Microcosmic Adventures in *Space1889*

by Anders Blixt

INTRODUCTION

Microscopic man is an idea that been used many times in science fiction, both humorously and seriously. The basic concept is that a person is miniaturized to a fraction of his normal size. He enters into a new and strange version of the ordinary world with many new dangers and problems.

Miniaturization adventures are plausible within the context of the *Space 1889* game universe. A scientist has made a marvellous discovery and the player characters end up being shrunk and have get out of that predicament. This article briefly presents three miniaturization technologies and two microscopic adventure milieus.

Since a star traveller is called an astronaut, a person that journeys into the microcosmos should be called a micronaut.

MINIATURIZATION METHODS

The game master must first decide on which methods will be used to miniaturize micronauts and how small they will become. Which one to use depends on the requirements of the adventure.

Miniaturization rays: A device focuses miniaturization rays on an object to shrink it to desired size. The process is nearly instantaneous. The maximum miniaturization is one millionth of normal size. The duration is a number of hours equal to the reliability. (The time limit will usually put the players under stress: their task must be finished in time. It could also serve as an escape: if the characters survive long enough, they will automatically regain normal size.)

Shrinkfield emitter: The micronauts themselves alter the size of their bodies and nearby objects with a portable device, emitting a cryptomagnetic shrinkfield, to fit their needs. Everything within the field's range is affected simultaneously and to the same degree. The alteration process is almost instantaneous. Greatest miniaturization is one millionth of normal size. The field's radius is up to 10 feet x the reliability, modified for proportion. (If the emitter is at 1/1000 of its original size, its range is also 1/1000 of the normal.) The emitter has a finite energy supply, limiting the number of size alterations to its reliability rating. After that, it must be recharged by a power source when at normal size. The users can always return to normal size by shutting it off.

Cloning: Miniature body clones are bio-engineered from human genetic codes. The minimum size of the clone is 1/100 of the normal. The scientist must have some small pieces of skin and muscle tissue from the person being on which the clone is based. It takes about one week to make a clone. The mind is then transferred to the miniature by a mind-transfer device, while the normal body is put in suspended animation. The process takes about one hour. When the human wishes to return to his normal body, the process is simple reversed.

THE WORLD INSIDE

The characters are sent on a mercy mission. They voyage by submarine into a person's blood system to save his life, e.g. by surgically removing a blood clot in his brain, by fighting some unkown ravaging parasite, or by installing some miraculous prosthetic device. The micronauts should use miniaturization rays or a shrinkfield emitter to achieve the necessary bacterial size.

The host body may turn out to contain many dangers: The vessel could get off course and the characters be forced to find an alternate route to their destination. Some routes are very dangerous, like passing through the heart. The submarine could suffer from malfunctions, forcing the players to improvise with the available equipment to get on to their destination. If the micronauts face unknown parasites, these may be more dangerous

and intelligent than previously imagined. If the miniaturization effect lasts only a limited time, the micronauts are in a hurry and must get out of the body before they and the submarine regain normal size.

It could be interesting to send the micronauts into an alien creature's body. The mission need not be to save its life. Instead, the characters could be sent to investigate the strange organism. The advantage of this scenario is that the game master can create many interesting challenges for the players inside the organism. Its immune system and organs may be very alien and it may contain unknown and dangerous parasites, symbionts, and substances. (James White's many short-stories about the huge space hospital may perhaps give some ideas. There you find descriptions of many aliens suffering from strange diseases.)

In this type of adventures, the micronauts depend completely on their equipment to survive. Since their size (including their molecular structures) is perhaps one millionth of the normal, their bodies cannot handle normal-sized molecules. They must bring along enough miniaturized air, water, and food. They travel in some kind of submarine through the body fluids. It should be equipped with a drill, either mechanical or using energy rays, to be able to penetrate tissue. (Do not worry about damaging the host's body; the "drill wounds" will be minuscule.) A micronaut must have diving gear when operating outside the vessel.

There is usually no problem acquiring necessary equipment before "departure", since micronauts can use "ordinary" items that are miniaturized together with them.

Organisms from the human immune system (eg white corpuscles) or parasites (eg bacteria) may be aggressive towards a micronaut. Such organisms usually fight by "suffocating", poisoning or dissolving their enemies. However, the micronaut's miniaturized molecular structure is hardly affected by normal poisons or solvents. He can be harmed by being crushed or deprived oxygen, though. And only the gamemaster knows how extraterrestial micro-organisms affect micronauts.

