The Artisans Handbook

The Book of High Craftsmanship for Mage: The Sorcerers Crusade™

The Artisans Handbook™

By Phil Masters with Lindsay Woodcock

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Author's Dedication

This one is for 500 years' worth of scientists, engineers, and artisans — and especially for Angela Masters, arithmancer and artificer.

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Sorry, Folks.

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Introduction

The high Renaissance is an explosive era with its gunpowder, revolutions, innovative ideas and inventions. Triggered by advances in science, idealism and economics, these explosions are the fiery signatures of rapid change. Old ways are swept aside as the future is illuminated by the flames of Reason. In such an age, the true Artisan stands exemplar of modern ideals: artist and craftsman, inventor and scientist.

The Artisans Handbook explores the greatest Works of the Age of Enlightenment, as well as the masters of the magickal craft of High Art. During the Renaissance, form *and* function are valid. The namers and shapers of the era therefore create works as much through engineering as through intuition. Such men and women are forces of creative genius personified. This is not the banal science of some latter-day Technocracy. Rather, Works are creative craft, imagination's power given form.

The First Instruction: Ars Longa, Vita Brevis explores the various types of Artisans and craftsmen among the Enlightened. This chapter describes the steps of apprenticeship and the ways and places that the Art can take shape.

The Second Instruction: The Great Work examines the spread of High Art. Craftsmanship across the Dark Fantastic world reaches new heights and shows great promise. Learn what led to the development of High Art, and where the Art promises to go.

The Third Instruction: Trade Secrets unearths how various mages see the era's Works. The Scourge resonates on improbable devices, but the subtle craftsman knows how to use the cosmic fundaments — the powers of the Spheres — to create a cleverly disguised talisman. Here are products of craftsmanship and the means to inspire more.

INTRODUCTION

The Fourth Instruction: Masters of the Art showcases key players of the High Art. The noted craftsmen and patrons of the age are depicted, and some sample Artisans are included, resplendent in their dedication to the Craft.

The Fifth Instruction: The Craft Supreme offers advice on storytelling High Art. Machinae inventions and nigh-sorcerous Works are detailed.

The **Appendices** feature examples of several Devices, products of the Art and different processes. These magickal inventions can be used whole cloth or can serve as inspiration for a true artist to develop her own creations.

At its heart, **The Artisans Handbook** is about inspiration. In the spirit of Renaissance art, no craftsman should be satisfied with the limited works of writ. Ideas that have come before should be the basis for newer and greater inventions. Creation and imagination cannot be defined, only inspired!


LAUBENSTEIN
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Instruction the First: Ars Longa Vita Brevis

We were taken from the ore-bed and the mine,
We were melted in the furnace and the pit—
We were cast and wrought and hammered to design,
We were cut and filed and tooled and gauged to fit.
— Rudyard Kipling, *The Secret of the Machines*

Master Jasper, I would speak with you."

The silversmith looked up from his bench and his glance took in the short, blonde-haired figure before him. "You're Alain the Jeweler's girl — Rosa — aren't you?" he said.

The girl did not bother with a yes or no. "You made a cash-box for my father last month," she said, "a very fine case with a good lock. And you promised my father that it would only work for him."

"And so it will. What of it?"

"It will open with the key he wears, and only with that. No copy of that key will work. Not even a perfect copy — matching in every dimension. And I think that's impossible. So I thought that I'd come and ask how you did it."

"Huh." For a brief moment, the silversmith looked hard at the girl; then he looked back to his work. "It seems to me that your father has no complaint," he said, "and I've no interest in helping you steal from your own family. Get out of my workshop, thief-girl."

"I don't care much about what's in the box — I wanted to know what was in his will, but that was just idle, sinful curiosity, I admit. It's the lock that I care about. It shouldn't be possible to make one work like that."

"And you'd know, heh?"

"Yes, I would—"

The smith continued talking over the interruption. "Look, girl, I owed your father for a good turn from when we were both journeymen, and that box paid the debt. If I had any sense, I'd drag you back to him right now for the thrashing you deserve — and I'll surely tell him about this day if ever his shop is robbed in the night. Now be gone from my sight, thief-girl."

"I'm no thief!" Suddenly, the girl was shaking with something that seemed to the smith's judgment to be other than anger, and she stepped forward to face him across the bench. "I know craftsmanship — my father has taught me a little of his trade — and that box was plain impossible. I want to know how you did it!"

The smith's hand moved faster than the girl could react, but not with a blow. He caught her chin and forced her to meet his gaze. "Ah. Perhaps you might learn," he said, as her hand grasped his wrist but failed to break his hold on her. "Perhaps you might. But it'll be a long, hard apprenticeship — I'll leave it to you to convince your father, to begin with. How much do you really *want to know, Rosa the craft-girl?"*

The Creators, Created

The untaught peasant beheld the elements around him, and was acquainted with their practical uses. The most learned philosopher knew little more. He had partially unveiled the face of Nature, but her immortal lineaments were still a wonder and a mystery.

— Mary Shelley, *Frankenstein*

In all the world of the Dark Renaissance, no magic is stranger than the *Machinae* created by Enlightened craftsmen. Teetering on the brink of plausibility but (sometimes) reproducible, justified by incontrovertible logic and yet insanely implausible, designed according to astrological principles and yet utterly fantastic, these devices are the curse and the glory of their creators. These creators are almost all members of the Order of Reason, for their underlying principles — mathematical logic, innovation, materialism — are the ideology of that faction; the only other builders of Machinae are a handful of scattered Disparate eccentrics with no interest in joining any crusade (and perhaps a very few Batini architects and unorthodox Solificati).

In fact, even within the Order, this sort of craftsmanship is largely limited to two Conventions — the High Artisans and the Craftmasons — and specialists within two others — the Void Seekers and Celestial Masters — who draw on Artisan expertise. Thus, although any Daedalean may sometimes wield borrowed or traded Machinae, it is the former two groups that determines the school of thought wherein Enlightened folk may direct their brilliance into this craft.

No group holds to a greater, stranger vision than the High Artisans — the Artificers. With their passion for creation, their eternal disputes over the nature of the world and what may be made within it, their ancient secrets and their blasphemous dreams, they embody something of the spirit of the age — and provide the Order of Reason with much of its arsenal in the crusade for dominance. Next to the Artisans, the Craftmasons seem drab and unoriginal — but they too are Awakened. Being perhaps more accustomed to patience and more determined to ensure that their devices may be reproduced and passed on to the common man, the Masons sometimes prove the more useful Artificers. In any case, there is much exchange of ideas and designs between the two groups, and between Artisans and the Celestial Masters' House of Daedalus and the Void Seekers' Guild of Forge and Sail.

Needless to say, it takes an exceptional individual to gain admittance to such groups. But to a Daedalean Artificer, exceptional talent, vision and even Awakening are merely first steps in the all-important process of becoming a true master. These are craftsmen with a taste for perfection, and their most important unending quest is to perfect themselves or all humanity through hard work and real practical skill. Anyone newly admitted to the group, let alone one merely considered as a potential member, has a long process of testing and study to look forward to.

Apprenticeship

The Daedaleans have adopted the same well-established view of practical training as most mundane craftsmen of the age: the concept of *apprenticeship*. Many groups borrow the terminology and some of the ideas (including some elements of the Council of Nine), but Artisans take it with great seriousness. This is training as personal instruction, with skills and secrets passed down from master to 'prentice over the years. (Some Artisan secrets have been preserved this way for *millennia*.) In the process, not only knowledge but something of style, even talent, may be passed on.

To the High Artisans in particular, the training process is itself an act of creation, of forging and shaping. Aside from the fact that this casting can make the business seem as tough for the apprentice as forging is for steel, it means that the act of teaching should improve the teacher, too. Many Daedaleans view such activities as sacred and triply sacred; they improve the master, improve the apprentice, and preserve and increase the strength of the Convention.

Stages of Study

Mundane apprenticeship is generally supervised by the guilds — professional brotherhoods that enforce standards while restricting access to particular trades (and hence keeping prices high as the cost of "good order"). A young person, usually from an urban crafting family, is apprenticed to a master, often after the student's family has paid a stiff fee for this start on the ladder of life. A written contract defines the duties of 'prentice and master, which tend to weigh heavily on the former. The student must lodge with the teacher, work long hours at menial tasks in the workshop in exchange for nothing but board and lodging, and refrain from drinking, carousing and marriage.

Details of such agreements vary over time and place, but it is not unusual for a 'prentice to have to work every hour of daylight, six days a week, for six or seven years or more. Some children start this life as young as 12. It can be a horrible time, although some masters are kinder than others. Lucky 'prentices may receive a little pocket money from their parents, and perhaps slip away from the workshop for a little while, usually to roam the city streets with others of their kind. Needless to say, gaggles of impoverished, frustrated youths with little cash and big ideas can be

a threat to civic order and a strong informal element in urban politics.

Eventually, the apprentice learns enough to play a useful independent part in her chosen trade. It may be up to the master to decide when this is. Fortunately, a master who claims that a 'prentice has never learned enough to leave the workshop admits incompetence as a teacher, and contract, parents and guild might intervene to save the youth from perpetual slavery. At this point, the trainee is welcomed into the guild as a *journeyman*, and regains a large measure of independence. A journeyman is something of an anomaly in the still-mostly-feudal world of the Renaissance, being in fact a salaried professional. She may take employment with whatever master she chooses who'll have her, in exchange for guild-determined rates of pay. It may be a chancy life for some, but it's still the life of an acknowledged, respectable craft-worker. Some folk spend decades or a lifetime in this rank, making enough from routine work to support self and maybe family.

However, most — those with a touch of ambition or self-respect — aspire to the status of *master*. Only at that level may one set up one's own workshop (and take on apprentices to perform the drudge-work and to bully). This means acquiring the respect and recognition of the prime figures of the guild, who guard their privileges jealously. The usual way to accomplish this in many guilds is by the creation of a "masterpiece" — an item of work that shows true talent and a broad grasp of the principles of the trade. Many a journeyman haggles with a current employer for use of a bench and tools for an hour or two a day, and for a small stock of decent raw materials. Many of the finest craft-products to be seen in any city may be the manifestations of a journeyman's hope and determination. After all, once one has been accepted in the guild, raised the money to rent a workshop, and made one's talents known to patrons, what need is there for further displays of original flair?

The Daedalean Approach

Needless to say, given the subtleties of Enlightenment and the politics of the Order of Reason, the apprentice-master system is changed and rendered more complex among the Daedaleans. Many — High Artisans especially — still live and work as urban guild members. They number both un-Enlightened Brethren and promising "True Apprentices" among the apprentices and journeymen in their workshops. (Thus, they must sustain different overt and secret hierarchies — a tricky concern.) Others, especially those who work in distant work-

shops solely upon Daedalean business, keep the mundane and Daedalean titles in step. The word "apprentice" is universally recognized. Many Artisans use "mediator," "artisan" and "journeyman" interchangeably. They likewise equate "resplendent" and "master." The existence of Artificer Facilitators, Magistrates, Grand Artisans and Epitomes (in chaotic profusion) reflects the fact that the Convention operates on a wider base and hence must have more ranks and levels than a mundane guild, which is usually restricted to a single city. Craft-working Celestial Masters and Void Seekers are happy to follow this pattern, while mostly avoiding undue complication.

The Craftmasons are different, however, at once more democratic and more systematically hierarchical. Many refuse to acknowledge a true difference between the Enlightened and other Brethren, although subtleties among their 33 levels sometimes indicate distinctions. Craftmasons' ideas are drawn largely from the professions of stone-working, building and architecture. These callings place less emphasis on the solitary creation of the masterpiece (all buildings being group efforts), and have less concern with the ordering of a local guild, having been highly mobile for centuries (as masons and builders have traveled from one great cathedral or castle project to another across Europe). Some share the Artisan views of rankings. Others dismiss such divisions, keeping a crude version of the mundane guild structure for overt purposes while operating their own offices and ranks as a closely guarded secret.

But all of this said, Enlightened craftsmen are inevitably influenced by the attitudes of their mundane counterparts. To the High Artisan, the idea that one must study long and very hard, and then display inspiration and talent, seems obvious. Few of their lodges grant Resplendent status without seeing a true masterpiece or some comparable work of inspired craft. To the Craftmasons, on the other hand, it is the hard work that is important. They are less likely to demand creation of some bauble before granting respect, but a member who has not labored diligently for many years is highly suspect. One Awakens, not to instant mastery, but to entry in a process of learning and effort.

Artisans vs. Craftmasons

Rosa had brought one un-frayed (if plain) dress with her when she took up her place in the silversmith's household, and this evening he had told her to wear it.

"We have a meeting," he said, "and though I'd not normally take a 'prentice along, the folk I'm to face always trail a flock of hod-carriers and watchmen about with 'em. I'll not be treated as some manner of solitary toy-maker; they'll see that Artificers have their 'prentices, too. But you're not to take this as license to make a nuisance of yourself, girl; you'll stand quiet, watch and learn."

"Are these our enemies, then?" Rosa asked.

"The Craftmasons? No — they're allies." Jasper smiled grimly. "Old allies, according to the lore of our brotherhood. In past times, they and we have sheltered under the same roof and shared our tools.

"Truth to tell, they're not bad sorts. I've a few friends in that hall. Stone-masons and builders, most of 'em, along with their guards and such. A few of 'em are little more than bandits, but I suppose that's a matter of impatience more than anything else. We do have enemies, as I've warned you. The Masons share those enemies, and often hate 'em with a frightful passion."

In truth, Rosa thought as the meeting got underway, they look ordinary enough. *The Craftmasons had indeed come in numbers to the meet, in a back room of a great inn down a city side-street. They dressed plainly and seemed unworried if* their *clothes were frayed. Many had hammers or other mason's tools tucked through their belts, looking a little foolish at this hour when even the most diligent had finished work for the day. Others wore leather jacks and some even had plain helms dangling over their shoulders. Few had weapons, for that would be impolite at a friendly conference, and the city watch would have things to say to a commoner trailing blade or staff through the streets. Yet the daggers at their belts were large and businesslike, a pair of halberds rested by the door and Rosa glimpsed one odd small crossbow.*

It was their speech that marked these people as something strange. Rosa's master and the one or two other Artificers present spoke occasionally. The Craftmasons said most that evening — and not by shouting to assert their numbers. Rather, several of them took turns to act as spokesmen, describing dark shadows glimpsed by men, odd failures in building work that sounded to Rosa like simple accidents, enigmatic messages from spies in places that she had never heard of, and dark complaints about churchmen whom she had been brought up to revere.

In truth, Rosa could not understand a third of what was said that evening, but her master paid attention — sometimes challenging, sometimes concerned. Afterward, as they walked back through the city, she taking three paces to his two, she ventured questions.

"Master — those Craftmasons. Do they do Work, like ours?"

"In a manner of speaking, girl, yes. Many of them spend their time building towers and halls, which is less of a rich art than our fine work of the hands, and they're over-cautious in their work sometimes, as it seems to me. But they have some competent craftsmen in their ranks, to give 'em credit; when they want a good blade, they can forge it for themselves. And they're clever with some of the Sacred Arts you'll learn one day."

"And what do they think of us?" Rosa asked.

Jasper paused before answering and Rosa looked at him in the twilight. She was relieved to see a small smile cross his face. "I can see that you're still the sharp one, girl," he said, "and that's a wise question. Well, remember: They're dreamers and they have a lot of hate for our enemies. They want to burn out what they can't smash down. They've no love for lords and kings, either — we've all been owed bad debts by that sort — but for the Masons, it's a holy thing. They're levelers and Hussites at heart, if that means aught to you.

"So — they complain that we aren't busy enough about the war. They'd rather use a well-made crossbow, just like their grandfathers made, to shoot down one knight, than perfect the cannon that'll lay low an army and its castle besides. They work their crafts for use and not for the glory of the making. They dine on bitter herbs and doubt our sincerity — although we've given 'em cannon now, which they do surely love.

"So call 'em brothers, girl — a little dull and given to glorying in the company of rogues and rebels, but brothers still. And they'll call you a crazy dreamer and borrow your dreams."

Real-Life Technology

Master, it has been six months since I was greeted into the Secrets."

"So you can count, I see, girl."

"Yes, master. But since then, you've had me doing little but basic hammering and mold-cleaning." The man said nothing so the girl plunged on. "I just wanted to know, Master Jasper — when will you teach me more of the Secret Arts?"

For a moment, Rosa truly thought that Jasper would strike her, with open hand or with fist. Then, the master Artisan simply laughed, briefly, coldly — and that fell like a blow, too.

"We do not cast spells like some superstitionist, girl," the man said. "We perform Works of Art. This month you have been doing the truest magick of all. Learn that or leave my shop."

Basic Materials

The High Artisans are more than mere wizards who happen to limit themselves to working through over-complex toys; they are true master-craftsmen. Thus, they are experts in the generally known and commonplace technology of their age, as well as in the bizarre and exotic. Nor are such mundane handicrafts a mere sideline to them; rather, they are the heart of their Work.

Europe in the 15th century is actually at the beginning of a period of great change and uncertainty, in technology as in many other things (which may be the Daedaleans' doing, and which certainly gives them a hidden advantage in that more and more of their Art moves from vanity to the status of casual plausibility). Although this is in many ways the last and highest century of the Middle Ages, the seeds of the future have been sown and have germinated. In the future, some historians will say that the Industrial Revolution was actually born this early. Two inventions — gunpowder and the printing press — are being perfected, transformed from accident-prone toys to commonplace tools. These alone would probably be enough to bring the Old Order down in flames. Meanwhile, the "rebirth of learning" brings together a set of theoretical tools that lay the groundwork for the next set of wondrous inventions. Architecture changes as the Gothic cathedrals of the former age — barely planned miracles of rule-of-thumb craftsmanship, driven by the simple impulse to push spires ever higher — are superseded by cool Classical ideas, ordered pillars and elegant domes.

In direct contrast, the soaring gilded mosques of the Arab world are both carefully planned and long familiar to the architects of the Ahl-i-Batin. Arab masterworks are truly breathtaking, being neither dome nor spire, yet simple and excruciatingly demanding at once. Eastern craftsmen operate on a principle of sacred geometry similar to that of the Craftmasons, seeking to reflect the heavens and the grace of Allah in their houses of worship and their leaders' palaces. But their ultimate goal is less the material expression of mathematics and more the embodiment of Unity. Muslim architects have worked steadily toward the unity of earthly form and heavenly ideal for as long as westerners have labored with flying buttresses and vaulted ceilings.

(Mind you, the sheer height of either a western cathedral or near eastern mosque, perhaps supported by those very flying buttresses, would have rendered any Roman dumb with awe.)

Still, much remains to be developed.

The Battlefield

Were it not for the pervading reek of sulfur and smoke, European wars of this era would more or less resemble those of the preceding three or four centuries. Armored nobles upon huge war horses thunder across the field, lance in hand. The most noteworthy sign of advanced craftsmanship that they display is their armor, which grows ever stronger, heavier and more ornate as they struggle to flaunt their wealth.

Still, a trained eye observes these nobles seeming ever more concerned by what their social inferiors might turn against them. The English won most of the early battles of the Hundred Years War by deploying the powerful longbow. The French turned the tide when they learned to use cannon in sieges. Crossbows are slow-firing and limited, but effective when used intelligently. Competent foot soldiers have used heavy polearms for years. The Swiss and Germans have learned how effective the best halberdiers can be, and are just

beginning to contemplate the even more deadly effect of well-drilled pike blocks. And as for gunpowder....

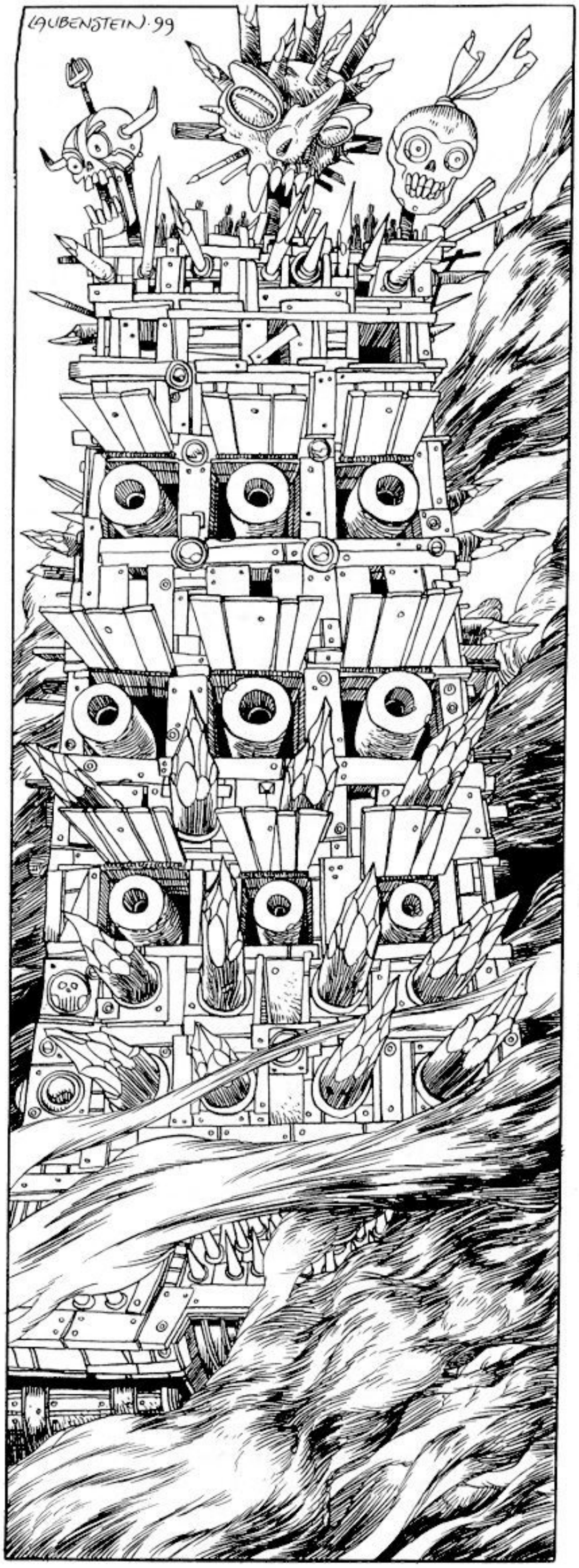
Firearms are still a little crude. Many still lack much in the way of a trigger mechanism, having but a "cannon-lock" touch-hole and a slow-match or heated wire in the gunner's hand. This makes aiming a handgun properly impossible, although it is effective enough as a way to fire a great cannon. The matchlock — in essence, that same slow-match held in a simple trigger-operated pivot — is what makes personal firearms a viable idea. The wheel lock is a futuristic idea that represents yet another vast improvement.

Great cannon may not be personal weapons, but they *are* engines of terror. They can batter down castles and city walls, tear holes in the ranks of enemy regiments and terrify horses. Rockets and hand-thrown grenades are limited mostly to Asiatic armies, that may even deploy men with simple hand-hurled fireworks, if only to scare enemy cavalry mounts on occasion. Incidentally, guns both large and small can be cast in bronze or made by welding iron bars together (iron is much cheaper, but also much more likely to burst catastrophically without warning). Cannon are so heavy that they may be impossible to move long distances; part of the mercenary cannon-master's trade is casting new guns when and where required.

Meanwhile, to the east, the horsemen of the steppes still fight very well, as they have for so many centuries. They wield high-quality composite bows — the most sophisticated military craftsmanship their tribes know — and spear and sword for close combat. That said, the Ottoman Turks have partly settled down, made the most powerful empire that Islam has ever seen since the days of the prophet's immediate heirs, and have taken to firearms. They especially love huge cannon, which win the sieges that so frustrated their nomad ancestors. Further east, Indian armies consist of huge numbers of lightly armored footmen, along with some cavalry (horses do not like the climate) and a few expensive, temperamental, prestigious war-elephants. In China, troops are mostly well-equipped infantry, along with some cavalry and (of course) support from rockets, cannon and other gunpowder weapons.

Land Transport and Agriculture

On land, travel remains entirely a matter of muscle-power — whether the muscles belong to men, horses, mules or (in some lands) camels. However, even that can be subject to improvement. During the Middle Ages, the invention of the horse collar vastly improved the efficiency of carriages and plows; harness designs are still being improved. Truly far-sighted and inspired governments realize that well-kept roads may be beneficial to lords and commoners alike. Most highways, however, are still rough dirt that becomes engulfing mud in winter and choking dust in summer.



A nation lives and dies by its food sources; farming technology is often overlooked, but immensely important. Better implements, including heavy plows and those harnesses already mentioned, enable nations to keep more people fed with the same land and effort; those people may become soldiers, scholars or adventurers. When explorers discover new lands, new crops may assist in expansion. Improved mills, powered by beasts, wind or water, are other useful products of ingenious craftsmanship that spread across the land.

On the Water

The different seas are each ruled by very different styles of ship. The reasonably placid Mediterranean, where ships are rarely far from land, has long been ruled by oared galleys; the war-craft of Venice and Ottoman Turkey are still similar in outline to the *triremes* of Classical Greece. Yet even on the Mediterranean, sailing craft have some advantages: Merchantmen prefer to save the cost of oarsmen, while the improvement of cannon means the end of oared shipping.

The reason is simple. Early ship's guns are light weapons, mounted on the open deck and used in the close boarding and ramming actions that are traditional in galley warfare. However, better guns require more space and demand to be mounted in "broadsides." This is not possible when oarsmen take up that space. Oarsmen may be fighting men, if they are free rather than slaves, but they are not as dangerous as cannon. Some navies try a hybrid design — the "galleass" — with large sails, oars *and* broadside guns, but this combination proves impossibly cumbersome.

Still, galleys remain effective for now. This is a *very* well-established, standardized technology. The shipyards of Venice claim to be able to build and launch a hull within a single day, while the Turks reckon to be able to reconstruct their entire fleet inside a year in the event of losses. Galley warfare involves close-quarters fighting; warships mount bow-rams. Pirates and corsairs, who wish to take prizes, limit themselves to grappling and boarding-parties with sword, spear and ax. A corsair flotilla may actually include a mixture of oar and sail; small galleys to take most prizes and a larger sailed ship in reserve, carrying more men and with hold-space for loot.

By contrast, the endless stormy Atlantic is not really suited for large oared ships (although some galleys trade and explore there when the weather is fair). This is the domain of round-hulled sailing craft, usually with one or two masts at this time. The carrack, with its high castles fore and aft to give a height advantage in close fighting, evolves toward the lower, stronger, more stable galleon, the vessel of the great age of piracy and the Spanish Armada.

The Indian Ocean, with its reliable monsoon wind-system, is plied by Arab *dhows*, *sambucs* and related craft; simple, robust ships with sharp, up-thrust prows and triangular lateen sails. This is not the most sophisticated vessel design, but it is well-established and reliable in these conditions. In recent years, these seas have also been witness to a new sight: great Chinese junks, the true maritime wonder of the age.

The junk, which evolved on the seas around China, is in fact the most sophisticated ship design in the world, superior to anything the West produces for centuries. It combines a robust hull, divided up into water-tight compartments, with complex, efficient rigging on its multiple masts. In an uncharacteristic moment of interest in the rest of the world, one Chinese emperor sent the admiral-diplomat Zheng He on a series of flag-waving missions across the Indian Ocean between A.D. 1405 and 1433. These expeditions reached as far as Africa. Although the Chinese government soon lost interest in what they found, trading junks and Chinese migrants may still be found across this area. Zheng He's flagship was a nine-masted, 500-foot, 3,000-ton super-ship.

(Incidentally, the most curious watercraft known to Sleepers may be the treadmill-powered river boats very occasionally seen in China. Similar ideas have been toyed with in the West and may appear rarely.)

In the Air

Flight remains a distant fantasy for the most part — although toys give even Sleepers some hint of what will be possible one day. The Chinese have long played with increasingly sophisticated kites, and human pilots may occasionally be sent up on such, perhaps even casting loose and gliding for a while. However, this is as likely to be a whimsical way of executing prisoners as anything else. These Chinese ideas have not yet reached the West, where the only form of kite known is a less efficient and elegant "windsock" design, often shaped to resemble a dragon or serpent with mouth open. (Although one 14th-century picture seemingly shows such a kite being used to drop a bomb on a city....)

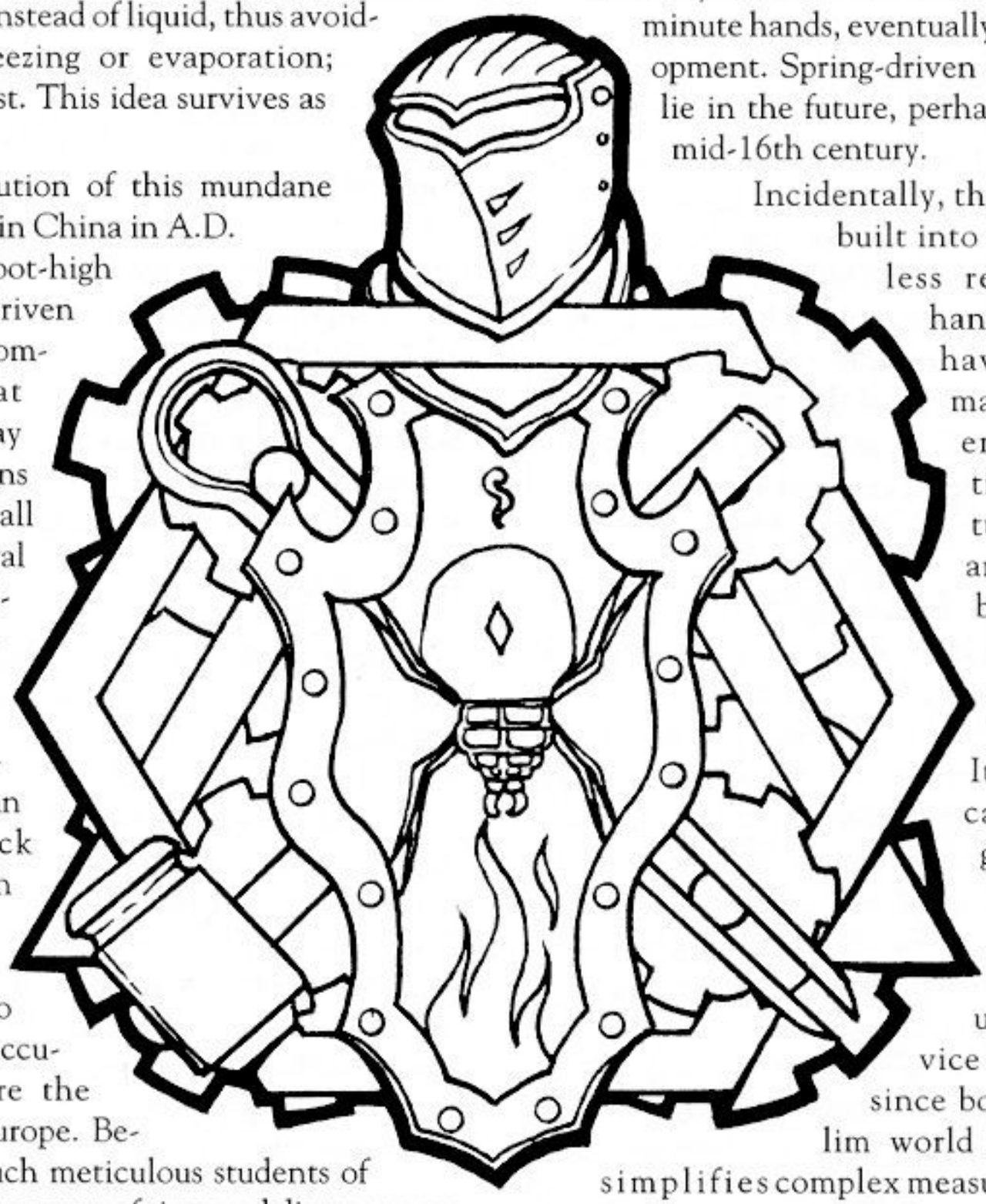
Balloons, too, are purely a matter of theory, save in China. The Chinese seem to know how to make eggshells float upward by filling them with hot air, and *may* accomplish a similar trick with paper balloons (paper being more widespread in that land than elsewhere). The last type of flying toy, known to East and West at this time, is the helicopter top. This takes various forms, but always involves a set of rotors spun by a spring or bow so that it rises into the air. The toy is never made much larger than a hand — at least among Sleepers.

Clocks and Other Mechanisms

The most complex and challenging machine that a Sleeper of this age might expect to see is a clock. Devices for

measuring time date back millennia, but they have been painfully crude. Some nations get by with candles of standardized size, which burn such-and-such a length in (approximately) such-and-such time. The best option generally available is water-clocks; essentially containers into or out of which water flows at a known rate so that a graduated scale on the side of the "clock" shows the time. From this, all manner of ingenious developments are possible — say, when a container has filled completely the weight might be just enough to trip a mechanism, sounding a bell or causing a figure to move. One variant on this idea uses a fine powder instead of liquid, thus avoiding problems with freezing or evaporation; powdered eggshell is best. This idea survives as the humble egg-timer.

The supreme evolution of this mundane technology was created in China in A.D. 1088, by Su Sung: a 35-foot-high tower housed a water-driven wheel. It activated a complex mechanism that displayed the time of day and the current positions of the heavenly bodies, all in order to ensure that royal horoscopes could be calculated correctly, even if the subject was born on a cloudy day. This construction was probably more accurate than any mechanical clock known to European Sleepers until the 17th century. The Middle East, however, had also developed remarkably accurate timekeepers before the technology spread to Europe. Because the Arabs were such meticulous students of astrology, precise measurements of time and distance were developed quite early. Correct to fractions of a degree, the almanacs and horographic tables developed by the Muslims and disseminated through Europe spur the continent's innovators — Awakened and Sleeper alike — toward the development of wholly mechanical clocks.



The closest competitor for the water-clock is the sundial — in lands where the sun is out reliably enough for the device to be read more often than not. At least a sundial has no moving parts to wear or corrode. However, sundials are not especially accurate and must be made and calibrated for a specific latitude. The quest for a better mechanism has recently led European churchmen, with their preference for well-governed lives of prayer, to develop the weight-driven clock. (In the East, of course, Muslims pray five times daily; the clocks developed there keep the calls to prayer on a prescribed schedule.)

Such clocks were developed at the end of the 13th century, when the invention of a mechanism called the verge and foliot escapement enabled the power of the descending weight to be smoothed out and controlled, making the clock regular enough to be useful. Early clocks simply sounded bells at key times, but ingenious mechanics soon added displays that showed the current positions of heavenly bodies. The clock-face, with hour and later minute hands, eventually evolves from this development. Spring-driven clocks and watches also lie in the future, perhaps appearing first in the mid-16th century.

Incidentally, the astronomical displays built into some clocks are doubtless related to the clever hand-driven devices that have occasionally been made to model the heavens ever since Greek times. (In the 20th century, Sleeper historians are startled and confused by an object found in a first-century B.C. Roman shipwreck: the "Antikythera Device." It appears to be an intricate system of bronze gear-wheels that can be used to calculate accurate calendars.) One relatively simple but useful astronomical device is the astrolabe, long since borrowed from the Muslim world by Europe. This tool simplifies complex measurements of relative positions of astronomical bodies, and can enable the time of day to be determined reasonably well.

On the matter of astronomy, the telescope lies some time in the future for Sleepers. Lenses have been known since Greek times, and their manufacture is being improved; spectacles are now available, if expensive, giving elderly or unlucky scholars with weak eyes the chance to continue their work. Yet the understanding of optics and precision of manufacture that will enable lenses to be combined to useful effect remain unknown. (Masters of sacred geometry are not so limited, of course.)

