However, grabbing destiny by the balls also had its darker side, as corruption became pervasive, fueling various illicit activities, including widespread poaching across Mongolia, even within wildlife sanctuaries. Those involved in poaching seemed motivated to improve their living conditions, rather than outright undermining the existing system. Similarly, other activities considered anti-communist or illegal—such as secretly conducting religious rituals, chopping off dead dogs' tails, stealing state property, prostituting, offering to be sugar daddies or sugar mamas, and many other actions—were integral parts of everyday life for many otherwise law-abiding citizens in the socialist country.

In Post-Socialist Mongolia

In 1990, Mongolia made a decisive shift away from state socialism, embracing a free-market economy and open borders that allowed its citizens to travel abroad and permitted foreigners to enter the country without restrictions. Rejecting communist ideology, the government adopted a new democratic constitution in 1992, championing

consumerism, entrepreneurship, political freedom, freedom of movement, and human rights—freedoms that had previously been denied to the populace. However, this epochal transition wasn't all smooth sailing. Mongolia faced unprecedented instability, along with a significant rise in poverty and unemployment, reflecting the challenges encountered by other former socialist nations transitioning to market-oriented systems. During this tumultuous period, the only sectors keeping Mongolia's economy afloat were those based on the country's abundant resources. Gold mining and the export of marmot skins, primarily to Russia and China, emerged as vital industries immediately after socialism's demise.

The marmot skin trade, a sector driven by individual entrepreneurs rather than the state, played a crucial role not only in sustaining the livelihoods of numerous families across the country but also in the initial accumulation of private capital that individuals would later invest in other sectors, thus contributing to the diversification of Mongolia's economy. This trade created a chain of individuals involved, starting with hunters who sold skins to middlemen, prompting many to rush to provinces in hopes of purchasing skins cheaply and reselling them at a higher price in Ulaanbaatar to traders traveling abroad. This development paralleled a gold rush in the country, as people flocked to the abandoned or depleted gold mines in hopes of striking it rich.

In the early 1990s, I found myself swept up in the 'marmot skin rush'. During my summer vacations from high school, I collected marmot skins from local hunters in Dundgobi Province and resold them in Ulaanbaatar. Despite the hard work and stress involved, I barely made any profit. Intense competition made acquiring marmot skins difficult, and losses during transportation from Dundgobi to Ulaanbaatar, along with purchasing low-quality skins, wiped out my meager gains. Despite this, I thoroughly enjoyed the experience because I gained independence and learned valuable networking and problem-solving skills. The only individuals who reaped real profits were traders transporting skins to Russia or China in large quantities. However, engaging in cross-border trade, especially with Russia, was daunting due to widespread corruption at border controls and the need for trustworthy partners in Russia. The challenge was amplified by the dog-eat-dog environment during Russia's plunge into wild capitalism, where contract killings

were commonplace, and hitmen even advertised their services in the local press.

Having decided that marmot skin business wasn't my calling, I ventured into shuttle trading between Ulaanbaatar and Russia. This was in 1993 when I, still a teenager, made trips to Russia. Without the funds for serious import-export operations, I started small. Armed with Mongol leather coats and trendy leather bags that were all the rage in Russia at that time, I hopped on a bus from Ulaanbaatar to Russia, eager for new adventures.

During this era, shuttling by bus between Ulaanbaatar and Siberian towns in Russia was incredibly popular in Mongolia. Multiple buses made the journey daily. Mongol shuttlers typically traveled to Russia with two types of goods: Mongol produce, such as marmot fur coats and hats, leather coats, and leather bags; and Chinese products, including low-quality, inexpensive items like clothing, shoes, and duvets. In return, people brought back food stuffs, condoms, Soviet military jockstraps (an underwear for protecting the vulnerable part), Soviet military coats, and various miscellaneous items they bought in the Russian flea market.

Passing through Russian customs unscathed required having the balls of a brass macaque, an entrepreneurial nose, and a fair amount of luck. While it was mandatory to declare every item brought into Russia, the wildly exorbitant taxes imposed by Russian customs officials were enough to ruin any shuttle trade expedition. Hence, many tried to avoid declaring all their items and resorted to hiding goods in various places. During my first business trip, I vividly recall witnessing several Mongol businesswomen, dressed in marmot fur coats for sale, trying to conceal goods in their brassieres and underwear. At the Russian customs, Mongols, especially men, caught attempting to smuggle merchandise, were unceremoniously subjected to kicks and punches by officials and border guards. Though I personally escaped mistreatment, I anticipated a punch, as most men on our bus seemed to be receiving one or two. Perhaps my tender age and my proficiency in Russian spared me, or maybe I was just lucky, or gave the impression that I had the brass balls of a macaque. Who knows?

The situation in the Russian market was no better. The Mongols had to play a constant game of evasion with predatory Russian tax collectors and policemen, who regularly raided the open market where Mongols

displayed their goods. During one such raid, the Mongol vendors, many sporting marmot fur coats for sale, scattered in all directions like marmots fleeing from indiscriminate hunters. This starkly contrasted with the treatment shown to some Japanese tourists who had arrived on a bus, accompanied by a police escort, and stopped at the hotel entrance opposite the open market. These tourists received all signs of courtesy from the bus driver and hotel doormen, not to mention the Russian passersby who admired how well-groomed and well-dressed the Japanese appeared, flaunting their expensive cameras and watches. As I stood there observing the Japanese tourists, a Russian male Sapiens standing beside me, also keeping an eye on the tourists, offered his opinion that Mongols would be treated with respect when we too became 'proper humans' like the Japanese.

On the return journey at the Russian-Mongolian border, a long column of both Russian and Mongolian vehicles awaited entry into Mongolia. All Russians were allowed to jump the queue and pass controls swiftly, while the Mongols were instructed to wait for further notice. Frustration grew among the Mongols who were unhappy with the blatantly unfair treatment. Some of them shouted a few questions at the Russian border officials about how long they would have to wait and tried to shame the Russians by reminding them that Mongolia was the second socialist country in the world, after the Soviet Union. This sentimental bullshit from former imperial subjects must have been the last straw that broke the camel's back, and in no time, the feared Russian riot police, the OMON, arrived on the scene. Without warning, the cops started indiscriminately beating those standing closest to the border gates. I saw men and women running away, holding their bleeding heads with their hands. This was a horror scene out of a Soviet movie where Nazis beat occupied people. The Mongols were not admitted into the border controls area until the next day as a punitive measure. During the night, I had a chance to converse with a couple of male Russian prison runaways who were avoiding the police. They approached our bus under the cover of darkness to ask for food and cigarettes. This experience led me to a conclusion, further substantiated during my subsequent research in Russia: in this country, individuals, especially foreigners from former 'brotherly' socialist countries, have more to fear from the police and officials than from gangsters. When

Russians, especially officials and those in uniform, are empowered with a hammer, both real and metaphorical, they typically treat everyone else like nails that need to be struck to instill order. Today, whenever I come across news detailing the mistreatment and torture of the local civilian population in the occupied territories of Ukraine by Russian soldiers, secret police, and officials—whom the Russian occupants regard as inferiors or even worse, as traitors to Greater Russia—I know where this chauvinistic and cruel behavior comes from.

In the 1990s, one of my paternal cousins was a successful marmot skin trader, shuttling between Ulaanbaatar and Russia by train, skillfully ensuring his skin shipments reached their destination unscathed amidst corrupt customs officials, gangsters, policemen, and Russian ultranationalists, earning him the reputation of a small-time marmot fur kingpin. He was the elder brother of the man who performed the funerary rite for Sharik and also the person to whom my father used to send dog meat to treat his respiratory disease. Initially, my cousin, the marmot fur kingpin, went to the Soviet Union to study the communist theory at university in the late 1980s. His goal was to become an intellectual and climb the ranks of the Party hierarchy. He possessed the correct philosophical mindset and moral position to succeed as a party apparatchik. Whenever he read Marx's and Lenin's opuses on dialectical materialism—he once confided in me—he 'thought of pussies', and whenever he had sex, he found himself thinking about dialectical materialism. As endorsed by the socialist state, he also practiced the correct face-to-face 'missionary position' and not the bourgeois 'doggy style' or similar dodgy positions. However, in the aftermath of the Soviet system's disintegration, this golden boy of communism was bitten by the capitalist bug that drove him to become an entrepreneur. Cool as a cucumber and fluent in Russian, he frequently traveled between Mongolia and Russia, transporting several thousand marmot skins in one go, in the process making a small fortune. Many who knew him were envious of his larger-than-life personality and unabashed playboy lifestyle: he was always surrounded by sugar babies, was perpetually drunk, dined and wined in the fanciest restaurants, and carried stacks of cash he never failed to show off. If we are to apply the communist critique of capitalism, my cousin converted commodities (marmot skins) into filthy lucre, amassed wealth, purchased high-end services, and actively

contributed to class inequality and the perpetuation of bourgeois, hedonistic forms of self-gratification. Despite his industriousness, rather than directing his energy towards more productive pursuits and investing his money in gold mining or a similar venture, my cousin indulged in a morally destructive lifestyle. As his maternal uncle, my father often advised him to stop these excesses, but alas, it was like casting pearls before swine.

