

Machine Magic

Introduction

Allow me to introduce myself. My name is Arcadius Maximus, Professor Emeritus at the University for Advanced Machinist Study, in Grefton City. The subject of my lecture tonight will be the often misunderstood and maligned practice of *Machine Magic*, which, as some of you may know, has rapidly grown and added new believers over the last few years, thanks in part to the completion of the giant perpetual clock in the courtyard of our college. I don't know if any of you have had an opportunity to visit the college over in Grefton, but it far outstrips the earlier school that originated to the south. We can, in part, thank the recent conversion of the King over to the truer faith. Getting him to see the light was not easy.

But I know at least all of you have had *some* introduction to the idea of machine magic, if not studied it on your own. As you probably know, Machine Magic is not magic at all, but the careful application of real-world machinery to manipulate the matter controlling our universe. Matter? Controlling out universe? Of course! I'm referring to *Netherworld gears* when I speak of matter, but of course the extent to which they are real matter is still hotly debated even within our own halls. But I'll get to theory later.

The rudiments work like this: a Machinist (or anyone else, for that matter, who has the knowledge and a working *apparati*) can, through careful positioning and logical reasoning, connect specially designed machines in our own reality to the multitudinous and timeless gears in a parallel plane. This plane, and the gears, exists solely to power the mundane physicality of our own universe. It controls us, so we use a little know-how to control even a little bit of it. Simple as that.

And yet, those *Elementalists*, among others, would have you believe the Netherworld, and especially the Netherworld gears, do not exist. They like to pull out fancy element wheels and point to fire faeries to explain their superstitious nonsense. They are rightly afraid, because Machine magic can easily disprove their ramblings, and show the average man or woman that the unexplainable universe we think we know is really *very* basic.

The History

But first, a little history.

What we know of Machine magic originated with two major events, both of which took place quite some time ago. The first was the accidental discovery of a Netherworld gear by Tantalivus, about one thousand years ago. Tantalivus was a weapon smith, but a certified genius. He felt there had to be a way of marking how much time elapsed, and hoped to invent some sort of machine, principally for sale to mariners and merchants. He constructed the first basic clock, and I know most of you have seen a drawing of it somewhere. It had a row of gears around a central core, and required winding for power. However, after losing one of the gears over and over again to metal fatigue, he decided to strengthen it with an iron alloy he made. The exact composition of this alloy is a secret, but in some#### of your later classes it will be revealed to you.

Tantalivus activated the clock and suddenly the newly coated gear ground to a stop, shuddered, then started the other way, moving faster and faster. The machine began to heat up, and Tantalivus began to see the ghosts of gears of every shape and size materializing out of the empty air. After a minute of this, he looked down at his hands and found his skin was wrinkled and sagging. He was aging! He stumbled away from there, but not until he had managed to lose nearly twenty years off his life. That old clock would still be whirring away somewhere today, but it created such a rapidly advancing field of time around it that it ended up corroding in about two weeks as if it had sat in a field for a hundred years. The *Connector gear* finally sprung, and that was that.

The second important event was the voyage of Urian, the shipwright. I'm sure some of you have heard that story, but the popular version isn't quite accurate. The way it really went was this:

Urian had a successful business for quite some time, but most of his sales went to private traders. When the wars started up in the islands, trading over sea fell off drastically. Urian was completely out of business. He had been reading quite a bit of theory from the early masters of logic, and had once seen a map on a bit of parchment left over from an early civilization (which, incidentally, occupied an area just a few hundred miles south of here.) This civilization—the name escapes me at the moment—had been founded upon the religious principal that their world was an experiment, performed by a... *god*, I suppose. Although the name doesn't translate directly, it came out to roughly mean "pupil."

Anyway, Urian gradually had developed theories that these ancient philosophers had been on to something, so he decided to construct a boat that, with the help of some mundane magic, would be able to fly higher than the clouds or birds. He wanted to get a look at the world from the eyes of a god.