Other complex mechanisms are mostly toys and curiosities. For example, at different times clever inven-

tors have produced all manner of effects with liquid pressure and flow, perhaps inspired by tinkering with water-clocks. Inventions that permit different liquids to be poured from a (seemingly) single container, and mechanical animals that seem to drink on command, are entertaining tricks, but of limited general use. The Chinese came up with clever geared mechanisms, mounted on carts, that would always point in a fixed direction as the cart moved around, and the Romans had devices for measuring distance traveled — but these are only of use to large empires with orderly governments and good roads. The age of the machine is still in its infancy.

Power Sources

All of these clocks offer one answer to the great unacknowledged problem of Renaissance invention: Whence might motive power be drawn? Beasts and men take up space, and must be fed and persuaded to cooperate. Gunpowder is well enough for momentary blasts of force, but cannot be harnessed for much else. Other possibilities are cumbersome.

Wind and water provide near-limitless, free power, but they are inconvenient in many ways, often unreliable and hard to tap with any but large machines. Water-mills have been known since Roman times at least, but windmills — in Europe, at any rate — are a medieval invention taking different forms in different parts of the world. They are certainly most advanced in Persia, their place of origin. Unlike the common water-mill, the eastern windmill is horizontal, surrounded on three sides by walls and open to the wind on the fourth. The windmill therefore functions as a capstan, turning an axle set perpendicular to the ground. Recent improvements in the European "vertical" design are among the novelties that provide the Renaissance with the surpluses that fuel it. Wind-power is also used by ships; there are a few sail-powered land vehicles in China, but these have obvious limitations.

Of course, power from any source may perhaps be stored, but there are limits to that, too. Crossbows and siege engines keep a little energy in the tension of the bow or in a weight held high above the ground, for swift use. Protracting this release can involve a spring driving a lever mechanism, or a descending weight causing a wheel to revolve, and this is the present and future form of clockwork. A spring mechanism capable of storing very large quantities of force, and releasing it slowly and under control, requires more in the way of materials and ingenuity than any Sleeper can muster.

In theory, steam power is a technical possibility — especially as coal has become more widely available. But Sleepers investigating the idea would find all manner of problems. Certainly, Heron of Alexandria hits on the idea of a globe spun on an axle by jets of steam, but the

Mathematics and Crafts?

The **Sorcerers Crusade** rulebook notes that all High Artisans must know crafts and mathematics. This is indeed the accepted rule of their Convention, but its application is relatively relaxed and its implication in system terms fairly varied.

Mathematics is indeed one of the great mysteries of the Artisans, and no one who is ignorant of the topic is privy to the group's secrets. However, in an age when anything much beyond counting on one's fingers is considered an accomplishment, one can pass as a mathematically learned person through various forms of education. Characters with dots in Academics, some branches of Metaphysics, the Science of Advanced Mathematics or even Artillerist or Moneylending at high levels can all pass — although a respected theoretician *must* have a fair range of training in such areas.

The standards of membership are considerably more rigorous in the East. Chinese bureaucrats have perfected all manner of calculations for centuries. No educated person — certainly no civil servant — can slide by with less than a year's detailed instruction in the subject. This knowledge is, of course, tested carefully in civil service examinations. If a man has not performed his studies faithfully, he can expect his failing to be noted, documented and held against him.

In India and Persia, mathematics is a much more exact science than it is in Europe, though not so regimented as it is in China. It was, after all, medieval India that introduced the concept of the zero. The disciplines of algebra (a word derived from the Arabic *al-jabr*, meaning integration) and analytical geometry both originated in the Middle East. Characters with a non-western background need a much stronger background in mathematics to be considered even partially educated than do European characters — in game terms, a beginning student of eastern mathematics ought to have two dots to a western beginner's one. Storytellers may wish to allow players to specify their eastern characters' mathematical specialties.

A "craft," the second requirement of High Artistry, may of course be a Craft as defined in system terms (although it should be something with durable and complex products — brewing would be unusual), but Artist training or a good level in Artillerist is just as credible. Do not confuse the game Ability with the mage philosophy.

Storytellers can of course permit or exclude any "Artificer" character concept that they see fit. The main thing to remember is that a High Artisan must possess both the abstract comprehension of the world embodied in mathematics, and a practical level of skill in handiwork. One who does not is simply disdained and does not find it easy to pass the initiation rituals.

mechanical efficiency of this design is feeble; no Sleeper could find uses for it that would justify the cost of the fuel. The various embellishments that make steam power *useful* are arguably all known to mundane Renaissance mechanics, but putting them together into something worthwhile is a long job with many tiresome failures and distractions. For now, steam engines — let alone anything that transforms fire and heat into motion — are the province of the Awakened alone.

What's in a Name?

"Are we magicians, master?"

For a moment, Jasper looked angry at the question. Then, just as quickly, he smiled. "No. And certainly not when any of our allies can hear us, we aren't," he replied, and picked up a hammer as he squinted at his latest work.

The girl was evidently plucking up the courage to repeat the question, so he spoke again. "The Craftmasons say that magick is lazy, and hence sinful," he explained, "and the Gabrielites say that it's against God's law. We agree with them; we build Works, and sometimes, if we have real problems, we pray for miracles. But between the two of us, I'm not sure that it matters what words we use. We're craftsmen, girl — now, don't pull faces, that's a compliment round here. What we do is shape our materials and wield our tools. If we use 'em right — if we hold the sacred geometry in our minds as we labor — it'll look magickal to the plow-boys in the fields. But we'll know better.

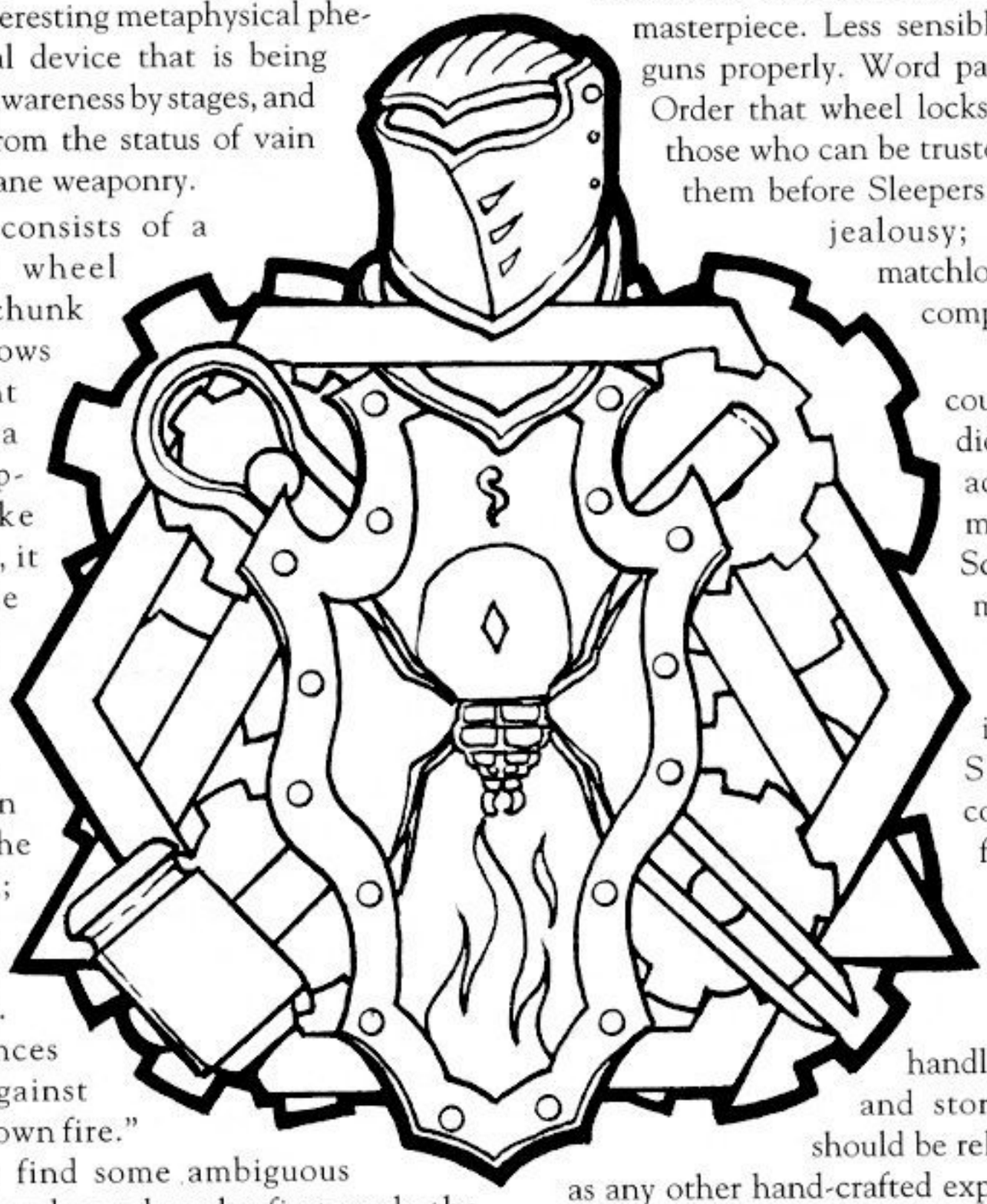
"But we certainly *aren't sorcerers, if that's what you mean — and I'll tell you the difference. Those freaks will tell you that* things *have special qualities. Power. And that's true enough — but then they'll tell you that those qualities can only be found and assessed by direct examination, not predicted by sense and reason."*

The Artisan drew breath as he finished looking at the half-made silverware. "And that," he said, raising his hammer, "is wrong." The hammer came down, hard and resounding. "It's worse than wrong." (Another hammer-blow.) "It's a lie against Creation. And that is a sin."

He dropped the hammer on the bench after one last blow and held his work up to the light.

The Wheel Lock

Although no one quite realizes it yet, wheel-lock firearms represent an interesting metaphysical phenomenon: a mechanical device that is being insinuated into Sleeper awareness by stages, and which thereby moves from the status of vain magick to that of mundane weaponry.



The wheel lock consists of a spring-loaded metal wheel that spins against a chunk of iron pyrites; this throws off sparks, which light the gun's powder. It is a tricky, fragile contraption, but unlike preceding gun designs, it does not require the user to keep a burning "slow-match" perpetually at hand. In the 20th century, history says the weapon was invented around the beginning of the 16th; Leonardo da Vinci doodled something similar in A.D. 1508. A few years later, princes were passing laws against guns that "made their own fire." Sleeper scholars may find some ambiguous hints in earlier texts, and wonder who first made the idea work in practice. Teachers within the New World Order quote this as a classic example of applied paradigm manipulation.

Their mid-15th-century predecessors in the Order of Reason are less sanguine. To them, the wheel lock is an invaluable creation that they can manufacture in quantity and issue to their guards and servants. They insist that this is a mundane mechanism, not a magickal device, and point out that un-Awakened troops use it perfectly well. In fact, some talented Sleeper weaponsmiths (and a few Disparate philosopher-craftsmen) copy the idea successfully, and several Artificers give such weapons to Sleeper princes to buy aid or favor.

However, Sleeper acceptance of the wheel lock does not prove a complete success. Although the troops of Reason find wheel locks to be reliable and handy, the gifts have a bad habit of blowing up in the recipients' faces. It seems that the more wheel locks are used, the less useful they prove.

Any craftsman or engineer can guess why. Large-scale production always introduces problems with a design that works well when it is made as a single hand-crafted masterpiece. Less sensible wielders never clean guns properly. Word passes quietly around the Order that wheel locks should be reserved for those who can be trusted with them. Flaunting them before Sleepers leads to confusion and jealousy; better to stay with matchlocks and crossbows in such company.

The real secret, of course, is that the unpredictable reliability of such advanced weapons is a manifestation of the Scourge expressing itself in mundane (but annoying and dangerous) forms. Because the wheel lock is *almost* accepted by Sleepers, the Scourge comes down in simple malfunction and can even be held off by careful attention to proper weapons drill.

The Storyteller should handle the Scourge in game and story terms. Wheel locks should be reliable — well, as reliable as any other hand-crafted explosive-using mechanism — so long as they are not overused. They should represent a small but useful edge for Daedalean characters, their associates and other Awakened characters who get a hold of them and accept them in their worldview. However, if wheel locks or any other revolutionary inventions are overused; if characters purchase them by the dozens and hand them out to every thuggish guard they hire for the day; if they are flaunted before nervous peasants — then they should start to behave like the experimental and premature technology they truly are. Roll a Fortune Die whenever one is fired and have it jam or explode on a 1 as well as any botch — or more often if characters are truly careless and overconfident with their lethal toys. (A botch *and* a 1 certainly

means an explosion.) If observers are backwoods folk or prone to much truly devout prayer in the face of this ungodly weaponry, the full panoply of the Scourge rules may be applied.

Incidentally, the extent to which a wheel lock is seen as "unnatural" may depend on the details of its use. Most folk have seen or at least heard of (matchlock) arquebuses. A long-barreled firearm, glimpsed at a distance, is therefore nothing too strange, even if the lock mechanism seems a trifle ornate and the glow of the match seems to be hidden. A small but deadly pistol, whipped out from beneath a cloak and fired on the instant — ah, now *that's* not natural. (Unfortunately, this quick use is also the best thing about the wheel lock. Life is harsh on the forefront of the weaponsmith's craft.)

The Information Revolution

The defenders of tradition, faith and mystery believe the deadliest threats that a craftsman has ever turned against them are the cannons, handguns and rockets that come to rule the battlefield. Many Daedaleans agree. To be able to send flaming iron death hundreds of yards is a great comfort when opposing magicians, witches and faeries.

They are all completely wrong.

Printing may have originated in India. The Chinese have possessed it since the seventh century, and (earthenware) moveable type since the 11th. The latter was made strong enough for heavy use in Korea around A.D. 1300 by casting in metal. However, the possibilities were limited by the huge number of characters in Chinese writing, and any social effects were absorbed by the very stable Chinese system of government. Although the Arabs learned papermaking from China, they didn't seem to borrow printing from the same source.

Paper came into common use in Europe a couple centuries ago, but even with this relatively cheap, smooth-surfaced medium available, experiments in printing have taken place only recently. In Mainz, a group of craftsmen including a businessman named Johann Fust, a calligrapher named Peter Schöffer and a silversmith named Johannes Gutenberg, produce a workable system and print a beautiful Bible, among other documents.

The Middle Ages are doomed.

The Order of Reason is taken by surprise by the consequences of this invention (although the Craftmasons are in no way surprised that such a "small" invention could have such an enormous social impact). Early printers may be

What About Everyone Else?

The Renaissance is a period of discovery and growth for everyone — artisans, scholars, merchants. It stands to reason that the Daedaleans make great leaps in progress, as much of this period's growth is related to technology, but technology and gadgetry are not the sole purviews of the Order of Reason.

Many of the Traditions use devices and mathematics to achieve their goals. Most notably, House Verditius of the Order of Hermes, dedicated entirely to the creation of Machinae and other mechano-magickal items, has a decidedly Artificer-ish approach to its work, though its core concepts remain those of the Order of Hermes. The Solificati are also of a scientific bent, but their arts have already begun to swing back toward the mystickal end of the scale, away from even an Artificer-friendly stance (they are perhaps most closely related to the Cosians, of all of the Order of Reason). Each Tradition, with the possible exception of the Dream-Speakers, begins to adopt the newest innovations of the era as tools in the struggle for further enlightenment, though most are content to use the tools others provide instead of creating new ones.

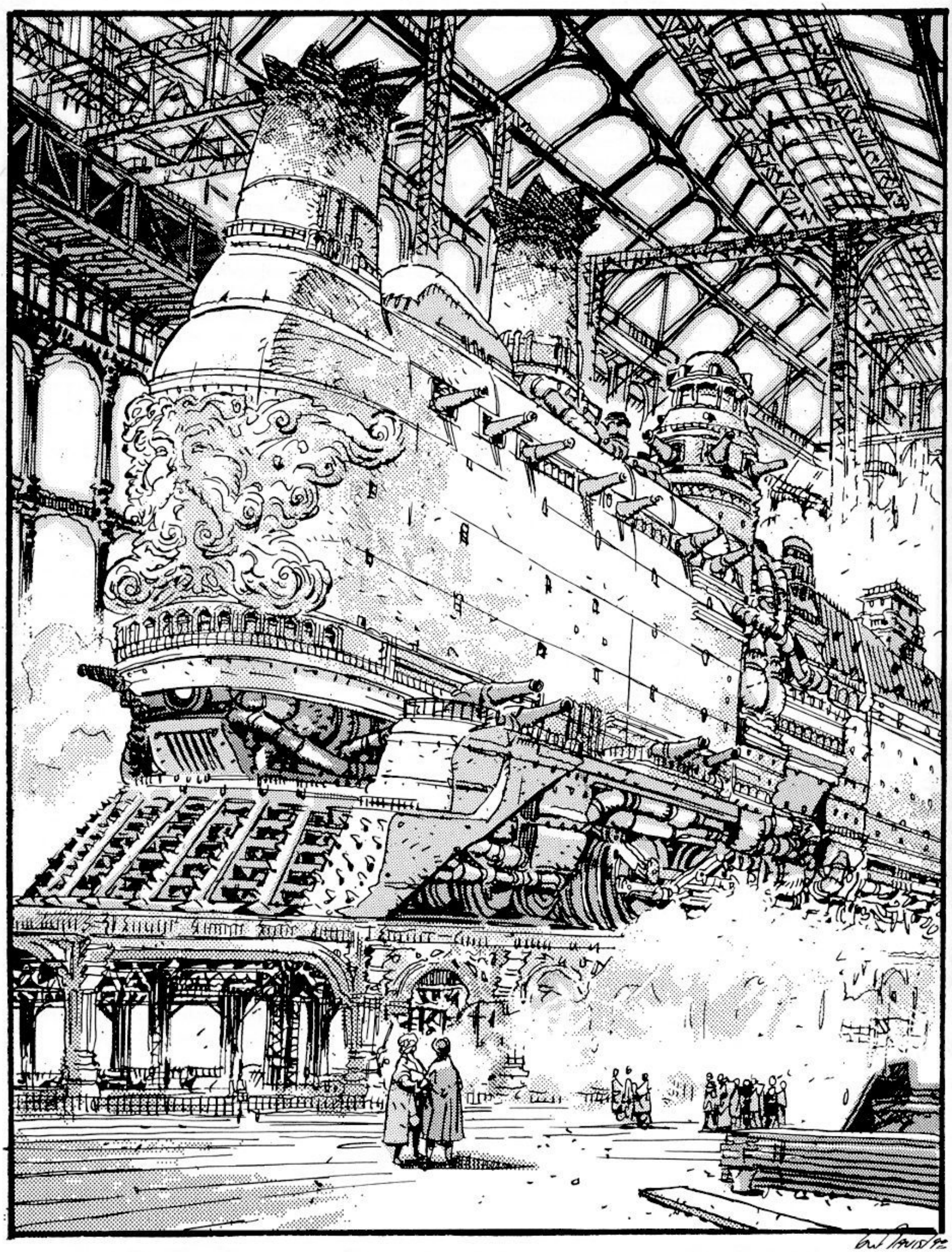
In addition to the Traditions, other Conventions of the Order of Reason avail themselves of new opportunities. The High Guild prospers during this period due to the rapid expansion and evolving sophistication of Western Europe's commerce systems; clever tinkering offers new forms of transportation and communication. The Void Seekers borrow the mundane navigation technology offered and adapt it to their unique take on exploration. The Cosians also make leaps and bounds forward, both encouraging and taking advantage of relatively new freedom to examine and study the human body. Not since the era of the Greeks has there been such a revolutionary burst of invention and discovery, and *all* of the Awakened groups — not just the Craftmasons and the Artificers — rush to use it to their advantage.

The Renaissance, of course, is not confined to the European continent. Many of the discoveries, inventions and ideas that began the ideological revolution originated in the East — China, India and the Middle East being the primary suppliers of these catalysts. The Awakened Artisans of these areas also continue to develop new and innovative ideas, and it would be remiss to not reflect on them and their considerable contributions.

little more than clever Sleepers; the technology is a combination of rather commonplace ideas, quite immune to the Scourge. Still, reason and innovation ride the tide of change (and war) that ensues, while Hermetic magi and saintly Choristers remain hunched over their hand-crafted, utterly personal books. In the unstable religious environment of the age, amidst the squabbling princes and political ideas of Europe, a cheap, simple method of spreading new ideas and attacking old ideologies is far more explosive than mere gunpowder.

As it spreads through the remainder of the 15th century, printing is watched with interest by the Daedaleans. Few other factions bother to oppose it, either because they misjudge its importance or because they dream of using it for their own purposes. In any case, the urban guilds who promote it are the Daedaleans' stronghold; a direct assault would be a dangerous prospect.

Eventually, the consequences of mass communication are incorporated into the Ars Praeclarus (and the High Guild's *Ars Cupiditae*). Extraordinarily powerful Mind effects become possible as Sleepers believe that anything printed in black and white must be true. For now, however, matters remain in an early, experimental stage.



Instruction the Second: The Great Work

"...a modern system of science had been introduced, which possessed much greater powers than the ancient, because the powers of the latter were chimerical, while those of the former were real and practical..."

— Mary Shelley, *Frankenstein*

Rosa the 'prentice silversmith, secretly third-order Initiate of the Sanctified Labyrinth, worked swiftly. She knew her master's inner workshop perfectly these days — she could have found the tools with her eyes closed — so her attention was all on the diamond. She clamped it in a tiny steel vice, its base hard against the polished granite back-plate, and then pulled a magnifying lens into place.

There! Just as she remembered — an oblique flaw ran right through the stone.

She took up a cold steel blade and a small, lead-weighted hammer. No time for fine calculations, but she knew that this could work. The blade hard against the diamond, the hammer struck once — and the diamond was split along the flaw, leaving a point. It wouldn't catch the light like the faceted stones her father's bolder friends prepared, but that wasn't what she wanted. She mounted it, straight away, but at the tip of a half-finished eating-knife from the bench. (Silver — probably not essential, but it might help.) The fixing was an impossibly tricky task that took several minutes, but she wanted it to be strong.

A roar from the next room told her that it would have to serve. She flung open the door just in time to see a Craftmason halberdier fall, his chest torn open by the monster's claws as it lunged in from the street. The other man looked at her in desperation.

"Use this!" She flung him the knife, hilt first. He caught it deftly, glanced at it a moment, then reacted as one with no other stratagems to mind. Deflecting the creature's blow with his buckler, he ducked beneath its arms and, with desperate strength, drove the short blade deep into its armored chest.

For a moment the creature stared at the silver hilt. Rank disbelief was unmistakable, even on its inhuman face. Then it dropped like a sack of coal to the workshop floor.

"So much for the legends," the man gasped.

"No," Rosa replied, "the astrologer had it right. Its hide would turn aside iron or steel, or any blade or point less perfect." She managed a strained smile. "It's just as well I was brought up in a jeweler's shop. Nothing is more perfectly hard than diamond."

"You made a weapon that could slay a Sending that's butchered three masters of our hall...."

"Raw luck, the astrologer's words — and the ignorance of that heathen witch-man, really, brother. If he had understood that it's more than cold iron that we wield, he might have called up a more fearsome demon."

"Hmm." The mercenary leaned against a bench. Only now did Rosa see the blood oozing through his mail. "We could use luck like yours in the Mauls, girl. Any day you wish..."

A History of Inspiration

In tedious exile now too long detain'd,
Daedalus languish'd for his native land:
The sea foreclos'd his flight;
yet thus he said:
"Tho' Earth and water in subjection laid,
O cruel Minos, thy dominion be,
We'll go thro' air; for sure the air is free."
— Ovid, *Metamorphoses*

To Daedalean craftsmen, the important aspect of history is the story of human creation. They draw inspiration from past masterworks, burrow through ancient texts and drawings, and spend hours contemplating old buildings and designs in search of ideas. To the Craftmasons, old buildings are most important; not only do they embody subtleties of geometry and craft — and provide useful exercises in determining how particular effects were achieved — they are moral lessons in stone, showing how the anonymous work of thousands of humble hands can outlast the power of kings and transcend the vanity of princes. The Artificers (and craft-working members of other Conventions) tend to a more personal view of workmanship, and see nothing wrong with honoring individual genius; the history of their Convention is the history of personal masterpieces. It is only in the Renaissance, with the increasing spread of Artificer philosophy and some large-scale production of standardized devices, that focus begins to shift from the personal to the general.

Although Daedalean Artificers hold that Craft is as old as humanity — or at least that it has existed since Adam and Eve, ejected from Paradise, taught themselves to delve and spin — High Artisans trace the organized form of their vision back to the ancient cities of Mesopotamia, where building and irrigation works required the first large-scale, long-term engineering in history. These practical works transformed arid plains into cities, wherein priests and scholars first began to look to the skies and delve into mathematics. In Babylon, such thinkers found subtle relationships of form and number. Applying what they found to the practicalities of building, they were the first to invoke the great principle *As Above, So Below*. Sacred geometry was born.

However, the oldest name in the Artisan's roll of honor is Egyptian: Imhotep, who worked around 2630 to 2610 B.C. As the architect of the first pyramid and an expert in medicine, he is perhaps of more interest to the Cosians and Craftmasons than to the Artificers, but he certainly possessed genius. The sacred spark spread.

The Daedalean Parable

The First Artisan in many Daedalean eyes is in fact Daedalus of Athens, whom most of the world knows as a vague legend. Enlightened astrologer-scholars say he lived and worked in the 20th century B.C. To the Artificers in particular, his story is more than a biography; it is a living parable, full of inspiration and warnings.

Instructed by the goddess Athena (whom some Artificers interpret as a Daemon rather than as an independent spiritual being), Daedalus showed his genius by the invention of the ax, awl and level. However, he also fell victim to hubris and murdered his nephew Talus for showing too much promise. This led to punishment — exile — and having to compromise his craft by working for a tyrannical Sleeper, King Minos of Crete. Daedalus showed his mastery of the sphere of Life by creating the disguise that enabled Minos' wife Pasiphae to mate with a bull and actually produce a child, the monstrous Minotaur. (Tinkering with Life is always dangerous!)

Subtle and clever, Daedalus found a secret apprentice in Minos' daughter Ariadne, and suggested how she could aid the hero Theseus to slay the monster. Suspected of conspiracy, Daedalus and his son Icarus were imprisoned in the labyrinth of the inventor's own creation — a lesson for those who meddle in Sleeper politics. Creating artificial wings, Daedalus and his son escaped, but Icarus died in the attempt. Sleepers interpret this incident as an example of hubris punished; Icarus flew too close to the sun. Artificers, however, see it as something more subtle — a warning about the dangers of excessive emotional involvement with anyone, however close, and of the dangers of the Scourge. Daedalus flew on to Sicily, where he later took revenge on Minos by slaying him with a technical trick.

The legend of the apprentice Ariadne takes several different forms. Artificers promote the version in which she is abandoned on the island of Naxos by Theseus (trust not those Sleepers who demand weapons of you!). She is said to have married the god Dionysus and to have eventually become a goddess. Some Daedaleans take this as meaning simply that she fell into alcoholism — a worldly error — or excessive mysticism, but others interpret the god as her Daemon and say that escaping mundane entanglement, she achieved Ascension or at least a mystickal version of the Zenith.

At first telling, this myth has a misogynistic air; Ariadne was the pupil of the true (male) genius, fell for a handsome face and probably died alone. However, many Artificer scholars point out that of the pair, it was she who may have attained divinity....

Solomon and the Hiramic Legend

After Hatshepsut and Thothmes called together their meeting of great minds, Awakened crafters spread across the civilized world, mostly working on a subtle level to distribute their philosophy among the common folk. Craftmasons claim the achievements of King Solomon the Wise as part of their traditions, not so much for the symbols and spells that are credited to him by the Hermetics as for the creation of the Temple, a physical manifestation of their ideal of unity.

Masons also possess secret lore concerning this era. The Bible briefly mentions one Hiram, a bronze-worker of Tyre who is described as creating much of the metalwork of the Temple. Craftmason legend states that he was in fact one of the architects of the entire building, a humble Artisan-builder who shaped that which the divinely inspired magus-king proposed. Craftmasons also say that Hiram was murdered by three lesser workmen for refusing to divulge secrets of his craft. When they were detected and executed for the crime, Hiram's body was found where they had secretly buried it, and he was reburied with honor within the temple itself.

This is a simple tale told to apprentices, showing that a Craftmason must be on guard against jealous enemies who envy the Convention's secrets, and that death in defense of that lore is highly honorable. Many Craftmason induction ceremonies involve re-enactment of the story of Hiram; the initiate must show himself ready to face death. However, there are other texts, more secret yet, revealed to only those who have proved their worthiness. One apparently hints that Hiram was not simply reburied, but that he was actually *brought back from the dead.* Alternatively, Mason-scholars note that burial within sacred buildings is not common Jewish practice. If Hiram was so interred, there may have been some unique — and perhaps slightly dark — ritual aspect involved. However, most Craftmasons dismiss such speculations as irrelevant.

The Classical World

The next great flowering of technical genius arose in Greece (Daedalus' homeland). Inspired by earlier philosophers (including Aretus, whose works would play a part in the later history of reality-shaping science) and by knowledge of sacred geometry brought from its Mesopotamian homeland to the east, the Classical Greeks laid the foundations of Western thought (and shaped some wondrous architecture). Some Daedaleans have special respect for Pythagoras, who declared that numbers were the foundation of the universe. His other theories — especially his obsession with reincarnation — are too woolly-minded and

mystickal for most; his use of mathematics seems rather Hermetic. These dissenting Crafters prefer to look to Pythagoras' second-generation pupil Archytas of Tarentum, an empiricist who actually applied Pythagoras' ideas to the world of experience, and who also built automatons and other devices (some of which flew!). But the greatest Artificer of Greek civilization was surely Archimedes (287-212 B.C.), who gave Sleepers numerous devices and mathematical ideas and who built war-machines that enabled his home city of Syracuse to hold off the entire Roman army for three years.

A few decades later, an astronomer named Andronichos Kyrrhestes built the "Tower of the Winds" in Athens, which seems to have been a building-Machina for the study of Time, complete with both water-clocks and sundials. However, by now the dominant power in the Mediterranean world was Rome.

The Romans were master engineers and builders, if not great inventors; Craftmasons rate them higher than do Artificers. That said, both Conventions admire Vitruvius, a first-century B.C. Roman writer whose book on architecture is becoming the set text for Renaissance builders. The tome describes simple but useful machines and lays out the rules of Classical architectural style. However, Greek culture was the main source of new machines in the Roman Empire.

Thus, in his Greek-dominated home city in Egypt, in the first century A.D., the great Artificer Heron of Alexandria founded an entire school of engineering and invented steam power along with numerous other devices. (Incidentally, Heron had a Greek-style name, but his ancestry is unknown; he may well have been Egyptian — that is, North African.) Later Artificers wonder what Heron could have achieved if the Scourge had not obstructed him.

The East

Those who have studied Chinese texts from Classical western times are sure that Artificers of the two cultures were in contact. Indeed, these scholars date their Convention's rise to organized power from these Classical times. Ancient Chinese civilization had already created all manner of interesting and useful devices, including kites, the magnetic compass and crossbows, and had produced many impressive building works — the greatest and most terrible being the Great Wall of China, a defensive system created by an insane emperor who fought (or claimed to fight) against supernatural forces, but who also destroyed vast quantities of books, sparing only those concerning a few useful subjects. Eastern-born Artificers are proud to draw inspiration from past geniuses of their own land — such as Cai Lun, who invented paper in A.D. 105, and Zhang Heng, who built seismographs and powered astronomical instruments in A.D. 120 — as well as from the numerous engineers responsible for China's astounding building works.

But China is not the only eastern source of innovation. The Near East has been as influential on western development as has the Far East. Much of the technology that makes the Renaissance possible is a direct contribution of Indian, Persian and various Islamic civilizations. Trade and the accompanying dissemination of information is credited with much of the impetus behind the Renaissance. One of the primary trade routes is the Silk Road leading overland from China to Western Europe. The Chinese silk that comes along this route is accompanied by damask, gauze, muslin and taffeta — all Arab and Indian textiles. Cotton also originated with the Muslims; Muhammad himself is said to have begun the practice of wearing cotton by donning a white cotton shirt and trousers under his woolen tunic.

Though Chinese Artificers point to a variety of devices as their contribution to the craftsman's domain, near eastern builders and inventors know that western successes are their provenance. Many of the Greek texts used by Craftmasons in their study of sacred geometry were translated by Arabic scholars. Indeed, al-Khwarizmi, an astronomer and mathematician, wrote the treatise explaining the entire system of Arabic numerals. Without this work, the Artificers' complex calculations could never have been.

Craftmasons also owe much of their knowledge of castle-building to their observations of Arabic strongholds during the First Crusade. Militant factions of the Artificer traditions adopted eastern-style weapons and fighting styles as well. Crusaders also learned more peaceable lessons from their adversaries: irrigation techniques and raising crops such as rice, sugarcane and citrus fruit. Even the stained-glass windows gracing European cathedrals were a result of Arabic influence; Muslim glaziers shared their secrets with Venetians in 1277.

The Dark Ages

The fall of Rome and the similar failure of the Han Chinese Empire were disastrous for the cause of Reason, but no *irreparable* damage was done. The Chinese formulated a lesson that served them well, by and large, for two thousand years. Those who conquer China will find that the best way to rule the land is to adopt its existing institutions, and hence will inevitably become Chinese themselves. China was conquered, but could not be destroyed — and its craftsmen and technologies were part of the package. In the West, Rome fell harder. Its engineering skills were lost across most of its old territory. The secret Awakened Artificers of the *Collegium Praecepti*, heirs to the mathematics of Pythagoras and the inventiveness of Heron, were scattered.

Still, some solitary brilliant craftsmen not only kept the flame of inspiration alive, they created new masterworks. Master-builders allied with newly triumphant monotheists to create wondrous domed churches, asserting the power of faith and creation in the minds of men. This movement culminated when the vast domed church of Hagia Sophia was raised in Constantinople in a mere six years, between A.D. 532 and 537 — a miracle of engineering and faith. Legend says that when the Emperor Justinian entered the completed building for the first time, he murmured, "Solomon, I have surpassed thee" — a claim of Christian victory over the Hermetic traditions, but also a uniquely proud boast on behalf of the mason-engineers who had done the work — or perhaps a slap in the face for their old ideals.

In A.D. 673, again in the Byzantine Empire, a Syrian architect and alchemist named Kallinikos faced down the Scourge that had previously made incendiary weapons impossibly dangerous. He gave "Greek Fire" to the empire's Sleepers. Ironically, this weapon was used to defend Byzantium against the rising power of Islam, but it was the Muslim world that combined Persian libraries, the knowledge of Greek scholars exiled from the Byzantine Empire (by Justinian, ironically enough), and its own dynamic faith to create new innovations. Baghdad was the greatest source of innovation and science in the world for a few centuries. Islam produced such figures as the Bani Musa (Sons of Musa), who calculated the circumference of the Earth and created subtle pneumatic and hydraulic devices in the ninth century A.D., and Al-Jazari, who in A.D. 1206 completed a book on intricate water-clocks that marked time with musical sounds or moving statues.

Meanwhile in Europe, more subtle inventors improved agricultural methods — a seemingly minor change that would help the lands of the cold north rise to power in coming centuries. In China, bureaucracy had some space for engineering geniuses, especially in the field of irrigation and canal-building, which was essential to some regions. Around A.D. 600, the Minister of Works Yuwen Kai built cities, canals and water-clocks. However, Chinese tradition is of more interest to High Artisans, who respect genius wherever they find it, than it is to the Craftmasons; few Chinese inventors or builders ever did much for the humble peasantry, although many labor-saving inventions helped improve commoners' lives a little over the years.