My cousin was not alone in succumbing to greed and losing sight of his values. The entire society resonated with an insatiable entrepreneurial spirit, unrestrained sex, unchecked violence, pervasive fear, and a survival instinct, having abandoned the moral compass established during the socialist period. In the age of chaos when the world seemed turned upside down, socialist-era heroes—such as toilers, herders, intellectuals, and elderly statesmen—no longer held the spotlight. Instead, society started to admire figures like cutthroat entrepreneurs, gangsters, and high-end escorts, who became the new role models, dangling their newfound wealth and fame like unreachable prizes before the impoverished masses. My cousin stood as a living embodiment of this shift, reflecting the changing values of the age.

Mongolia's marmot population has faced significant challenges over the years due to both legal and illegal hunting practices. During the socialist era, overhunting was a persistent problem, but the situation worsened after the liberalization of hunting regulations following the collapse of state socialism. In the mid-1990s, the price of marmot pelts surged due to rising international demand, which, combined with relaxed gun control laws and increased car ownership, made marmot hunting more accessible and widespread. By the early 2000s, the annual number of marmots hunted exceeded three million.[47] This unsustainable level of hunting led to severe biodiversity loss and regional extinctions, culminating in what has been dubbed as a 'marmot crisis'. As a symbol of the marmot's significance, there are now two monuments dedicated to the marmot—one is in the town of Nalaih and the other in the village of Bayan-Uul, Dornod Province, where in both places the marmot has disappeared due to overhunting.

47 Wingard and Zahler, 'Silent steppe'.

While marmots are potential vectors for diseases like the plague, ecologists recognize them as a 'keystone species' in the grassland ecosystem. Marmot activities help sustain biodiversity and ecological resilience, meaning that their decline negatively impacts the entire ecosystem.[48] This mirrors Mongol cosmological themes of harmony and imbalance, where marmots serve as indicators of environmental health.

In response to the critical situation, in 2006 the Mongolian government enacted a law prohibiting marmot hunting, aiming to protect the species and rein in the greed of hunters and entrepreneurs. Simultaneously, the government has taken proactive measures to reintroduce marmots in areas where they have gone extinct. For example, in Sühbaatar Province, authorities initiated marmot reintroduction efforts in 2006, 2011, 2012, and 2019. Similar initiatives are also underway in other parts of the country.

Despite this, enforcing the hunting ban has proven incredibly challenging due to rampant corruption, understaffed law enforcement, and cultural preferences for marmot meat, not to mention economic gains to be made from the marmot pelt trade. Tragically, every year or so, several people die in Mongolia from contracting the plague. The revival of religion, including Buddhism and shamanism, claiming ownership over wildlife, didn't appear to have influenced hunters to kill fewer animals. On the contrary, many hunters sought to strike deals with deities and nature spirits by bribing them with rituals, offerings, and prayers to ensure continued blessings and successful hunts. This is not dissimilar to acts of bribery or strategic exchanges seen in chimp societies, where our distant cousins offer grooming and other valuable resources to increase their chances of receiving food or sexual access in return.

Part III

Science, Pseudoscience, and the Plague

In the early-1990s, as Mongolia embraced religious freedoms and pseudoscience, a man in our neighborhood became renowned for his healing powers, practicing divination, and assisting people in winning the lottery. Miracles that he allegedly performed were on everybody's

48 Yoshihara et al., 'Effects of disturbance by Siberian marmots'.

lip, and many sought him out for a session. One day, luck was on our side, and the man agreed to grace our humble flat with his charismatic presence and perform magical health-related rituals. Apparently, he liked the way we treated him and the special food my mother cooked for him so that he ended up staying in one of our bedrooms for a month. Although he preferred to be left alone in the room, where he spent most of his time sleeping like a marmot, eating, releasing gazes of the least salubrious origin, leafing through pornographic newspapers, and enjoying himself, I had plenty of time to observe him and even ask a few questions about his magical powers. A former laborer with special interest in the occult, he found fame overnight after he started healing people with cosmic energy. In his new trade, he used various Buddhist implements (a rosary, a statue of Buddha), sacred objects (stones for divination, consecrated coins), holy water, marmot ankle bones, along with a calculator (to calculate some celestial equations)—not to mention his sweet tongue: his most potent tool. During his month-long stay in our flat, we grew so accustomed to his therapeutic presence that his departure to sofa-surf in another family's flat left us missing him.

Given the nature of humanity—a species closely related to chimps and bonobos—we are social primates whose beliefs and actions are shaped not only by analytical thinking but also, and more significantly, by our gut feelings, intuition, and herd mentality. We often adopt ideas and beliefs uncritically from the groups we belong to—whether neighbors, religious communities, political affiliations, or peer groups—often without realizing it. While we sometimes engage in analytical thinking (what Daniel Kahneman refers to as 'System 2' or 'slow thinking'), most of the time, we rely on quick, intuitive thinking (termed by Kahneman as 'System 1' or 'fast thinking'; Steve Peters calls it the 'inner chimp'[49]).

Given our fallible nature as a species, no human creation is free from biases, subjective errors, or misinterpretations. This applies to institutions including religion, politics, and even science. However, there is a crucial distinction between religion and science, as mentioned earlier. While religion is built on the premise of infallibility, science acknowledges its mistakes and is founded on self-correcting mechanisms designed to refine and improve knowledge.

49 Kahneman, *Thinking Fast and Slow*; Peters, *The Chimp Paradox*.

Science does not exist in a vacuum; it is susceptible to external influences not only because it reflects the personalities and biases of scientists but also because it is intertwined with other social institutions. This is particularly evident in authoritarian regimes, where scientific disciplines often become subservient to political agendas. In such environments, knowledge production can be stifled, allowing unscientific ideas, myths, and falsehoods to flourish under the guise of science. Additionally, science can be manipulated by spiritual movements and charismatic individuals, turning it into pseudoscience rather than a pursuit of truth.

This raises important questions about the susceptibility of science to manipulation and influence by rigid belief systems—whether Leninist-Stalinist ideologies, religious dogmas, or spiritual movements—in both autocratic regimes (such as socialist Mongolia) and transitional societies (such as post-socialist Mongolia). This section explores the relationship between power, science, and pseudoscience, using the example of Mongolia during its socialist and post-socialist periods. It sheds light on the circumstances under which Mongolia sought to manage the plague situation.

Stories, Religion, and Communism

As discussed earlier (see Chapter 1), in human culture, nearly every belief, concept, or social activity is rooted in and communicated through stories, which serve as the foundation of culture. Stories—whether myths, religious dogmas, cosmologies, ideologies, *bolson yavdal* stories, national histories, genealogies, or rumors—don't need to convey the truth or accurately represent reality. Most are subjective interpretations at best and falsehoods at worst, with their primary function being to foster cooperation among people by offering different types of information that resonate with various groups. Despite their fictional nature, these stories exert a tangible and unifying force on our lives as long as we believe in them.

Viewing stories in this way helps us understand that human cultures essentially revolve around fictions and subjective interpretations that gain materiality and tangibility through their incorporation into daily life. These fictional stories become embedded in the material world

through rituals, politics, art, clothing, sexuality, morality, architecture, the media, and other aspects of society.

Let's take religion as an example. In a narrow definition, religion is built upon stories that legitimize a set of beliefs, practices, and moral values, often by attributing them to supernatural entities such as gods, spirits, and the like. In Christianity, God is considered the ultimate source of legitimacy and truth, guiding human actions through divine commandments and teachings found in religious stories inscribed in holy texts like the Bible. Despite containing numerous falsehoods about the age of the Earth, the origins of humanity, the causes of diseases, and historical events, as well as promoting questionable moral positions such as misogyny, homophobia, xenophobia, and slavery,[50] Christianity has united large numbers of people. Like other religions, it has done so by integrating its teachings into all aspects of its followers' lives, from the cradle to the grave, instilling shared interests, goals, and identities. If the primary function of religion were to represent reality correctly and seek the truth, it would be difficult to explain why its fictional texts, full of untruths, create and maintain large communities of millions and, in some cases, billions.