So, having constructed the ship, he paid his last savings to the dean of a local sorcery college to enchant the ship with the ability to fly. He took off, and the ship worked better than he could have imagined. As he rose higher, the features of the world began to look smaller and smaller, until even the mountains to the east, which had always been too large for him to consider crossing, now looked like lumps on the ground. He could even see to the opposite end of the desert. As he rose higher, he noticed the apparent roundness of the earth began to decrease, and he could see farther and farther.

Eventually, after a few hours of flight, he could see a straight edge at the far end of the oceans in all directions. The world was flat! Nobody had ever taught him this!

With a combined state of awe struck terror and childlike wonder, he continued rising, until he began to make out a most unusual feature of our world: The stars above were affixed to large arcing bands of metal, and as he grew closer, he could see numbers along them, marking degrees and minutes, just like an astrolabe.

Finally, just before he touched ground—yes, *touched ground*—he realized he had not been getting farther away from the ground, but actually growing *larger*, causing the perspective to change. The earth was now just a flat plane balanced upon a great pillar. The base of the pillar rose from a pool of water which was constantly refilled from the draining of the oceans over the edge. The world was actually nothing more than a colorful *diorama*.

Then what was behind him? Well, he found he had left the confines of the metal bands arching over the world. The sun was ticking along a track, as was the moon, which was below the little flat planet on the day leg of its journey. And behind him was a bare, marble chamber draped with ornate cloth. And there was an archway. He got out of his ship, followed the hall, and found himself in a chamber filled with

paintings. The paintings depicted the gods of our world, and somehow he instinctively *knew* that what they had always been was nothing more than paintings. Rumors. Gods designed to give the populace something to keep them in line.

But it was his final finding that made this the single most important discovery in our world's long history—on a pedestal rested a book, in which was inscribed, in a language we have dated back several hundred years, the details of an experiment in world building. His suspicions were true: we were a long-abandoned experiment, left to its own devices in an empty room in the infinite hall of the gods.

Needless to say, the Elementalists have never again agreed to help build a flying ship.

The Theory

Machine Magic is based upon the idea of *Netherworld gears*. Nobody has ever seen the Netherworld in its true form; only every once in a long while has a machinist even managed to see vague outlines or shadows of the gears themselves. The general theory is that the Netherworld is a lightless place, full of abstract matter. Machinist professors and practitioners believe the matter makes up the gears, forming an infinite clockwork which runs parallel to the space and time of our own world.

If you can master the gears, you can master anything: there are gears to regulate the functioning of light, heat, sound, time, waves, solidity, magnets, ad infinitum. Anything you can think of, and maybe even some you can't. Netherworld gears come in every size, from the infinitely small up to the mountain-sized mammoths. Up until now, we have only found a handful we could practically manipulate. It's a difficult task, but with the proper training, anyone should eventually be able to master it.

As you can see, the theory is actually quite simple, despite there being several dozen scholarly texts written about it. Quite lengthy ones, I might add. The simple fact is that nobody knows truly how it works, other than what we can perceive. We are still waiting for someone to perfect an apparatus which would allow us to *see* the Netherworld and ascertain its mysteries. Until then, all we have is:

The Practice

Machinism made simple—the Machinist has an *apparati*. The *apparati* has, among other things, a Connector gear. The Machinist calibrates the *apparati*, making sure it is balanced and tuned, then fiddles with the Connector gear until he *feels* it catch. It will start spinning. The *apparati* will modify the rotation of the Netherworld gear. The Netherworld gear is now being manipulated as per the construction of the *apparati*, and any number of effects might arise. The thing to remember is that Connector gears can only hook into some types of Netherworld gears, and that it depends on size and orientation of the Connector gear. Is that clear?

A Machinist's most important tool—in fact, pretty much his *only* tool—are the *apparati*. Most can reasonably be carried around with the Machinist wherever he goes, but there are some that simply have to be far larger, like our Perpetual Clock, for instance. These *apparati* usually look like little metal boxes, about the size of a lantern.

The Machinist, when he wishes to use an apparati, simply takes it out and unlatches the doors. Almost all apparati swing open on two hinges to allow easier access to all the gears, springs, and chains. The Machinist then, assuming he or she has kept the apparati oiled and repaired, then must calibrate it. This means he must readjust balances and weights thrown off by having the delicate piece of machinery carted around everywhere; although most machines will eventually be thrown out of order even if left still on a shelf. It is a simple fact that there are gears for entropy in the Netherworld, and they play havoc on our lives every day.