A New Foundation

While Artisans of various styles and cultures had united in different cities at different times for protection and exchange of ideas, the gathering of craftsmen in Frankfurt, in A.D. 997, was slightly more significant. Europe felt a little safer, and rather richer, than it had for centuries. The Holy Roman Emperor had married a Byzantine princess and encouraged new, greater buildings (especially cathedrals). Half a century later, a new style of architecture, later termed "Romanesque," appeared. Master craftsmen wandered the continent. Some carried the half-forgotten ideals of sacred geometry and declared that the buildings they crafted could and should reflect the glories of creation. But feudal lords had their own ideas and were determined that their authority should not be questioned. Meanwhile, Hermetic magi in their hidden Covenants claimed a monopoly on arcane lore, required that "hedge magicians" should join them or die, and grasped greedily after any places of power, any sources of the "Vis" they craved. And as for the Creatures of the Night....

Lone Craftsmen ultimately stood no chance against such forces. One man determined to find a solution. Wolfgang von Reismann called in favors accumulated over many years, used the good name he had forged and brought together a great congregation — the "Gathering of the Square." It was a chaotic meeting, and few who attended were in full agreement with each other, but they did nearly all agree about their collective problem. Once they had sat down together, they recognized a certain brotherhood. Thus were founded the Craftmasons, who would perform so much of the building work of the Order of Reason.

A Growing Wisdom

The 12th and 13th centuries saw further advances for the cause of Reason in Europe, often in the midst of what seemed to be its greatest enemies. The Crusades led to all manner of bloodshed and hatred, but they sent Europeans — scholars as well as soldiers — back and forth between the "Frankish" lands and the East. Much lore — overt and occult — was transmitted in the process. Indeed, an Italian nobleman within the very Order of Hermes named Lorenzo Golo discovered an ancient Greek text in an Arabic translation. He used it to propose an inspired form of science that owed little to mysticism. (That science is a little *subjective* for most Daedaleans' tastes. Although many of Golo's disciples now work within the Conventions, his philosophical theories remain highly controversial. In the far future, this entire school of thought breaks away and eventually aligns itself with the Traditions.)

And there was Roger Bacon, the "Doctor Mirabilis." This 13th-century master Artificer, teacher, friar and alchemist single-handedly laid the foundations for Daedalean growth over the next hundred years. He appears to have had a deep, intuitive understanding of the limits placed on his work by the newly growing Scourge, and set out to introduce new scientific ideas and devices through subtlety. Cool-headed Sleeper historians remember him for his writings and theories, and look with amusement on the wilder legends of wonder-working attached to his name; the talking brass head, for example, that burst soon after it was made. Artificers understand that such stories may be literal truth. Bacon learned the secret of gunpowder and released

it to his readers in cryptic, encoded form, thereby insinuating it into popular acceptance by stages. His other writings mention flying machines and self-propelled carriages as potential benefits of philosophy, not as proven (but self-annihilating) facts. His great weakness was, perhaps, his failure to apply his scientific rigor to some of his religious beliefs; he came to believe in certain apocalyptic prophecies that were current in his time, and this, combined with his other teachings, brought him trouble with his fellow churchmen. However, Bacon's influence within the nascent High Artisans was and remains immense.

Meanwhile, the Craftmasons tested their strength. Stephen Trevanus' small-scale peasant revolt in England was little more than an angry outburst, but the fall of Mistridge in A.D. 1210, involving the cannons that would be given to European Sleepers a century later, showed what they could achieve. Europe's Masons were lucky enough to be fighting wars that they could win. In China, the Dalou'laoshi unleashed technological weapons against the Mongols but were eventually overwhelmed (although the south of China held out for decades).

The White Tower

At the beginning of the 14th century, scholars such as Petrarch in wealthy Italian cities rediscovered Classical literature and philosophy and distributed it to the Sleeper world. The lords, Hermetic mages and vampires who dominated those lands were tolerant, even supportive; they had developed a taste for fine art and gracious living and saw no harm in a few academics discussing wild and untenable ideas about human dignity and objective reality. The Artisans and Craftmasons on the edges of these developments watched and plotted.

In A.D. 1325, in a remote area of northwest France, they struck. Yoassmy of Brittany was a typical, if exceptionally powerful, Hermetic magus. The Masons who had been watching her for years judged that she had grown apart from worldly concerns and played games with Scourge and Quiet while the lands she ruled fell into decay. The Artisans' Church allies of the moment were offended by Yoassmy's hubris; she denied much that they held sacred. (The Craftmasons maintained a tactful silence on such thoughts.) The ensuing assault was not without cost, not only in troops, but in reputation; Yoassmy almost became a martyr for the cause of superstition, with tales suggesting that she achieved Ascension even as she was cast down. But the prize — a fine tower, a strong Cray — was not to be disregarded. And in the midst of Yoassmy's laboratories, a Craftmason captain turned and said, *It does not have to stop here.*

Thus was founded the Order of Reason. Not that triumph was immediate. Plagues wracked Europe, perhaps delaying the Renaissance by a century. The Solificati showed themselves to be hopeless mystics and had to be cast out of the Order. Battles won in guildhalls and universities were balanced by losses in countryside and palace. But the Order discovered the strength of the many, which the enemy had disregarded. Furthermore, as war became overt, it involved straightforward weapons in large numbers, which the Artisans understood better than anyone. Cannon were distributed widely, but Craftmasons were almost as pleased with the battlefield victories of Welsh and English longbowmen. The Masons also knew how to build castles for defense, while enemies who retreated behind such walls often discovered that some past master-builder left subtle flaws for his brethren to exploit.

The High Artisans, with new ideas to inspire them and wealth from newly rich patrons to support them, retired to their workshops for a while. They emerged with flying machines and other new devices to challenge their rallying enemies. Among Sleepers, many in the Church were bought over with simple clocks, placing expert craftsmen in positions of trust in many an abbey or cathedral. The Craftmasons, flushed with victory, used the webs of influence and friendship they had spun across Europe while building the great Gothic cathedrals to encourage peasant revolts. Unfortunately, such revolts were generally cut down ruthlessly. The highest and most ambitious cathedrals sometimes collapsed as the Scourge seeped into mundane workmanship, destroying that which lacked a properly developed and understood system of mathematical theory to sustain it. The Craftmasons, angry with themselves for their over-reaching enthusiasm, resolved to take more care, to work with their new allies to develop ideas that would make their schemes viable.

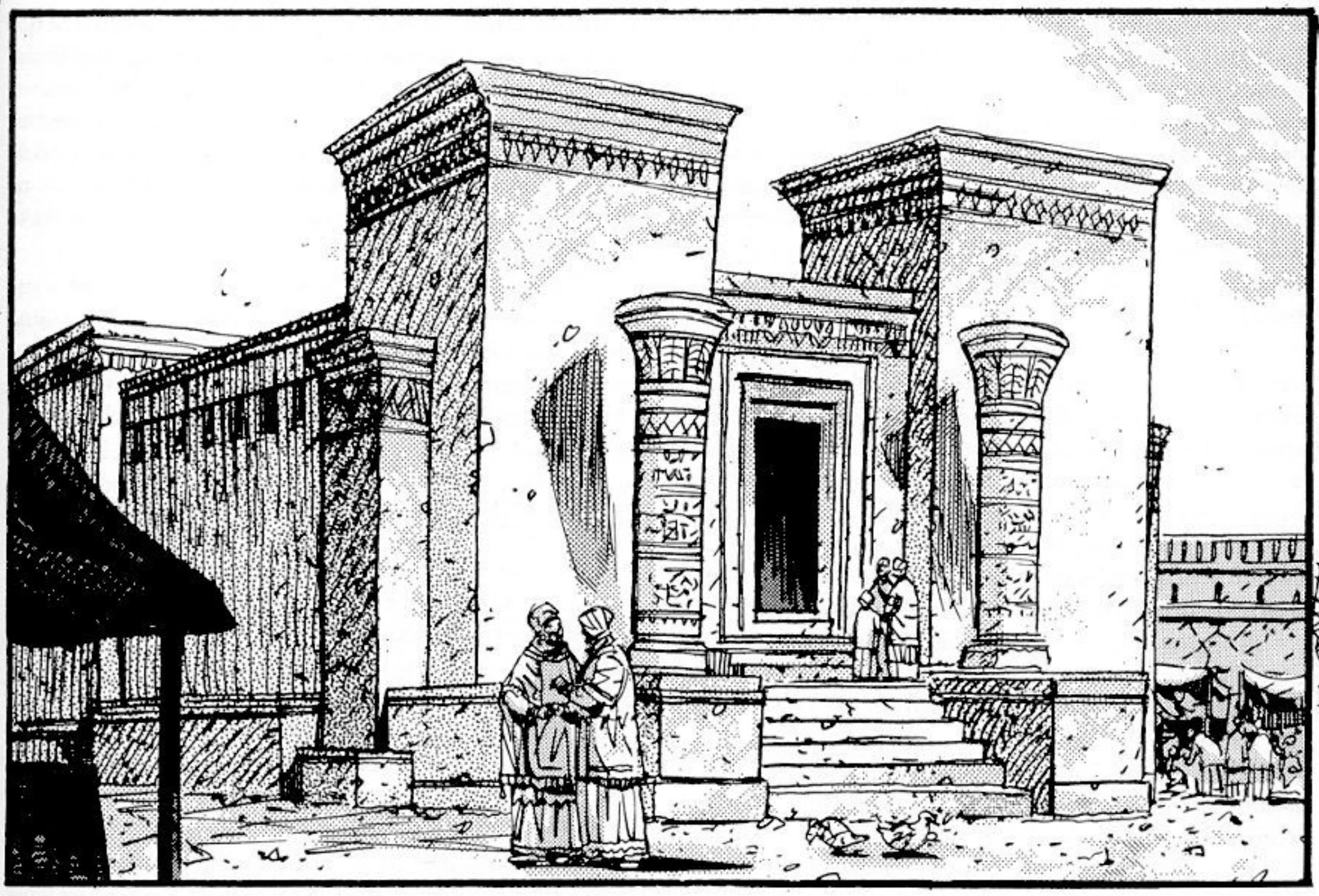
Thus, a new phase in the Artificer program was prepared, with ideas and simple inventions spreading among Sleepers, and astounding inventions emerging from the workshops of the Enlightened.

The enemies of Reason are about to face assaults, not only on their physical defenses, but also on their authority and their dreams.

Current Events

To the Heavens above us
O look and behold
The Planets that love us
All harnessed in gold!
What chariots, what horses
Against us shall bide
While the Stars in their courses
Do fight on our side?

— Rudyard Kipling, *An Astrologer's Song*



Artificer "magick" is on the rise. It remains essentially vain in the eyes of most Sleepers, who do not see how arrangements of metal and stone can accomplish so much. But that is changing. Not only do many a local lord's troops take up handguns in place of bows, but the local abbey may well have installed a clock in its tower to mark the hours of prayer. Meanwhile, the rich merchant's townhouse is built on a strange and elegant new pattern. It seems that craftsmanship *can* accomplish what it claims, after all.

Of course, some feats are more plausible than others. Flight is centuries away for Sleepers, and the power of vast architecture and stonework remains elusive and subtle. It eventually comes to seem that the Masons produce grand schemes but limit *immediate* change in the world, while Artisans can accomplish *almost* anything they wish, but only on a small scale. For their part, the Void Seekers benefit from a series of subtle but useful improvements in mundane ship-building and navigation, while the Celestial Masters have to keep their voyages and craftsmanship secret and to fight bitterly for the triumph of their science in mundane society.

For now, Enlightened craftsmen are entangled in a bitter war for hearts and minds. In universities, hermetic magick and alchemy remain admired, while in the countryside witches and secret wise-men retain their influence. Thus, Artisans and Masons must look for support elsewhere — among the common folk of cities. From that base, they work outward in all directions. They support scholars who promote rationalism and humanism, which implies that considered works of the human hand are more potent than invocations of superstition. Artisans also promote artists whose thoughtful creativity demonstrates just how much is possible. Reason seems strongest in Italy, home of the Renaissance, and in the Ottoman Empire, with its tradition of Islamic scholarship. Yet both these lands are hotbeds of religious power. The corruption of the papacy may undermine superstition, but it also makes trouble for everyone, while the Ottoman version of Islam grows increasingly legalistic and *always* places revelation above science. Thus, and to the distaste of their Gabrielite allies, Artificers begin to look further afield for aid.

The Northern Lands

A string of wars rages across the north of Europe. Some are horrific half-secret contests of supernatural forces. Others are overt mundane conflicts based on religious differences and dreams of conquest. Frequently, the two become entangled. The Order of Reason takes a special interest in all.

The north is still a frontier region from the point of view of Christendom. Lithuania, a land of swamps and forests, nominally became Christian in A.D. 1387, but that

was more a piece of royal politics than a mass conversion. Paganism — of a robust, rather bloody kind — remains powerful here. Lithuania's "conversion" is partly a reaction to the power of the Teutonic Knights, an old crusading order that has taken control of Prussia (ruthlessly wiping out paganism there), and which sees further conquests as opportunities for wealth and to serve God. The Lithuanians hold off the knights successfully, but largely by forming close alliance with Christian Poland, which threatens to become the dominant partner.

The north is a cauldron in which the Infernal can brew carnage in the name of the Old Faith. Appa Bloodax and his even more terrible offspring Tezghul the Insane hold the mundane rank of senior chiefs in Lithuania, but their power is that of Hell. Such evils would be a threat in any land, but here, with Christianity hated and feared, and true pagans seemingly powerless, the raw power of darkness holds a certain appeal to the short-sighted. By the time they learn what it is they have allied with, it is too late.

Bringing down Tezghul demands more than the swords of the Teutonic Order. In A.D. 1472, an entire Daedalean army is needed to stop him. The costly victory gives surviving Artificers a certain deep satisfaction — the power of Hell itself proves vulnerable to cannon and clockwork tanks. At the Battle of Harz, the new machines prove their worth, as even the Gabrielites acknowledge.

(Later, the Order of Reason suppresses records of this war, hiding it in the confused struggles between Lithuania and the Teutonic Knights. It is not *helpful* for Sleepers to suspect that pagans and devil-worshippers once had power enough to threaten all of Germany.)

The Hussites

Meanwhile in Bohemia, Christendom itself is in turmoil. In 1415, a dedicated philosopher-preacher named Jan Hus is burned at the stake for his campaign for Church reform. A Church built on martyrs shows an uncanny talent for making more of them. A great movement that combines Czech nationalism with Hussite religious reform rises up against the power of the Catholic Church and the foreign lords who claim power in that land. The Hussites themselves soon split between moderate and extremist factions, but even so, they beat off numerous crusading attacks between 1420 and 1436, eventually obtaining a semi-independent Bohemian Catholic Church for themselves (at the cost of other, more extreme objectives).

The Order of Reason has a problem here. The Cabal of Pure Thought violently disapproves of the Hussites ("One Church, One Faith, One God!"), although a few of them admit that there is a need for Church reform. The Craftmasons, on the other hand, make no secret of their support for this popular movement. The Hussites defeat armies of nobles and knights by deploying cannon and handguns within mobile "wagon fortresses"; whether or not the Craftmasons surreptitiously give them aid, this is the most spectacular display of technological might ever seen in Sleeper warfare in the West, and it causes numerous other nations to adopt similar ideas. Incidentally, occasional alliances between Bohemian and Lithuanian factions give everyone pause for thought, but do not seem to have any lasting consequences.

The Hussites endure for many years and exert some influence on the later growth of Protestantism before fading away. The Craftmasons always regard this era with affection. With gunpowder and printing alike well-developed in Germany and neighboring lands, they find much promise here.

The Fall of Constantinople

At the start of the Dark Fantastic period, Constantinople, once the proud successor to Rome itself, has been reduced to a joke. The "Byzantine Empire" now consists of a few lands along the coast of the Black Sea, cut off on all sides by the Ottoman Turks to whom the emperor is obliged to pay tribute. The city itself has survived so long only because it happens to be extremely defensible, but the old walls crumble and the Ottomans have acquired cannons.

The end comes in A.D. 1453. The Byzantines have tried appealing to the West for aid, and their leaders have even attempted to merge their Orthodox Church with Roman Catholicism, but the people of the city do not accept this option even in the face of annihilation. The Order of Reason notes that; the cause of "One Faith, One Church" is not much served by helping the city, while numerous Artisans (of all kinds) find profitable service in the Ottoman ranks. Some ancient Hermetics, Kabbalists and alchemists — residents of the city — see the way of things and withdraw silently. Several wise vampires do much the same, for the Muslims bring fire and strong faith. A few Venetian and Genoese troops show up to offer forlorn aid (ironically so, given the old rivalry between Venice and Constantinople), but the walls soon crumble, the city is stormed and the last Roman emperor dies (fighting nobly in the streets, to his credit).

The Refugees

But even this apparent disaster for the Christian cause has long-term benefits for Europe. Once the city's doom becomes evident, a large number of Greek scholars, perhaps not trusting the renowned Muslim respect for learning, flee westward, mostly to Italy. Those students bring ancient Greek texts (and native skills in the Greek language), extensive knowledge of ancient and eastern philosophy, and a new outlook on many topics. They fuel the next stage in the Renaissance.

There are some Awakened among them. They may owe allegiance to the Traditions or to the Conventions, or they may be of the Disparate, but the variety of unfamiliar thoughts they carry give most advantage to those who favor change in the old order of things.

Spain

Nor is Christendom in disarray everywhere. In Spain, the old Muslim Kingdom of Granada, once the most glorious and sophisticated of all Islamic powers, has been on the retreat for centuries, ever since political fragmentation left it vulnerable to religious fanatics from the north (and to undermining assaults from its own supposed allies, in the form of fanatical fundamentalist Muslim powers out of North Africa). By the end of the century, Granada falls to a newly united, confident, very Christian Spain that goes on to become one of the world's great powers.

This is a favored land among the Cabal of Pure Thought. Other Daedaleans, let alone the Council of Nine, keep their heads down for the moment. In time, the Void Seekers and their mundane associates find the King of Spain a wealthy (if greedy) patron — but so does the Inquisition.

Asia

Across the rest of the world, the cause of applied science has its gains and losses. India, for example, has often seemed a promising region, wealthy and sophisticated. Indian smiths made some of the finest blades of the Middle Ages (which, traded to Muslim traders, gave Arab metalwork a somewhat exaggerated reputation in the West). Indian mathematics, with its subtle use of the zero, has actually been the source of some of the scientific miracles of the age. But India suffers from chronic population problems, which in turn encourage an element of fatalism in philosophy (which disgusts Craftmasons who hear of it). The land is also dominated by Muslim conquerors. Because its rulers, native and foreign alike, never learn to reward ingenuity and innovation, marvelously talented Indian craftsmen tend to make what is asked of them and no more. The Order of Reason takes little interest in the region, leaving it to Arabian allies of the Mokteshaf Al-Nour to plunder what they can. Thus, invading Moslem Moguls, descendants of the Mongols who were fully able to hold off the Ottomans on one side while striking hard on the other, have a clear technological advantage.

(The descendants of nomad barbarians prove remarkably easy to turn to the cause of science, in fact. Ulugh Beg, grandson of Tamberlane the terrible, lord of Turkestan, is an active astronomer who builds the greatest observatory in the Sleeper world in Samarkand.)

China, meanwhile, is still a land of wondrous craftsmanship; some of its mundane products (rugged sea-going junks, delicate porcelain) surpass anything that European Sleepers are induced to create for centuries. The Chinese have used gunpowder longer than anyone else, and Dalou'laoshi texts are much in demand among European Daedaleans for their ideas on the explosive's applications.

China is in one of its reasonably strong periods under Ming emperors, and the Dalou'laoshi, in slightly uneasy alliance with Wu Lung alchemists, are dominant and confident. However, the very strength of the Ming causes the Dalou'laoshi to become staid and static. Although Daedalean Artificers continue to regard China as the second great center of their power for centuries to come, it is easier to *innovate* in Europe.

The Age of Exploration

Europe's explosion of confidence and assertive expansion, fueled partly by the dreams of numerous Daedaleans, spreads new ideas around the globe. Nautical powers have probed down Africa's west coast for the last couple of centuries, but the ocean has proved too unforgiving for Mediterranean galleys. It takes strong new sailing ships and the compass newly brought by land from China to permit western nations to trade direct with India without paying tolls to Venice and the Turk. Those same vessels soon prove capable of reaching a whole new world across the Atlantic — a world that is changed forever.

Of course, Columbus and Vasco de Gama have already been anticipated by Void Seekers, who have determined much about distant lands. (Whether or not they realize it, the world is shaped and pinned down by the iron wills of those secret Enlightened travelers.) Later generations find odd evidence that Columbus *may* have possessed some older map or log book, justifying his confidence in his chances of success. It may well be that Columbus' journey was the Order of Reason's first and greatest of all manipulations of history. They perhaps granted the wealth of distant or unknown lands to the European nations where their dynamic, humanistic philosophies and monotheistic faith were strongest, and thus ensured a world made in their own image. The cost may yet be greater than they dreamed, but not *necessarily* greater than they would have wished to pay.

Basic Theories

Gold is for the mistress — silver for the maid — Copper for the craftsman cunning at his trade.
"Good!" said the Baron, sitting in his hall, "But Iron — Cold Iron — is master of them all."

— Rudyard Kipling, *Cold Iron*

Artificer creation is but one aspect of something huge and much more strange: the Ars Praeclarus. This is the immensely practical application of a rather abstract philosophical idea; the concept that the world can be comprehended and analyzed on a practical level, that to understand a thing is to have power over it, and that — most outrageous of all — human reason is adequate to encompass all creation.

Artificers are not alone in thinking this. Indeed, there are those within the Nine Traditions who mostly agree with them. Hermetic magi, for example, are just as prone to measurement and may be even more fussily precise. (Alchemy, on the other hand, is slightly annoying to the Artificer viewpoint. It starts well enough, with the idea of analyzing and manipulating the material forms of the world, but soon strays off into wild realms of symbol and subjectivity. Artificer alchemy is rather basic when compared to the subtle, strange arts of the Solificati or the Ahl-i-Batin [see sidebar].) But emphasis on mechanism and mechanical force is peculiar to the Artisans and Craftmasons. Indeed, Artificers' ideas — the belief that man is the measure of all things; the claim that nothing in nature, save perhaps skill and diligence, justifies the ascendancy of one human over another — are downright outrageous. Although builders currently remain allied to the worshipful Gabrielites, and very, very few of them deny the supremacy of God, an Artificer's deity is a distant, rather abstract being, a divine mechanic who created the world, set it in motion and now stands back.

Humanism

Still, Artificers do not go completely against the spirit of the age. The Renaissance is driven by what is one day called *Humanism*. (Note that the word is not yet in use; magus-philosophers talk more generally of "Classical ideas" and "modern philosophy.") This belief system has grown from study of a mass of newly translated Classical authors into a whole system of thought. It emphasizes human virtues and capabilities and seeks to improve society by the direct application of ideas. Many European Renaissance magi, including members of the Nine Traditions, are humanists of some sort. Daedalean Artificers are only peculiar in that they are so literal-minded about it. They study material things, apply human capabilities to them and set out to change the world by the direct application of the powers gained.

However, the Artificer version of Humanism is materialistic, meticulous and precise. The innovators have little to do with the version that draws on certain recently translated Hermetic texts (especially the "Emerald Tablet" of Hermes Trismegistus), which is more mystical and less analytical. (Also, none of the Awakened accept one early Humanist ideal: balance and restraint in all things. The master strives toward the Zenith!)

Craftmasons are (literally) the most revolutionary in their philosophy. They combine some Humanist ideas with older schemes and grudges. While the High Artisan embraces the Humanist idea that he should transform himself, and thus be able to transform the human world, the Craftmason nods

Al-kohl and Other Exoticisms

The Artificers and innovators of the Ahl-i-Batin do not have the same attitude toward esoteric sciences as do their European counterparts. Chemistry, philosophy and most importantly alchemy all have their place in Batini studies.

On a more mundane level, the laboratories of the Subtle Ones have grown to be accepted as unremarkable, if not commonplace, in Islamic areas. The Batini have slipped several concoctions into public circulation that might have been impossible otherwise: distilled alcohol, for one. Sleeper healers and Awakened inventors fascinated with modifications to the human body make great use of alcohol. Its virtues as a preservative also begin to become common knowledge. Many of the dyes and pigments used by clothiers and artists are products of Arabian laboratories, and the process of staining glass is a direct result of scientific experimentation and creative use of Matter arts.

However, some Batini laboratories are the sort about which devout Christians and dedicated Artificers whisper and grumble — dens of strangely bubbling flasks, mysterious vapors and brightly colored liquids. Alchemy is not an idle waste of time to the Batini, and they have proved their conviction well-founded (not even the Solificati, with their regimented protocol and near-fanaticism, achieve the heights of discovery that the Murshids do). Simply transmuting lead into gold is child's play for these sophisticated experimenters. Creating Lunargent (true silver) or Hermium (true mercury) is somewhat more difficult. Yet none of these accomplishments suffice for the Ahl-i-Batin.

Batini alchemists' ultimate search is for Omnium, the material essence of all elements. True silver, true gold and even true mercury are wondrous indeed, but each is only one thing — one thing in its purest form. Mastery and enlightenment lie in Unity. Perhaps the keys to spirit, flesh and earth all at once will be found in the physical realm.

careful agreement to the idea that human virtue is paramount, then asks which human beings are most virtuous? Does crude power really make the aristocrat or the magus better, or truly more important than the plowman? However, lacking a power base in the great universities, Craftmasons never succeed in planting these ideas within the new philosophy. Still, with their idea that virtue arises from human effort, they agree with many scholars in many ways.

And with Daedalean Artificers' belief that meticulous logic and study of the material world will grant them all the power that they need, and that all their Arts, however abstract, serve the very practical purpose of liberating them from the shackles of the past, these creators are well-equipped to change the world.

Other Powers

They builded a tower to shiver the sky and wrench the stars apart,

Till the Devil grunted behind the bricks: "It's striking, but is it Art?"

The stone was dropped by the quarry-side, and the idle derrick swung,

While each man talked of the aims of art, and each in an alien tongue.

— Rudyard Kipling, *The Conundrum of the Workshops*

Allies

"Master? There are others we can trust, aren't there?"

Jasper the Silversmith looked sideways at his apprentice. "Don't test me, girl. You've heard what I've been saying of the Order."

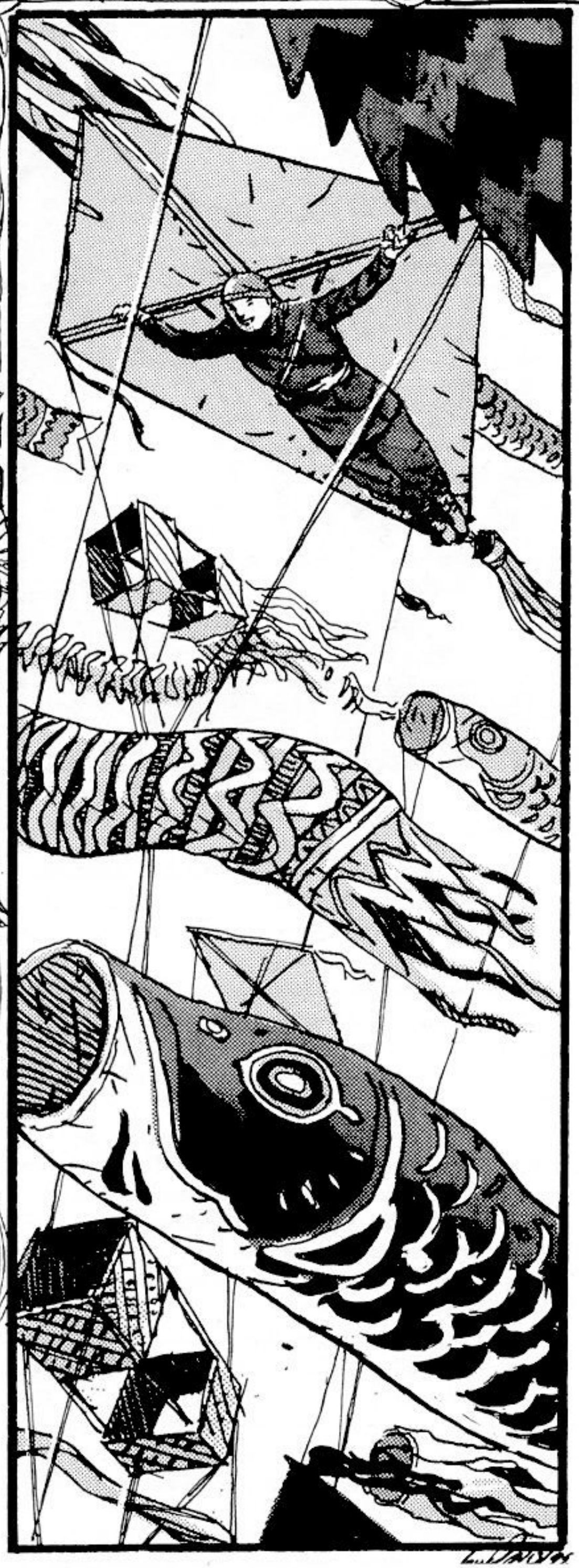
"And what do the others do? Or is that all Craft Secrets?"

"No... Though they have plenty of secrets, to be sure." The master shrugged and sat back. "Very well. You're already involved in our fights; now's as good a time as any to tell you such stuff.

"To begin with, you must realize that we won't ally with any who don't see things as we do, more or less. That'd be foolish — a waste of good effort. But if they understood what's needed fully as well as we do — well, they'd be Artisans, not allies, wouldn't they? So they all have their flaws and weak links. Nothing we can't let pass when there's greater work to be done, but it's all a nuisance."

"Are even the Craftmasons flawed then, Master?"

"Oh, the Masons are fine and honest craftsmen, girl. But they need to be watched sometimes. They're too — restless. Too busy hating the sorcerers and witches, I think. I reckon that's why we chose to stand apart from them — or they from us. They were running around waving hammers while we got on with the True Work.



"There's others split off from them around that time. If you ever have the chance to speak to one who was at the White Tower, you'll hear some tales of polite back-stabbing and silly hairsplitting, let me tell you, girl. The High Guild, for instance — merchants. Imagine old Gregor the Fleming, down at the market, with all that love of haggling, but a dozen times more cunning. Strange thought, isn't it? Well, that's the High Guild for you. Peddlers to the core, and that makes 'em nigh on thieves in my book. They know something of the Sacred Crafts, but they use it to twist minds around like soft clay." The man paused, then smiled. "But don't treat 'em as enemies. Once they've learned to respect you, they'll pay a fair price, by and large. And better to lose your purse through a bit of honest haggling than your soul through foolish magick.

"And there were others, I'm told, back at the Tower — spies and knife-men, really tricksy types. But even if they're still around, they aren't a true guild or craft — just servants to the high muckety-mucks. Servants to do dirty jobs when the need presses, perhaps.

"Anyway, where was I? Ah, yes. You should know about the Cosians, too. The Hippocratic Circle, if you remember what little Greek you've learned. Barber-surgeons with more knowledge of alchemy and old books than you'd ever believe. Clever folk, from what I've seen. They know flesh as we know metal. But how do you feel about folks who hang around dead bodies all the time, playing with 'em?"

"That sounds fearful," the girl answered.

"Then you're letting the flesh rule you, girl. It's only flesh feels fear. But never mind that for now. Who else? Oh yes, the priests — Servants of Gabriel. They tend to our souls, girl, so be polite to 'em. But don't let 'em forget who builds their churches and forges their swords. Politely. They can be too quick with the flame or the exorcism sometimes.

"Which just leaves the Celestial Masters and the Explorators. The star-gazers are philosophers with some very strange ideas, and their friends are sailors and wanderers with a bit of jumped-up hedge lore. (We're showing them some new Machinae, though. Sailors will always accept tools that make their lives easier and safer.) They seem to get on with each other, and we keep 'em aligned with us because — well, the star-gazers have a pretty good grasp of astrology, which you know is a useful part of the Sacred Craft, and they're bright. And the wanderers see plenty. It's always handy to know what's to be seen or where to go to find some rare stone or fine ore. And they're both good customers, with crafter members who work closely with us, and respect us accordingly.

"Mind you, the Masons are less happy with all this than us. The High Guild aren't polite to those who aren't much interested in trade, and the Gabrielites fight as knights in armor who're wont to treat their foot soldiers less than kindly. The others are too wrapped up in their studies and dreams to join in pulling down the high and mighty. Hah — they are the high and mighty.

"But the thing to recall with all of 'em, girl, is that they need us, and it's clever to make ourselves useful. The traders want their astrolabes and tide-tables, and their neat little guns and fine steel blades, because they keep meeting bandits and pirates. Oh, and they keep pestering us for better clocks — something to do with navigation, they say. The Gabrielites want bigger weapons, for when prayer isn't enough. The body-cutters want aid with alchemical works, and experts in drawing and measurement, and the strangest instruments you ever did see. And they all want tools, from chisels to lenses. The Masons don't grasp that; they make plain tools for their own use and never see the ways of give and take.

"But us — we make ourselves useful. They can't do without us, so we'll always be the strongest of 'em, even if they think of us as servants. And by being useful, we work together to make the world anew."

The Traditions

"So, then — sorcerers are people who know about the Sacred Arts, but who we can't work with?"

The Master Craftsman paused, then smiled darkly. "That's not a bad way of putting it at that, you know, girl. Save that it flatters the bastards.

"Yes, there's wizards out there who know a little of the Great Works. But they twist it all. They sit in their towers and colleges, plotting and communing with who-knows-what ungodly beings, looking down on the rest of us and never caring what becomes of anyone but themselves. The Craftmasons hate 'em from way back, because they're so cruel and cold. Why, wizards have to swear all sorts of ungodly oaths to each other just to keep themselves from each other's throats!"

"They shouldn't be a terrible danger, then."

"Ah, but some of 'em are cunning, girl, and they spend so long about their work that some are pretty damned powerful. And alongside them, there's the alchemists, damn their treacherous hides...."

"I thought alchemy was a Sacred Study?"

"Oh, it has its place. There's folk within our guilds who use it to good purpose. But the order of alchemists — the Solificati — swore to our alliance at the White Tower. Then, when they came to see that their ungodly ways and crazy notions would have to change, they turned against us.

"And the sorcerers have other allies. Pagan witches from the woods who scream and gibber about blood and trees when you try to talk sense to them. Creation is sacred, girl — and that sort don't create. They huddle in the mud, scared of anything better. And just lately, it seems, they've gone looking for more friends. Outlanders from all over the world...."

"Heathens?"

"Careful what words you use, girl!" The older Artisan snapped back. "We have allies who have never been baptized. The Gabrielites are none too happy with that, you can be sure — but it's better to make the best of 'em your friends than to have nothing but enemies. The fact is, the Sacred Arts are older than the Church — older than Rome, the books say. Our word has been spreading longer than the Faith, so naturally it's gone further.

"But our friends in those distant lands — the Turks' empire, India, Cathay — they've the same problems we have. Sorcery and such. All sorts of strange tales have come to us — wizards who worship death, magicians who can shatter rocks with their bare hands, mad prophets.... I'd not believe half of it, save that my friends among the Mauls — steady fighters, not panicked rabble — have talked of facing some strange foes lately.

"And as for heathens — oh yes, we face such as that wild witch-man whose Sending you helped slay. Folk beyond the Church can have commerce with demons and ghosts and even stranger bogies. But not all our enemies are like that; we even have to fight heretics from within the Holy Church itself, who seem to work miracles. It all looks like wizardry to me, and they are allied with the more honest wizards." The next sentence was spoken with a laugh. "The Gabrielites truly hate them."

Others Awakened

"Mind you, there's more in the world than any of us can know and that's the truth. Careful who you say this to, girl, but even the Holy Church doesn't know everything. Some fair powerful adepts have scattered to the winds and shrugged off us and the sorcerers alike. Fools, in truth — they'll learn better sooner or later — but they're mostly harmless. Don't assume that all the power you meet comes from a friend or a threat.

"And do understand one thing. The foes I've just spoken of are killers and braggarts, and they traffic with powers that should be avoided and ground back to dust, but for all the priests say, they aren't devil-worshippers. They use fragments of the Sacred Arts, alchemy and Greek philosophy and such. They're pagans and well-meaning heretics at worst.