In its broadest definition, religion doesn't require gods, as long as it offers an all-encompassing story conferring 'natural' legitimacy on human norms and actions. According to this definition, communist ideology is also a kind of religion. Despite their outward differences, communist ideology, *in essence*, is no different from Christianity, Islam, or any other traditional religion in that it too offers an all-encompassing story where the 'natural' laws of 'dialectical materialism' and 'relentless class struggle' play a similar role to personal God in Christianity and Islam or the impersonal forces of karma and dharma in Buddhism. Just like traditional religions, communist ideology provides an explanation for the meaning of life, the nature of reality, and the relationship between humans and the environment, aiming to guide social evolution toward its predestined goal of achieving communism—an earthly paradise. In other words, according to this communist narrative, humans have no choice but to obey and follow these 'natural' laws (which are invented by human storytellers). It is no coincidence that communist

50 Hitchens, *God Is Not Great*; Dawkins, *The God Delusion.*

ideology, despite being based on materialist philosophy, exhibited all the hallmarks of traditional religions, including having prophets (Karl Marx, Friedrich Engels, Vladimir Lenin), holy texts (works of the Founding Fathers of the communist theory), an institution to safeguard and impose knowledge (the Communist Party), heretics (all people or groups deviating from the prescribed state beliefs), rituals (mass rallies, ideological education sessions, birthdays of communist leaders), pilgrimage sites (mausoleums housing mummified leaders), miracles (delivered by Soviet science and technology, as well as charlatans like Trofim Lysenko[51]), witch-hunts (leading to mass arrests, show trials, and executions), and justification for global war (with the heretical capitalist world and its minions). Communist ideology—or 'communist religion', based on myths, dangerous fantasies, and falsehoods—served as the foundation of Soviet culture and influenced millions of people worldwide. If the primary function of this ideology were to accurately represent reality and seek the truth, it would have collapsed before winning over entire nations.

The same can be said about any other social order, including liberal democracy. As a cultural product, liberal democracy doesn't need to objectively reflect reality or exclusively promote the truth, even though it claims to do so—much like all other social organizations. Its primary function is to unite people through shared myths and fictions, such as those concerning nationhood, equality, inalienable human rights, meritocracy, and so on. These myths and fictions can sometimes take a blatant and more nefarious form, such as the narrative of a nation being invaded by immigrants, immigrants causing crime surges, or other countries stealing jobs. Leaders who spread such falsehoods and anti-foreign rhetoric may rally support by fostering societal division between supporters and opponents—a tactic that can occur even in democracies. From a broader cultural perspective, the best social orders are not those that most accurately seek and promote the truth, but rather those that most effectively unite people. In this regard, communism was one of

51 The Soviet agronomist and pseudo-scientist Trofim Lysenko (1898-1976), favored by both Joseph Stalin and his successor Nikita Khrushchev, formulated unsound agricultural theories based on deception and fantasy. His theories and policies significantly contributed to the Soviet Union's agricultural failures, resulting in food shortages and famine.

the most effective regimes in history in achieving near-totalitarian unity, although from the perspective of individual citizens, it was likely one of the worst.

The question of which socio-political system provides its citizens with the greatest happiness and comfort is a separate issue. Since the primary objective of culture is to unite people, there is no guarantee that regimes offering better lives and more freedoms, such as liberal democracy, will ultimately prevail over systems like communism or its authoritarian copycats. We saw this in the aftermath of the collapse of the Soviet system when almost all former socialist countries experimented with liberal democracy. Yet, over time, many, including Russia and the Central Asian 'stans,' reverted to authoritarian regimes. In today's Russia, Putinism exemplifies how authoritarian regimes can foster national unity and justify invading neighboring countries based on myths, fantasies, and outright falsehoods, all while relying on mass surveillance and propaganda.

Returning to communism in the Soviet Union, from which Vladimir Putin claims to draw inspiration, the regime's fictional aspects were exposed in all their nakedness in its early years, before there was sufficient time to conceal and institutionalize them. Leading Bolshevik figures, including revered names such as Alexandr Bogdanov (an early political rival of Lenin), Leonid Krasin (the People's Commissar for Trade), and Anatoly Lunacharsky (the People's Commissar for Education), openly proposed a program of God-building (*bogostroitel'stvo*). They hoped this state-sponsored program would replace the rituals and myths of the Orthodox Church with the creation of an 'atheistic religion' that would accommodate new secular rituals and myths.

This plan for replacement was not envisioned to make the new secular religion any less powerful. Early Bolshevik leaders, many of whom were formidable intellectuals, knew well the immense power that rituals and myths exert on the human body and mind by entrenching themselves in people's ways of life. You don't need an anthropologist to tell you that rituals and myths not only unite us with others, but they also help rearrange social relations, as at a wedding, or help us through our most difficult times, such as funerals. If myths or stories are like building blocks that hold human culture together, then rituals are like the glue

that holds these blocks together, and a human life without either would be inconceivable.

This secular belief system, as envisioned by the Bolshevik God-builders, was intended to be based on the ideas of the pseudoscientific movement of cosmism. Now, let's briefly look at cosmism and the myths that underpin it, as they are crucial not only for understanding Soviet culture's relationship with pseudoscience but also for analyzing post-socialist Mongolia.

Russian Cosmism

Cosmism emerged in Russia in the late nineteenth and early twentieth centuries as a response to the rapid scientific and social changes in the country, where the power of gods was diminishing. It sought to systematize groundbreaking scientific discoveries and provide a new, holistic story about the universe, encompassing everything from atoms to human societies and galaxies. Influenced by Western occult and theosophical ideas as well as Russian folk superstitions, cosmism emphasized human agency, technology, the occult knowledge, and scientific progress as the means to achieve immortality, create perfect humans, and conquer the cosmos teeming with innumerable alien civilizations.

Based on an idealistic belief in science and the power of humankind to tame and change nature, cosmism offered a holistic and anthropocentric view. According to cosmism, the universe consists of energy flows, and humans are intimately connected not only with their planet but with the endless expanse of the universe through myriad cosmic energies and waves. These waves transfer not only heat but also miraculous qualities such as collective intelligence, wisdom, memories, healing powers, and even sensibilities. Some cosmists even believe the universe to be a gigantic living organism. Endowed with the power of creation and destruction through modern science, humans have a duty to conquer and perfect the universe, assuming the role traditionally ascribed to gods. This must be accomplished by pursuing scientific progress, developing powerful technologies, eradicating diseases, overcoming biological limitations, and ultimately attaining immortality.

Alexandr Bogdanov was the head of Proletkult, an early Soviet movement aimed at creating a new proletarian culture. A polymath and theorist deeply fascinated by the sciences and cosmism, he conducted experiments delving into the possibility of achieving eternal youth and defeating the Grim Reaper itself through blood transfusion. Notably, Lenin's sister, Maria Ulyanova, was one of the guinea pigs in his trials. Tragically, Bogdanov's audacious experiment in blood transfusion proved fatal, leading to his untimely death.[52]

Even Lenin could not escape the influence of cosmism, if not in life then in death. The Soviet Immortalization Committee, established to organize his funeral, chose to preserve his body—a decision heavily influenced by the People's Commissar for Trade, Leonid Krasin, a fervent follower of cosmism and advocate of the secular God-building program. This decision found favor among cosmists and kindred spirits, who envisioned not only Lenin's corpse inspiring the proletarian cause but also the potential for future science to resurrect him. Lenin's tomb, designed as a cube by Kazimir Malevich, the cosmist artist who proposed the shape, was believed to offer an escape from death.[53]

Yet, the initial phase of harmony in cosmism-Bolshevik relations started to wane in the 1930s as scientific disciplines rapidly unified under the ideology of Leninism-Stalinism. The occult aspects of cosmism were suppressed by Stalin, though certain elements found their way into Soviet science, art, propaganda, and politics. Particularly, its God-building mission influenced the creation of the Lenin cult and the Stalin cult. While Lenin discouraged cult-building during his lifetime, Stalin orchestrated his own cult. Presenting himself as Lenin's faithful disciple and chosen heir, Stalin propagated the notion of collective miracles through Soviet science and technology. In Soviet stories he came to be described in divine terms—omnipotent, omniscient, and benevolent Father of Nations. Criticizing Stalin was deemed heretical, and countless