Once calibrated, which takes anywhere from a second to minute, depending on the state of the apparatus, the Machinist then holds the Connector gear in place, and manipulates it with his fingers for a space of several seconds. It should, assuming he has calculated his positioning, calibrated his apparati, and tweaked the gear enough, catch onto its component Netherworld gear, and be off on its own.

The effects will always be unbelievable, sometimes be difficult to predict, and never simply magic, which the Elementalists would have you believe.

If an apparatus is moved—even nudged—during this time, the Connector gear will slip off, and the effects will cease instantly. Anyone who wants to be a true Machinist needs to have steady hands and a lot of patience. And don't be too surprised to find yourself carrying around twenty or so of these apparati, with them swinging from every part of your body like ghost hunters' spirit wards. That is the mark of a true Machinist.

The Apparati

The Light Flower

The first of these apparati is one we call the "Light Flower," because it contains a fist-sized piece of blown glass designed to look like a flower. The glass is sealed and filled with sand. Upon opening the apparati's doors, the flower will rise out on a telescoping arm to be held a foot or so above the apparatus. At this point, when the Connector gear makes the connection, the sand inside the glass flower will begin to emit light, which usually illuminates a 30 foot radius.

The Portable Door

While not a real door, the "Portable Door" certainly acts as one. This apparatus is wide, but not very tall, and very heavy. Only the top opens on a hinge. Inside is a mess of gears and bars confusing even to a classically trained Machinist. The Connector gear is hard to catch, but when it finally does, it will cause all matter to convert to oxygen in a "tunnel"—a 20 foot long, 10 foot wide cylinder—directly in front of the apparatus (the front is carefully marked to prevent gruesome accidents, like the famous occurrence marking the initial discovery of this gear.)

The Sound Resistor

As its name might imply, this apparatus connects to the Netherworld gear in charge of sound amplitude. Put into layman's' terms, it stops sound in a certain radius. This one is usually a cube about the size of a fist, and connects relatively easy. The net effect is that sound waves cease moving within a 30 foot radius, more for larger apparati. However, the user should be warned that upon disconnection of the gear, all the sound waves originally stopped will be able once more to move, but now they will be joined by *all* the sounds generated in the meantime, to form quite a cacophony.

The Seeing Eye

This one was invented by a rather paranoid Machinist, who believed a secret society of Elementalists were infiltrating the ranks of the Dermagor University for Machine Magic. The apparatus is composed of two disks of blown glass, arranged like a pair of spectacles. However, they look down into the apparatus itself. The Connector gear in this one is often quite feisty, but once it catches, the two glass lenses will allow the Machinist to see another place as if his or her eyes were actually there. A trio of dials on the front of the apparatus allow one to move the "Netherworld Eye" up or down, side to side, or forward and back. To focus on one certain place requires the Machinist to physically manipulate the dials to slowly pan over (at a rate of about 10 feet per second.) The view is usually from above, although positioning the apparatus in another direction (for instance, with the Machinist *below* to look *up*) would be possible. Prototypes of "Seeing Eyes" affixed to the face always end up in failure due to the restriction that the Connector gear must remain motionless at all times to remain connected.

The Sound Channeler

This apparatus is normal size, that is, about the size of a lantern. When it is opened, one will see a cone or funnel pointing forward, seemingly into nothing. However, once the Connector gear hits its mark, any and all noise audible to the Machinist will also be funneled through the cone and "sent" to a receiver funnel, which is sometimes about ten or twenty times as large to amplify the sound. The receiver funnel must also be connected to a gear to work. Note: sound is not picky, and if the Machinist does not position his or her Sound Channeler correctly, it may be picked up by parties other than to which the sound was intended.