"But there's worse. First, there's the mad, who go about protected by magick much like the magick that preserves children and drunks. The Scourge doesn't touch 'em. Stay away from 'em if you can — the mad don't like the sane and they'll strike you down. Because they aren't burnt by their own folly, they can grow fearful strong.

"But worst of all, yes, there are wizards who worship Satan and his devils. Every bad thing you hear of them in church is true. They're horrible, but they know how to speak honeyed words and pretty lies. Call upon the Gabrielites if you should ever chance upon such, for the sake of your soul and the safety of the world. And don't take chances — too many wizards who are not sworn to the Sacred Arts tend that way. It's one of the best reasons to fear those who are not your sworn friends."

Night Folk

The senior Artisan leaned back. "And while I've got you frightened — I devoutly hope, for you are a sensible girl, for all your brashness — you should know that there's other demons in the night. Blood-suckers, mostly. Vile creatures with strength and dark arts given 'em by the Devil himself."

"Can such be killed?" the girl asked.

"With trouble.... Yes, girl, they can. In fact, they fear fire, as you've doubtless heard, though otherwise it takes a great deal to bring 'em down. And what better proof is there of the godliness of our arts? For we wield fire and our smithies bring forth mighty weapons. As we learn more of the great crafts, we grow better at slaying horrors." They shared a smile at that.

"But there's others I should mention," he went on, "skin-changers, for example. They lurk in the woods in the guise of wolves and such. They may look like men, some of the time, but the mark of a man is acting like a man — and these act like beasts.

"And — well, I've a bad feeling that your mother told you fairy-stories when you were in your cradle. Right?"

The girl nodded.

"And like most children, you clapped your hands and called them pretty? Well, forget that if e'er you meet a true fairy. Think on the nastiness in those tales — the child-stealing and the disregard for godliness. Mind you, it's said that a few of 'em are fair craftsmen and not entirely evil — but take a care." Again, the wolfish smile. "O' course, they mostly hate iron, which again shows how godly our craft is."

"And what of ghosts?" the pupil asked.

"You should pay more attention in church, girl — not all your mother's tales had much truth in 'em. The dead await Judgment and don't disturb the living, by and large."

"But there are those who do."

"Oh, perhaps. The world is a complicated piece of work and even God must allow some exceptions to his own rules. There are tales enough.... Yes, the dead may walk at times. But the philosophers among our guilds say that there are walls and shields protecting the world, and I doubt that any ghost could make much trouble. Sacred geometry is a living power, girl, and stronger than any threat.

"Now — you've heard enough for the day. No sense in learning of what else there is in the world if you never pay attention to your own craft."

Secret Societies and Lodges

Few factions, mundane or otherwise, are as intimately entangled in the complexities of daily life as are the High Artisans and Craftmasons. The Order of Hermes has created a formal organization for itself from the ground up in order to avoid conflict and to govern relations between hermetic wizards. Religious magi have adopted the forms of the monastery or the temple, but the Artificers have simply adopted and extended the system of guilds and trade fellowships, because that is in large part the soil from which creator societies grew.

Admittedly, the oldest source of inspiration for Artificer groups is more academic than practical: the scholars' and engineers' colleges of China and Greece, such as that in Alexandria. By Roman times, urban craftsmen were grouped in collegia. One special case was the Collegium Praecepti that preserved much of the Ars Praeclarus. The collegia survived in the Byzantine Empire and may have inspired similar ideas in Europe — perhaps through the secret influence of the early Craftmasons. Certainly when the Masons consolidated themselves in A.D. 997 they did so as a trade brotherhood.

This, being essentially a friendly alliance of itinerant workers of one kind or another, need not have been especially formal. Such a group could have been far less orderly than a true guild, for example. However, human beings have a strange urge, not just to order, but to mystery, so that even the most innocuous fellowship may have passwords and initiations. These codes do help bind members together when unity is needed, say in defiance of an employer. In any case, the Craftmasons taught and promulgated the arts of sacred geometry, which required formal study, care and testing. The numerous levels and signs that were developed were therefore needed. Well, often enough.

Meanwhile, the Artisans remained less orderly, but even more given to ritual. Priding themselves on their mastery of high arts, and mostly having been educated as craftsmen, they formed a vast number of small local groups on the model of the craft guild. Over time, and with the encouragement of their Craftmason allies, these cabals were brought together and adopted some common titles and ideals.

Yet these larger groups still remain anarchic. Many a great High Artisan sees no cause whatsoever to involve himself in organization — or indeed, to leave his workshop more often than absolutely necessary. High Artisans are also given to seeking the patronage of the powerful, often from mere Sleepers or members of other Daedalean Conventions. The Craftmasons may despise this "pandering to the o'er-mighty," but the Artisans are more willing to live with things-as-they-are. A patron may be importunate or annoying, but access to power makes the shaping of a new world much easier in some ways. Of course, Artisans must forever dance a delicate step with such patrons, promising what is desired, delivering enough to sustain the relationship, but not giving away that which is secret or bringing down the Scourge on one who should be kept as a happy friend.

(Seeking the patronage of bloody-handed tyrants, let alone vampires, is discouraged of course; the cost is never worth the gain. Still, it can be a temptation for unworldly Artificers who need special resources.)

Subdivisions

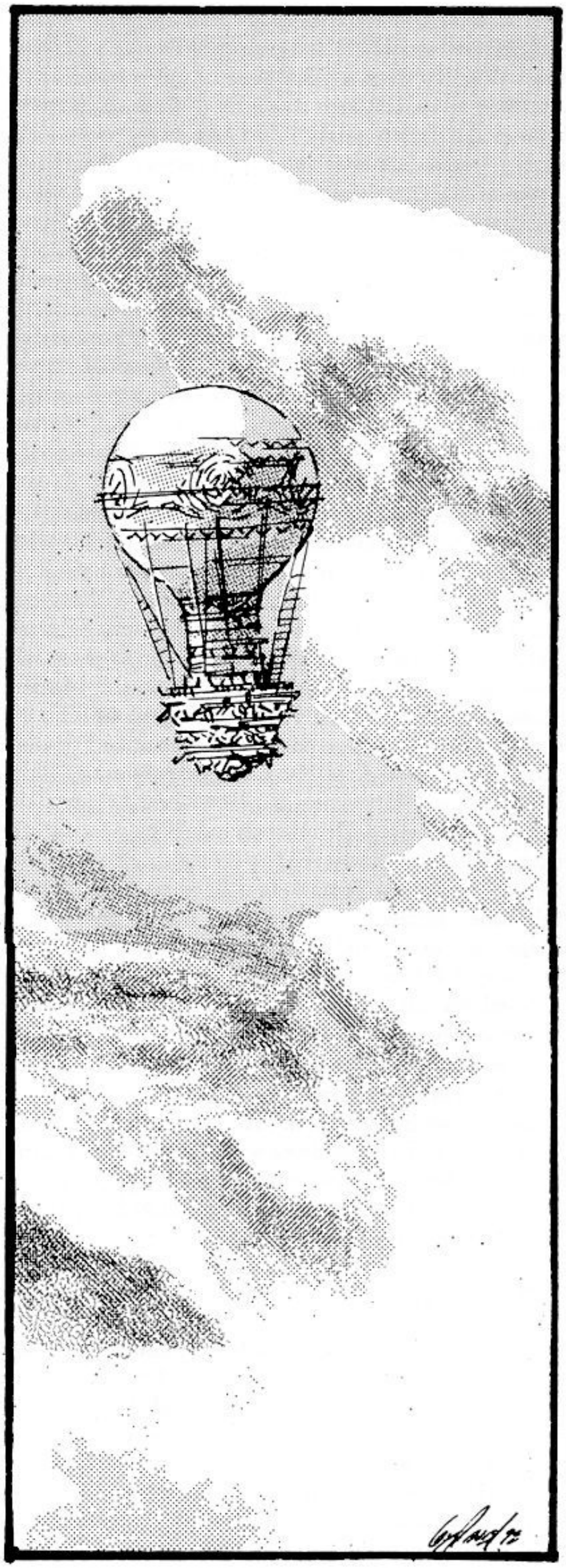
Strictly speaking, the High Artisans and Craftmasons are *Conventions* within the Order of Reason. They are even subdivided into groups that they term "guilds"; in the former case, the Forgers, Bright Lions, Pythagori and Mauls; in the latter case, the Chalice, Coin, Level, Sword, Hemlock, Chisel, Arrow, Stone and Scroll. However, these terms mislead a little. Mundane guilds are rigid and exclusive; to enter requires a fee, and to change from one to another, should anyone ever see cause, is a feat of politics. The Daedaleans, by contrast, regard their "guilds" as convenient forms of organization. An Artificer owes loyalty to Reason, one's Convention, and to one's Daemon, in some order. One's guild, while not to be forgotten, is simply a source of commands and a mark of the nature of one's talents and duties.

That is not to say that no Maul has ever failed to mock a Bright Lion for futile mysticism, or that none of the Chalice has ever complained that the Swords bring grief upon the weak and unprepared — but most rivalries are amicable, and movement from faction to faction is fairly commonplace and not usually criticized. A Daedalean is usually assigned to a Guild on completion of apprenticeship (and the assignment *usually* considers the new Daedalean's nature and tastes — although following one's master's inclinations is considered natural). Subsequent movement is a matter of request, persuasion and the needs of Reason.

Lodges

To enhance their potent alliances with the workmen and craftsmen of cities and towns, Craftmasons have insisted that Daedalean houses can, and usually should, be open friendly places. The High Artisans usually agree. Hence, the typical Artificer-run lodge resembles an unusually friendly guildhall.

A guildhall is a meeting-place, the head office of a local gathering of traders or craftsmen. It probably has small rooms for storage, meetings and accountancy, but its heart is a true hall in the medieval style — a high-ceilinged room wherein guild members meet to discuss policy, conduct initiations and religious ceremonies, and hold feasts. (Typically, there are ample kitchens on a low level.) Daedaleans follow this pattern but add more rooms to facilitate their more complicated business — perhaps an entire set of secret underground chambers using ancient, once-lost cellars or caverns excavated by secret Arts.



Such lodges may be placed in either the hearts of towns and cities or in more obscure locations. The former enables the hall to be used for the benefit and recruitment of mundane allies, although this in itself leads to complications as the hidden must be kept from prying eyes. Partly trusted Sleepers are often given to understand that there is a secret "inner circle" to this "trade fellowship," but are never told of its true scope (secret clubs are common enough that this can work, although it may excite overmuch interest). A city location also makes it difficult for the guild to build upon a truly useful Cray; some must do without a source of Quintessence or must travel to some hidden subsidiary site to gather it. The Craftmasons are unhappy with this. Their masters of Prime are not only given to casting spells that can channel the stuff of reality where it is required, but they keenly research applications of sacred geometry that can make Crays out of the most mundane sites. Thus, new urban Daedalean guildhalls are usually designed and built with vast and intricate planning.

Artificers are more comfortable with halls sited in obscure locales, although these have their own problems. For one, explaining their presence to curious Sleepers can be difficult. This is one reason why this Convention is so given to finding and pleasing powerful patrons. High Artisans may be able to obtain as much wealth as they could ever need through direct use of their Arts, but a supporter who says, "this hall of master-craftsmen is placed *here* because I so wish it" is valuable. Other such lodges may actually be disguised — say as a merchant's warehouse or as a low-ranking gentleman's hall. It is hard to explain many full-time craftsmen in one such place, but a small lodge can pass as little more than a slightly eccentric holding. "Hidden" lodges tend to be less open, more focused on study than their urban counterparts — although they can be friendly enough to allies.

Groups of like-minded Artisans in the East are quite similar to European lodges. However, eastern craftmasters prefer to meet in more traditional areas. In India, builders might meet in an orchard or a walled courtyard. In China, the labyrinthine corridors of the Emperor's palace provide more than adequate privacy for those mages lucky enough to have Imperial favor.

Factions

Although they have much in common, Artificer lodges are not immune to internal politics. Matters of policy and emphasis always lead to debate, and sometimes jealousy and ambition arise, even among the Enlightened. Because long-distance communication is relatively limited in the Renaissance, few factions organize themselves across the breadth of the Order of Reason, but any lodge worthy of the name has its share of debates and quarrels — and the spread of printing makes international movements a more viable idea.

The obvious divisions are between the Conventions and among the guilds within each. The Craftmasons often preach as their reputation implies, demanding revolt against the mighty, aid to the weak and the building of a better world. Artificers prefer to craft their masterpieces and perfect their ideas before they act. Meanwhile, militant guilds — the Mauls, the Sword — are home to a fair number of hotheads who cry out to the teachers and theoreticians that violent actions, not words, are forever called for. Equally, some wise old men-at-arms believe that the "warrior" guilds are too easily used as spell-fodder by cold-hearted, scheming leaders, and argue the side of peace or at least caution.

Then again, there are other divisions. Daedalean Artificers have a problem with religion in that many secretly regard craftsmanship above faith, but the Conventions include their share of devout believers. Some such are locked in struggle with less respectful colleagues, demanding that cathedrals should be built before all else, or that weapons should be forged for use against the infidel rather than the Traditions. Others again, being visionary innovators by nature, align themselves with the dangerous cause of Church reform and eventually Protestantism. (This last might seem a hard-pressed faction, caught between religious traditionalists on one side and uncaring materialists on the other, but it catches the imagination of many Artificers, especially among the Craftmasons.)

And, of course, there are debates over arcane theory. Three major strands of thought are apparent here. The "Sacred Geometricians" are the most mystical of their kind, seeking complex and subtle correspondences between the stars, the elements and the operations of the human soul. They are sometimes despised as nigh-on superstitionists, but their cosmic vision and ability to use many Hermetic ideas makes them powerful. The "Classicists" are similar in some ways, but prefer Greek ideas to older, more subtle and obscure concepts. They are very fond of numbers, geometry and music, and are the Order members who are most excited by the growth of Greek and Latin studies in the Sleeper world and by the discovery of old texts from that era. Lastly, the "Materialists" are modernists, given to dangerous heresies. They are the most aware of how much the modern era has accomplished that the ancient world did not, which calls into question common Artificer regard for past masters. Materialists are also interested in Chinese and other foreign ideas, burrowing after hard empirical facts in the mass of contradictory superstitions.

And then, of course, there are occasional clashes over policy between European, Muslim and Chinese lodges... not to mention tension over Artificer-friendly factions of the various Traditions. House Verditius of the Order of

Hermes, for example, is looked upon with great suspicion by the factions of Reason. The majority of the Batini view Murshids who choose to pursue Unity through study and invention with thinly veiled disdain.

In short, the Order of Reason is a mass of debate that usually remains just on this side of constructive. Some observers wonder that the Artificer Conventions ever accomplish anything useful at all. A few wonder if dispute is the source of their dynamism.

Future Fates

We have learned to whittle the Eden Tree to the shape of a surplice-peg,

We have learned to bottle our parents twain in the yolk of an addled egg,

We know that the tail must wag the dog, as the horse is drawn by the cart;

But the Devil whoops, as he whooped of old: "It's clever, but is it Art?"

— Rudyard Kipling, *The Conundrum of the Workshops*

From a maximum-security memorandum placed on the files of the Ivory Tower of the New World Order by Educator Immanuel Chard, Historical Specialist: 09/07/1992:

Although our colleagues of Iteration X are usually referred to as the linear successors of the High Artisans, it is equally reasonable to say that, with all the reorganizations that have been instituted since the first naive era of the Fourteenth and Fifteenth Centuries CE, *all* elements of the contemporary Technocracy derive, to some extent, from that group. Ideologically, too, the entire Technocratic comprehension of the significance and utility of technology derives far more from the enthusiasms of the semi-mystical Artisans than from the superstitions of the Cabal of Pure Thought or from the nervous heresies of the Celestial Masters.

(The Artisans' close allies — the rather obscure "Craftmasons" — seem to have shared much of our ideology. Although their primitive communism was non-viable in the contemporary social paradigm, and had eventually perforce to be suppressed, their strenuous defense of the masses remains a key element of our own ideals, and doubtless encouraged the Order of Reason to seek the prompt elimination of the archaic feudal system that we certainly do not mourn.)

Thus, we might claim that out own successes are the victory toward which the High Artisans worked so determinedly. However, that does not mean that their goals and ideals correspond to ours. (Indeed, the paradigms espoused by the renegade 'Virtual Adepts' and especially the 'Sons of the Ether' also derive partly from aspects of the Artisans' mode of thought.) We can justify our own priorities and agendas; they are indeed a proven optimum from the points of view of both the masses and ourselves. However, they would require some justification and explanation to an individualistic, theistic Artisan. Our accomplishments are *not* their Utopia.

It is fatuous and futile to attempt to derive glib "morals" from the complexities of history, but this example may at least remind us of a fact that we should not ignore in our long-term planning. Our achievements, however important, may not equate exactly to our intentions.


OMAR
RAWLINGS
'95

Instruction the Third: Trade Secrets

Houses are built to live in, and not to look on; therefore let use be preferred before uniformity, except where both may be had. Leave the goodly fabrics of houses, for beauty only, to the enchanted palaces of the poets; who build them with small cost. He that builds a fair house, upon an ill seat, committeth himself to prison.

— Francis Bacon, *Essays: Of Building*

As it proved, Rosa the Apprentice was wise to ask about the other elements of the Order of Reason, for she would see many of them that season. Artificers came to ask her about her inspired act of weapon-making, and Craftmasons came for knowledge after swearing vengeance upon the summoner. There were also armored Gabrielites, to whom such a battle was meat and drink, and strange physicians in quest of a sample of demon-venom. The other Conventions had less direct interest in the affair, although one or two travelers and traders, come to visit her master, found an excuse to speak with the girl who had forged the diamond-tipped knife.

But her brief fame did not entitle her to see the end of the conflict; she was, when all was said and done, but an apprentice and not much trained in war-craft. Still and all, the Artificer-swordsman who had wielded her knife came back once to Jasper's workshop and presented another knife for her to keep, as memorial to the fight.

It seemed a crude thing of flint, its hilt bound with thongs of hide, although when she examined it closely, it seemed to Rosa that the stone had been cleverly flaked, giving it an adequate edge. It was strange, but with nothing of power about it. She put it aside with the small gifts her mother had given her when she had taken up the apprenticeship.

As he was leaving, the swordsman turned to her once more and smiled his grim smile. "We have done well, between us," he said. "Another door is closed and the price is well worth paying."

Had he meant the price in lives of the battle or something more?

Rosa put that question aside, too, to consider when she had learned more.

Powers and Secrets

The creations of Daedalean Artificers are based on a scientific understanding of the world. They do not yet fully comprehend how much their analysis and theorizing actually shapes the world. Nor do they face up to the *novelty* of so much of what they do. They retain a vast respect for ancient sources and past masters, and many believe, in their heart of hearts, that everything they create is actually *reconstruction* — the resurrection of the wondrous achievements of the past. Thus, their work is often a bizarre mixture of wild experiments and half-understood archaism.

The Qualities of Things

Adepts of the Ars Praeclarus actually share many ideas with their arch-rivals Hermetic wizards. In the Hermetic view of the world, things have "qualities" — hot or cold, wet or dry, heavy or light, but also subtler and often mystickal aspects. However, Hermetics hold that such qualities cannot be determined by reason alone; one can find out only by *experience* of the senses whether something is, say, hot or cold. An Enlightened Artificer must disagree. Seeking the underlying patterns of the world, he claims that there is *no* limit to reason. Drawing breath, the Daedaleans see the significance of their own claim and make it the basis of their crusade.

Elemental Correspondences

Still, there is scope for further agreement. All of these schools of though hold that the universe is filled with Resonances and correspondences. *As Above, so Below* is the watch-phrase. The heavenly spheres revolve, bearing the stars and planets, driven by the Prime Mover (who most would say is God), and all this impels the actions of everything within. Indeed, some pagan philosophers hold that when all the spheres return to exactly the same relative positions, the world will return to the same state and history will repeat itself — perhaps in gross outline, perhaps in every single detail. A good Christian must deny this, for when the Day of Judgment comes, God will end the present manner of action of the world and all will change forevermore.

Still, there are essential correspondences — between Heaven and Earth, between the planets and elements, even perhaps between soul and matter. Astrology is based on good sense (provided that its use does not deny the primacy and absolute authority of God), and alchemists seek to master the purification of the elements, that they may purify their own souls. To Artificers, however, much of this is wild, untestable — superstition.

Artificer workings concentrate on the mundane, testable, measurable qualities of things. A "natural magician," working within the Hermetic tradition, can

Art and Science

In the 20th century, fine art and engineering are about as far apart as two disciplines can get. One is all about aesthetics and beauty; the other is all about functionality and measurement. Those few people who try and bridge the gap between the two are looked on as crankish; artists who paint pictures of steam trains, architects who put heating ducts on the outsides of buildings, science writers who wax poetic. Most people on either side regard these efforts as futile and messy. But all of this would sound like complete gibberish to an educated child of the Renaissance.

In this era, art and science are intimately mixed. Leonardo da Vinci is a genius, sure, but his studies of painting, mechanics and military engineering are seen as a natural set of concerns for a practical scholar. Plenty of lesser professionals move comfortably from painting the king's portrait to casting the king's cannon.

This is partly because people are still laying groundwork. It's no good to create a portrait if you can't get hold of the pigments you want, so artists study practical chemistry. It's impossible to build beautiful buildings unless you know what will stay up, so architects are also engineers. It's hopeless to understand and shape the world if you don't look at it closely. The old idea that facts are all to be found in ancient texts collapses under its own impracticality; you really have to check them for yourself. So scientists look about them with the eyes of artists. In another couple of centuries, the basic work will have been done and everyone will be able to get on with narrowly compartmentalized specialization. But not yet.

Yet the spirit of the Renaissance is also an aesthetic. Humanistic philosophy holds that all arts empower those who study them, and that the complete, refined human being should have a broad education. The magus is not a nerdish monomaniac, but a master of all the arts and sciences. The much-admired Roman writer Vitruvius said (in his *De Architectura*) that an architect should be "a man of letters, a skillful draftsman, a mathematician, familiar with historical studies, a diligent student of philosophy, acquainted with music; not ignorant of medicine, learned in the responses of expert lawyers, familiar with astronomical calculations...." The Renaissance takes this as a picture of the true master.

Further, *creation* is one key to the Ars Praeclarus, and art — creation — is what marks mankind from beasts. The art of this new age reflects this belief. In order to make art more perfect, a better depiction of reality, the artist studies a range of sciences — mathematics to perfect perspective and proportion, anatomy to understand the noblest subject matter of all, geology and alchemy to improve the choice of materials, and so on.

This extensive knowledge has a big practical consequence for the Order of Reason: Many fine Enlightened Artificers are also competent artists. Indeed, many of the most respected High Artisans make honest livings as painters or sculptors, and quite a few Craftmasons hold that their works *must* be beautiful as well as soundly built. An artist-Artificer may find that his or her affinity is with Matter (the materials used in art), Connection (the refined art of the period being greatly concerned with perspective and proportion) or Mind (for, if the high purpose of all arts is to grant power to the scholar, painting and sculpture, like writing and rhetoric, serve to grant power over the hearts of other men). Such a character should possess a goodly rating in Artist and Crafts — ideally both, and with several different specializations in each, along with a broad range of other Abilities.

create talismans of power by drawing the virtues of a specific planet into an object made of appropriate materials, or sings "Orphic songs" that draw those virtues into the talisman — or, more dangerously, into the singer's own mind. Further arts permit demonic and angelic forces to be likewise invoked. House Verditius claims hegemony over the creation and research of all manner of magical devices for the Order of Hermes; members of this house acknowledge no friction between their status as Tradition mages and their function essentially as Artificers. Builders of the Order of Reason see this for hubris. As the Craftmasons say, one must build from the ground up, upon strong foundations. The correspondences they employ are those that lie within the world, involving elements and their mundane properties.

The Craftmason approach sounds limited, but it has one resounding virtue: It is *repeatable*. Only a Promethean magus may call down the planets' virtues; any peasant in the fields can use fire and stone. When the Artificers have the work aright — a long labor, but a worthy one — they will be able to build their towers unto the stars and all may ascend with them.

To the mages of House Verditius, however, material Resonance and elemental correspondences do comprise a work done aright. After all, a tuning fork made of metal always strikes the same note. Does this not indicate a natural affinity of the metal? All that is required for an object to fully embrace all its properties, mundane and magickal, is the direction and invocation of the less perceptible Resonances. And once the Hermetic has invoked these properties, the object is usable and complete, taking its place in the order of the universe.

Sacred Geometry

In its bold claim that reality — the very handiwork of God — can be comprehended and thus controlled by mere mortal intellects, the Ars Praeclarus actually grows from and encompasses an older science: sacred geometry. This calling was discovered in Babylon and partly codified later at the Thothmeic Gathering in Egypt. Sacred geometry also questions Resonances and correspondences. It studies the symmetries and patterns and the hidden order of the heavens reflected on Earth. This resemblance may be made exact (by application of mathematics) and the instruments of man may play the music of the spheres.

This art was first used by the great architect-builders of Babylon and Egypt, who could embody their ideas in stone. Improvements in mathematics made it possible for smaller devices to employ the science. Both the Craftmasons and High Artisans regard sacred geometry as the foundation-stone of their activities. The former still build using secret intricate principles, while the latter demand that all their members have at least some knowledge of mathematics. They do not call down wild and unstable planetary forces; they *calculate* the effects of the heavens' influence.

The Spheres

"So — you've been sent here to learn something of our deepest philosophy, then?"

Like the other young Daedaleans present, Rosa thought it best to say nothing, and indeed the gray-beard master continued after a breath. "And doubtless you think it a waste of time," he said. "Well, you may learn better. Or you may never be more than a journeymen. We'll see.

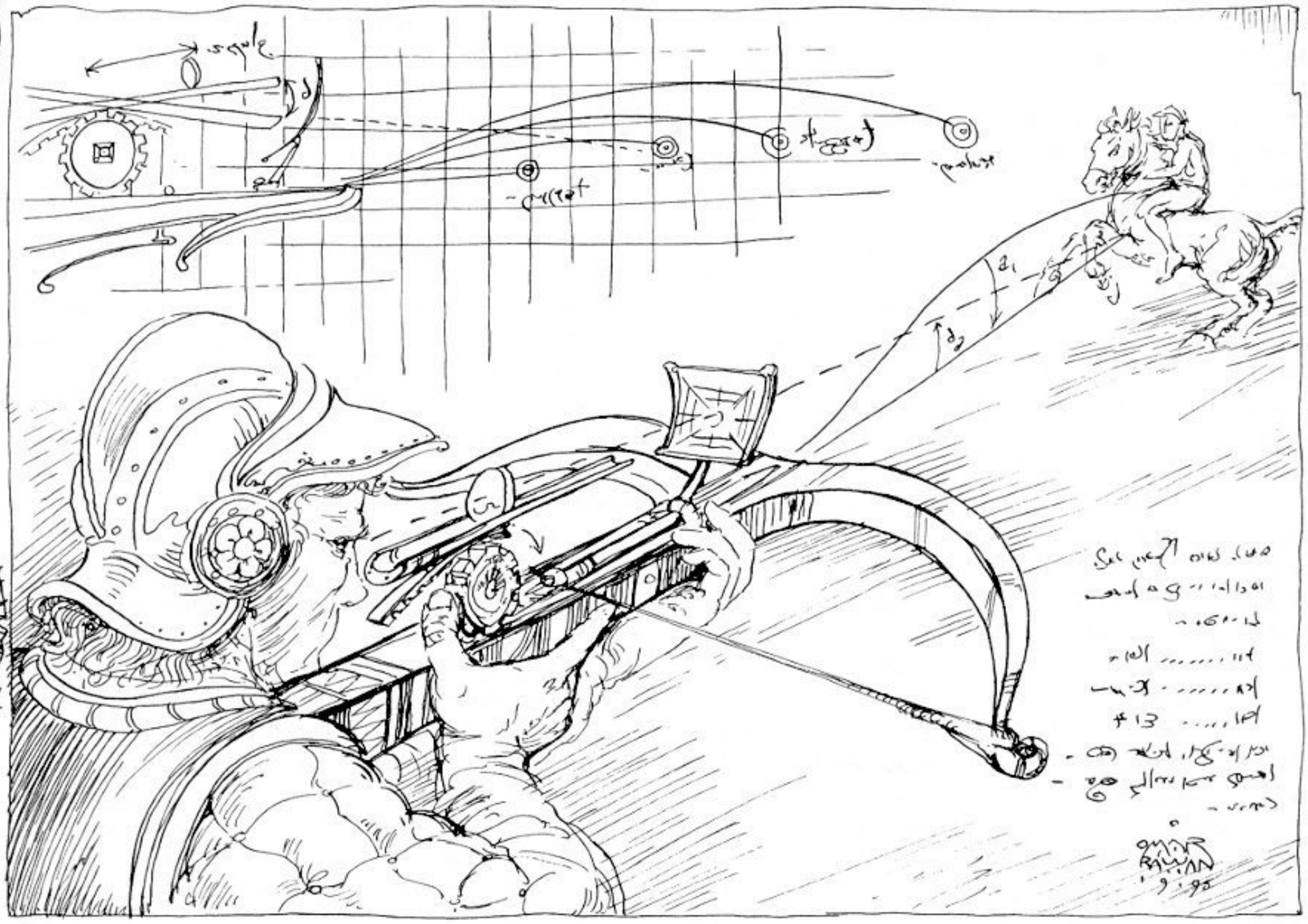
"But let's begin *with the Spheres. They are the foundation of the Ars Praeclarus, in a way. You've doubtless been told that the small grasp you display of Craft is related to one or the other of them. Well and good. And your own masters will have awed you by telling you they date back to the ancient masters who met in Egypt to lay the foundations of our crafts.*

"That is all true, but don't let it overwhelm you. The Spheres are simply the ways in which we can measure and apportion our works. There are nine of them, as you'll have heard, but some school-men of our alliance say that there could as easily be more or less; they may not be part of the Platonic World — which is something I'll teach you of another day. Myself, I think that there may be some mark of God's ordering of his Creation in that number, but it's not a divine mystery I'd hope to be able to grasp. It could just be that the choice of the nine is like choosing to measure in cloth-yards rather than paces....

"But I'm getting ahead of myself. *Now, if you ever have dealings with the Hermetics or their lore — which I wouldn't encourage, but you might find some of their texts in some library — you will find that they've lately taken a great interest in the Spheres. Especially since they've made alliance with other wizards and witches and organized a council of nine squabbling societies. In their silly way, they attach great significance to the number of the Spheres. They are in love with number; they think of it as magickal* in itself *and not just something to use to create perfect works. But don't you go falling into that trap; we're craftsmen, not fortune-tellers. Most of us....*

"Anyway, let us swiftly review the nine, so you can't say you don't know what they are."

Because the theory of the Nine Spheres does indeed go back to the Thothmeic Gathering in ancient Egypt, Daedalean Artisans not only use it — they regard it as almost sacred. However, most of them also, at heart, see it as rather abstruse, one step removed from much of the Work they do. One teaches an apprentice to comprehend the universe in these terms, and to build his or her own abilities on this foundation, but then one gets on with forging blades, polishing lenses or building towers. An apprentice fails who does not learn what the Spheres mean, but that apprentice can be forgiven for finding the ideas involved rather strange and evasive.



Of course, *Matter* is no great problem; almost every Work that a craftsman performs involves some arrangement of material things, and most spend much of their time analyzing the nature and capabilities of different materials. A fair few are experts or at least students in alchemy, using its mixture of symbolism and practicality for their own ends. Others rely on a deep but un-mystickal knowledge of metallurgy or other crafts to give their creations reliable form. This sphere is far and away the most common affinity for Artisans and Craftmasons, and they use it every day for making and shaping. On the other hand, many of the most daring and original of these Conventions focus on others of the Nine Spheres, treating Matter as a means to an end.

Forces is almost as popular, of course, especially among those who wish to stride forth and change the world. The flame of the forge is one of the great symbols — and indeed, many see this sphere almost entirely in terms of fire. Lightning is a remote and dangerous power. Ice is more a nuisance than anything else. That which draws a falling body to earth is only comprehensible in abstruse and mystickal terms (although it can be defied — flight is an old dream which many Artisans would love to realize). The subtleties of the lodestone are but a toy. But there is always sound. Ever since Pythagoras, music has been the subject of mathematical theory and musical automata are part of many an Artisan's repertoire.

Because of the importance of these previous Spheres, Artificers have a deeply ambiguous view of *Prime*. On one hand, they must somehow coerce the universe into permitting the creation of new things or powers; on the other, explanation of how this is achieved can be difficult to find. Future scientists develop theories of abstract mathematical "energy" (and more), but such metaphors are not presently available. The response of those who seek to master this sphere is twofold: Some shrug, declare that results are all that matter, and deploy the routine alchemical or philosophical formulae that accomplish those results. Others delve deep into underlying theory, striving to separate good sense from mystickal folly. (Craftmasons actually manage the latter better than most; they retain odd patches of mysticism in the midst of their down-to-earth practicality.)

Time and *Entropy* are considered twin Spheres; both deal with fate and prophecy. The old motto — *As Above, so Below* — is the key to the accepted Artificer approach to such matters. The spheres of Heaven revolve, set in motion by the hand of God, and the actions of the world are likewise often circular, albeit that decay is seemingly inevitable (for the world is a sinful place).

However, in recent centuries High Artisans have been responsible for an entire new view of Time. Traditionally, the sphere was seen almost entirely as a matter of prophecy; astrology might be used to measure the motion of the heavens and hence to anticipate what was to come. But Artificer-astrologers built machines to measure out that motion and improve their predictions and thereby realized that Time could be subjected to ever-finer analysis — an understanding that changes the world. This knowledge enables creators to confront mysteries that once outraged them — the strange nature of faerie-land, the uncanny swiftness of certain mysticks.

Entropy, too, succumbs to analysis. Daedaleans once saw it as a matter of curses and other irrational witchcraft. Now they can measure probability and change. Advanced alchemy helps them examine and explain the decay of matter, which is their first concern with this Sphere. They dislike using it — they are builders, not destroyers — but they can comprehend it with effort.

Connection worries Artificers less. Its mysteries are somewhere at the heart of sacred geometry, and their philosophers have long suspected that distance and space are susceptible to manipulation. (The *Viasilicos* shows what can be done.) It's an arcane field, but not without interest, especially to those who love mathematics.

To the Ahl-i-Batin, Connection *is* mathematics and the other way round. If all things can be described and calculated through the use of sacred geometry and all things are joined in the web of Connection, then both are expressions of the heavenly ideal. Each is a facet of Unity, and there exists neither confusion nor cryptic mystery for the Murshids. If the mage understands one, he understands the other. Is that not the purest essence of Unity?

Life and Mind, on the other hand, are problematic but not impossible. Artificers mostly choose to concentrate on how the world influences the living, thinking creature, rather than how the creature can control the world. This blunt pragmatism may limit innovators' power with these Spheres, but not beyond usefulness. They know how to reach into thoughts with subtle designs and how to induce fear with their weapons. The artists and rhetoricians among their number are adept at shaping thought and emotion, albeit not usually with Machinae. Artificers prefer to leave the higher mysteries of Life to the Cosians (while respecting those colleagues' Promethean boldness). That is, except for those few daring souls, especially Artisan Body-Forgers, who declare that a living thing is but another machine and invoke alchemical or other secrets to change its workings.

That leaves *Spirit*, the sphere which perhaps causes Artisans and Craftmasons the greatest difficulty. They do not deny that the spirit world exists; that would be folly and blatant blasphemy. But too much about it refuses to be measured or shaped — and sadly, too many fear what they cannot forge. Thus, they probe the mathematical geometry of the Seal of Solomon and the pentagram and refine their horoscopes (which gives clues to the spirit world as to all things). And they turn steel blades and mighty cannon on any spirits whom they see to be a threat.