52 Terbish, *State Ideology, Science, and Pseudoscience in Russia.*

53 The mummification of Lenin's body established a tradition across the socialist world. Among the first supreme leaders of socialist countries to undergo this process by specialists from the 'Lenin lab' in Moscow was Mongolia's Choibalsan in 1952. Others included Bulgaria's Georgi Dimitrov in 1949, Czechoslovakia's Klement Gottwald in 1953, Vietnam's Ho Chi Minh in 1969, Angola's Agostino Neto in 1979, Guyana's Lindon Forbes Burnham in 1985, and North Korea's Kim Il-Sung in 1994, followed by his son Kim Jong-Il in 2011.

individuals lived and died in dread of the Father who could capriciously select anyone for sacrifice. Stakhanovite 'shockworkers' claimed that the mere thought of Stalin drove them to work harder and love him even more. Many households had red corners devoted to the worship of Stalin. During World War Two, Soviet soldiers charged into battle shouting, 'For the Motherland! For Stalin!' Even a specific 'Stalinist salute', similar to the Nazi salute, was introduced where comrades raised their hand to the level of their head as a gesture of allegiance and respect to Stalin. If Stalin was the Almighty, his engineers, doctors, and technocrats were viewed as wizards of a burgeoning earthly paradise, where man-made miracles were expected through science, technology, and the conquest of nature. When Stalin passed away, it was akin to Nietzsche's moment of the death of God—met with disbelief and shock. People from all walks of life, whether they worshipped or hated him, wept and mourned. The writer Ilya Ehrenburg, who witnessed Stalin's coffin at the state funeral, captured the public mood in his memoir *People*, *Years*, *Life* (*Lyudi*, *Gody*, *Zhizn'*) by describing Stalin's corpse as: 'The god who died from a stroke at the age of 73, as if he were not a god but a mere mortal'.[54] After Stalin's death in 1953, his corpse was placed beside Lenin's in the mausoleum. But instead of being resurrected by future Soviet scientists, the corpse was unceremoniously removed in 1962 during Khrushchev's rule amidst Soviet stories vilifying Stalin.

Science, Superstition, and Conspiracies Under Communism

Humans are an inherently superstitious and conspiratorial species, largely due to our natural tendency to seek patterns and detect agency in our surroundings. This inclination is deeply rooted in our neural architecture, which is designed for fast and energy-efficient decision-making, often requiring the simplification and generalization of information. As a sense-making mechanism, this neural system—what Kahneman refers to as 'System 1' or 'fast thinking'[55]—allows us to perceive the world as more coherent, simple, and predictable than it actually is. This likely provided an evolutionary advantage to our ancestors, who lived in a world where quick thinking could make all

54 Paperno, *Stories of the Soviet Experience*, 28.
55 Kahneman, *Thinking Fast and Slow.*

the difference between obtaining food or becoming food themselves. However, this same mechanism also gives rise to cognitive biases, superstitions, and conspiracy theories, as we attempt to impose order and meaning on what might otherwise seem chaotic, unpredictable, or threatening. For example, rather than deliberating whether a slinking shadow in the bushes is a tiger, it is safer to assume that it is and flee—an illustration of 'negativity bias', which is the tendency to focus more on negative or threatening information. Similarly, superstitions arise when people believe that certain actions or rituals can influence outcomes, even in the absence of empirical evidence. Given that we all share the same *Homo sapiens* biology, even the most fervent atheists and scientifically-minded individuals cannot fully escape this aspect of human nature.

As a product of humanity, culture reflects and amplifies these inherent tendencies. Individually, people often form more confident and coherent views when they know less about a subject. Similarly, at a cultural level, the simpler the ideas that unify a community, the stronger their unifying effect—hence why myths and fictions that caricature reality can be more effective at fostering unity than complex, nuanced truths. This tendency helps explain why, throughout history, many successful politicians have connected with followers by offering easily digestible, often sensational stories designed to provoke strong emotions like fear or hope. Such messages frequently combine falsehoods, conspiracies, exaggerated claims, and subtle grains of truth—a tactic observed in various historical and political contexts where individual leaders or entire propaganda machines use simplified narratives to create unity and solidarity, often at the expense of objective reality and truth.

Under Khrushchev's leadership, the Soviet Union achieved the milestone of sending the first human into orbit, thus realizing cosmism's prediction of 'conquering the cosmos', while investing massively in science with the intent of demonstrating the Soviet Union's technological leadership, ideological superiority, and societal advancement. Consequently, Soviet cosmonauts were presented by state propaganda as paragons of model Soviet citizens—if not perfect humans—and as harbingers of the impending era of scientific communism. As poster boys of the atheistic regime, cosmonauts were selected not only for their physical endurance, technical expertise, and appearance, but for their unshakable ideological commitment.

Nevertheless, much like broader Soviet culture and society, the beliefs and actions among these shining beacons of perfection were infused with rituals and superstitions. For example, both before and after their flights, cosmonauts adhered to over two dozen superstitious practices, including the ritual of urinating on the wheel of the bus that transported them to the launch site at the Baikonur Cosmodrome—a tradition started by Yuri Gagarin out of necessity before his historic flight.[56] Subsequent cosmonauts repeated this ritual not only as a tribute to the first man to venture into space but also as a superstition aimed at ensuring the success of their own missions. The only exceptions were the two Soviet female cosmonauts, Valentina Tereshkova and Svetlana Savitskaya, who were physically unable to perform the ritual as their male counterparts did without compromising their dignity.

Despite its rhetoric, the Soviet system never eliminated superstitions, myths, or conspiracy theories. This was not only because all human cultures are based on myths and fictions, but also because the way the system operated exacerbated the situation. The Soviet system simplified complex social realities and sought secret puppeteers behind events, continuously generating conspiracy theories. It also propagated myths about the West through state propaganda, infusing paranoid thinking into every aspect of society and politics. The state's encouragement of conspiratorial thinking in a society notorious for its secrecy and suppression of truth led many Soviet citizens to develop their own unsanctioned explanations and conspiracy theories about the world, sustaining beliefs in the hidden, the unknown, and the paranormal.

Communism is not so different from conservative religious societies—such as medieval Europe during the Inquisition or present-day Afghanistan under the Taliban—in terms of producing myths, fictions, and superstitions. Hypersensitive to the slightest criticism, all three regimes issued special decrees to impose severe punishments on heretics or nonconformists, whether through Soviet secret police orders, *autos de fe* during the Inquisition, or Islamic fatwas. What distinguishes communism, however, is its emphasis on worshiping humanity and science rather than gods and ancient traditions. In the communist story, collective humanity serves as a source of inspiration and meaning, while

56 Lewis, *Cosmonaut*: *A Cultural History*, 148-49.

science and technology hold a central and revered position, regarded as indispensable tools for transforming the world into an earthly paradise. While it is true that Stalin could not have built a totalitarian society without modern technologies—such as the telegraph, radio, telephone, television, mechanized vehicles, and airplanes—that endowed the Soviet regime with advanced capabilities for surveillance, discipline, and brainwashing, this does not mean that science in the Soviet Union adhered to the fundamental principles of objectivity, impartiality, and truth-seeking. Instead, science was monopolized and politicized by the Communist Party's high priesthood, becoming a powerful extension of the state's utopian ideology and a tool to reinforce the regime and its falsehoods.

Many middle-aged and elderly Mongols, who grew up under state socialism, often argue that the Soviet Union, despite its many shortcomings, was an industrialized behemoth with the largest scientific community in history. While this is true, it does not absolve the regime of its many sins. It is important to reiterate that science in the Soviet Union was subject to the whims of individual leaders, potentially turning it into a powerful instrument of mass punishment and control. For example, psychoanalysis and genetics—one field that treats humans as individuals rather than as a gray mass, and the other a discipline with the potential to improve agricultural productivity—were both banned on Stalin's orders. Only scientific disciplines that generated power for the Communist Party without explicitly threatening the social order were encouraged to seek the truth and received state support. These were primarily fields such as rocketry, nuclear physics, engineering, mathematics, chemistry, and medicine, which had the potential to contribute to the glory of the Motherland and the Soviet defense industry geared towards waging a holy war against the heretical West and its liberal democracy. Even these disciplines remained inefficient. The Soviet Union developed rocketry, jet propulsion, the atomic bomb, and radar, managing to maintain only a small gap between its weapon systems and those of the West, primarily by stealing scientific discoveries on an industrial scale. According to a 1979 KGB internal report, produced at the height of communism, more than half of the projects run by the Soviet defense industry were based on intelligence stolen from the West. In 1980, hooked on stolen Western technologies like a lifeline, the Soviet Military-Industrial Commission

(VPK) compiled a list of 3,617 'acquisition tasks' for the KGB, of which 1,085 were completed within a year, allegedly benefitting 3,396 Soviet research and development projects.[57] This helped the Soviet Union maintain its image as a 'superpower'—though perhaps 'super-thief' might have been a more fitting title.