The Liquidator

About the size of a helmet, this perfect cube is designed to do one thing: turn matter into water. This is quite a trick, and requires nearly quadruple the time (about two minutes) that the typical mobile apparatus takes to operate. This one has three Connector gears, and all must be working at the same time for the effect to occur (tough, considering they have a frustrating tendency to slip out.) The apparatus must be set near the object to be turned to water, and a slide inside the machine allows the Machinist to inform the apparatus of the 3 x 3 x 3 space which is to be liquidated. The water is almost always pure, but for some reason, this apparatus is incapable of turning lead and, strangely, iron, so impurities will likely exist in the water.

The Aerator

Companion to the Liquidator, the Aerator is designed to make air seemingly from nothing. It is a fortunate circumstance that the resultant mixture is breathable—however, careless calibration of the instrument can result in greater or lesser quantities of gasses, perhaps with explosive results! There are three Connector gears again, but these usually do not slip. The application of this apparatus can put out one cubic foot of air every five seconds. It has been lauded in certain Machinist circles as a lifesaver.

The Negator

Oddly named, and often mispronounced, this apparatus results in the negation of gravity. The apparatus is taller than it is wide, with such a confusion of gears as to make it twice as hard to fix when broken, and it takes over a minute to calibrate. When the Connector gear clicks into place, a 20-foot-radius sphere will appear in which gravity is null. The sphere will never appear in an area occupied by the apparatus itself (a fool-proof device inside the apparatus does not permit this,) as this would result in the automatic disconnection of the Netherworld gear. The sphere will become “attached” to a certain object and move with that object for some time. This aspect is capricious and unpredictable, and sometimes results in no little humor for those not directly involved. However, it can also prove to be most effective—in addition, Machinists of great skill can tweak the gears inside the apparatus to *reverse* gravity, sending the object skyward.

The Thermometer

The final apparatus discussed here, but by no means the last one in existence, is another poorly-named one called the Thermometer. True, it does contain an actual quicksilver thermometer, but its effect is far more decisive: upon connecting the gear, the Machinist can, through the use of a weight/slide measure, raise or lower the temperature of the environs dramatically and almost instantly. The change occurs at about one degree per second, and has a range of about two hundred degrees in either direction. There are a couple of drawbacks to this apparatus: for one, it is fragile, and *often* needs repairs or replacements. It is also capable of effecting this change in a 10 foot radius. An area larger than this (or especially one outside) will drastically reduce the effects of this apparatus.

In Closing

Apparati are expensive and very, very tough to make. On top of this, it takes quite a bit of schooling in both theory and practice to be able to work apparati to any ability. Those interested in Machine magic have quite a trial ahead of them—on top of having to spend at least a couple of years in a school, they will forever be carrying around a number of large and unwieldy machines, and taking the time under perhaps dangerous circumstances to calibrate them. However, the theory of Machine Magic is a new one, and an intelligent Machinist might be able to make great strides in the field, shrinking the size necessary, as well as improving the reliability and effect of the gears. Perhaps they might, after years of field research, accidentally stumble upon the secret to the Netherworld gears or even see the Netherworld in person. It might even be possible to partially manifest some of the gears into our reality, making them far easier to manipulate, but at the same time running the risk of being overwhelmed or killed by their unstoppable power.

I wish all of you much success in pursuing your Machinist schooling, and watch for my further lectures on the Netherworld and the emerging theory of corpuscles. Thank you, and good night.

—Lecture from Arcadius Maximus, speaking at the University of Advanced Machinist Study, transcribed year 450.

Note to the Gamemaster:

Machine Magic fits perfectly into a fantasy campaign based upon esoteric learning and minimal magic. By forcing the characters to master these machines, the gamemaster can keep a firm grip on how much or how little magic the characters can wield. It prevents fireball-slingers from wading into a crowd of enemies and reducing them to ashes before the hapless gamemaster's very eyes. At the same time, the power available through the Netherworld is theoretically infinite, assuming the characters can master the skills.

In addition, exploring how the Netherworld fits into the religions and other types of magic within the game world can lead to some interesting discoveries on the part of the characters. For example, why is there another dimension full of nothing but gears, huge and infinitesimal, that controls the physical aspects of the fantasy world? How does it inform other types of magic, like Elementalism? Where does life fit into this? Who is making sure the Netherworld gears function properly? Where are the gods in all this? What are the gears made of? What happens when a Netherworld gear snaps or grinds to a halt?