Daemons

Daemons are a mystery and a challenge to European Artificers. They might be less troubled if they could accept the ancient, intricate Egyptian or Chinese theologies, whereby the soul has many aspects and parts, or the Greek concept that useful spirits cluster around people and matter, almost but not quite at one with them. However, as followers of the strict Christian idea that the soul is one and indivisible, Artificers must see their Daemons as outside forces. That conclusion raises the problem that Daemons could be either tempting devils or guardian angels, which are notoriously difficult to distinguish at times. It also raises the practical-theoretical problem that they adopt so many unlikely aspects.

Craftmason Doctrine

Craftmasons, always suspicious of that which might be said to rule them, tend to reject their Daemons, sometimes actively struggling with them as tempting fiends, more often declaring them mere signs of incipient madness brought about by the pressures of evil and their foes (and by tempting fiends). A few among the more spiritual or prideful of the Convention wonder if these are something more. As the cathedrals that Craftmasons build reflect the higher orders of Heaven, might there not be higher orders of Those Who Labor reflected in the souls of those on Earth? Furthermore, although the Craftmason ethos warns against hero-worship as leading to vain glory, even the Enlightened need heroes and there are tales of past masters, some of whom supposedly rebuilt their own souls or spoke directly with God. Would not such a one still sympathize with those who sweat amid the dust of the earth and perhaps seek to ensure that no vital lore is lost?

There are even those who see the Convention's greatest accomplishments — the great buildings — as spiritual nigh-living entities. To these, the typical Craftmason Awakening — meditating at a site of brilliant works — may have the aspect of a communion and the building itself might *literally* speak to the worker's soul. Thus, many cautious debates are conducted in lodges. In system terms, a Craftmason character usually has a low score in the Daemon Background; anyone with three or more dots tends to be a troubled soul or prone to engage in fervent and dangerous debate.

High Artisan Ideas

The Artificers (and similar factions of other Conventions) find this matter less frightening, if still troublesome. With more pagan lore embedded in their philosophy than they wish to admit, the idea of assisting spirits strikes them as — well, plausible, at the very least. Most speak openly of the Muse, and if a Gabrielite looks askance at that, he coughs and says that of course the old Greek word truly refers to a guardian angel or a benevolent heavenly sending. The more devout among them believe those words completely.

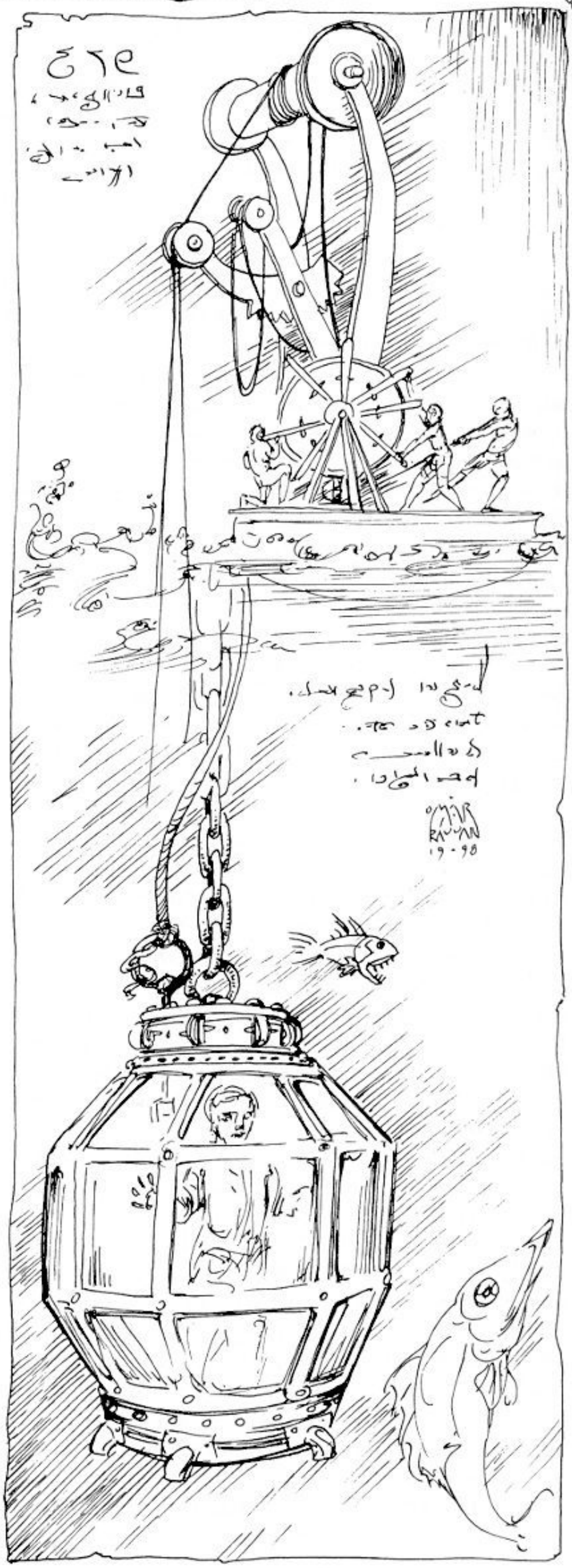
Artificer Daemons actually take many forms, depending on the individual's own nature or beliefs. They tend to be benevolent, even friendly, if challenging. The academic hear or see wise figures from the Convention's view of history; Pythagoras and Heron are busy spirits, it seems, although Daedalus presents himself to only those who must seek deep mysteries — usually implying a Mare essence. To those whose work is more of the hands, the fire of the forge itself may speak. Inspiration is a flame; the Daemon may be thought of as an elemental being or perhaps an angel, dangerous or protectively warming. Artists within the Convention often draw directly on pagan myth, perhaps claiming that the Muses still dance upon Parnassus. Urania, the muse of astronomy, seems to favor those who associate with Reason (and with some scholarly Celestial Masters). Those who find themselves favored of Athene, goddess of wisdom, craft and war, have hard and productive lives and avoid Gabrielites.

Eastern Daemons are a more motley lot. Many Chinese Artificers are led by the spirits of ancestors, especially if the family has either several minor builders or a renowned inventor in its line. Occasionally a Chinese mage has the fortune (whether good or bad is uncertain; who among the living has the vanity to question the most powerful of guardians?) to be guided by a dragon. These few can be certain that *interesting* fates await them. In the Muslim traditions, Daemons are most likely to appear as angels, though *afreeti*, *genii* and other spirits of legend are not uncommon. Hindu Daemons manifest quite frequently as animals, though minor deities or famed scholars and innovators are also known.

The Scourge

Daedalean Artificers sometimes seem to take the Scourge *personally*. They feel that their work should by rights be predictable and therefore, once they have completed every aspect of a task, safe. To their annoyance, this is not the case.

Their conclusion is that creation's dangers reflect the subtle intricacies of the world and their own imperfect understandings. Being for the most part proud by nature,



they find this lesson in hubris and nemesis hard, but they are craftsmen first and foremost. Sometimes work goes wrong. Anyone who denies that is a fool. The trick is to learn and to improve. In short, they have the harried, persistent air of engineers throughout history.

One way that Artisans deal with unpredictability is to discuss their work, exchanging experiences and ideas in their lodges and across their Conventions, trading in solutions. They do not fully realize that this works largely because it is a way to insinuate ideas into the popular consensus in the long term. Word of a new inventions slips from Enlightened to brethren to peasant and becomes accepted over time. Still and all, they sometimes achieve the results they wish.

The Scourge is as prone to strike or work through the Artisan's tool as it is through the wielder. After all, it is the tool that creates the effect, while the user's inspired ingenuity simply serves to determine how to make it so. This contrasts the experience of wizards and shamans, who draw the powers of the Spheres unto themselves or call upon spirits to speak with them and ride their bodies. This division is not absolute — the Scourge is unpredictable, even whimsical, but it is clear. The tendency of Artificer firearms to explode is well-known, but other more subtle effects are also possible. A Boon related to Fortitude, Prudence or Vanity might render a tool more reliable and invulnerable to harm for its duration, while one based on Generosity, Prudence, Avarice or Stinginess might cause an alchemical preparation to work for longer with less of the stuff used up in the process. A Bane derived from Faith or Cowardice might make a tool shatter — put not your trust in toys! Fortitude or Sloth might cause a heavy but portable implement to suddenly feel hopelessly cumbersome and intractable.

Witchwalks may apply to Artificer-built vehicles or automata or to their makers. Madness might involve a fixation on or terror of some Device. In fact, Artificers often become distracted by the details of their creations, stopping suddenly to repair or "improve" them at inappropriate moments or to examine someone else's work in tedious detail. (But this is not always because of the Scourge.) And as for Scourgelings.... The word "gremlin" is not actually invented until the 20th century, but many a Daedalean would recognize that to which it refers.

Lastly — although the Ars Praeclarus is generally regarded as very vain, making Artificer workings highly vulnerable to the Scourge, they do have compensations: When what they do is simple and clearly explicable, it is *undeniably* so. Thus, Artificers often alternate between severe Scourgings and weeks with no trouble at all.

Purification: Most Daedaleans purify themselves of latent Scourgings by the usual means; prayer is common, although bathing and passive meditation are also used in the East. Some, however, attune themselves to Creation in a very typical way: creativity. They retreat to a workshop and settle down to some simple repetitive piece of work, reminding themselves of the roots of their craft.

Storytellers should acknowledge that this is entirely in character for such individuals, but should not let it be abused; the work involved should be very simple, and not especially financially rewarding, if at all. At most, it should serve to earn enough to keep the Artificer fed for the period, when it is sold after the purification is complete. In fact, many Artificers who use this method burn the handiwork they produce in a personal ceremony, reminding themselves of the transience of all things and symbolically "burning off" the threatening Scourge.

Tools

All the Awakened (save the most extraordinary) use tools of some kind or another in their castings and shapings, but Daedalean craftsmen are by far the most *proud* of it. They are also the least inclined to distinguish between something used for mundane purposes and something used for "Machinae" (something comparable to a fetish or talisman). In fact, many of their tools appear to have come directly from a workbench, and many of the things that serve as tools can themselves be developed into Machinae (Magickal Treasures, in system terms).

The difference between tool types is mostly one of simplicity of use. Some Artisans use their competence with Forces to fly. The tool they use for this is usually a great pair of mechanical wings. There are also sets of mechanical wings that can be employed by those who are not skilled with Forces (these tools have their own Arete and Quintessence reserves). From the maker's point of view, the latter requires considerably more effort and inspiration, although the guiding theory involved is much the same. The wings have to be made stable and capable of use by one who does not grasp the complex interplay of forces involved in flight (operation is reduced from the active play of inspiration and comprehension to a dull hauling of levers).

As for the difference between mundane implements and tools used in Works; there is often none. However, Enlightened Arts must be applied with great care and precision — "good enough" is *not* enough. Thus, many Artificers have a "best" set of tools used for their works, and stored away in padded cases at other times. Such implements tend to be hand-crafted by the owner (if her skills permit) or some Daedalean master, usually employing Matter 1 perceptions to ensure that they are indeed perfect.

Not that all tools are items of wood and steel. Artisans often study alchemy for reasons discussed previously. From their point of view, alchemy is a well-documented topic that seems pleasingly less susceptible to the Scourge than is the Ars Praeclarus.

Artificers also make some good use of astrology. This may seem odd to modern readers, for their successors in the Order of Reason reject this field of study utterly, declaring that the stars are but distant balls of flaming gas with no conceivable direct influence on human life. However, *As Above, so Below* remains a high law of nature and astrology remains a respected science. Sophisticated clocks and astronomical instruments even make Artificers supreme experts in astrology's practical application. No Artificer student of Time is likely to be without such tools, as well as volumes of tables and references.

Favored Artificer tools include common implements of the workbench, building-site and forge; weapons (which are, after all, nothing but well-designed levers and such designed to amplify the wielder's effective strength); parchment and charcoal (enabling the user to plot out and contemplate some form or symbol); lenses in countless strange configurations; and lanterns (useful for various basic forces effects as they permit one to manipulate fire and light).

System Effects

The precise nature of an individual Artificer's tools depends very much on his understanding of the world and the types of working he performs, but all must have some kind of logic. This should be related, in system terms, to the character's chosen Abilities. For example, a character who uses alchemical potions, philters and pastilles to accomplish Life and Matter effects should have at least one dot (preferably more) in Metaphysics (Alchemy), and must spend time in a laboratory, performing routine preparations. Influence over Mind might be the result of these same studies, involving especially subtle use of correspondences between the alchemical works and the target (or cruder application of alchemical drugs). Or Mind might be associated with Artist training, as the creator draws, shapes and arranges the forms of things to influence the thoughts of those perceiving them. (The latter application of Mind has the advantage of requiring minimal special materials, but the drawback of taking much longer than other works.)

Most "conventional" Artificers use mechanical Devices. Invention is the obvious Ability here, but a character who combines it with low Dexterity and no training in any related Craft produces unreliable and dangerous tools. Conversely, a high rating in Crafts or Artillerist suffices to come up with conventional but workable devices that may be used with inspired ingenuity (the addition of training in a Science can make for very interesting workings).

A character may also acquire tools that he could not actually create for himself through an Allies Background, perhaps from an alchemist or an armorer. There is no great shame in this; to most Artificers, the whole point of their Works is that they can be passed on, their use taught. However, inheriting tools is not thought especially clever either and the practical dangers are obvious.

Formulations

I am vanquished; these haughty words of hers/Have batt'red me like roaring cannon-shot.

— William Shakespeare, *Henry VI, Part 1*

Enlightened Artificers do not *cast spells*. That would demean them, reducing them to the status of posturing entertainers or hysterical Infernalists. Rather, they *perform Works*. Nor are they bound by doctrinaire restrictions on the exact form that their use of sacred geometry may take. Unlike their successors of the Technocracy, Artificers are enthusiastic improvisers who pride themselves on adapting their art and lore to the exigencies of the moment.

Verditius mages do not necessarily *perform Works*. Instead, they discern what affinities already exist in an item and then align the item with the virtues it must have to become complete.

That said, all Artificers do have a vast array of known techniques, which they catalogue precisely and study with care. To an Artisan, learning from those who have gone before and sharing useful ideas is not only respectable — it is a sacred duty. Hence, they have their equivalent to the sorcerer's book of spells. They use many names for this sort of material, but "Formulations" does as well as any. The following are merely some examples.

Aiming Grid (• Connection)

This piece of inspired craftsmanship is Chinese in origin, although the ideas involved are basic to sacred geometry. It consists, quite simply, of an intricate sighting device that must be attached carefully to a crossbow or personal firearm and specifically calibrated for that weapon. The Artisan may use it to aim with extraordinary accuracy, even lobbing missiles on high arching trajectories over intervening barriers.

[In system terms, take one turn to align the grid with a target. Roll Arete as usual for a magickal effect and reduce the difficulty of subsequent shots by the number of successes achieved. New targets that were not *very* close to the first, or the same target if it moves rapidly and the caster fails to "track" continuously, must be "aligned" as new. Point-blank shots cannot benefit from this effect. High-arching "lobbed" shots may be made up to three times the weapon's base range, but take +5 difficulty before the effect bonus is applied, and do -2 damage. Because the weapon is not enhanced in itself — it still has the same range and damage

Viewpoints of Technology

So (says the old-hand **Mage** player), the Artisans are the Renaissance equivalent of Iteration X, right? Technocrats who use heavy-duty super-technology instead of spells and whose souls are all cold iron? Okay, the décor's a bit different — rivets and coal and hot-air balloons rather than cyborgs and machine guns — but it's still the Power of the Machine, right? And the Craftmasons — well, they're a bit more liberal, but the thinking's obviously much the same.

Wrong, wrong, wrong.

Yes, the Artisans lay the philosophical groundwork that eventually underpins Iteration X, but that's a long way down the line. Ethics aside, these folks are a bit more mystical and quite a bit more crazy — in an inspired sort of way — than any 20th-century Technocrat. There's no way they could be otherwise in their time. It's Paradigms again.

Remember, to the Sleepers of this age "machine" has very different implications compared to what it implies in the 20th century. Thanks to the Industrial Revolution, modern folk think of machines as vast and not only superhumanly powerful, but superhumanly precise — built to tolerances of a thousandth of an inch, working to timings of a hundredth of a second. Thanks to mass production, we see The Machine as repetitive, tireless and remorseless, imposing its demands on human servitors. Thanks to the computer, we think of machines as obedient to the instructions of a skilled priesthood, and potentially (if not actually) sentient.

Much of this belief may be the result of the Order of Reason's manipulations as it transformed into the Technocracy. Such concepts certainly serve its purposes, by and large. But none of these perceptions of machines make sense to the people of the Renaissance.

To begin with, machines are rarely truly vast. A big farm cart, a mill or a siege cannon is pretty imposing, but each is still built on a human scale. They may be powerful — that cart will crush you if it runs you down — but it's a comprehensible and unreliable kind of power. As for precision — that's a dream. A few monks tinker with their clocks, driven by the belief that their prayers and devotions should be governed by the divine will that rules Time, but the results are pretty shaky. Ten-figure precision is an abstraction for unworldly mathematicians, not a standard for practical craftsmen. (Although they can show remarkably precise and exacting judgment-by-eye when the job demands it.)

Repetition is a legitimate aim for Renaissance inventions, but it demands that a machine be tended and supervised constantly. Machines aren't tireless; wood splits, metal bends, ropes break. A mundane version of the Scourge seems to descend upon the simplest Device. A machine cannot demand anything except the patience of its tenders, who must wheedle and improvise to make it work. Machines are painfully far from obedient. Although they may incorporate great ingenuity and wit, they are self-evidently less intelligent than the pigeons in the dovecote or than the bees in their hive for that matter.

In the face of all these limitations, regardless of the derision their ideas must attract from practical folk, Artificers have a vision, a vision of the *potential* of their strange creations.

capabilities — the formulation is generally casual, unless it is used for overly fancy "trick shots" such as firing a crossbow bolt over a wall to kill a briefly glimpsed enemy commander on the other side.]

Perfection of the Tools (• Matter, • Mind)

An Artisan who has attained a little mastery over both her own mind and the materials with which she works can use that knowledge to improve her performance of mundane tasks. Before commencing some specific and well-planned work of conventional craftsmanship, she lays out her tools and assesses their suitability and best application according to a vast range of principles, from the trivial to the exotic.

[In game terms, each success rolled reduces the difficulty rating of all parts of the planned task by one, for the duration of the spell. This is a minor effect, almost always entirely casual — but it should be monitored in use to ensure that it is not applied to multiple tasks with one casting. Also note that it *cannot* be applied to magickal projects or markedly innovative works; the craft cannot feed on itself.]

Assess Affinity (• Matter, • Prime)

All matter has Resonance in the eyes of the mages of House Verditius. It is a relatively simple undertaking to

determine what element, astrological sign and property should be assigned to a particular object. Said over the object in question during a formal ritual of dedication and questing, this incantation allows the magus insight into the nature of the item. Certain Artificers use a similar procedure to achieve comparable results, but do so through theories of refraction and correspondence.

[The Hermetic needs to take the object she wishes to assess into a proper circle and perform a dedication ritual to invoke the charm. This effect is quite obviously vain; it requires preparation, care and accuracy to work correctly. In game terms, each success gives the character one piece of information regarding the object's affinities. Failure garners no results, but the character may try the procedure again. A botch indicates that the spell is misspoken or otherwise miscast; no information is retrieved and the charm may not be used again until the next day.]

Splitting a Cuirass (Various Spheres)

Artisans take a methodical, analytical approach to hand-to-hand combat; they are not necessarily great masters of fencing or such arts, but when their blows land, they tend to tell. They accomplish this by ensuring that their weapons are stronger than any protection.

[At the simplest, an Artisan with Entropy 1, Life 1 or Matter 1 can use casual perception magick to identify weaknesses in an opponent's protection. (Matter works to see failings in only unliving armor; Life detects weak spots in a beast's hide, a dragon's scales or suchlike.) For each success on the Arete roll, reduce the armor's protection by one for the duration of the effect — but against only blows struck by the Artisan. Furthermore, the Artisan's attacks suffer +2 difficulty as they must be directed at very specific points. The Artisan must have at least one dot in an Ability appropriate to the weapon being used; the weapon itself serves as the focusing tool.

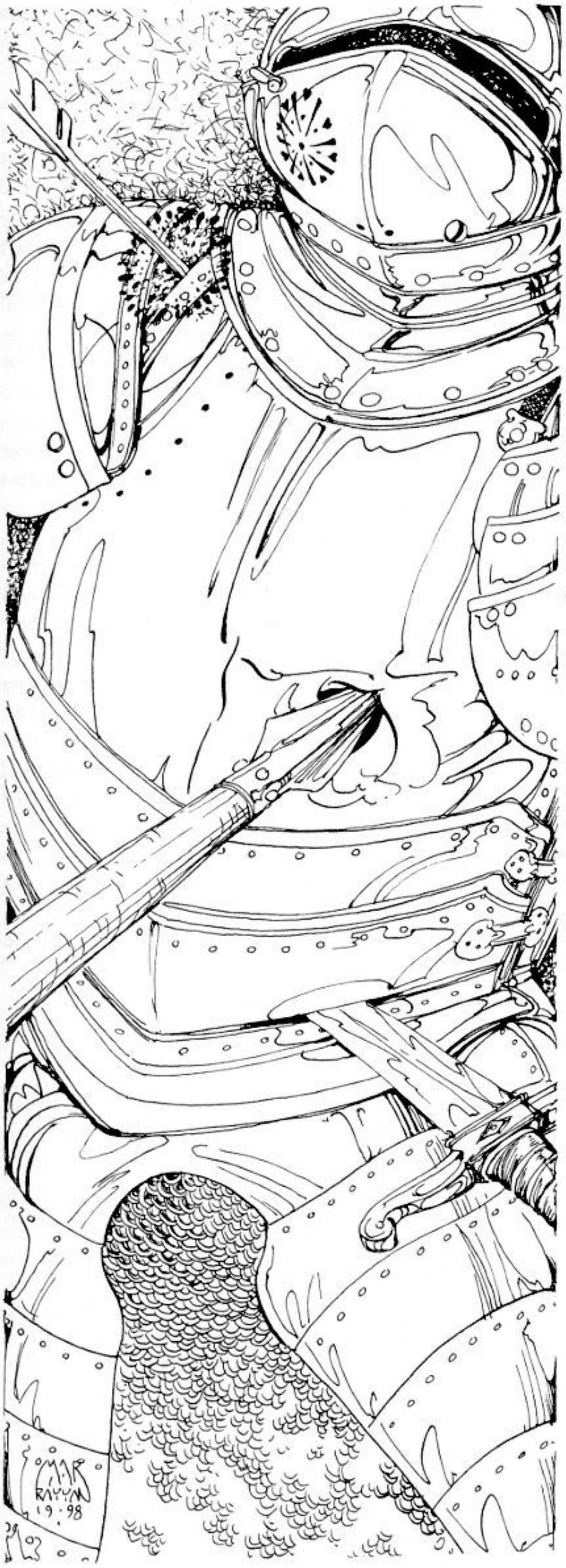
There are a number of ways to enhance this technique. Many Artificers with Matter 2 carry heavy swords or polearms which they have forged for themselves, with points or spikes of special hardness. A few who have studied Fencing prefer slender but unbreakable rapiers of needle sharpness. (These are not magickal treasures, although the enhancement is permanent; rather, they are considered casting tools that happen to have involved magick in the creation.) Such weapons reduce the difficulty modifier to +1 as they are ideal for this purpose. Alternatively, an Entropy 2 effect permits the Artisan to strike at the weak points "by luck," without any penalty; this requires a separate working unless the Artisan uses one of those specially made weapons, which make the wielder's blows an extension of her perceptions.

By incorporating a Matter 2 effect into the working, the Artisan can determine how to shred a target's (unliving) armor apart with every blow. Once this working is complete, but before dice are rolled for each subsequent attack, the player may declare how many successes from a blow are to be directed at armor worn by the target (up to a number of dice equal to the successes achieved in the Matter effect), rather than at the target's person. Armor can soak physical damage thus inflicted on it, with a number of dice equal to twice its protective value, minus the primary effect of the magick, at a difficulty of 6. Each level of damage that penetrates reduces the armor's soak value by one against *all* subsequent attacks, until the shredded armor can be repaired.

By way of example, a Daedalean guardsman attacks a brigand. The guard's blade was forged by an Artificer and was designed to cut through armor. The Artificer achieved two successes during the working, so up to two dice of damage from each of the guard's blows can be directed at the brigand's armor. The brigand wears furs and padding worth only one point of protection. The guard hits and inflicts five dice of damage. His player starts by rolling two dice of damage against the armor (difficulty 6) and gets one success. Twice the armor's value is two, but since the Artificer weapon had two successes invested in its creation, the armor gets no soak attempt and is riven. The remaining three dice of damage are then rolled against the brigand who now has no remaining armor to absorb the punishment.

Applying an armor-rending effect at missile-weapon range is much harder, even if the Artisan forges special armor-destroying arrowheads or whatever. The effect really requires a clear, close view of the protection; it is very hard to hit a small spot on a moving target at range. The ranged working must incorporate Connection 2 and all difficulty penalties are doubled. Repeated or over-spectacular uses of the effect are considered highly vain. (Putting arrows or bullets through heavy armor once or twice is plausible, but several shots or shooting away armor — that's not natural.)

Enlightened Artisans with the Builder or Stonemason Craft (and who know anything about fortifications), or those with such advanced Crafts as Architect or Military Engineer (in those decadent lands where one can learn such trades "academically," without having worked one's way up through honest hand-work and rule-of-thumb experience), may assess the weaknesses in a fortress' walls with similar effect. One usually also needs Artillerist Skill to do anything with the knowledge. Craftmason artillerists are, of course, the masters of all this. If detailed plans of the target building are available, the attacker simply spends a few minutes with them, then gets on with supervising the artillery aiming. More commonly, the working requires some kind of Connection effect to survey defenses closely,



and plenty of drawing materials with which to plot out the likely internal form of the place.]

Filter'd Lantern-Light (◆◆ Forces)

Many folk carry lanterns to light their way through the dark. Artificers study the ways in which these implements serve their purpose. A subtle understanding of light in all its variety proves very useful (and is usually casual unless employed too dramatically).

A typical Artificer's lantern is designed so that slides of colored glass may be placed across the beam, and has a reflecting back-plate of flexible polished metal that may be adjusted by use of small screws. It can be set for various effects: to cast a subtle, diffuse light that illuminates without making its origin obvious; to produce strong beams of any desired color; or to burn hot but dull, as a local source of warmth that can be kept hidden. (A second Forces 1 effect, usually achieved with lenses over the eyes or an alchemical unguent, enables the user to see patterns of heat; combining this with a properly set lantern makes for very easy movement in pitch darkness.)

Given a moment's warning, the Artificer can even create a sudden flash of exceptionally bright light that dazzles a foe briefly (adding the number of successes rolled, plus one to the difficulty of any task which requires the victim to see, including combat, for a number of rounds equal to twice the successes rolled). Such a burst tends to burn through the lantern's stock of oil after a use or two.

The Swift Lock (◆◆ Forces)

The drawback of firearms is that they take so long to prepare. They must be loaded with powder and shot, primed, aimed (as well as possible) and fired only then. The mechanism that ignites the powder — the *lock* — is the most complex part and hence the least reliable. Ignition-holes can be blocked with burned powder, slow-matches can burn out (and need continual adjustment) and wheel locks need "spanning" (tensioning) and can break or jam.

Hence, some pragmatic Artificers cheat a little when needs must and use Forces effects to fire a load of powder without actually using the lock. Purists sniff at this trick as lazy and sloppy, but it is often a life-saver — and it is almost always casual. After all, the lock *might* have been prepared in advance, the gunner *might* have loaded with unusual swiftness or the powder *might* have ignited spontaneously in a hot barrel.

(Don't forget that the Scourge can always find ways to express itself unpleasantly through a carelessly handled gun.)

[Using this formulation improves a suitable weapon's Rate of Fire by one turn per shot — so an arquebus goes from Rate 1/6 to 1/5, a wheel lock from 1/4 to 1/3, and so on. As only a spark is needed, a single success is usually enough for the working to succeed. If it fails, the Artisan can usually try

to fire the fully loaded piece again next turn: A botch, however, can be unpleasant. Multi-barreled weapons are too tricky and complex to benefit from this effect.]

Grand Salvo (•• Forces)

Certain weapons — banks of rockets or multi-barreled guns — unleash a hail of fire and shot on enemies, overwhelming victims with a rain of destruction. Clever Artificers know how to use this sort of device to exceptional effect, subtly amplifying and multiplying the damage. This effect is casual, unless the weapon itself is a vain Machina. The attack must generate at least five shots within a single turn for the trick to work, and the weapon must be fired by the Artificer alone or with the aid of none but cooperative Awakened allies.

[For every two successes rolled on this effect, one more missile strikes the target — provided that at least two "normal" missiles hit unaided. There must be a practical upper limit to the size of weapon on which this effect works, but multi-shot weapons have an upper size limit of their own anyway. *Very* well-drilled bands of Enlightened handgunners can create a similar effect when firing their weapons simultaneously.

For instance, Saung the Artillerist directs a salvo from six cannon crewed by Awakened apprentices. The Storyteller judges that the player must roll Perception + Artillerist, with each success denoting a successful strike. Saung's player rolls four successes, indicating that four of the cannonballs hit. Using his Arts, Saung insures that others in the salvo strike, too. The player rolls three successes on his effect, so one additional cannon scores a hit (the extra single success is not enough to guide the shot of the last cannon). Five cannons roar and strike down the castle walls!]

The Argument of Princes (•• Mind)

Artificer weapons do more than destroy with great force. They terrify with their superiority, intimidating those who are less acquainted with the arts of destruction. Hence, guns, rockets, cannon and Greek Fire may serve as the tools of a casual Mind effect, terrifying one foe into submission even as they are used to blast away at another.

(A few Enlightened Artillerists have been known to add Connection effects to this spell when besieging fortresses. The thunder of siege guns is never pleasant if one might be on the receiving end, even if one cannot see them.)

[In system terms, the Artificer takes extra time to deploy and direct this effect while preparing and aiming the weapon, which can be virtually anything that makes plenty of noise or smoke, does massive damage or that is blatantly unusual. The effect simply makes the threat of

death especially terrifying — a casual effect. Successes on the effect are expended to determine how long this terror lasts and how many people are affected (see **The Sorcerers Crusade**, page 240). Any opponent who *clearly* sees the weapon used when the working is activated must make a Willpower roll (difficulty 7) or be struck with terror. A victim is unable to do anything other than save himself (flee, duck for cover, surrender), unless a Willpower point is spent. If the weapon suffers some kind of dramatic or spectacularly comic accident while in use the effect is canceled and victims take heart.]

High Rhetoric (•• Mind)

This is not in any sense an Artificer working, save that rhetoric is considered an honorable art. Yet the effect is vastly useful, so is often employed by both Craftmason rabble-rousers and politicians schooled in Classical ideals.

It is almost always a casual working. The only "tool" generally employed is considered, calculated speech. When it works, such speech can make an audience believe *almost* anything, follow *almost* anyone or fight for *almost* any cause.

[The user must have a total of *at least* six dots in Manipulation + Expression. The combination of Mind and rhetoric can convey almost any emotion to an audience, which tends to follow the speaker's lead so long as the effect lasts. This working cannot change a listener's moral code or general inclinations completely, but someone who has spent an hour cheering a speech usually takes a while to recognize its flaws afterward. Attempts to subvert an audience's ideas too radically give listeners Willpower rolls to resist.]

Geometric Jars (•• Connection; • Forces may be added)

The sphere of Connection is always useful for survey and spying; some Artificers employ a mixture of Chinese ideas and the Resonance effects of sacred geometry when invoking it. An array of specially made, water-filled jars are placed in the vicinity of a site of interest. The slightest vibrations in the liquid are watched, counted and measured. Intricate mathematics can then be used to derive considerable information about the structure and layout of the subject area. Even more meticulous work can pick up resonating "echoes" of sounds and voices therein. The inclusion of a Forces 1 effect allows those sounds to be amplified for audibility.

[This effect is vain, at least if the information derived is to be at all useful, but it is not usually observed by Sleepers; they may see the deployment of the jars, but rarely understand the supernatural applications.]

Sulfurous Darkness (•• Forces, • Matter; sometimes adds •• Life and •• Entropy)

The simple form of this spell uses the typical smith's or alchemist's experience of working with fire; a substantial flame is the main tool. Taking up some appropriate stuff — a pinch of strange chemicals or a much larger quantity of almost anything flammable that comes to hand — the Artificer casts the effect on the fire. The flammable substance catches and flares (thanks to use of Forces). Within seconds, the area is filled with dark unpleasant smoke, making vision nearly useless.

One success on the roll fills a small space, two a full-sized room, three a great hall. Blind victims add four to the difficulty of most tasks that require vision. Storytellers can change the exact modifier as seems appropriate, but note that botches under these circumstances tend to be catastrophic (or comical).

Using this effect to counter Forces-based enhanced vision or the uncanny senses of a few types of creature is harder. Add one to the difficulty of the working if the Artificer uses a special and expensive alchemical preparation. Add three otherwise. Cunning weapons experts sometimes carry guns loaded with smoke-powder rather than shot, which can be fired without aiming to surprise a foe and let the warrior escape or close to sword's length.

This is a conveniently casual effect, unless the user must make do with implausibly small amounts of improvised flammable material. However, some Artificers use a more advanced version of this effect that is definitely vain unless they are known (or thought) to be using some nasty, advanced piece of practical alchemy. In this case, a combined Life and Entropy effect serves to make the smoke choking and foul; anyone caught within it must roll Stamina, difficulty 8, each turn or do nothing but choke and gag for two turns. A botched Stamina roll causes loss of a health level.

Perfect Fuse (•• Forces, • Time)

Any half-competent artillerist can lay a simple fuse to give himself time to get clear of a prepared explosion. Enlightened Artificers can be subtle, clever and precise about it. This is a flexible sort of effect, often improvised using whatever materials are at hand.

The Storyteller can modify the difficulty of such workings up or down (up if the trick involves damp powder and an old candle, down if the Artificer sacrifices a piece of intricate clockwork and takes some time to construct a mechanism).

A good fuse is a casual effect if it is simply made more reliable and precise than most Sleepers could manage; vain if its precision is truly awe-inspiring. Sophisticated "booby-trap" fuses, triggered by the Resonance of nearby living things or large objects through sacred geometry, are wildly vain.

Ghost-Burning
(•• Forces, •• Spirit)

Those Artificers who spend too long tinkering with lenses sometimes discover things that are not "there." Indeed, some don strange, distorting eyeglasses to make use of Spirit 1 sensory effects. By rigging up an intricate array of lenses, lanterns and mirrors, more advanced workers can do more.

[Adjusted with inspired skill, such contraptions can be used to direct searing, burning light — the Forces element of the working — through the Gauntlet to injure an entity on the other side. Of course, a simple Spirit 2 effect allows someone to strike an ordinary blow in much the same way, but many lesser malevolent spirits are thought to suffer a terror of light, and this special attack does seem to startle them dramatically. It also startles un-Enlightened observers and is invariably vain.]

The Barrel of Iskander
(• Forces, •• Matter)

Inspired by eastern legends of the ventures of Alexander the Great, some Artificers seek to explore the depths of the sea. Their favorite tool for this is a "crystal barrel" — actually a barrel-shaped iron-and-glass construction, lowered into the water on a heavy chain from a large crane. Fine craftsmanship and alchemical subtleties (Matter effects) keep the barrel watertight at almost any depth, and the air within fresh. The special glass permits the single occupant a clear view of the surrounding waters, despite the gloom and sometimes murk of the depths (using Forces 1).

[This creation is casual for short-term use, as most Sleepers don't actually understand the problems it resolves, but lengthy or deep descents make it vain ("She'll surely suffocate!"). Some sophisticated Artificers may add Life 2 effects to keep themselves comfortable for extended explorations and to accomplish various tricks to communicate with the surface.