In contrast, fields such as historiography, the theory of communism, political science, sociology, philosophy, literature, and the arts—areas with the potential to undermine the Soviet system by exposing its lies, frauds, and myths—were tightly controlled. Professionals were forced to blindly adhere to the principles of Socialist Realism, personally approved by Stalin. Those who didn't were imprisoned, tortured, or executed. Despite its name, Socialist Realism was not intended to portray social reality as it existed in the (gloomy) present, but rather as an idealized, imaginary reality shaped by the Party's narrow perspective. This insistence stemmed not only from the fact that Party leaders lived in abundance and privilege, detached from the daily struggles of ordinary people, but also from the belief that all truth had already been revealed by the Founding Fathers of communist theory. As a result, historical, theoretical, or social inquiries were not meant to uncover new knowledge or challenge existing myths, but rather to provide supplementary evidence for what had already been established in Marx's and Lenin's opuses on dialectical materialism. Socialist Realism could just as well have been termed Fabricated Realism.

Consider the following popular Soviet slogans: 'Socialist Realism: The Truth of Life Through the Lens of the Party!', 'Through Socialist Realism, We Build the Future of Communism!', and 'The Path to Communism is Painted with the Brush of Socialist Realism!' Now, read these slogans as they truly should have been, where Socialist Realism is replaced with Fabricated Realism: 'Fabricated Realism: The Truth of Life Through the Lens of the Party!', 'Through Fabricated Realism, We Build the Future of Communism!', and 'The Path to Communism is Painted with the Brush of Fabricated Realism!'

While the Soviet Union was overtly future-oriented, aiming to establish communism, the very mechanism of knowledge production and dissemination that drove it toward this goal was already ossified

57 Andrew, *The Secret World*, 689-92.

and past-oriented, conducive to churning up or allowing untruths, myths, and inefficiencies to flourish in society. This example not only showcases *Homo sapiens*' creative power of imagination to square circles and create imaginary worlds but also underscores how science can be co-opted by totalitarian regimes when they suppress or manipulate scientific discoveries to conform to their own political stories and narrow agendas. When science is subjugated in such a fanatical manner, unable to challenge the sacral dogmas and myths of the governing regime, it can impede societal progress, limit individual freedoms, and hinder the advancement of human understanding. These consequences were unmistakable hallmarks of socialism in the Soviet Union and its satellite, Mongolia.

Science in Socialist Mongolia

In a swift parallel to events in the Soviet Union, Mongolia embraced totalitarianism, instigating mass terror during peacetime and promoting the cult of personality in the persona of Choibalsan. Taking inspiration from Stalin's Great Purges, the Mongolian dictator launched his own wave of purges aimed at cleansing society of both old ideas and heretics. This led to the arrest and execution of thousands on largely trumped-up charges. The victims included not only aristocrats, monks, and monastic doctors, custodians of old knowledge, but also members of the emerging intelligentsia. Virtually all pioneers of modern Mongolian prose, linguistics, and history, instrumental in spreading the communist story, faced arrest and execution, for deviating from the principles of Fabricated Realism.

Unlike the Soviet Union, however, Mongolia lacked scientists—or 'technical intelligentsia', as this group was referred to in the Soviet Union—due to the country's backwardness. This absence made it impossible to target non-existent scientists for ideological heresy. For the first cadre of scientists, it was a stroke of luck that their rise coincided with the cessation of the purges in 1939 and the death of 'Mongolia's Stalin', Choibalsan, in 1952, who, following the cosmism-inspired Soviet tradition, was mummified by specialists of the 'Lenin Lab' in Moscow and placed in a tomb on the main square in Ulaanbaatar, which was a replica of Lenin's death-defying tomb on Red Square. Despite pervasive

state control over every aspect of life, including scientific disciplines, in Mongolia the Party's interventions in emerging 'hard' sciences such as medicine, epidemiology, mathematics, and others were limited. This was not due to a lack of desire by the Revolutionary Party's high priesthood to fully control scientists, but primarily because they lacked the scientific expertise necessary for meaningful arbitration.

As a result, scientists enjoyed a certain degree of freedom to engage in purely scientific pursuits, as long as they maintained a facade of adherence to Leninist-Stalinist dogma and expressed dogged loyalty to the Party. This structural latitude paved the way for tangible achievements at the newly established Marmot Plague Control Center in Ulaanbaatar, which operated with relatively little intervention from individual leaders. The Center launched a vaccination initiative in rural areas using an anti-plague vaccine developed in the Soviet Union and implemented various preventive and life-saving measures.

In broader terms, science in socialist Mongolia was characterized by duality. On one hand, it was formally aligned with the utopian state ideology, with certain disciplines either stifled, banned, or co-opted for state propaganda. On the other hand, the 'hard' scientific fields offered practical benefits to the populace. This was particularly true for medicine and agriculture, which dealt with the biological well-being of people and animals. These fields managed to make impressive progress, enhancing the prestige of science in the eyes of the people. This approach mirrored the Soviet model, where science was selectively used as a tool for both propaganda and practical progress.

Aliens, Spirituality, and Pseudoscience in the Post-Socialist Period

In the early 1990s, Mongolia was captivated by a televised emergency. In a dim studio, a young woman, her voice trembling and her face tense as if she was about to defecate, recounted her recent encounter with aliens from outer space. Her ordeal revolved around an object she claimed to have found in the countryside, only to later realize that it belonged to extraterrestrial beings. One evening, the aliens descended on her *ger* and abducted her, demanding that she returned what didn't belong to her. Despite possessing intergalactic transportation technology, the aliens apparently couldn't locate their lost item without subjecting a

female representative of a species just half a chromosome away from being a chimp to a terrifying ordeal. The woman decided to share her extraordinary story with the rest of the country. Many credulous citizens, including myself, who trusted state TV on providing truthful news, believed her account and were scared shitless.

This program was followed by another TV broadcast, featuring Dashtseren, the personal astrologist and advisor to Mongolia's first post-socialist President, Ochirbat. The state astrologist was shown standing on a hill, his arms open as if welcoming someone, reminiscent of a scene from the movie *Titanic*, in which Jack (played by Leonardo DiCaprio) stands at the bow of the ship with his arms outstretched, embracing the winds as if he's flying. Alas, Dashtseren was mimicking a radio receiver to capture messages from cosmic aliens. The audience, once again glued to the blue screen, eagerly awaited the moment when the state astrologist would be contacted by an alien spaceship. Lump in my throat, I anxiously watched this news with my family, but nothing transpired for a considerable time. Dashtseren looked increasingly fatigued, gulped down some water, and then stripped off his clothing, revealing to the nation on camera strange strips on his chest that extended down to his private area—evidence, he implied, of his impending contact with cosmic aliens. Heroically, he then declared, 'That's what happens when you try to contact aliens!' before succumbing to complete exhaustion. Eventually, the TV program had to be halted, diverting to other more urgent down-to-earth issues that Mongolia was grappling with.

Dashtseren, a former driver, gained fame after the demise of socialism, much like many other characters from that period. Thanks to his powerful clairvoyance, he was granted the official title of 'State Seer' by the President and given a residence in a state-protected gated complex just a stone's throw from the Palace of Government. There, the national treasure spent his days engaged in divination and advising Mongolia's leadership. In another related incident, in 1993, a passenger plane flying from Ulaanbaatar to Western Mongolia disappeared mid-air, prompting a rescue operation. What made this operation extraordinary was the fact that Dashtseren dashed to the rescue operation team to offer his swift help in locating the missing plane. To the relief of the anxious public, the State Seer was reported by the national media to have assembled

a group of Mongolia's two hundred most powerful seers, shamans, and astrologists. They spent two weeks attempting to determine the whereabouts of the missing plane. Despite collectively divining round the clock and even making tours along the missing plane's route on a specially designated plane—all while with his good name at stake—Dashtseren failed miserably in this important task, leading him to announce to the astonished country that the plane had been abducted by aliens. Much to his embarrassment, the plane wreckage was found on the fifteenth day of disappearance by a group of rescue alpinists, aided by locals, in the Marz Mountain in Western Mongolia.