When fighting in body fluids, ordinary projectile weapons are useless. Instead, a micronaut must wield an electric rifle or melee weapons.

OF MICE AND MEN

The characters become test persons in a scientific project that searches for a way to enable more people to live off the limited land area. (Already in the late 19th century, there were dire predictons of too great a population growth.) They get mouse-size bodies (approximately scale 1:40), created by a cloning process, to investigate whether such small humans can survive in the wilderness. While the characters are in their miniature bodies, they get removed in some way from the project base. For instance, they could be snatched by birds-of-prey and deposited far away or drift away on a raft on stream.The characters end up in a dangerous world and forced to survive on their own, while finding their ways back to their base, where their ordinary bodies rest in suspended animation.

These micronauts have no problems with breathing, drinking or eating, since their bodies consist of normal-sized molecules. They can survive on nuts, roots and insects. Cats, foxes and birds of prey are lethal opponents, while mice and rabbits may be tamed and used as beasts of burden.

The climate may cause problems. The proportion between skin area and body mass is less advantageous for a micronaut, and he loses body heat fast when not properly dressed. A temperature that is merely uncomfortable to a normal-sized human may be dangerous to him.

The micronaut also has an advantage from the change of proportion. A mouse-sized creature survives a fall from any height, since the air resistance slows the descent speed to perhaps 15 ft/sec. A landing will be soft enough to avoid injuries.

The miniaturization process only affects the micronauts' bodies and all equipment must be custom-made. A very skilled artisan can make ordinary objects as small as scale 1:1000, provided he has appropriate tools. However, a micronaut will likely have only a limited set of equipment due to high construction costs: the price of the original object multiplied by the scale. *(Example: A telephone made in scale 1:40 costs 2 pounds x 40 = 80 punds.)*

The choice of weapons is limited. A gun powerful enough to harm a target, has a recoil that will injure the user.

Instead, micronauts will probably use melee weapons, eg spears and sprays, with strong poisons that will knock out or kill a living target. An electric rifle is also a possibility, though its effects should be limited. Its miniscule batteries cannot carry much charge, giving it quite a weak "punch"; perhaps its discharge would only blind or stun a cat or hawk.

A gamemaster with a taste for the eccentric may combine this type of scenario with ideas from Richard Adams's *Watership Down* and *Plague Dogs*: maybe there are intelligent animals which the characters encounter and with whom they may cooperate to improve their survival chances. (Read also *GURPS Bunnies & Burrows* for inspiration.)

SOME LITERARY AND CINEMATIC SOURCES

Neither Jules Verne nor H G Welles touched the subject of miniaturization, though they might well have done so. The concept is probably very old; Jonathan Swift dealt with similar phenomena in *Gulliver's Travels*. To get inspiration the GM must look to more modern versions of the theme.

Miniaturization has been used in several movies, e.g. *The Incredible Shrinking Man* in the 1950s, *Fantastic Voyage* in the 1960s, and *Honey, I Shrunk the Kids* and *Innerspace* in the 1980s. The two older ones are serious, while the two recent treat the subject with humour.

Isaac Asimov wrote the novelization of *Fantastic Voyage*, which turned out to be better than the movie. Regrettably, he decided during the late 1980s to write a new, much thicker novel, *Destination Brain*, on the same theme; it is notably worse than its predecessor. Both deal with submarine expeditions into a human body. Around 1980, some novels about *The Micronauts* were published; unfortunately I have forgotten the name of the author. In these stories, a team of cloned micronauts were stranded in Earth's wilderness and struggled to survive.

DEVICE STATISTICS

	Weight	**Cost(pds)**	**Power**	**Research data**
Miniaturization ray generator	1 ton	1000	*	Ether (33, 5)
Shrinkfield emitter	40 lbs	8000	**	Ether (40, 5)
Miniature cloning***	-	5000	-	Biochem. (38, 5)
Mind-transfer device***	1 ton	500	1	Ether (38, 5)

**Power requirement is 1 point per ton of the object being miniaturized.*
***The emitter has a finite energy supply, limiting the number of size alterations to its reliability rating. After that, it must be recharged by a electricity-generating power source when at normal size. The recharging process takes (1 divided by reliability) hours.*
****Cost is per clone. The mind-transfer device is necessary to get a person's mind from his original body to his clone and vice versa.*