A crane used to lower a barrel is usually a large but mundane device, operated by crews of three or four burly brethren. More refined exhibitions of the Ars Praeclarus may substitute for their control and muscle-power. Attempts to rupture the barrel require four successes, difficulty 7. If the chain is broken, another Matter effect causes the barrel to rise safely through the water like the bubble of air it is (two successes required). Otherwise, it tends to sink not quite as swiftly as a stone.

Some German Artificers experiment with diving suits of a remarkably sophisticated pattern, and claim that they may even be suitable for use by unsupervised Sleepers. However, their current designs demand piped air for any sort of extended use, limiting the depth at which they can plunge, even if the problem of visibility in the murky depths can be solved. Divers are also painfully vulnerable. Still, they have already been used quietly to plant explosive mines against enemy ships.]

Branding the Heart
(•• Forces, •• Mind)

Most Enlightened Artificers regard torture with mild disdain. Those who do not may become unpleasantly adept at it, wielding Life, Mind, Forces or Entropy with *intense* effect. But when a special kind of terror is needed, or no marks may be left on some significant prisoner's flesh, they have to become more subtle.

[A blazing flame must be prepared in the midst of an intricate design on the ground, based on detailed use of sacred geometry. The Artificer first touches the design and then the victim with *cold* iron. The effect channels the essential sensory nature of the fire — but nothing else — directly into the victim's perceptions. The result is every bit as painful as actual burning, but not physically harmful. (It does two health levels of "damage" per turn, but the victim cannot be reduced below unconsciousness by this means, and recovers one level per turn once the torture ends.)

This formulation is vain, but the victim cannot count as a witness, at least at first, being all too convinced of the mundane reality of the heat!]

The Frenzy of the Spinning Wheels
(••• Time)

Complex machines may do many things at once. By use of sacred geometry, those who apply the Ars Praeclarus to Time may accomplish something similar themselves, albeit through a vain formulation. They appear almost to dance among complex arrays of rotating wheels and shafts, sometimes using them to hold and place tools just as required.

[This is the common Time 3 effect, of course, similar to **St. Vitus' Kiss**, but in a distinctively Artificer version. A few prefer to use alchemical drugs for similar effect.]

Glorious Is the Temple
(••• Prime, •• Mind)

Craftmasons regard great buildings as symbolic of their relationship with divinity and eternity. In a real sense, buildings are the greatest of Craftmason tools. This formulation is one of the highest of Craftmason rituals — but it is also very practical.

It takes about an hour and is always conducted in a Craftmason-made building sited on a Cray (which the Masons often prefer to call a "wellspring"). The working is

INSTRUCTION THE THIRD: TRADE SECRETS

performed by a single Mason (the "leader") with the necessary grasp of the Spheres and a "congregation" of any size. The result is to make Quintessence available to those who need it and to inspire all those involved with renewed determination. The ceremony is not taken lightly; no Mason may participate in it, in any function, more than once per day.

[For each success that the leader achieves in an Arete roll, one point of Quintessence may be drawn from the "wellspring" and distributed to any chosen member of the congregation. If the recipient already has as much Quintessence stored as his Daemon Background permits, he needs to use the usual Prime 1 effect to store more. In addition, all participants in the ceremony gain one Willpower, useable only so long as they work faithfully in the cause of the Craftmasons, for a period determined by the successes rolled. Those who receive Quintessence also regain any temporary Willpower expenditure equal to the Quintessence gained. The ceremony looks a little ungodly to the un-Enlightened — like a parody of religion —and hence is considered vain. Sleeper witnesses are rarely permitted.]

Secret Labyrinth

(•••• Spirit, ••• Mind, •• Prime)

The Craftmasons know somewhat of the spirit world, but do not like what they know. Drawing on the peasant lore of a dozen lands, then organizing and applying it, they have come up with a way to protect honest folk from such beings.

The builder of this Work begins by plotting out an intricate maze design, using sacred geometry and ancient lore. The maze may be within a large room — hall- or church-sized — or in the open, and may entirely surround something up to the size of a small cottage. The design must be visibly traced out; it may be marked in chalk on bare rock, plowed in a field, marked in tiles on a floor or planted. Some subtle Masons incorporate the design into a stained-glass window so that sunlight projects it onto the floor below. This approach proves to work, despite the fact that the maze is only visible intermittently. Finally, the shaper walks the maze once to activate it.

The result is that any spirit attempting to cross the location of the maze, in our reality or any adjacent spirit world, is blocked and forced to attempt to follow the path, usually without escape. Powerful spirits may deny the compulsion; most cannot.

Unfortunately, this working has proved recalcitrantly vain — *except* where it is worked into the structure of a church. (The truth is that the defeat of malicious spirits is generally considered the province of the sacred by Sleepers.)

[An Arete roll is required to complete the working. It strengthens the local Gauntlet as per the usual Spirit 4 effect. Use of Prime allows the effect to last beyond a scene. The Prime element also creates a reflection of the symbolic labyrinth in the spirit world, formed of the very stuff of the Gauntlet. The Mind aspect impels spirits encountering the maze to walk it and become lost. They may roll Willpower, difficulty 7. If they achieve more successes than the shaper of the maze, they may refuse to enter it. Otherwise (or if they enter because they *must* cross that region), they can roll Intelligence + Enigmas after an hour, and once per day thereafter, to escape the maze on either side. One success allows escape back; three grants passage through. The difficulty is 6 if the maze was entered voluntarily, 8 otherwise. The effect continues even if the material representation of the maze is destroyed, but all difficulties to escape it are reduced by one. If the material form survives the fading of the working itself, the same caster may reactivate it at any time by walking the maze once more and making an Arete roll (although it is advisable to take some time to ensure that the puzzle is entirely intact first). Alternatively, the caster might use an extended roll, walking the maze repeatedly to make its spiritual reflection more durable from the first by achieving more successes.]

Tattoos and Prostheses

The strangest and most daring of all High Artisan activities comes from their occasional willingness to treat the human body itself as simply another tool of their art. This is not in any real sense medicine (although some such Artisans study with members of the Hippocratic Circle). Rather it is a mad, blasphemous matter of looking upon bones as levers, the blood as a stream and skin as parchment. The best that most say for protagonists of this study is that they are generally willing to use their own bodies for their experiments rather than inflict their insanity on others. The fact is that unwilling or untrained recipients rarely use such magicks to any good effect.

Of course, there is nothing especially novel or bizarre about prosthetic limbs; old soldiers and accident victims have hobbled about on wooden legs for centuries. What is strange is the Artisan idea that such replacements could somehow be *better* than the limbs replaced. (A few Artisans even dream of replacing organs as well as limbs, but given the fact that even the Cosians are prone to blazing arguments about the exact function of each internal organ, such replacements are either functionally impossible or at best so wildly vain that the Scourge would destroy the recipient within moments.) Artisans who must wear prostheses (accidents happen, even in the best-regulated workshops) often fit them with tools, blades or weapons by way of making the best of things. A very few go on to use arcane engine-magick to make replacements function as true limbs, at least in some respects — and these can be limbs of exotic strength and resilience.

(Note, however, that this sort of device is still highly unreliable and vain. The HIT Marks of **Mage: The Ascension** are centuries away. Only an Artisan with

Medicine

Although medicine is not quite considered an expression of artisanship, it deserves some mention here. The Ahl-i-Batin and Chinese Artisans have studied the uses of herbs, tinctures and other drugs for centuries and have given as much attention and effort to their medical endeavors as to their alchemical or otherwise-traditional Artisan pursuits. Thus, in the East, the science of medicine has been refined to the point that it may be considered a Craft in its own right.

In what will become known as Turkey, pharmacists were being licensed — by Sleepers! — in the late eighth century; the first drugstores were also opened around that time. 1279 saw the translation of Baghdad surgeon al-Razi's comprehensive medical encyclopedia into Latin. It detailed the treatment of bladder and kidney stones, presented a clinical report on smallpox and explained a variety of surgical techniques previously unknown to the western world. Ibn-Sina, or Avicenna, perhaps the most famous medical expert of the 11th century, discussed contagion, diagnosis and effective treatment of hundreds of diseases in his encyclopedia.

This startlingly developed knowledge of medicine indicates the level of advancement Awakened medicine has in the Renaissance. Life Arts combined with such knowledge can surely work nigh-miraculous cures and feats of surgery. In game terms, Storytellers might choose to allow eastern healer-concept characters to use Medicine as a Craft specialty or to specialize in a particular aspect once four dots in the Knowledge: Medicine are earned.

truly insane obsessions and willpower would even contemplate *deliberately* mutilating herself for the sake of gaining a clockwork limb.)

An alternative, rather less demented idea, but with much more of the stench of superstition about it, is to mark the surface of the body — the skin — with symbols of power. Some high-minded Artisans disapprove of such tattoos, suspecting that the idea owes rather too much to the enigmatic "House Criamon." Yet others find tattoos tempting. Sacred geometry is in part a matter of symbols and representations, and what better way to keep such at hand than to bear them on one's very person? Still, it's difficult to combine the Artisan style of work with this approach for very many purposes.

[Prosthetics, scars and tattoos may be used as tools for all manner of workings; players and Storytellers should be able to agree on what's broadly plausible. A simple artificial limb is mundane, of course. If it incorporates a hidden blade, that's just clever workmanship. However, using it to manipulate objects or to display more-than-human or noticeably precise strength is another matter, and is usually vain (unless done very cleverly).

Scars and tattoos incorporating designs from the archives of sacred geometry may be used to channel Quintessence and other magickal phenomena. They can also be used for other effects, mostly centered on the Sphere of Life. However, doing so is not only frequently highly vain, it tends to irritate other Artificers. Common examples are symbols that hasten healing (Life 2), protect against fire (Forces 2), help hold Quintessence (Prime 1) or simply strike terror in enemies (Mind 2).

Tattoos and prosthetics may also incur Flaws such as Disturbing Mannerism or Deformity (see **Crusade Lore**). Some are treated as Witch Marks by witch-hunters, who laugh coldly at claims that these are natural or self-inflicted mutilations. The chief drawback of these highly convenient "tools" is that they draw the Scourge direct to the bearer. Whenever the body-crafter botches an Arete roll while using such "tools," add an extra Scourge point. If the result takes the character's total to 10 or higher, one of those points becomes *permanent*! The effects of Scourgings on a much-marked character tend to be close and intimate — further diminished appearance, persistent physical discomfort, heavy blows of the Devil's Brand....


LAUBENSTEIN·99·

Instruction the Fourth: Masters of the Art

So he made rebellion 'gainst the King his liege,
Camped before his citadel and summoned it to siege.
"Nay!" said the cannoneer on the castle wall,
"But Iron — Cold Iron — shall be master for you all!"
— Rudyard Kipling, *Cold Iron*

It had been six long years of apprenticeship for Rosa the jeweler's daughter — six years of hard work and study, enlightened only by that brief moment of terror-driven inspiration. She was never even able to say when she Awoke. It was almost certainly before the battle with the Summoning, for what she had done with the diamond involved a sense of the structure of the thing that few master-jewelers could have matched. But she had certainly not felt Enlightened when she had been formally greeted into the Secrets, bare months before that.

When she pondered the question, those six years seemed to her like a long gradual process of forging, with the battle in fact being a spectacular moment of white heat and quenching. But few apprenticeships involved any moment so dangerous, and her master could never have calculated that the process should include such.

Now at last, Rosa stood in a plain robe of unbleached linen and prepared to take vows of which she had previously known nothing. Behind her stood others, also 'prentices about to be made journeymen, but some of them looked even less the part than herself — a monk in tonsure and habit, a man-at-arms in mail.... Well, such was the way of the Enlightened. Although the other side of the room was shadowed and the smoke of the forge stung her eyes when she blinked, it seemed that those who prepared to accept her vows were little less strange.

Craftsmen and Scholars Both

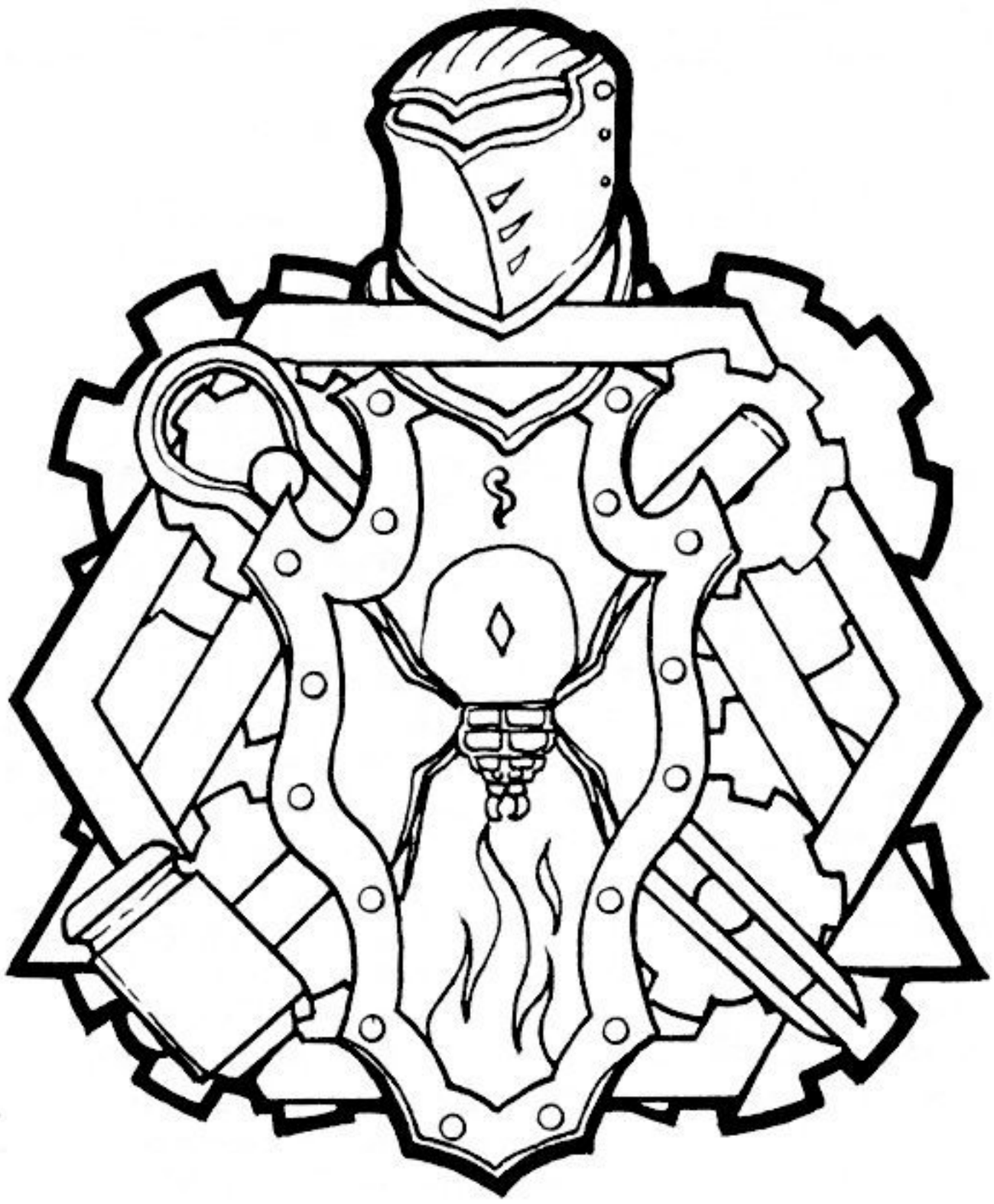
Daedalean Artificers are truly a disparate lot. Their rivals, and even their allies, may think them a mob of single-minded blacksmiths and revolting peasant-stoneworkers mumbling about the doubtful beauty of their work. But that assumption misses a range of ideals and dreams, the burning fire of creativity and a practical style of Humanism. Artificers may be ready to die for peace or to kill for justice. Their arts may be a simple means to a wondrous end or the essence of their existence. They may be born to wealth or fight their way up out of the mire.

Likewise, Artificers may live by the Sermon on the Mount, the Koran or the Analects of Confucius. Regardless, their manner of worship is almost always practical and personal. They may follow the forms of a communal, a ritual religion, but if their hearts were known at such times they might be in trouble. Their Daemons are particularly problematic to them. They often deny that such are truly divinities or ancient teachers, believing their inspiration comes from their own hearts. But they also see those visitations as representations of the divine spark. Thus, Artificers are sometimes accused of being self-made men

who worship their makers. Some deal with this by denying the importance of their Daemons, pushing them away and progressing by struggle with their own souls. Others formulate complex theologies of personal divinity. Others still remain tactfully quiet on the subject. It is more useful to struggle with the intractability of matter, the unpredictability of fire or the perversity of the Scourge than it is to fight oneself or the priests.

The following templates represent a little of the full range of these driven, high-minded, practical creators. They may be used as examples of beginning characters for players to use as presented, to adapt as desired, or as figures for the Storyteller to deploy when the players' characters enter a Daedalean workshop.

This chapter also includes brief biographies of a number of noteworthy Artificers of the game period and the near future. Meetings with such notables should be rare and striking events. However, their histories and activities may provide players and Storytellers with inspiration — as they do their fellow Artificers.



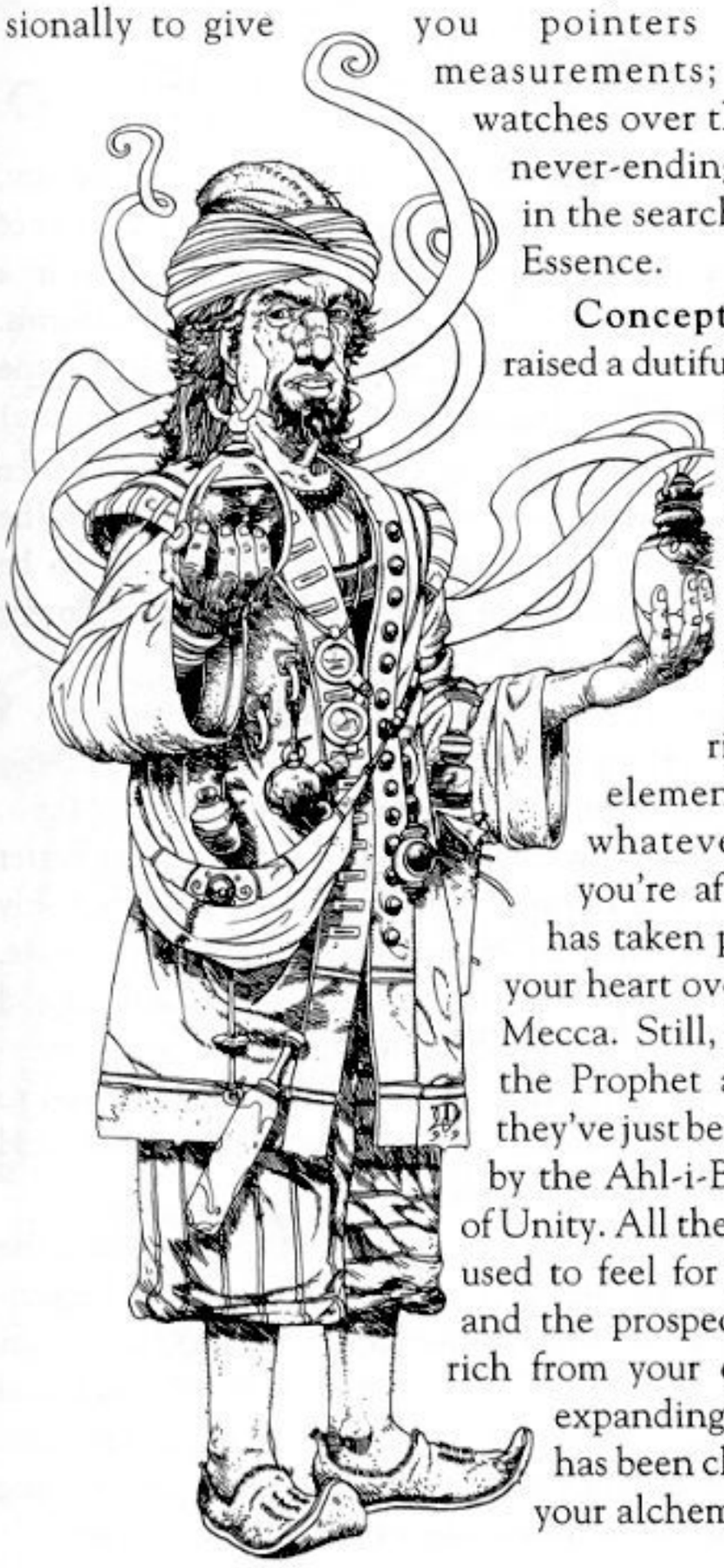
Alchemist

All men and jinn in collaboration could not produce its like.
— Muslim saying

Quote: *Please do not jostle that flask.*

Prelude: As a student, you thought your place in life was secure. Commerce, trade — those were the paths for your future. All those lessons in mathematics had honed your mind to an analytical point, quick and eager to follow any given exercise or problem to its logical and beneficial end. But something drew you to the Ibn-Jadh's chemistry lesson, and something held you there long after the rest of the pupils had left the laboratory for their evening meal. Under your instructor's watchful eye, you mixed the last of the tinctures — and you realized what it was that had drawn you to the laboratory.

You couldn't miss it, really. It hovered in the grayish cloud of smoke that puffed from the ceramic crucible and looked directly at you. Life as a merchant suddenly seemed eminently uninteresting, and you became the alchemist's sole student. Now the *afreet* shows up occasionally to give you pointers on your measurements; Ibn-Jadh watches over the rest of the never-ending procedures in the search for the One Essence.



Concept: You were raised a dutiful Muslim, following the Five Pillars faithfully. Since your Awakening, however, finding the right balance of elements to create whatever substance you're after this week has taken precedence in your heart over your trip to Mecca. Still, the words of the Prophet are sacred — they've just been supplanted by the Ahl-i-Batin doctrine of Unity. All the intensity you used to feel for your religion and the prospect of growing rich from your efforts in the expanding textile trade has been channeled into your alchemical studies.

The Artisans Handbook

Name:
Player:
Chronicle:

Nature: *Theorist*
Essence: *Castellum*
Demeanor: *Sage*

Concept: *Alchemist*
Affiliation: *Ahl-i-Batin*
Cabal:

Attributes

Physical		Social		Mental	
Strength	●●○○○	Charisma	●●●○○	Perception *Intuition*	●●●●○
Dexterity	●●●○○	Manipulation	●●○○○	Intelligence *Brilliance*	●●●●○
Stamina	●●●○○	Appearance	●●○○○	Wits	●●○○○

Abilities

Alertness	●○○○○	Animal Ken	○○○○○	Academics	●●○○○
Artist	●●○○○	Archery	○○○○○	Culture	●●○○○
Athletics	○○○○○	Crafts	○○○○○	Enigmas	●○○○○
Awareness	●○○○○	Etiquette	●○○○○	Investigation	○○○○○
Brawl	○○○○○	Leadership	●○○○○	Law	○○○○○
Dodge	○○○○○	Meditation	●○○○○	Linguistics	●○○○○
Expression	●○○○○	Melee	○○○○○	Lore	○○○○○
Instruction	●○○○○	Research	●●○○○	Medicine	●●○○○
Intimidation	○○○○○	Riding	○○○○○	Metaphysics	●●○○○
Larceny	○○○○○	Stealth	○○○○○	Occult	●○○○○
Subterfuge	●●○○○	Survival	○○○○○	Science	●●○○○

Spheres

Connection	●○○○○	Life	○○○○○	Prime	●○○○○
Entropy	○○○○○	Matter	●●●○○	Spirit	○○○○○
Forces	○○○○○	Mind	●○○○○	Time	○○○○○

Advantages

Backgrounds

Destiny	●○○○○
Familiar	●●○○○
Library	●○○○○
Resources	●●○○○
Sanctum	●●○○○

Other Abilities

Logic	●○○○○
	○○○○○
	○○○○○
	○○○○○
	○○○○○

Arete ●●●○○○○○○○

Willpower ●●●●●●○○○○

Quintessence

Scourge

Health

Bruised	-0	☐
Hurt	-1	☐
Injured	-1	☐
Wounded	-2	☐
Mauled	-2	☐
Crippled	-5	☐
Incapacitated		☐

Experience

Roleplaying Hints: Focused, driven and intense — all these words describe you. But you're still young and the world is so much richer now that you are aware of the great web that holds all things together. You are part of the whole and the desire to experience it is strong and seductive. In addition to all this, you know what's at stake in your studies: the very unity that draws you out of the laboratory and into the world. If you can just take the first step to learning the secret of Omnium, the beauty and holiness of the world would be so much stronger.

Art: Precision and patience are your greatest tools. If a man is willing to invest the time necessary to thoroughly analyze a substance or a reaction, he stands to receive much greater benefits than the man who rushes his assessment. This patience and practice has developed your skill in the Matter Arts, and you have some small skill in discerning the flows of Prime through your workings. However, you don't spend all your time bent over a flask; there lies a whole world to be seen outside the workroom. You have no time to travel too far, so you content yourself — for now — with exploring through Connection Arts.

Equipment: No alchemist would be without a few vials of his favorite powders and extracts tucked in strategic places about his person. A small belt pouch or two provide you with these places — and a place to put your precious spyglass, a gift from your teacher. The sophisticated little piece is an ideal Connection-augmented means to satiate your curiosity about what's out there in the wide world.

Artist

In framing an artist, art hath thus decreed,
To make some good, but others to exceed…
— William Shakespeare, *Pericles*

Quote: *It's not surprising that Florien can't paint limbs right; he fainted during anatomy classes!*

Prelude: Many artists speak of the Muse, but few expect to be torn from sleep by a goddess wreathed in fire. The experience was… startling. You retain an uncertain relationship with the lady, who demands that you ever labor to improve and extend your skills. Well, the Greeks knew that goddesses could be importunate bitches.

Not that they'd have said so — but your ever-changeable higher mistress is tolerant of your crude tongue, so long as you keep her amused. The world must be shocked sometimes, else it will slumber. She drives you — to the Order, to ever-finer work and to distraction. And you worship her in the ways she demands.

Concept: Despite what some "practical" folk mutter, your kind is not peripheral to the Order. You work at the very heart of its philosophy (though you are barely a beginner, as *she* often tells you). You can paint a portrait this month and design a building the next. You know the lowliest taverns of the town, but you are also tolerated in the palace. And you meet your fellows regularly, trading in the knowledge you acquire along the way.

The Artisans Handbook

Name:
Player:
Chronicle:

Nature: *Trickster*
Essence: *Susurro*
Demeanor: *Sensualist*

Concept: *Artist*
Affiliation: *Order of Hermes*
Cabal:

Attributes

Physical		Social		Mental	
Strength	●●○○○	Charisma	●●●○○	Perception	●●●○○
Dexterity	●●●○○	Manipulation	●●●○○	Intelligence	●●○○○
Stamina	●●●○○	Appearance *Striking*	●●●●○	Wits	●●●○○

Abilities

Alertness	●●○○○	Animal Ken	○○○○○	Academics	●○○○○
Artist	●●●○○	Archery	○○○○○	Culture	●○○○○
Athletics	○○○○○	Crafts	●●○○○	Enigmas	○○○○○
Awareness	○○○○○	Etiquette	●○○○○	Investigation	○○○○○
Brawl	●○○○○	Leadership	○○○○○	Law	○○○○○
Dodge	●●○○○	Meditation	○○○○○	Linguistics	○○○○○
Expression	●○○○○	Melee	●○○○○	Lore	○○○○○
Instruction	○○○○○	Research	●○○○○	Medicine	○○○○○
Intimidation	○○○○○	Riding	●●○○○	Metaphysics	○○○○○
Larceny	○○○○○	Stealth	●○○○○	Occult	○○○○○
Subterfuge	○○○○○	Survival	○○○○○	Science	●●○○○

Spheres

Connection	●●○○○	Life	●○○○○	Prime	○○○○○
Entropy	●○○○○	Matter	●○○○○	Spirit	○○○○○
Forces	○○○○○	Mind	●○○○○	Time	○○○○○

Advantages

Backgrounds

Allies	●●○○○
Dawnus	●●●●●
Destiny	●○○○○
	○○○○○
	○○○○○

Other Abilities

Dancing	●○○○○
Seduction	●●○○○
Carousing	●○○○○
Fencing	●○○○○
Symbolism	●●●○○

Arete ● ● ○ ○ ○ ○ ○ ○ ○ ○

Willpower ● ● ● ● ● ○ ○ ○ ○ ○

Quintessence ○○○○○○○○○○

Scourge

Health

Bruised	-0	☐
Hurt	-1	☐
Injured	-1	☐
Wounded	-2	☐
Mauled	-2	☐
Crippled	-5	☐
Incapacitated		☐

Experience

Roleplaying Hints: You may have a fine eye for beauty, but there is little fey about you; your whims are a matter of amusement, not the center of your life. You are at heart a serious scholar of creation, perception and underlying forms. Your grasp of such merely happens to be expressed in the form of fine art. (Which earns you an honest living, too.)

Still, you do know how to enjoy life and you balance the intensity you bring to your work with a little fun in the evenings. Anyway, potential patrons expect you to be flamboyant. But a sense of *proportion* is the first requirement of your calling.

Art: Your application of the High Art is mostly a matter of perception; you prefer to leave violence to cruder adepts or to rely on mundane weaponry if you *must* fight. You have a basic knowledge of several Spheres, the better to know the world. Because of this subtlety, you need only a few small tools: drawing materials help you concentrate, sharp blades act as probes and you have a few philters and potions, courtesy of a friendly alchemist. You are discovering the inherent properties of materials, allowing you to piece together sculptures, works and weapons that hold both art and Art simultaneously.

Equipment: You *admit* to owning little more than the shabby-peacock clothes you stand in. Your artistic materials lie scattered round your rented room. Much else of yours is at the pawnshop. In truth, you are a little more organized than you claim. Your cloak has a number of hidden pockets (good for embellishing casual workings), and both a fencing blade and a needle-pointed dagger hang at your waist.

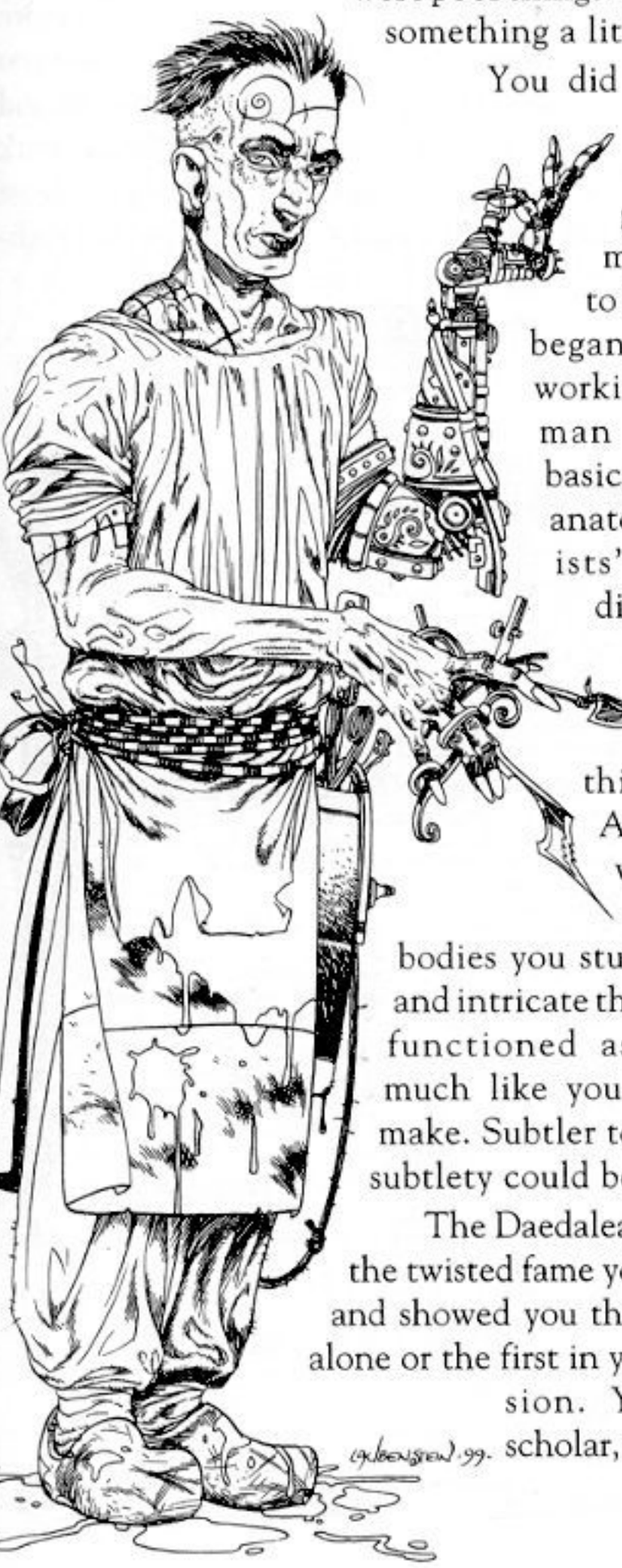
Body-Forger

I think that one cannot know anything certain respecting nature from any other quarter than from medicine; and that this knowledge is to be attained when one comprehends the whole subject of medicine properly, but not until then....

— Hippocrates, *On Ancient Medicine*

Quote: *Our bodies are machines. There is no miracle and no blasphemy in this: The truth is merely simpler than men wish to believe.*

Prelude: Once upon a time, you were no more than a humble woodworker — albeit a talented and thoughtful craftsman who had learned reading and numbers. Then, following a terrible battle fought not far from your home city, a barber-surgeon of your acquaintance approached you. He had saved the lives of several wounded soldiers, but at the cost of legs or arms in each case, and he felt that the peg-legs and hooks they had been given were poor things. Could you make something a little better?



You did your best and indeed the men were grateful; but more had surely to be possible. You began to study the workings of the human form, of the basics of surgery, of anatomy and of artists' texts that discussed the representation of such things. Your Awakening came with dazzling insight: The bodies you studied, wondrous and intricate though they were, functioned as mechanisms much like you yourself could make. Subtler to be sure — but subtlety could be learned.

The Daedaleans found you by the twisted fame you had acquired, and showed you that you were not alone or the first in your comprehension. You became a scholar, studying obscure lore that matched your concerns. You were set upon a wondrous path.

Concept: Now Enlightened, your determination is absolute and you have disregarded many pointless limits. Even certain eccentric old Hermetic texts have taught you something: You've learned to mark your flesh with symbols of power. One hubristic experiment almost destroyed you, and when you recovered from the corruption-induced fever, it cost you an arm — but even that could be turned to your advantage. You have seen that your miraculous art transcends the flesh — which is surely not blasphemy!

Roleplaying Hints: Once simply a perfectionist craftsman, you have become a fanatic, albeit with a mostly private set of goals. Still, you are prepared to use your genius for the good of the Order. It does not worry you that even other Artificers seem to flinch from you. You can show them the truth in all its glory.

Art: You are a polymath or perhaps a dilettante, merging techniques and ideas from a dozen sources into one wild and terribly vain art. Your scars and tattoos and the intricate internal mechanisms of your artificial arm focus many of your effects. Others involve simple alchemy or physic.

Equipment: Your artificial arm (made with the aid of more powerful fellow Artificers), a set of razor-edged knives, craftsman's clothes (some stained with blood), an assortment of potions and medicines.