Following the collapse of state socialism, Mongol politicians and nationalists pledged never to replicate Russia's model again, driven by a surge in anti-Russia sentiments fueled by newly released revelations of atrocities perpetrated within the shadows of the Soviet Empire. These revelations included purges modeled after the Stalinist Great Purges in the Soviet Union, the fabrication of national history, and the total control of Mongolia by the Soviet Union.[58] Despite their fierce anti-Russian rhetoric, many Mongols, including self-appointed democrats, nationalists, and seers who were themselves products of state socialism, never ceased to see the world through socialist lens and never completely abandoned following events in Russia. An illustrative example is the parallel between abduction stories in post-socialist Mongolia and the revival of cosmism in Russia.

As noted previously, although the pseudoscientific movement of cosmism was suppressed during Stalin's era in the 1930s, some of its stories permeated Soviet art, politics, and eventually, counter-culture. This movement persisted in underground intellectual circles, resurfacing during perestroika when its energetic, universalist, and humanist ideals found a place in Mikhail Gorbachev's policy of 'new

58 However, this doesn't mean that being a Soviet satellite or colony was an entirely negative experience, during which Mongolia gained nothing of value. The country secured its formal independence, underwent rapid modernization, effectively combated venereal diseases, implemented modern education and healthcare systems, and significantly improved life expectancy and overall quality of life—all under Soviet supervision and with its assistance. Dismissing all Soviet legacies would mean disregarding modern Mongolia's achievements and its deep connection with its northern neighbor. The Soviet Empire engaged in a wide range of activities in Mongolia, providing ample examples to support both negative and positive perspectives.

thinking'. Prominent figures like Gorbachev, Eduard Shevardnadze, and Alexandr Yakovlev, along with other Communist Party bosses, stressed the crucial importance of global unity and universal values in their speeches, announcements, and writings, contributing to the resurgence of cosmism and its popularization among the masses. Thus, Gorbachev advocated for the 'formation of an integrated universal consciousness' describing it as 'a form of spiritual communication and rebirth for mankind'. Yakovlev, a key intellectual shaping Gorbachev's perestroika reforms, used cosmist language to affirm that 'the world is becoming ever more aware of itself as a single organism'. Shevardnadze, the Soviet Foreign Minister, underscored in the best tradition of cosmist thinking that all nations 'share a place where individual national efforts unite into a single energy field'. Adamashin, the Soviet Deputy Foreign Minister, echoed this sentiment, pointing out that 'physicists have long realized the unity not only of the world but of the entire universe'.[59]

The notion of universal unity wasn't merely rhetoric uttered from the high Politburo platforms; it manifested as a reality in the skies when widespread UFO sightings were reported throughout the Soviet Union. These sightings often occurred near the nation's treasured sites, including military bases, nuclear power plants, and other strategic locations. Significant events, such as a UFO landing near a major Soviet military installation in Voronezh in 1989, a sighting over the Chernobyl atomic plant in 1991, and reports of UFOs flying over Chelyabinsk, a Soviet military bomber training base, and many more, received extensive coverage through state news agencies and newspapers across the Soviet Union.[60]

Given Mongolia's deep political, economic, and other ties with the Soviet Union, it didn't take a crystal ball to predict that similar incidents would occur in Mongolia. Indeed, these sightings were reported swiftly and in jaw-droppingly large numbers, capturing the public's imagination. UFO reports became so frequent across all parts of Mongolia that, in the 1990s, a significant number of Mongols anticipated an imminent alien

59 Kull, *Burying Lenin*, 25-28.
60 Terbish, *State Ideology, Science, and Pseudoscience in Russia*, 79-110.

invasion from outer space, with their Motherland becoming 'ground zero'.

The generation of both Soviets and Mongols who grew up under socialism believed they were building a communist paradise in their respective countries. However, the collapse of the socialist system revealed that neither was a workers' heaven, and that the communist story was merely a myth invented by the Bolsheviks. Contrary to the expectations of Western liberal thinkers, the fall of communism did not lead these people to see reality as it was, nor did it turn them into blank slates on which to engrave liberal democratic principles. Instead, they reacted in a very human way, clinging to their old instinctive need for a grand communal story or national mythology that could both unite them and make them feel unique. In this climate of nostalgia and ideological soul-searching, long-suppressed myths—as well as newly invented or adopted ones—emerged openly to fill the void left by the collapse of the communist ideal. Hence, the proliferation of local variations of beliefs related to the occult, astrology, Christianity, Buddhism, shamanism, paganism, and extraterrestrial beings, alongside the myths of liberal democracy, in both countries.

Human culture thrives on enchantment and mystification. When certain dominant myths are dismantled and humans become disenchanted, we, as cultural beings, feel out of our depth and find creative ways to adopt new myths to re-enchant and mystify ourselves, returning to where we feel most comfortable and united. However, some myths are more toxic than others. In the case of communism, it was arguably one of the most damaging myths—not only for its suppression of freedoms but also for its role as one of the most oppressive and murderous ideologies in modern history.

While the collapse of state socialism left a vacuum that other myths and alternative beliefs rushed to fill, it's important to note that not all aspects of the socialist legacy were discarded. In socialist Mongolia, despite its foundational dogma, national education was based on the ideals of scientific research and secular knowledge, promoting rational thinking. Though state socialism failed to live up to these enlightened ideals, they stayed dangling in the minds of the people. Even after the

collapse of the socialist system, respect for science remained unwavering, despite the resurgence of alternative ideas and movements that offered different solutions to the myriad problems, fears, and uncertainties that plagued a young democracy, one that had recently abandoned its aim of attaining communism and didn't know where it was headed.

This coexistence of rationality and alternative beliefs created a seeming paradox. Despite the persistence of respect for science, the post-socialist Mongolian society simultaneously experienced the flourishing of belief systems once considered antithetical to science. The reader may ask: How these two paradigms—the occult and pseudoscience on one hand, and mainstream science on the other—once considered opposites during the socialist era, could coexist?

One way to understand this paradox is by considering both human cognition and historical context. Humans are primates with a divided brain, capable of holding conflicting beliefs simultaneously. More importantly, these paradigms always coexisted under state socialism, albeit in an antagonistic relationship. The collapse of socialism only eased this conflict, and today, religious or alternative concepts comfortably coexist alongside mainstream science. Not only do they coexist, but pseudoscience and the occult derive their legitimacy from mainstream science. To provide an analogy from the animal kingdom, consider the relationship between barnacles (marine crustaceans) and whales. Barnacles (symbolizing pseudoscience, conspiracy theories, the occult, and their practitioners) attach themselves to the skin of whales (representing science), benefiting from the whale's movement through the ocean, thereby gaining access to nutrient-rich waters. The barnacles receive food for survival and growth, while the whales are generally unaffected by the presence of these adhesives.

Today, there is a pervasive tendency to explain everything by piggybacking on science, even concepts that lack proper scientific validation. Folk healing, in its quest for validation, is one of the practices seeking to cling to (pseudo)scientific terminology, embracing theories from diverse disciplines such as biochemistry, neuroscience, astronomy, and even quantum physics. As can be expected, the application of scientific theories in such a manner often involves a misinterpretation and twisting of scientific facts by folk healers, psychics, and seers.

Folk Healing Reinvented

The metaphor comparing folk healing and its practitioners to barnacles is particularly apt. Related to crabs and lobsters, barnacles are also quite curious creatures. In comparison to their multi-legged cousins, who scuttle sideways with a distinctive side-to-side motion resembling a dancer executing 'Sidestep' movements during Western dancing, barnacles have completely relinquished their mobility, opting instead for increased food security by evolving to permanently attach themselves to rocks, ships, or large marine mammals like whales. A more intriguing aspect of these legless crustaceans lies in their fluid reproduction. Lacking fixed sexes, each barnacle possesses both male and female reproductive organs, allowing them to fertilize and be fertilized. As they mature, barnacles can adjust their sexual systems in response to their surroundings, displaying a remarkable diversity ranging from hermaphrodite to separate sexes to a combination of both. To overcome the challenge of finding a mate, barnacles have devised an ingenious solution—a formidable penis, unparalleled in the animal kingdom as it extends several times their body length. In the absence of suitable mates within the reach of their penises, they resort to self-fertilization, leading to a form of 'virgin birth'.

In today's Mongolia, most folk healers, psychics, and seers employ fluid healing methods. They rely neither exclusively on traditional healing practices nor on modern medicinal techniques, often lacking proper knowledge of the latter. They hedge their bets by attaching themselves to the realm of pseudoscience. Their healing approaches are remarkably eclectic, incorporating cherry-picked ideas from ancient medicinal treatises, Tibetan and Chinese medical practices, religious books, folk wisdom, and modern sciences. In the absence of readily available sources of knowledge, these practitioners typically resort to self-generating medicinal insights. While they may not possess extravagantly elongated penises, they certainly wield long wagging tongues—the most crucial tool in their line of trade—to disseminate their idiosyncratic knowledge and healing methods to those seeking their guidance. Consider the healer featured at the beginning of this section that my family hosted in the early 1990s, seeking his magical healing powers.