The Artisans Handbook

Name:
Player:
Chronicle:

Nature: *Theorist*
Essence: *Susurro*
Demeanor: *Renunciate*

Concept: *Body-Forger*
Affiliation: *Artifices*
Cabal:

Attributes

Physical		Social		Mental	
Strength	●●●○○	Charisma	●○○○○	Perception	●●○○○
Dexterity	●●●○○	Manipulation *Impressive*	●●●●○	Intelligence *Creative*	●●●●○
Stamina *Tenacious*	●●●●○	Appearance	●○○○○	Wits	●●○○○

Abilities

Alertness	○○○○○	Animal Ken	○○○○○	Academics	●●○○○
Artist	●○○○○	Archery	○○○○○	Culture	○○○○○
Athletics	●○○○○	Crafts	●●●○○	Enigmas	○○○○○
Awareness	○○○○○	Etiquette	○○○○○	Investigation	○○○○○
Brawl	●●○○○	Leadership	○○○○○	Law	○○○○○
Dodge	●○○○○	Meditation	●○○○○	Linguistics	○○○○○
Expression	○○○○○	Melee	●○○○○	Lore	○○○○○
Instruction	○○○○○	Research	●○○○○	Medicine	●●●○○
Intimidation	●○○○○	Riding	○○○○○	Metaphysics	●●●○○
Larceny	○○○○○	Stealth	○○○○○	Occult	●○○○○
Subterfuge	○○○○○	Survival	○○○○○	Science *Anatomy*	●●●●○

Spheres

Connection	○○○○○	Life	●●●○○	Prime	●○○○○
Entropy	○○○○○	Matter	●○○○○	Spirit	○○○○○
Forces	○○○○○	Mind	●○○○○	Time	○○○○○

Advantages

Backgrounds

Arcane	●○○○○
Dreams	●●○○○
Library	●○○○○
Magickal Treasure	●●○○○
	○○○○○

Other Abilities

Invention	●●●○○
Torture	●○○○○
Poisons	●●○○○
	○○○○○
	○○○○○

Arete ● ● ● ○ ○ ○ ○ ○ ○ ○

Willpower ● ● ● ● ● ● ● ○ ○ ○ / □ □ □ □ □ □ □ □ □ □

Quintessence

Scourge

Health

Bruised	-0	□
Hurt	-1	□
Injured	-1	□
Wounded	-2	□
Mauled	-2	□
Crippled	-5	□
Incapacitated		□

Experience

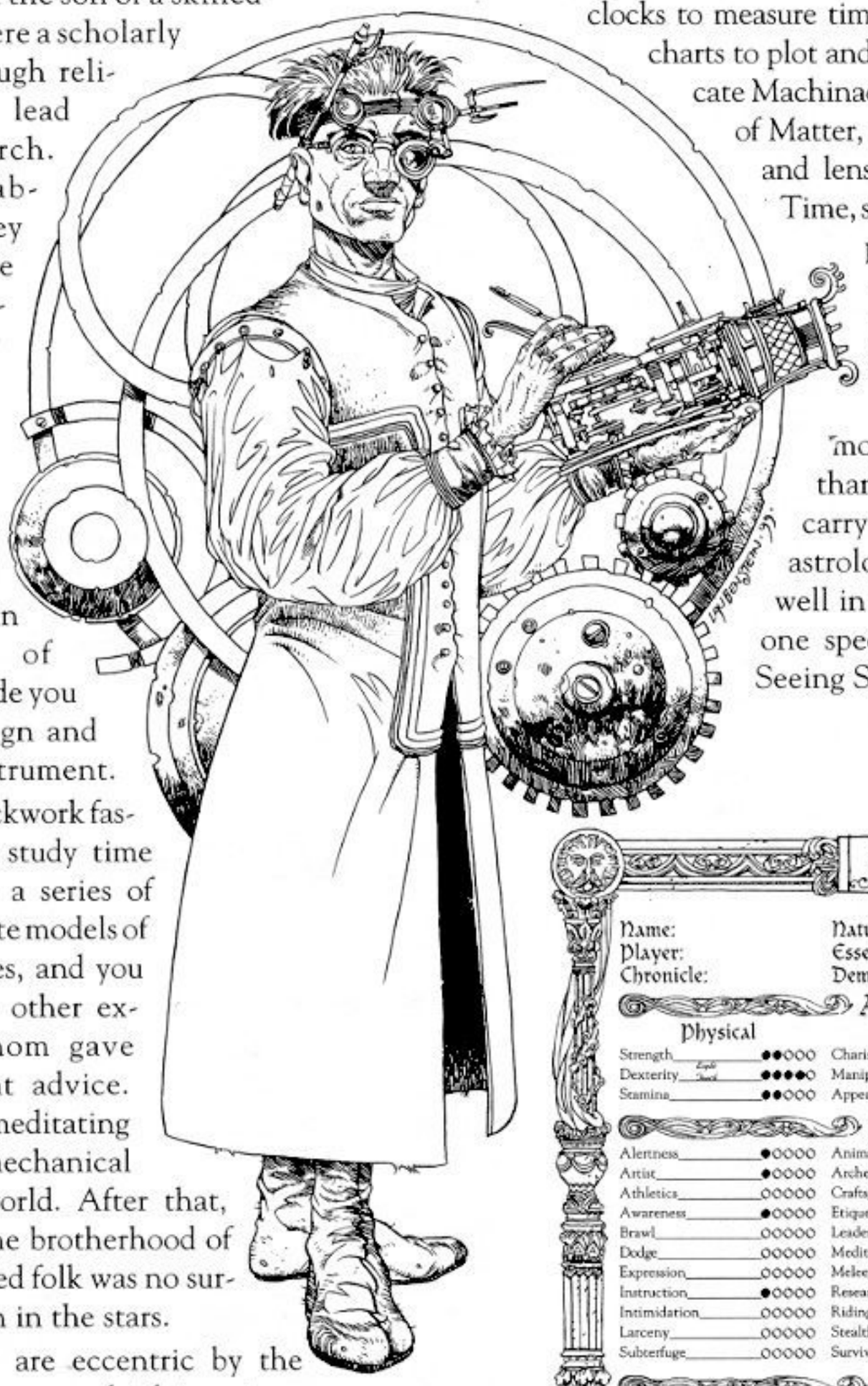
Clock-Maker

And if a line be divisible to infinity, it is not impossible for a space of time to be so divided.

— Leonardo da Vinci, *Notebooks*

Quote: *The question is not what is written, but how it is read — in terror or in awe.*

Prelude: Born the son of a skilled blacksmith, you were a scholarly boy with just enough religious devotion to lead you to the Church. Once well-established in an abbey library, you became fascinated by astronomy, astrology and mathematics. The abbey wanted a better clock to mark the times of services; your grasp of the logical principles and an old knowledge of metal-working made you the person to design and create this new instrument.



After that, clockwork fascinated you. Your study time was spent shaping a series of increasingly intricate models of the celestial spheres, and you corresponded with other experts, one of whom gave startlingly brilliant advice. You Awoke while meditating on the numerical, mechanical structure of the world. After that, learning more of the brotherhood of similarly enlightened folk was no surprise. It was written in the stars.

Concept: You are eccentric by the standards of your age; you think in minutes and seconds when most folk have trouble with anything less than a season. You insist that Creation is regular, structured and numerical (which sounds like gibberish to most). You build instruments to emulate and measure what you comprehend. You see no incompatibility between this and your vows; your God is the Great Clockmaker. Your abbot knows you as a master craftsman and permits — even encourages — you to travel between abbeys and cathedrals, employing your skill for the glory of God and His Church.

Roleplaying Hints: You are a practical sort of thinker who approaches life as something to be measured and weighed. Although you are rarely violent and have sworn monk's vows, you would rather see a problem solved than let it fester. Your grasp of past and future makes you more formidable than your monkish, scholarly air might suggest.

Art: Time is your affinity and your grasp of astrology makes past and future alike clear to you. You not only build clocks to measure time, you use models and astrological charts to plot and predict events. Your fine and delicate Machinae also demand an Enlightened grasp of Matter, working mostly with delicate tools and lenses. Fate and decay are related to Time, so you are also competent at probing, predicting and manipulating Entropy, while intuitions about the patterns of the world give you some competence in Connection.

Equipment: As a member of a monastic order, you *own* little more than the habit on your back — but you carry many intricate devices, tools and astrological references. Machinae work well in your hands and you carry at least one special device — perhaps a Truth-Seeing Stone (see page 89).

The Artisans Handbook

Name: | Player: | Chronicle:
Nature: *Architect* | Essence: *Castellum* | Demeanor: *Supplicant*
Concept: *Clock-Maker* | Affiliation: *Artificer* | Cabal:

Attributes

Physical		Social		Mental	
Strength	●●○○○	Charisma	●●○○○	Perception (*Insight*)	●●●●○
Dexterity (*Light Touch*)	●●●●○	Manipulation	●●○○○	Intelligence (*Precision*)	●●●●○
Stamina	●●○○○	Appearance	●●○○○	Wits	●●●○○

Abilities

Alertness	●○○○○	Animal Ken	○○○○○	Academics	●●○○○
Artist	●○○○○	Archery	○○○○○	Culture	●○○○○
Athletics	○○○○○	Crafts (*Clock-Making*)	●●●●○	Enigmas	●○○○○
Awareness	●○○○○	Etiquette	●○○○○	Investigation	○○○○○
Brawl	○○○○○	Leadership	○○○○○	Law	○○○○○
Dodge	○○○○○	Meditation	○○○○	Linguistics	●●○○○
Expression	○○○○○	Melee	○○○○○	Lore	○○○○○
Instruction	●○○○○	Research	●●●○○	Medicine	●○○○○
Intimidation	○○○○○	Riding	●○○○○	Metaphysics	●●●○○
Larceny	○○○○○	Stealth	○○○○○	Occult	○○○○○
Subterfuge	○○○○○	Survival	○○○○○	Science	●●●○○

Spheres

Connection	●○○○○	Life	○○○○○	Prime	○○○○○
Entropy	●●○○○	Matter	●○○○○	Spirit	○○○○○
Forces	○○○○○	Mind	○○○○○	Time	●●○○○

Advantages

Backgrounds

Domain	●●○○○
Influence	●○○○○
Library	●○○○○
Magickal Treasure	●○○○○
Resources	●○○○○

Other Abilities

Invention: Clockwork	●●●●○
Mast. Inv. Holy Order	○○○○○
	○○○○○
	○○○○○
	○○○○○

Arete ●●○○○○○○○○

Willpower ●●●●●○○○○○ / □□□□□□□□□□

Quintessence

Scourge

Health

Bruised	-0	□
Hurt	-1	□
Injured	-1	□
Wounded	-2	□
Mauled	-2	□
Crippled	-5	□
Incapacitated		□

Experience

Craftsman's Daughter

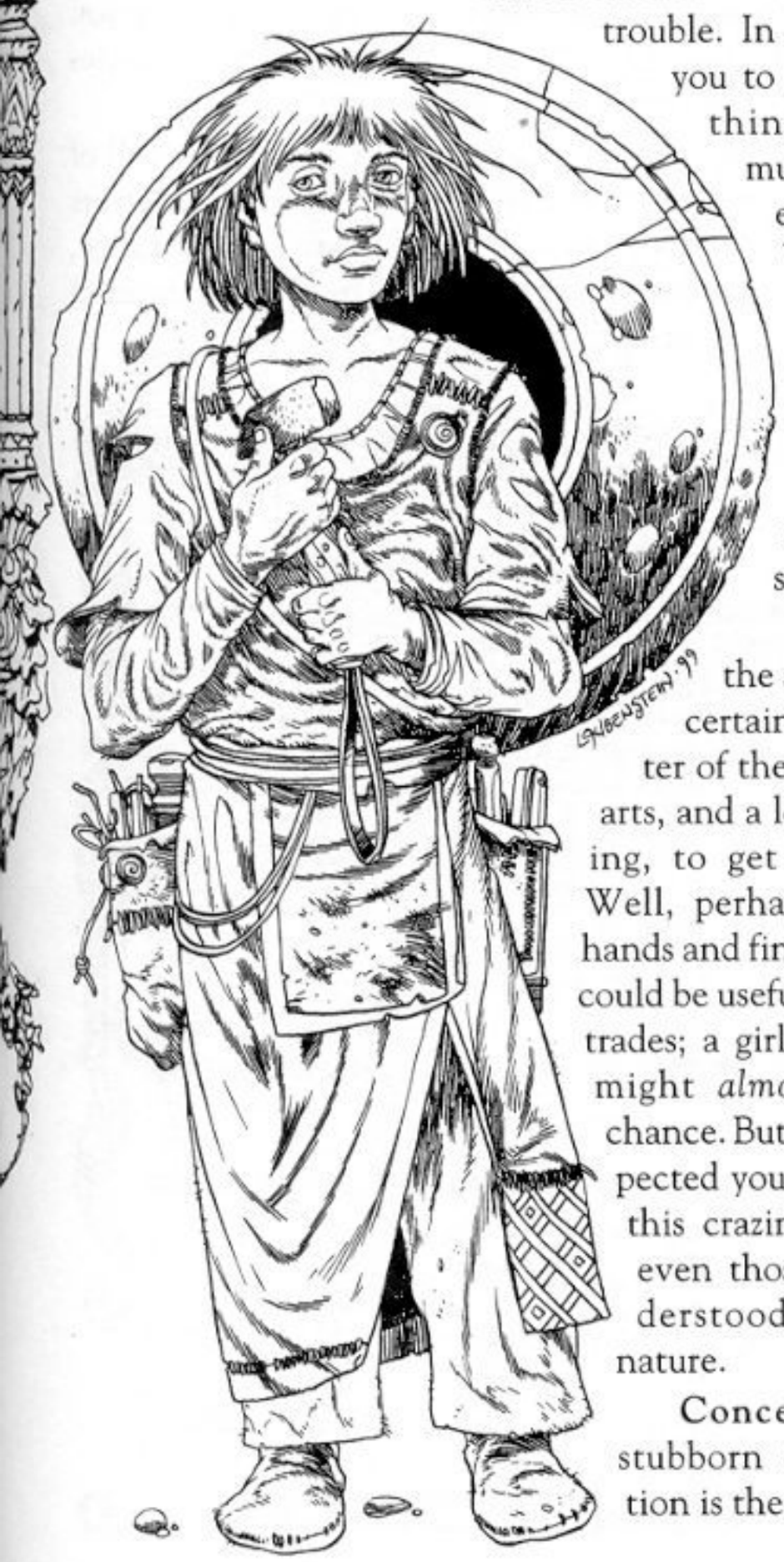
Children sweeten labors; but they make misfortunes more bitter. They increase the cares of life; but they mitigate the remembrance of death.

— Francis Bacon, *The Essays*

Quote: *Don't tell me that hammer is right for this task. It's heavy enough, but the shaft is askew!*

Prelude: No one called you a problem when you were a child. Your father, a mundane but talented craftsman, was happy when you came into his workshop and asked about his trade; perhaps it flattered him. Even when you persisted in asking questions as you approached a marrying age, your parents were not too concerned. A *wise* master-craftsman might well appreciate a young wife who understood something of his business, and perhaps could even help a little in the workshop in emergencies.

But when you realized that some of your father's friends and fellow-craftsmen were using arts beyond what might be called natural — that led to trouble. In fact, it led you to seek something pretty much unprecedented. Women were not permitted in most craft guilds, after all. It was scandalous.



It took the support of a certain secret master of the Daedalean arts, and a lot of shouting, to get your way. Well, perhaps delicate hands and fine judgment could be useful in certain trades; a girl-apprentice might *almost* have a chance. But few folk expected you to keep up this craziness — not even those who understood its true nature.

Concept: Sheer stubborn determination is the key to your history. That, combined with your potential, is what makes perceptive Daedaleans watch you with special interest. You try to maintain contacts in the mundane world — you do still love your family and wish them to think well of you — but the High Arts come first. Nothing must bar you from mastery.

Roleplaying Hints: Hard experience has shown you that you must work — and fight — for what you need. You remain quiet for much of the time, then erupt into angry outbursts when you hammer what is obvious into the thick skulls of others. You are sympathetic to those who have been persecuted, but impatient with laziness or self-pity. In short, you are not easy to like, but you are impossible to take lightly.

Art: You are still little more than an apprentice, but your power and potential is evident in the ease with which you perceive the functions of the art, and in your keen, uncomplicated eye for much that ordinary folk consider arcane. You study the Ars Praeclarus intensively, and use it conventionally through lenses and basic alchemical tests. Matter is your affinity.

Equipment: Plain craftsman garb (that sometimes gets you mistaken for a boy at first glance); a set of good tools, mostly of your own making; a keen-edged knife, worn hidden in case of emergencies; and a small item of jewelry of low monetary value but great sentimental importance.

The Artisans Handbook

Name:
Player:
Chronicle:

Nature: *Architect*
Essence: *Furo*
Demeanor: *Wait*

Concept: *Craftsman's Daughter*
Affiliation: *Artificer*
Cabal:

Attributes

Physical		Social		Mental	
Strength	●●○○○	Charisma	●●○○○	Perception *watchful*	●●●●○
Dexterity	●●●○○	Manipulation	●●○○○	Intelligence	●●○○○
Stamina	●●●○○	Appearance	●●○○○	Wits *sharp*	●●●●○

Abilities

Alertness	●●○○○	Animal Ken	○○○○○	Academics	●○○○○
Artist	○○○○○	Archery	○○○○○	Culture	○○○○○
Athletics	●○○○○	Crafts	●●●○○	Enigmas	○○○○○
Awareness	●●●○○	Etiquette	○○○○○	Investigation	●○○○○
Brawl	●○○○○	Leadership	○○○○○	Law	○○○○○
Dodge	●●●○○	Meditation	●○○○○	Linguistics	○○○○○
Expression	●○○○○	Melee	●○○○○	Lore	○○○○○
Instruction	○○○○○	Research	●●○○○	Medicine	○○○○○
Intimidation	○○○○○	Riding	○○○○○	Metaphysics	●●○○○
Larceny	○○○○○	Stealth	●●○○○	Occult	○○○○○
Subterfuge	○○○○○	Survival	○○○○○	Science	●●●○○

Spheres

Connection	●○○○○	Life	○○○○○	Prime	●○○○○
Entropy	●○○○○	Matter	●○○○○	Spirit	●○○○○
Forces	●○○○○	Mind	○○○○○	Time	○○○○○

Advantages

Backgrounds

Allies	●●●○○
Demense	●●●○○
Destiny	●●●○○
Mentor	●○○○○
	○○○○○

Other Abilities

Invention	●○○○○
Logic	●○○○○
	○○○○○
	○○○○○
	○○○○○

Arete ● ● ● ○ ○ ○ ○ ○ ○ ○

Willpower ● ● ● ● ● ● ● ● ● ○ / □ □ □ □ □ □ □ □ □ □

Quintessence

Scourge

Health

Bruised	-0	□
Hurt	-1	□
Injured	-1	□
Wounded	-2	□
Mauled	-2	□
Crippled	-5	□
Incapacitated		□

Experience

Geometrician

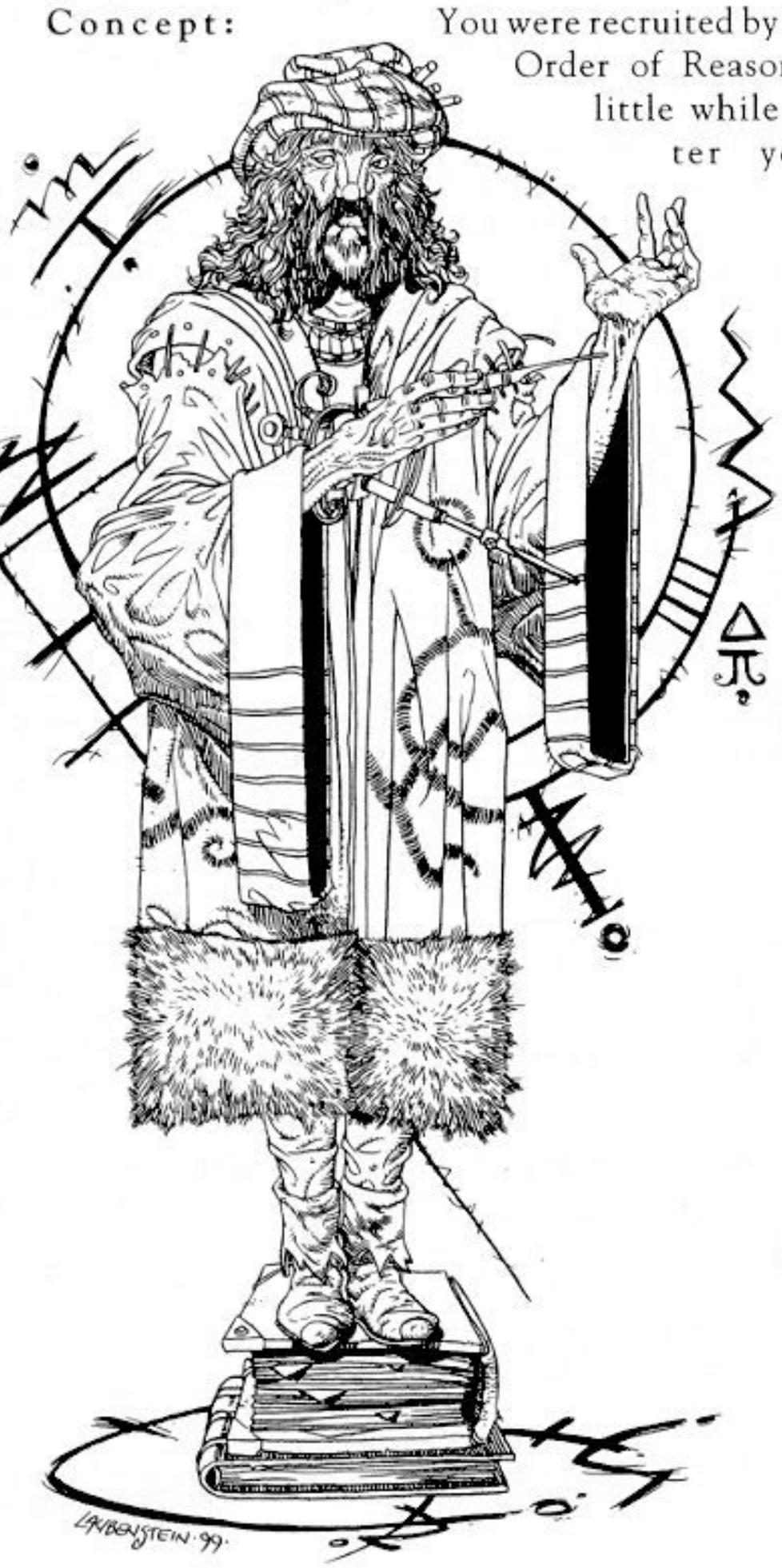
There is no certainty where one can neither apply any of the mathematical sciences nor any of those which are based upon the mathematical sciences.

— Leonardo da Vinci, *Notebooks*

Quote: *The spirit spoke of five gilded keys and three crimson torch-flames. Do you not find that significant?*

Prelude: A student at a great university, fascinated by ancient mysteries and complex mathematics, you left behind your fellow scholars in the wild pursuit of knowledge. Some whispered that the drawings on your slates were not geometrical figures, but pentagrams of summoning. At heart, you were not sure there was a difference. But mere drawings were not sufficient to create the effects that you sought. It was the peculiar blend of alchemy, craftsmanship and geometry described in that old obscure volume that brought you the startling truth.

Concept: You were recruited by the Order of Reason a little while after your Awakening (when already in possession of many strange theories). You were inducted and taught by others of a scholarly bent who believed that books were more important than personal instruction. Now you plow a lonely furrow, even by Awakened standards. Other Daedaleans think your ideas foolishly mystical and vague, while Sleepers see that your Machinae are wildly vain and ungodly. The Order might exclude you (or worse), except that your grasp of sacred geometry is vast and unique.



Roleplaying Hints: Like many students of the spiritual, you are strange and unworldly — but you are also an Artificer, given to analysis and determined to name and enumerate all that you find. Speak little and cryptically, but make sure that when you do speak your words carry uncanny weight.

Art: You apply sacred geometry more directly than do others, sculpting charms, symbols and even physical portals to other realms. When pressed, you scribe powerful designs in chalk on walls or floors — and they sometimes work. Your affinity is with Spirit workings. You also command the patterns of this world through your figures, giving you power over Connection. Your deep grasp of the mysteries makes you competent with Prime.

Equipment: Shabby academic robes; pockets full of chalk; a room somewhere filled with old books, letters from fellow theorists (not all Daedaleans) and strange, apparently pointless devices, warded from all manner of problems by esoteric symbols.

The Artisans Handbook™

Name:
Player:
Chronicle:

Nature: *Sage*
Essence: *Mare*
Demeanor: *Theorist*

Concept: *Geometrician*
Affiliation: *Craftsmen*
Cabal:

Attributes

Physical		Social		Mental	
Strength	●●○○○	Charisma	●●○○○	Perception (Intuition)	●●●●○
Dexterity	●●○○○	Manipulation (Supervision)	●●●●○	Intelligence (Insightful)	●●●●○
Stamina	●●○○○	Appearance	●●○○○	Wits	●●●○○

Abilities

Alertness	●●○○○	Animal Ken	○○○○○	Academics	●●●○○
Artist	●○○○○	Archery	○○○○○	Culture	○○○○○
Athletics	○○○○○	Crafts	●●●○○	Enigmas	●●○○○
Awareness	●●●○○	Etiquette	●○○○○	Investigation	○○○○○
Brawl	○○○○○	Leadership	○○○○○	Law	○○○○○
Dodge	○○○○○	Meditation	●●○○○	Linguistics	○○○○○
Expression	○○○○○	Melee	○○○○○	Lore	○○○○○
Instruction	○○○○○	Research	●●●○○	Medicine	○○○○○
Intimidation	●○○○○	Riding	○○○○○	Metaphysics (Sacred Geometry)	●●●●○
Larceny	○○○○○	Stealth	○○○○○	Occult	○○○○○
Subterfuge	○○○○○	Survival	○○○○○	Science	●●○○○

Spheres

Connection	●●○○○	Life	○○○○○	Prime	●○○○○
Entropy	○○○○○	Matter	○○○○○	Spirit	●●●○○
Forces	○○○○○	Mind	○○○○○	Time	○○○○○

Advantages

Backgrounds

Demesne	●●●○○
Library	●●●○○
Sanctum	●○○○○
	○○○○○
	○○○○○

Other Abilities

Cosmology	●●●○○
	○○○○○
	○○○○○
	○○○○○
	○○○○○

Arete ● ● ● ○ ○ ○ ○ ○ ○ ○

Willpower ● ● ● ● ● ○ ○ ○ ○ ○ — □ □ □ □ □ □ □ □ □ □

Quintessence ○○○○○○○○○○

Scourge

Health

Bruised	-0	□
Hurt	-1	□
Injured	-1	□
Wounded	-2	□
Mauled	-2	□
Crippled	-5	□
Incapacitated		□

Experience

Weapons-Crafter

Bring me my bow of burning gold!
Bring me my arrows of desire!
— William Blake, *Preface to Milton*

Quote: *The Hussites weren't the first Sleepers to use the carriage-gun. They were used in Nuremberg nearly a hundred years ago. Not a very good design, but workable.*

Prelude: Inveigling your way into a company of artillerymen in your early youth, you rose swiftly in the profession; enthusiasm and applied intelligence always prosper. Indeed, you found yourself impatient with most of your fellows. Could they not *see* the possibilities of their craft? They sometimes said that your ideas were dangerous (and it takes a lot to frighten an artilleryman), but that was foolishness. Much of what you suggested would actually *improve* safety.

It was a great relief to find work with a master-gunner who seemed more sympathetic to your ideas, and who showed you some secret lore that surprised even you. You applied yourself with redoubled enthusiasm and were soon welcomed across the forge.

Concept: While you are primarily a craftsman, you are also a soldier and your quest for underlying principles has led you to study all the tools of war. Indeed, while your greatest skill is with cannon, you now investigate the potential of smaller, portable weapons. Reason is a noble cause. While you have never felt it was a craftsman-soldier's place to concern himself with the subtleties of morality, you enjoy the sense of working for a good cause.

Roleplaying Hints: Even your friends might disbelieve it, but you are not a natural killer, or even especially violent. You merely act as though you were. You are *fascinated* by weapons and your enthusiasm encompasses both using and creating them. After all, there are plenty of circumstances in which force is necessary, so you might as well make sure that it's done *right*.

Other people are unlikely to regard you as evil once they know you, but they may consider you something of a bore. Still, you enjoy life's simple pleasures — although you may become almost as obsessive about the quality of good ale or the skills of a minstrel as you are about weapons.

Art: Your works are pragmatic in the extreme. Forces is the key and your affinity. Prime empowers it and Matter ensures that your materials are *correct*. You know one or two rote alchemical recipes, which act as your doorway to Prime; you may one day study formal alchemy to enhance this.

Equipment: You own an array of fine and exotic weapons and armor, including some exceptional Devices. Perhaps you have your own Titan's Armor, Horatius' Thunder or Helm of Heimdal. Your mundane possessions are rather plain, if well-made. Your tunic and cloak are fine for the guild-house, but won't do at all if you're invited to a grand party.

The Artisans Handbook

Name:
Player:
Chronicle:

Nature: *Theorist*
Essence: *Furo*
Demeanor: *Architect*

Concept: *Weapons-Crafter*
Affiliation: *Artificer*
Cabal:

Attributes

Physical		Social		Mental	
Strength	●●●○○	Charisma	●●○○○	Perception	●●○○○
Dexterity (Lightning Reflexes)	●●●●○	Manipulation	●●○○○	Intelligence (Tactical Knowledge)	●●●●○
Stamina	●●●○○	Appearance	●●○○○	Wits	●○○○○

Abilities

Alertness	○○○○○	Animal Ken	○○○○○	Academics	●●●○○
Artist	○○○○○	Archery	●○○○○	Culture	●○○○○
Athletics	○○○○○	Crafts	●●●○○	Enigmas	○○○○○
Awareness	○○○○○	Etiquette	○○○○○	Investigation	○○○○○
Brawl	○○○○○	Leadership	○○○○○	Law	○○○○○
Dodge	●●○○○	Meditation	○○○○○	Linguistics	●○○○○
Expression	○○○○○	Melee	●○○○○	Lore	○○○○○
Instruction	●○○○○	Research	●●○○○	Medicine	●○○○○
Intimidation	○○○○○	Riding	○○○○○	Metaphysics	○○○○○
Larceny	○○○○○	Stealth	○○○○○	Occult	○○○○○
Subterfuge	○○○○○	Survival	○○○○○	Science	●●●○○

Spheres

Connection	○○○○○	Life	○○○○○	Prime	●●○○○
Entropy	○○○○○	Matter	●○○○○	Spirit	○○○○○
Forces	●●●○○	Mind	○○○○○	Time	○○○○○

Advantages

Backgrounds

Arcane	●○○○○
Dreamin	●●○○○
Influence	●○○○○
Library	●●○○○
Magickal Treasure	●●●○○

Other Abilities

Invention	●●●○○
Logic	●○○○○
Artillerist: New Designs	●●●●○
Firearms	●●●○○
	○○○○○

Arete ● ● ● ○ ○ ○ ○ ○ ○ ○

Willpower ● ● ● ● ● ○ ○ ○ ○ ○

Quintessence ○○○○○○○○○○

Scourge

Health

Bruised	-0	☐
Hurt	-1	☐
Injured	-1	☐
Wounded	-2	☐
Mauled	-2	☐
Crippled	-5	☐
Incapacitated		☐

Experience

Masters and Inspirations

As has been noted before, Artificers see the history of their Convention in terms of great inventions and master-craftsmen. They also pride themselves on the ancient lineage of their craft, and some of the more scholarly of their number delve forever into old scrolls and tomes in pursuit of lost craft secrets. Because they value individual inspiration so highly, they have high regard for historical hero-figures. However, they generally try to remember that these folk were human beings, not gods; the fire of inspiration burns within rather than being a gift from above. The concept of an "oracle" is one they often distrust. The worthy master remains among his apprentices, teaching them rather than vanishing into transcendent obscurity.

The historical overview in Chapter Two describes some of the ancient figures whom Artificers revere. However, innovators are not sentimental. They hold that their greatest figures of the present age bear comparison with some of the past. The following may be counted among these contemporaries.

Filippo Brunelleschi (A.D. 1377-1446): An honored architect, secret representative of the High Artisans and dedicated "revolutionary of the mind," Brunelleschi is responsible for introducing a major new style of building to the Renaissance world. In the process, he slightly annoys some traditionalist Craftmasons who hold that architecture is their domain and who preserve a fondness for the old "Gothic" style.

Born in Florence, Brunelleschi was trained as a goldsmith and sculptor. (Goldsmiths are among the elite of Italian craftsmen, receiving a broad education in the arts and engineering.) Becoming a (mundane) master in 1401, he entered a contest to design the bronze doors for the Baptistery of Florence. Working on this design in competition with some of the finest artists of the age, he Awoke.

The contest was in fact won by another — Lorenzo Ghiberti. Brunelleschi feigned deep disappointment to cover the training he then undertook with the Daedaleans and his move to their great projects.

Brunelleschi first reintroduces the idea of perspective to the art of painting, making it a more powerful tool for extending status and influence over Enlightened artists. In 1420, he becomes chief engineer of the half-finished Florence Cathedral. He not only designs a dome for the building, the greatest of the age, but constructs new machines that allow it to be built without vast quantities of scaffolding. He also works on numerous other buildings and military defenses. Later Daedaleans credit him with turning the Sleepers of Italy firmly toward acceptance of the Humanist paradigm.

Adolpus Gent (A.D. 1370-1418?): Gent is an old enemy, not a hero, to most Artificers, but many secretly admire him a little. In fact, he is — or was — that authentic rarity, an independent master Artificer — or a renegade, depending on one's judgment.

Gent was born and brought up in Bavaria, where he trained as a blacksmith and helped in the construction of clocks for local monasteries. He then served as a smith-armorer in the ill-fated crusade against the Ottomans in Hungary, 1396. Disgusted by the aristocratic incompetence he saw there, he was recruited by the Craftmasons. They state that he was one of their valued but un-Enlightened brethren, and that he soon slipped away; it is not clear when he Awakened.