However, he was not alone in claiming to have an eclectic range of supernatural powers and deep pseudoscientific knowledge. In fact, there was a growing demand for spiritual practitioners and faith healers, not only due to widespread mistrust in the bankrupt public healthcare system but also because of various previously unknown social problems that surfaced, including mass unemployment, widespread poverty, life uncertainties, heightened levels of alcohol abuse, and pervasive social conflicts. Additionally, there was a growing awareness of supernatural phenomena such as ghosts, spiritual pollution, and aliens. No wonder, politicians and business people, eager to harness new psychic powers to gain the upper hand, started patronizing seers, psychics, and folk healers, setting a new trend. It was in this hectic and surreal climate that President Ochirbat enlisted the services of Dashtseren. Ochirbat wasn't the only chump when it came to seeking astrological insights to help manage his country. His Russian counterpart, Boris Yeltsin, whose country was undergoing similarly dramatic changes, also received reports from psychics and clairvoyants employed by General Alexandr Korzhakov, the chief of the Presidential Guard.[61]

Amongst numerous famous psychics and healers to emerge in the 1990s, one woman, Önörmaa, stood out for her ability to produce fire from her body, reminiscent of a character called the Human Torch from Marvel Comics. Önörmaa gained public attention when she claimed to have unconsciously burned down her *ger* using her marvelous skill. The story took an even more comical turn when she was declared a national treasure. In acknowledgement of her unique psychokinetic abilities, the state awarded her a brand new flat and a monthly stipend. Scientists from the Mongolian Academy of Sciences, known for their outstanding expertise, verified the authenticity of her ability to produce fire using only the power of her mind and provided several watertight scientific explanations. They noted that on the day Önörmaa became overenergetic and burned her *ger* to the ground, a space launch took place at the Baikonur Cosmodrome in Kazakhstan. This event provided a lead for further scientific inquiry, including the burning question of whether her otherwise destructive energy could be harnessed and transformed into a force for healing. However, Önörmaa hardly gave

61 Soldatov and Borogan, *The New Nobility*, 14.

Mongolian scientists enough time to make any trailblazing discoveries and perhaps even earn a couple of Nobel prizes in Physics and Medicine, as she was soon caught red-handed attempting to set her new flat on fire. To be duped in this way must have felt like a kick in the balls for the Mongolian scientists. However, this and similar painfully embarrassing stories, publicized in the news and national TV, never deterred people from believing in the power of spiritual practitioners, seers, and folk healers. On the contrary, it only fueled interest in the supernatural and the mysterious.

Today, interest in pseudoscience and the occult is as high as ever before. The use of pseudoscientific terminology and concepts is not restricted to folk healers and their numerous copycats; it has become a growing trend among ordinary people, especially those living in Ulaanbaatar, a city hosting a significant number of self-proclaimed shamans and social media stars who inundate their followers with copious amount of pseudoscientific content. Even when indulging in potentially harmful foods like raw marmot parts, some city dwellers rationalize their choices with pseudoscientific explanations.

Consider the case of a woman called Tsetsegjargal, a self-appointed 'fire shamaness' and well-known social media personality with a substantial Facebook following, who also gives talks on TV and writes books on folk healing using pseudoscientific language. A fan of marmot meat and body parts, she advises her followers to wear marmot ankle bones. Specifically, women are instructed to wear them on their left legs and hands, while men are directed to wear them on their right limbs because ankle bones serve as protective talismans, guarding against injuries, broken bones, and angry nature spirits. Her advice extends to pregnant women, assuring them that wearing a marmot ankle bone guarantees a safe and sound delivery without the risk of abortion because 'marmots never abort'.[62] Furthermore, Tsetsegjargal asserts that the marmot is a miraculous panacea on four legs, with each of its body parts possessing medicinal properties. For instance, the

62 So, if you happen to have a number of unhealthy or risky habits, such as chain smoking, binge drinking, or hopping down the stairs instead of normally walking, don't worry about changing your habits when you get pregnant. You are guaranteed to have a safe pregnancy provided you wear a pair of marmot ankle bones.

animal's internal organs can supposedly heal corresponding human organs. A person experiencing kidney failure should consume raw marmot kidney for three consecutive years, while any ailment related to the cervical canal in women can be cured by ingesting a raw marmot cervical canal three times. Following this rationale, men grappling with impotence, possessing a modest manhood, or finding themselves in a hairy situation can deduce for themselves that they should snack on a raw marmot penis, perhaps in some combination of three.

If the fire shamaness' claims held any water, Mongolia, with its love for marmot meat, would have been the healthiest and most virile nation on the planet. People from all corners of the globe would be flocking to the country to receive treatment at marmot-meat-fueled hospitals and purchasing ankle bones as a health insurance policy. All assisted reproductive technology (ART) and Viagra pills would go extinct, replaced by the new global trend of chewing marmot scrotum and wearing marmot tails in underpants, causing human population growth to shoot through the roof. These transformations would have turned Mongolia into the Mecca of health tourism. Alas, public health indicators in Mongolia leave much to be desired, prompting many individuals who can afford it to seek medical treatment abroad.

In more esoteric cases, certain healers claim that raw marmot meat harbors unique energy with beneficial properties for humans, contingent on the consumer's faith in its efficacy. According to their advice, the healing potential of the meat gets unlocked—like Aladdin's cave of wonders—when it is consumed with strong faith and adherence to traditional customs and rituals. Undeterred, some healers venture even deeper into the realms of quantum physics to prove the health benefits of raw marmot meat. These justifications showcase a remarkable spectrum, ranging from mildly unconventional to moderately risky to outright dangerous.

In today's globalized world, where Mongols have the freedom to travel in and out of their homeland, pseudoscientific explanations aren't confined to the borders of Mongolia. In 2023, I attended a workshop at Cambridge University where guest speakers included a Mongol Buddhist doctor, a manager from a hospital in Ulaanbaatar specializing in folk medicine, and a few anthropologists and folk remedy enthusiasts. The Mongol man who managed the hospital delivered a rather typical

presentation. With the demeanor and authority of a physics professor, he began reading his paper on experiments in quantum physics conducted in a laboratory in the United States. After a prolonged and monotonous reading on quantum entanglement, highlighting the interconnectedness of the universe, he wrapped up with an equally entangled conclusion, asserting that quantum physics proves the effectiveness of traditional Mongol medicine, which also adopts a super holistic approach to understanding the universe. This line of reasoning, or false analogy, is not much different from arguing that Vladimir Putin is as compassionate and pacifist as the Dalai Lama because both love sausages.

In contrast to the self-appointed quantum physics professors, healers, and shamans based in Ulaanbaatar, many well-regarded folk healers, bone setters, and herbalists in rural areas of Mongolia tend to be more conservative in both language and methods. These individuals typically avoid entangling themselves in discussions about science, energies, or quantum phenomena, focusing instead on traditional healing concepts and methods. While their claims of healing diseases considered unhealable by modern medicine should be taken with a pinch of salt, they are valued by their customers for their practical abilities in setting bones, readjusting displaced joints, performing head massages, or being a soothing presence. The difference between famous Ulaanbaatar-based healers and their rural counterparts may reflect the urban-rural divide, partly due to the fact that rural dwellers binge-watch television less and don't follow YouTube channels promoting pseudoscience to the same extent.

In popular perception, folk medicine is often seen as more resistant to change compared to modern medicine, given its deep-rooted connection with cultural traditions passed down through generations. While this generalization holds some merit, it is worth noting that many methods attributed to folk medicine by contemporary healers aren't ancient practices but rather innovations that have emerged amid shifts in societal beliefs, globalization, the popularization of traditional Chinese medicine, growing nationalism, religious revival, and a rise in toxic masculinity—all prevailing aspects in today's Mongolia. An illustrative example of 'invented' or 'borrowed' tradition can be witnessed in the use of animal testicles.

The consumption of boiled or barbequed testicles is a longstanding tradition in nomadic cuisine. Mongol nomads practice castration for all the livestock under their care, which includes bulls, stallions, lambs, goats, and camels. Castration is typically performed when these animals are still young and their vulnerable parts tender and delicious. The castrated testicles of young bulls and stallions are primarily barbequed by inserting them into burning dung. As for the testicles of lambs and young goats, they are commonly boiled in water with rice. Camel testicles are the only testicles not consumed. Seen as a variety of meat, these testicles are typically eaten by everyone, regardless of age, gender, or social status. In the past two decades or so, a novel method has emerged on the waves of nationalism and toxic masculinity under the guise of the revival of tradition. It is becoming increasingly popular to consume the raw reproductive edges of stallions or lambs immediately after they have been trimmed with a clean cut and are still warm and bloody. Testicle enthusiasts claim a wide range of alleged health benefits, from improving sexual prowess and building muscles to curing cancer and even rejuvenation. This mirrors the traditional practice in Chinese medicine of consuming testicles from animals such as sheep, goats, and other species, which is gaining popularity in diverse forms and disguises in Mongolia. Ultra-nationalists, patriotic bodybuilders, xenophobic wrestlers, self-appointed quantum physics professors, and playboys who suffer from fatigue are the primary consumers of this cutting-edge treatment.

Conclusion

The relationship between Mongols and marmots is a story of culinary love and vigilance. Mongols love consuming marmots, yet they approach this culinary preference with caution, mindful of the potential for these creatures to transmit deadly plague or provoke divine retribution.

The marmot in contemporary Mongolia is perceived through two distinct lenses. First and foremost, it is seen as a delicious biological species with the potential to harbor the plague bacterium. This perspective is meticulously constructed through scientific classifications by experts, including epidemiologists, zoologists, ecologists, and medical specialists.

Secondly, the marmot embodies a chimerical identity, existing as a creature intricately interwoven with taboos, spirits, and folk medicine rites. In this context, the marmot transcends its rodent classification; it becomes a spirit being, a mythical tiny person, and even a human-turned-burrow dwelling creature typically inhabiting spirit-protected places.

For individuals adhering to traditional beliefs, encountering a marmot, especially in spirit-protected places, can be a potentially unpredictable experience that requires caution, as it may manifest in various forms. However, during the socialist era, citizens were compelled to adopt scientific paradigms that viewed the marmot solely as a biological species. This shift also led to the perception of the marmot as a mere commodity, to be exploited for the financial benefit of the socialist Motherland.

After the demise of socialism and the revival of religion, some of the marmot's chimerical attributes have openly resurfaced and are being celebrated. Despite scientific explanations that attribute the plague to bacteria, many Mongols view the marmot not only as a potential host of the bacteria but as a spiritual being with cosmological significance. Many believe that certain parts of the marmot's body have powerful medicinal properties, a belief that keeps the tradition of eating raw marmot meat alive.

In July 2020, amidst the global grip of the COVID-19 pandemic, Mongolia faced its own battle against plague outbreaks in the Hovd Province of Western Mongolia—a crisis largely unnoticed by the international community. The concerted effort to combat these outbreaks was spearheaded by the National Center for Zoonotic Diseases (formerly the Marmot Plague Control Center). In the affected province, the state didn't seek the aid of religious specialists but instead implemented a series of scientifically-informed measures. Five regional centers were placed under internal lockdowns. Plague patients or those suspected of being infected were promptly isolated by medical staff, and the health of the local population was closely monitored by doctors and nurses. Additionally, household patrols were organized, and extensive disinfection efforts utilizing modern medicine were carried out.

Within the province, a man and a teenage boy were admitted to the hospital after contracting plague. Both individuals had fallen ill after consuming marmots but fortunately managed to recover, thanks to

prompt medical intervention. However, in an unrelated incident in the neighboring Govi-Altai Province, a fifteen-year-old boy tragically lost his life after hunting and consuming marmot.[63]

This incident in 2020, like those in all other years, highlights Mongolia's resilience, adaptability, and the crucial importance of preparedness and swift action in managing health crises, even amidst global pandemics. Without the state's expertise and response, the number of infected people and deaths would certainly have been higher. However, the loss of even one life remains a profound tragedy, leaving behind grieving families. Despite this bittersweet success, a sense of cautious uncertainty permeates the air regarding the future. Despite past achievements, there is prevailing apprehension about the challenges tomorrow may bring, a concern linked to the accelerating climate change.

Previously in the chapter, we discussed that the last significant climate change event unfolded on the Mongolian Plateau in the first half of the thirteenth century. This period was characterized by abundant rainfall and mild temperatures, a departure from weather patterns unseen for over a millennium. This dramatic shift had far-reaching consequences for the ecosystem, reshaping the grasslands that supported diverse wildlife, including large herds of horses crucial to the rapid expansion of the Mongol Empire. Additionally, it coincided with the 'Big Bang' event that gave rise to several distinct branches of *Yersinia pestis* strains.

As the fourteenth century commenced, the region experienced a sudden cooling trend. This era of unprecedented climate fluctuations provided the backdrop for significant human events, including the unification of the Eurasian landmass by Mongol cavalrymen and the proliferation of plague outbreaks originating from the 'Big Bang' event. These outbreaks culminated in the devastating Black Death, the deadliest pandemic of the Middle Ages, and possibly in all of human history. Climate change, the unification of the Eurasian landmass, and shifts in the pathogenic situation proved to be deadly bedfellows.

Fast forward to the present day: Mongolia finds itself in a situation reminiscent of the Black Death era, but this time, the challenges are even more severe and unpredictable.

63 Guy, Jack, and Bilegdemberel Gansukh, 'Teenage boy dies from bubonic plague after eating marmot', *CNN*, July 15, 2020, https://edition.cnn.com/2020/07/15/asia/mongolia-plague-death-scli-intl/index.html

We live in an extraordinary era of unprecedented and rapid climate change. According to authoritative projections, if current trends persist, we could experience a four-degree Celsius increase, with truly catastrophic consequences, where vast areas in Africa, Australia, the Americas, and Asia might become uninhabitable due to desertification, by the end of this century, if not sooner.[64] Each year more or less breaks the previous year's temperature record, with 2024 marking the warmest year on record since systematic temperature data collection began in 1850. Furthermore, research indicates that 2024 was also the hottest year in the past 100,000 years.

While today's headlines have been dominated by natural disasters such as California's 'gigafires', frequent tsunamis along the American coastline, unprecedented wildfires in Siberia, and heatwaves striking European cities, numerous peripheral regions worldwide are experiencing extreme weather events in equally, if not more, dramatic ways. One such area is Mongolia. Presently, the country faces climate change on an unparalleled scale in its history. In recent decades, Mongolia's climate has been changing at an alarming rate, surpassing the global average of one degree Celsius. Certain regions have witnessed temperature spikes of up to two degrees Celsius. Mongolia has been plagued by severe summer droughts, followed by harsh winters (*dzud*). Research indicates that the severity of the 2002-9 drought, for example, rivals only the arid periods of the late 1100s. The unprecedented droughts and winter *dzud*s in combination have decimated livestock, devastating the livelihoods of thousands of herding families and creating what the Mongols call *Ih Nüüdel*, or 'the Great Migration', whereby impoverished nomads migrate en masse to the already overcrowded capital of Ulaanbaatar. With each passing year, the intensity and frequency of droughts and winter *dzud*s continues to escalate, transforming entire grassland regions into patches of expanding desertification and dust. This dire situation is poised to worsen, posing significant challenges for Mongolia's environment, biodiversity, and pathogenic situation.

We also inhabit a world where the transformative power of technology has turned the globe into a closely-knit village through advancements in communication, computation, and transportation. Just as fools can be

64 Wallace-Wells, *The Uninhabitable Earth*; Klein, *This Changes Everything*.

found in any settlement, our global village is not immune to misguided individuals and malevolent actors. In this era of escalating sectarianism, ultra-nationalism, and terrorism—coupled with the unprecedented empowerment of individuals through technologies—the actions of a single globally-oriented malefactor can wreak havoc on the entire international community. Until recently, the historical consensus, based on accounts by Gabriele de' Mussi, a non-eyewitness chronicler of the Black Death, suggested that the pandemic was transmitted to Europe from the Crimean port of Caffa, which endured a siege by the Golden Horde Mongols, allegedly using the plague as an early example of biological warfare. However, recent research has cast doubt on the veracity of de' Mussi's account, challenging the notion that the Black Death was a deliberate act of biological warfare. Nevertheless, this may become a reality in the context of emerging biological threats, set against the backdrop of increasing access to powerful technologies and biological elements among the general population.

After considering these variables, a question arises: With unprecedented climate change, globalization, the persistent consumption of marmot meat, and changes in the pathogenic situation that once led to the deadliest plague in the Middle Ages, could history repeat itself given these converging factors today?