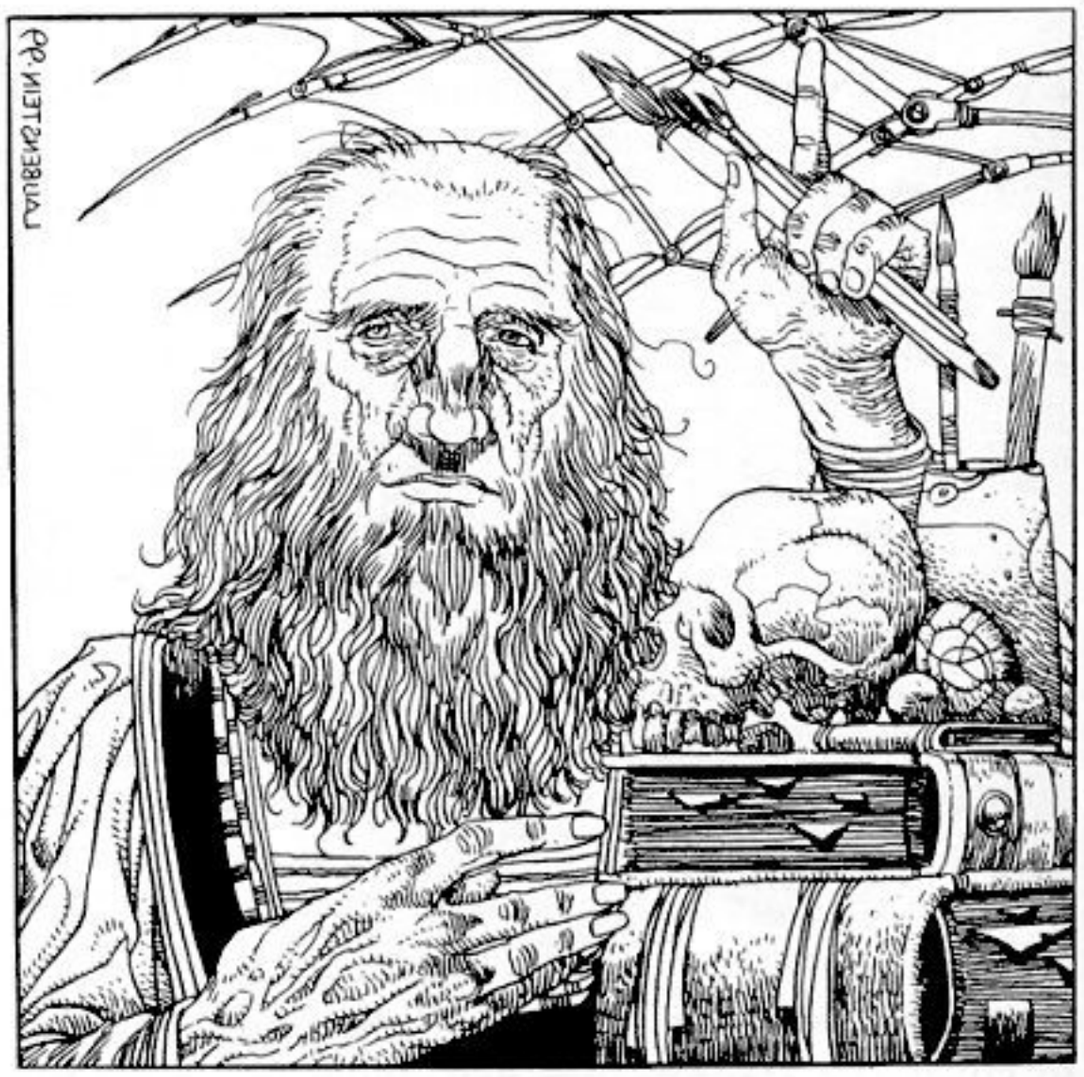
He reappears in 1410 as the maker of a series of increasingly exotic and powerful machines, all of which use advanced clockwork. Building his personal power before anyone can determine what best to do about him, he soon proclaims himself an independent local ruler, defying the "noble fools" and "prattling priests" of the age. The secular and papal powers respond predictably and eventually overwhelm Gent's mechanical armies by sheer weight of numbers, aided by a number of Daedaleans who claim to fear that he has aligned himself with doubtful powers (although there is never any firm evidence of this). Gent is supposedly killed when his personal "clockwork chariot" is destroyed by cannon fire, but details are uncertain. The Artificers salvage what they can of his machinery while other Daedaleans seek to confuse tales of the affair to avoid dangerous associations with their own mechanical creations. The cover-up is aided by the embarrassment of lords whom Gent and a few hundred irate peasants and clever smiths hold off for months.

Elena Anna Palomatheides, "Maxima Ariadne" (A.D. 1389-): Born and brought up in a merchant's family in Constantinople, Elena Palomatheides grew up a driven, scholarly woman who gradually discarded all mundane affectations and allegiances once she had become Enlightened.

She brings the High Artisans an extensive knowledge of ancient and modern scholarship from both the western and Islamic worlds (being fluent in Greek, Latin and Arabic). She also harbors an interest in small ingenious devices that owes most to the last tradition.

Traveling widely, she earns the respect of her colleagues through her exceptional skill with pneumatic and hydraulic devices. Although she works primarily on a small scale, her advice leads to many improvements in the designs of balloons and watercraft. She proves a mistress of Forces, Matter and Time. She also displays impressive political skills, which others credit to her "Byzantine" upbringing. These capabilities enable her to retain the office of Maxima in her Convention (and hence the official name of "Ariadne") for an unprecedentedly long time.

She is a dark, short, plain woman, charming when she wishes to be but more often displays a cool, focused will. She is sometimes accompanied by a large, unspeaking brass automaton, presumably of her own construction. She never discusses the device and no one has ever dared test its capabilities.



Leonardo da Vinci (A.D. 1452-1519): Future generations, even of Daedaleans, find it difficult to determine Leonardo's true historical role. Master Artificer? Inspired Sleeper, too unique to Awaken in any traditional way? Useful but eccentric channel used to insinuate Artificer ideas into the consensus once the true nature of the Scourge is understood? Those who may know are strangely evasive....

The mundane facts of his life are in a thousand books. Born illegitimate but not poor in Florence, he is apprenticed to an artist at 15, accepted in the Painters' Guild at 20 and moves to Milan (and begins studying mathematics) at 30. He remains there as a painter and occasional engineer and consulting architect for 17 years, although his masterpiece, a giant equestrian statue of Francesco Sforza, is left unfinished because of war. Then, after a couple of years back in Florence, he enters the service of the power-hungry Cesare Borgia for a year. After that, he continues moving among various Italian cities. He spends the last three years of his life as an honored servant of the King of France. The reason for some of his moves is unclear; Sleeper historians believe he may be homosexual and must move frequently or he may just be utterly restless. He is a uniquely brilliant painter, but not very productive, and his notebooks are full of extraordinary, beautiful sketches and casual observations on anything and everything, especially in relation to art.

The machines that he sketches — ornithopters, submarines, parachutes, horse-drawn "tanks" and many others — typify the High Artisan ideal, but are probably vastly vain (although some of the detailed mechanisms he sketches are highly practical and often innovative). If he builds many, if any, of these devices, it is in secret. To the Enlightened as to Sleepers, Leonardo is a unique enigma.

Roland Hoffmann (A.D. 1421-1472): A Magistrate of the High Artisans in northern Germany, Hoffmann began as a monk and a scholar. Finding the cloistered life too confining, he fled and eventually fell into mercenary service. However, he retained some intellectual interests and training and applied his intellect to the artillery.

Becoming Enlightened, he enters the Order of Reason and proves himself a competent Artificer, leader and organizer. He is a stocky, red-haired man who begins to turn gray at the temples while still young. His terse, military air disguises a restless curiosity.

At the Battle of Harz, the Order's last climactic struggle with the Infernalist Tezghul the Insane, Hoffmann not only commands the Artisan contingent, he personally supervises a battery of very powerful rapid-firing cannon. Tezghul, seeing his vilest allies ripped to shreds by these guns, desperately sends a screaming horde of followers against them. Surrounded when the fourth wave of assailants finally gets through, Hoffmann and his crews calmly detonate their entire powder-stores, leaving that entire flank of the field devoid of life (and undead).

King Sejong of Korea (A.D. 1397-1450): In a cold, barely known country on the far edge of the Eurasian land mass, beyond even far Cathay, a king has dreams that Daedalean travelers can respect. He may be Enlightened; he is certainly wise. He has banned Buddhist monks from his capital on the grounds that they have become corrupt (and thereby foil Akashic schemes). Sejong institutes a Confucian-style bureaucracy with entry by examination. His "Hall of Worthies" is a center of learning and he welcomes Chinese Artificers (who find their homeland a little less congenial in recent years) to his capital.

But Sejong is not in thrall to Chinese culture. Chinese writing is not appropriate to the Korean language, so he invents a new phonetic script: "Hangul." As the Koreans invented moveable-type printing centuries before, this script becomes a powerful tool. Sejong is also an astronomer and a patron of geographers and musicians.

Instruction the Fifth: The Craft Supreme

Though our smoke may hide the Heavens from your eyes,
It will vanish and the stars will shine again,
Because, for all our power and weight and size,
We are nothing more than children of your brain!
— Rudyard Kipling, *The Secret of the Machines*

The Army of Reason was camped before the Castle of Superstition. Its numbers would have seemed laughably small to any mundane captain. The Gabrielites stood, swords in hand, praying for flame to descend upon their enemies. Cosian physicians scurried about, preparing potions and poultices upon which the warriors of Pure Thought looked with unconcealed distrust. Amongst all this, the Artisans felt that they alone were actually being of immediate use as they aligned cannon and siege engines, brewed Greek Fire and sent volunteer observers aloft on great kites to assess the defenses. A clockwork war-machine sat at the back of the camp, tended by loving apprentices, awaited the moment when the walls were declared weak enough for direct assault.

But that moment looked to be some while away.

A horse rode into camp, challenged briefly by a dutiful sentry until its rider showed a badge and was scrutinized by a grizzled veteran who looked at everything through a polished crystal lens atop a silver staff. What he and the sentry both saw was a young woman, smudged by smoke and travel, clad as a messenger or suchlike in tough leathers and furs. She was wiry and whipcord-muscled. A small iron box was strapped firmly behind her saddle.

She asked directions of the sentry and followed them, riding a few hundred paces around the camp until she found the small party of Artificer-Mauls. There, she was hailed as an old ally by a dour swordsman. She dismounted to greet him; they clasped hands and then she turned back to her horse to gather up the box.

"It's a hard fight, this one," the swordsman said conversationally. "If the Masons hadn't thrown up wards and labyrinths, we'd all have been dead or stark mad by the end of the third night. Demon-winds send our missiles wide of the mark."

"I know," said Rosa, Artisan among High Artisans. "We have fought their band before."

"Ah," said the swordsman, "and do you have diamond knives for us this day?"

"No need for diamond," the woman replied, "for I have looked into the heart of such stones with lenses and strange fires. Even iron may be made hard as diamond, if it is transformed aright." And with that she turned and opened the box. The heavy, needle-sharp darts within caught the sparse sunlight and seemed to amplify it, to make it sparkle off faceted edges. "Silver is even better," Rosa declared. "These are merely examples. Give me a forge and three apprentices and there will be many more."

"And they will slay evil spirits?" the swordsman asked with cautious hope.

"Hurl them from your cannon and they will not be turned aside. They will cut through the wind itself and shatter witch-enchanted stone."

"An' this is your masterpiece?" the swordsman asked with his grim smile. "You can pay the price of that rank?"

"Such it is," Rosa the Artisan returned the smile exactly, "and that price I can pay. I have looked into the heart of silver and diamond."

The swordsman nodded and looked upon the woman. She looked back. "I think I see your thoughts, though that is not my Craft," she said. "You think that I have looked into my own heart and found that, too, hard as diamond, cold as silver."

"I would say no such thing to an old friend."

"No — well, as you will. I thank you for your courtesy. But in truth, my heart remains human, and mine own. But it, too, I may transform for a while if the need presses. I would not otherwise be fit for the rank that I intend to claim." And with that, the woman turned to seek the siege-guns to offer them the weapons she had forged.

The Needful Work

The whole purpose of Artificer characters is to create Devices. If such characters are to be played effectively, some thought and a few system mechanics must be applied to the process.

This chapter extends and complicates the brief rules given on page 257 of **Mage: The Sorcerers Crusade**. Such complications are always optional, of course; these rules should be treated as guidelines, not something carved in stone. Yet Storytellers should certainly pay a little attention to the subject.

Artificers make rich and complex characters, but some players may become rather *enthusiastic* about the raw firepower that they can wield. And if characters turn to Artificer Devices to resolve every problem they encounter, opportunities for roleplaying are diminished. Daedalean innovation is supposed to be hard work, literally character-forming; it should be a part of roleplaying, not a substitute.

Of course, if you as Storyteller come up with Devices for background characters to build or wield, feel free to treat these rules as the loosest of guidelines. If something is necessary for the plot, there is usually some way it *could* be built. However, try to play reasonably fair; if spectacular machines consistently appear in the hands of mere apprentices, players rightly become suspicious. If the players of Artificer characters feel that they are barred completely from accomplishments that their rivals and foes can manage, whatever their level of supposed accomplishment, players are likely to be dispirited and irritated.

Definitions

A number of terms with specific meanings are used in this chapter. Terminology is *not* a matter of such precision among Daedaleans themselves! Apart from the fact that members of the Order of Reason speak scores of different languages, each has his or her own history of education, attitude to the Craft, mundane habits of thought and personal foibles and eccentricities. Any Daedalean text written for widespread use should ideally commence with a set of definitions (but few do). Meetings of Enlightened craftsmen are full of crossed purposes. A consistent terminology is one of the most important ambitions of the Order's more clear-sighted Magistrates. Some century to come, it will happen.

The word *Device* is used in a very broad sense in this book, to encompass not only building-sized machines, but also buildings that use or embody a certain amount of ingenuity. Architecture and stonework are crafts on a par with smithying. After all, a 20th-century architect will call a house a "machine for living in." Some alchemical and medical preparations are also covered by the same rules.

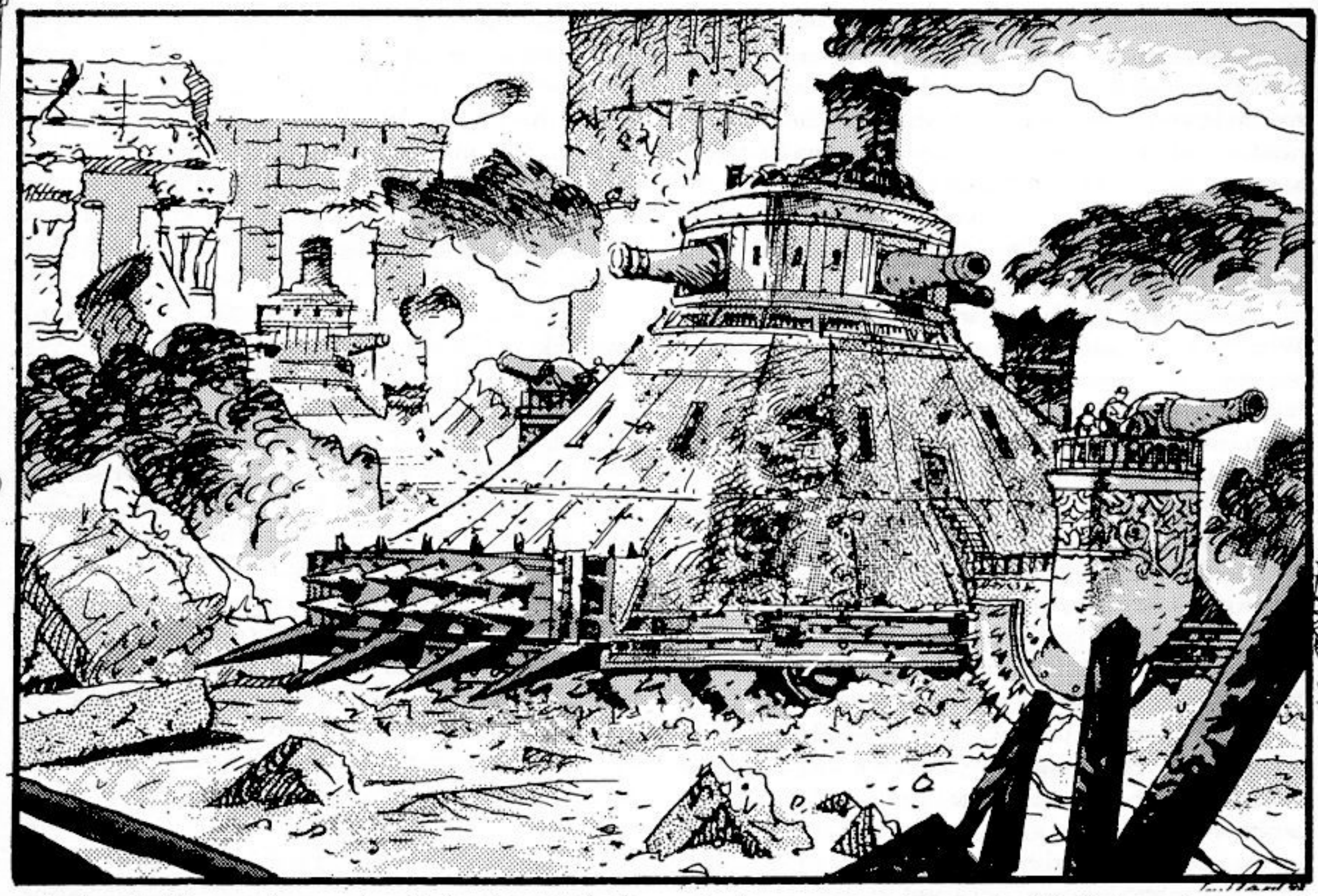
Mundane Devices are precisely that. Their designs are commonplace and their manufacture is perfectly possible without any trace of Enlightenment. Examples include spears, plows, standard crossbows, muzzle-loading cannon, matchlock arquebuses, simple weight-driven chiming clocks, wind- and water-mills, Gothic cathedrals and almost all musical instruments in existence apart from some demented organs.

Sometimes an Enlightened Artificer comes up with a device that does not already exist, but which uses an "obvious" principle or which combines two existing Devices, preferably completely visibly — a clock that is rewound by an attached water-mill, or a large cannon fitted with a matchlock mechanism and pull cord that enable it to be fired from a slightly safer distance. Some such ideas work, at least some of the time. Enlightened Artificers can be rather poor at assessing what is "obvious" to Sleepers.

Unusual Devices are the sorts of things that aren't seen very often, if at all, in Sleeper society, but which do not actually violate any Sleeper's sense of propriety. Once seen, they are generally accepted and tolerated (although curious Sleepers may persist in coming back for "another look"). Thus, these items tend to require an Enlightened imagination willing to transcend the tiresome limits of what has gone before for conception and initial design work. (Though not necessarily — Sleepers *are* capable of originality and ingenuity and Storytellers should *never* forget it, even if arrogant, snobbish characters might.) That done, though, Unusual Devices can be produced as easily as Mundane Devices, by competent, trained Sleeper craftsmen as well as by the Enlightened.

Examples in this category include the one-handed crossbows beloved by Craftmasons (which most soldiers would regard as too light for warfare and too expensive for street-fighting), repeating crossbows (although these have been known in China for many centuries), certain very crude diving suits, great domed buildings, armored chariots, simple hydraulic systems such as some of the coin-operated devices and "self-opening" doors built by Heron of Alexandria, and the more complex, highly accurate clocks that incorporate visible displays as well as bells. Wheel-lock firearms (see Chapter One) just slip into this category from the next. Unusual Devices are not usually susceptible to the Scourge, but are often highly, aggravatingly unreliable.

Extraordinary Devices are somewhere amidst the vanguard of 1450 technology, and are sometimes a century or two ahead. Although they do not actually violate high laws of nature as



understood by Sleepers, they can be mistaken for magick of a stunted sort if one does not pay attention. Examples include hot-air balloons, reliable breech-loading cannon, complex horse-propelled "tanks," spring-powered pocket timepieces, very simple steam engines, very intricate hydraulic and pneumatic devices and crude submarines.

To conceive such devices requires Enlightenment and a powerful imagination. Once a moderately detailed design exists and the principles have been demonstrated by large models, rigorous argument and perhaps by a first experimental construction, mundane craftsmen may take up the work. Such ingenuity oversteps the precipice of hubris, though. Extraordinary Devices *sometimes* bring down the Scourge upon those who employ them.

These inventions may seem a little pointless in many ways; they are almost as hard to make and unreliable to use as true Machinae, are rarely as effective and may bring on the Scourge. However, they have their compensations. Extraordinary Devices are easier to build than are Machinae, especially in large quantities, and are also easier to operate. Indeed, many can be passed on to un-Enlightened brethren. They certainly tend to be cheaper in monetary terms; Machinae demand the very best materials and sometimes impossibly obscure components, whereas Extraordinary Devices merely demand high-quality stuff.

Works of Art are an unusual case but nonetheless of some concern to High Artisans, who count painters, sculptors, musicians and a few poets among their number. The Order can be very good for an artist's name and finances.

Machinae are devices that definitely require an Enlightened hand and eye. They incorporate the applied Ars Praeclarus, usually in the form of sacred geometry, or perhaps involve an advanced but pragmatic form of alchemy or some other application of Elemental Correspondences. In system terms, a character owning one of these creations has the Magickal Treasure Background (whereas the preceding categories require only a plausible character story and perhaps the Resources Background to cover the cost).

Examples of Machinae include multi-barreled wheellock firearms that throw flaming bullets; heavier-than-air flying machines (such as ornithopters or "helicopters"); grossly strong and yet useable "Titan's Armor"; any craft that can pierce the clouds and travel to other worlds; clockwork "tanks"; any device or substance that influences the mind from a distance, promotes rapid healing or displays power over the spirit world; and useful, powerful steam engines. Virtually all such items are intrinsically vain, although their nature may be disguised for a while. Titan's Armor, for example, can pass for mundane plate to casual inspection. A subtly made gun might seem conventional — until the second shot.

However, not all Machinae need be strictly functional. Some of the most dazzling, enchanting and indeed Scourge-

calling creations are created for the sheer pleasure of creating. Some Machinae are wonderful toys. For example, tiny clockwork animals never fail to delight queens — miniature birds, worked in gold and set with jewels that cock their heads and whistle a tinny song or flap their wings fetchingly are truly prizes to be coveted and cherished. But let the builder beware: If a clock cannot be made according to common Sleeper knowledge, surely this miracle of craftsmanship cannot be possible either!

Operating Machinae requires more than simple drill. Whereas any oafish mercenary who's learned to use an arquebus can grasp the aiming of a wheel lock in a few minutes, a Machina is a delicate, intricate piece of inspired workmanship and science. It demands an understanding of the latter. In system terms, *at least* one dot in an appropriate Science Knowledge, or perhaps a couple in some related Craft are required. Use of Machinae — at least in an active way — also tends to demand Awakening or Awareness, which give a deep grasp of the subtleties of the business and perhaps a sense of the play of forces involved. However, because Machinae are machines before all else, they may *just* respond to the hand of a Sleeper. Sometimes.

Great Machinae are theoretically the largest of Machinae, but in practice — in game terms — they are more in the nature of plot devices. Players should be discouraged from asking for such things as permanent possessions for their characters, mostly because they are too powerful, but also because they would be rather cumbersome and ludicrous in use. Being vast in size and generally experimental in nature, Great Machinae cause massive damage when they function correctly and usually fail to function correctly or for long. Examples include most automatons (especially the giant clockwork contraptions described in **Crusade Lore**), galleon-sized flying ships and building-sized devices designed to exert power over entire countries.

(In late-20th-century terms, Great Machinae can be used in stories owing far more than is healthy to James Bond movies.)

The process of creation for each order of Device differs. Machinae must perforce be especially distinct. However, Enlightened Artificers regard all such works of the hands as essentially equivalent, and it is reasonable to view all within the same framework of ideas and system mechanics.

Quintessence, Fuel and Powder

Many devices require some source of power. This becomes a complex issue only in relation to Machinae. Such items are defined as having a certain amount of "Quintessence" in exactly the same way as other Magickal Treasures; a point or two is used up whenever the Device's capabilities are exercised. However, the nature of the Ars Praeclarus is such that this Quintessence often has an entirely tangible, even mundane-seeming form. It may represent or be represented by, say, a flask of fuel, a load of bullets or whatever.

In the case of a House Verditius mage imbuing an object with a particular virtue, the Quintessence may be completely invisible and intangible; Hermetics do not demand that all procedures be perfectly scientific according to the Daedalean concept of science. However, should a Hermetic Device require a tangible form of Quintessence or fuel, it is likely to take the form of traditional Vis-charged items such as powdered dragon scales, gold dust or a glyph of power engraved upon a silver bracelet.

Your game can seem a little odd if Machinae are treated exactly like fetishes or talismans. Most Quintessence reserves are replenished through use of a Prime 3 effect — an act of magick that pours the raw stuff of creation into the object. That's all well and good, but topping off a flask of oil hardly seems like an act of magick. Thus, for a greater sense of "realism" and detail, the Storyteller may define a different "replenishment process" for each Machina. This need not even require supernatural activity, but it should be at least a little special or dramatic. Characters could have to acquire a heavy barrel of Abundanti's Oil, haul it aboard their Skyrigger, lower it into the aft hold and siphon it carefully into a main tank (not a task to be undertaken in a storm or in battle). Or characters could spend hours in a laboratory, carefully balancing the resonant planetary influences in a complex alchemical compound, one distilled drop of which brings a certain crystal back to life.

For the sake of both drama and system balance, replenishment processes should certainly never be *too* mundane. Horatius' Thunder isn't simply reloaded with any old powder and lead shot; the powder must be of exceptional quality, else the residue clogs the complex mechanism, while the shot — iron balls impregnated with sulfur using a subtle chemical trick — must be made precisely to fit the weapon or it does not fire as well as it is able. Likewise, fuel for a Daedalean steam engine must burn hot, leaving negligible ash. Remember, these are wild implausible devices for their time, at the very least the Renaissance equivalents to Formula One racing cars, not sedans. A race car burns an expensive special formulation, not regular gasoline from the corner station.

Preparation of such fuel probably requires the skills of a character with good knowledge of alchemy or some advanced science. The Storyteller should decide what is required when the Machina is first introduced. It is likely that the builder has the necessary abilities, but it isn't guaranteed (Artisans often trade ideas and products). The task need not be trivial for even that maker, either.

Breaking from traditional power sources can represent a definite advantage for Machinae users. Their "fuel" is standardized, can usually be stored and lent to others at whim, and does not require any particular Sphere expertise. Call it one of the small benefits of being a Daedalean; the persistent vanity of Machinae and of many other uses of the Ars Praeclarus should more than compensate.

Extraordinary Devices and the Scourge

Extraordinary Devices teeter on the edge of magick. Although they may be used without Awakening, they do sometimes bring down the Scourge.

When they are used quietly, however, this is not a great risk. If the only witnesses to their employment are Awakened, or Sleepers who have some idea how these items might work (mostly meaning Daedalean brethren), they should suffer only ordinary failures. If Extraordinary Devices are used with hubris, however, and a botch is rolled, the operator may acquire a Scourge point. For example, a simple submarine or a horse-powered tank sent charging into battle, all weapons blazing, might suffer a temporary failure and suffer Scourging.

If such Devices are used in the presence of ordinary Sleepers, the risk grows. When an item is first seen, the player rolls Wits + Awareness or Wits + whatever Ability is used to operate the machine, difficulty 6. The operator gains a Scourge point unless three successes are obtained. On a botch, the Device suffers a catastrophic failure of some sort during the scene.

Sleepers who acquire Scourge points in this way should thereafter roll a Fortune Die whenever they use a complex mechanism or deal with any kind of supernatural phenomenon — until they roll a 1 or 10, at which point the effects are much like a mage's Scourging (often taking the form of spectacular mechanical failure or bizarre effect). Alternatively, the Storyteller may inflict such an event on the Sleepers (burning off their Scourge points) at what seems like an appropriate moment, preferably while they operate the same Device. If Sleepers toy with something beyond the natural, they may have to pay the price.

Movement Forms and Speeds

Devices built for personal transportation are particularly varied, especially with regard to the speed at which they travel. Again, the Storyteller must apply common sense and arbitrary authority here, but a few rules of thumb are provided.

The primary question concerns the form of propulsion. One may generally travel swiftly over short distances or at a more leisurely pace for much further. Vehicles that can travel in whatever direction the driver wishes, irrespective of the perversity of weather or of trained beasts. They are also far more vain than are more traditional forms of transport. The most common modes of locomotion are as follows:

Trained Animals can run in complex treadmill mechanisms to propel vehicles. Speed is limited to the animals' natural movement rate, assuming the animals perform as hoped; the Devices are usually so noisy and strange that they frighten beasts beyond usefulness.

The modern harness (claimed to be a Daedalean creation) permits fairly efficient use of carts and such, especially on reasonably flat ground. Horses walk at 10 yards per turn and gallop at about 35 — but only a flimsy lightweight chariot would approach that speed. Most mundane carts are pulled around at a slow walk. Cattle are harnessed for their brute strength, not for speed; ox-drawn vehicles remain at a walk. Other species are rarely found in harness (and very few can be domesticated usefully).

Oars and Treadmills are means of employing human muscle-power to good effect, usually on water. They range from the ancient (the oared boat) to the bizarre (treadmill paddle-boats, which actually rate as Mundane Devices in China). Oared ships cruise at a fairly stately pace, say seven to 15 yards per turn. A healthy crew can keep this up for hours. "Ramming sprints" at around twice this speed are possible for only brief bursts, but that can be enough in battle.

Sails give a ship wondrous speeds — if fate (or a phenomenally powerful magus) sends sympathetic winds. Modern rigging permits flexibility in the exploitation of conditions, but a dead calm is not to be argued with. Sail-powered land vehicles pass as mundane curiosities in most places, and are built for amusement in some, but they need flat terrain and are cumbersome on that. Daedalean war-balloons and the like also ride the winds, with far greater steering problems. Movement ranges up to 20 to 25 yards per turn; stronger winds wreck ships rather than aid them. (Of course, a day of good winds in the right direction means a ship maintains speed all day, without any man or beast becoming tired or fuel being burned.) Daedalean craft are built slightly better and skim a little swifter, but rarely surpass mundane craft by more than a yard or so per turn in any given conditions.

Advanced Skyriggers and such ride "aetheric winds" to the heavens. Their apparent speeds on long voyages are incalculable and are aided by arcane Arts of Connection, but that manner of travel is attained only in the Void. Below the clouds, a Skyrigger catches the wind like the sailing ship it resembles.

Gliders are aerial devices that float on the winds rather than rely on active propulsion. They use no fuel and verge on the casual, but are otherwise limited. They normally move at about 25 yards per turn and lose a yard of altitude every turn until they land; each *extra* yard of descent adds one to horizontal movement rate, but diving at more than 10 yards per turn is probably suicidal. Swooping climbs and ascending on breezes are left to the Storyteller to administer; they are possible but require some mixture of skill and luck.

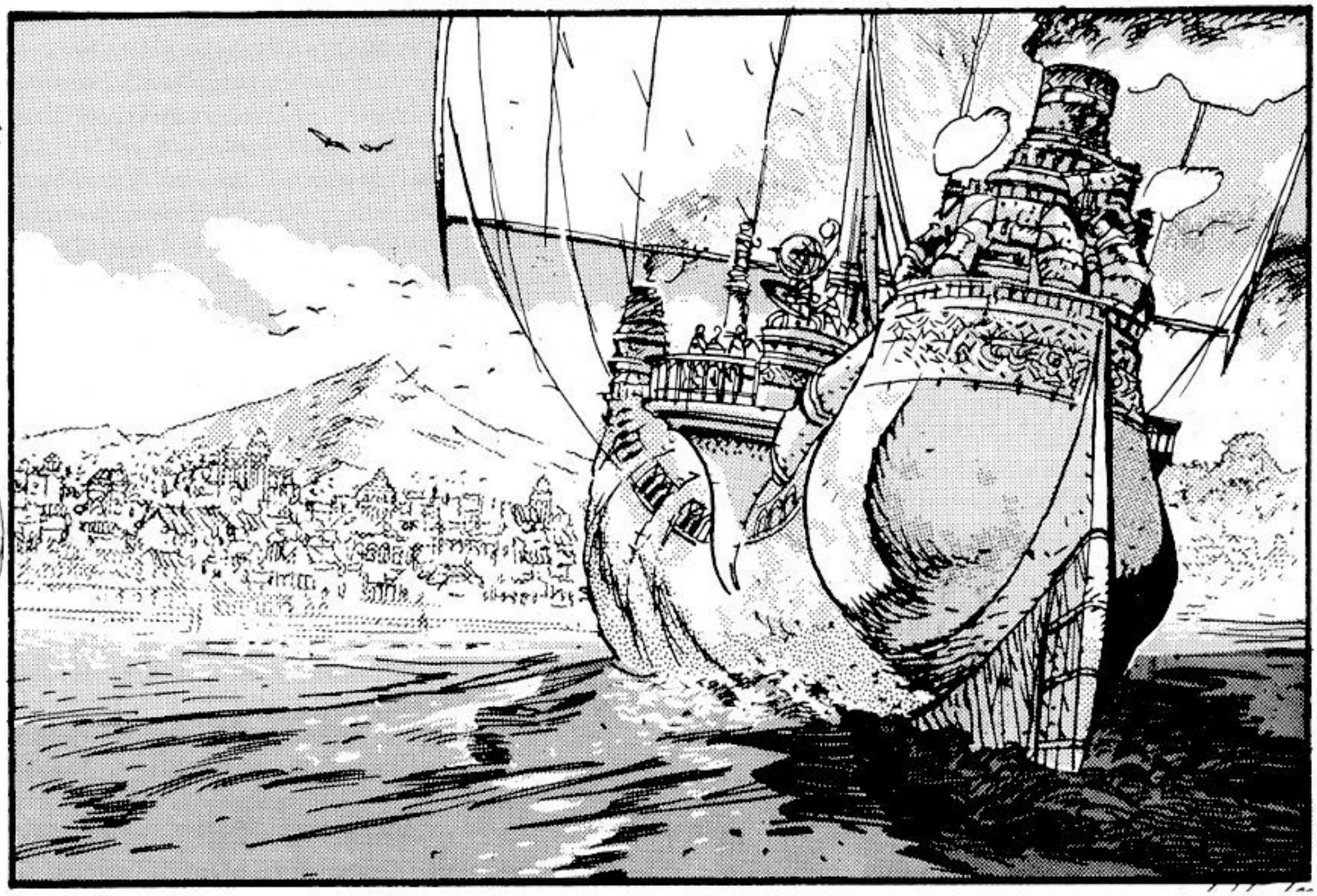
"Clockwork" vehicle mechanisms store propulsive force in great metal springs. The Ars Praeclarus is required to

produce a metal that serves this purpose and even then springs sometimes fail catastrophically, perhaps through the Scourge, bursting outward to shatter surrounding machinery and its operators. Few clockwork devices can operate for more than eight or 10 turns before they wind down. Their advantage is that they are fairly easy to recharge; a few burly brethren or a farmyard ox can have them running again in a few minutes. [In system terms, a clockwork mechanism does not generally employ Quintessence in any form for its routine operations.] Clockwork devices are swift while they do work. On land, some bizarre unreliable clockwork automata have achieved 25 or even 40 yards per turn, although decently armored "tanks" rarely exceed 10. Water-craft accomplish similar speeds (the swiftest usually being designed for one-time ramming assaults), while clockwork ornithopters and helicopters manage as much as 20 to 30 yards. Land-based designs built to work on flat ground are typically faster than large-wheeled or long-legged devices designed to deal with rough country.

Steam Power is a High Artisan creation drawing on the ideas of Heron of Alexandria, but extending them considerably to make them useful and efficient. Daedalean engines have great spherical copper boilers, whirling mechanisms that emit gouts of steam from odd points, and intricate linkages of belts and chains. They can run for hours, though only the largest carry enough fuel for a full day. Swift war-machines run for bare minutes on what is shoveled into their furnaces. Speeds on land range from 15 to 20 yards per turn for lightweight battle-designs, down to seven to 10 yards for long-distance steam carts. Steam boats tend to be steady and powerful rather than swift, achieving about 10 yards per turn. Steam engines usually prove too heavy for use in Artificer flying machines; those that fly under their own power can manage only eight to 12 yards per turn, and that for minutes at best. A few steam-powered balloons have achieved 15 yards per turn on calm days, with enough fuel for half a day's operation.

[Steam-powered Machinae may have Quintessence reserves to represent the high-grade coal that they burn. Most use about one point per hour, but vehicles built for speed use it at about two to five times this rate. A heavier-than-air machine is likely to use one point per minute.]

Oil Engines are exotic devices built by certain High Artisans to exploit the Craftmason invention of Abundanti's Oil. Complex and enigmatic contraptions exploiting Forces and Matter effects, alchemy and sacred geometry, these inventions defy the understanding of many Enlightened Artisans. They slightly exceed the movement rates of steam engines of comparable size, and markedly surpass them in endurance (thanks to their fuel). These advantages come at the expense of high running costs, fire risks and a great deal of tricky maintenance work. Oil engines may be the best option for swift, short-range ornithopters capable of matching the pace of a galloping horse.



[See page 287 of the main rulebook for Abundanti's Oil. Most small vehicles have a tank large enough to hold one barrel's worth, which lasts for perhaps a week of fairly continuous standard use. High-speed flying machines and large vehicles burn through the stuff much faster.]

Rockets are still generally seen more as weapons than as means of transportation, but some High Artisans, seeing the speed and power granted by gunpowder, cannot help but dream. In the air, a rocket might carry a foolhardy pilot at 50 yards per turn for a few moments. There are also some Artificer-built rocket-powered "chariots" capable of 40 yards per turn, but they're likely to crash catastrophically at the first bump. Rocket boats have achieved 30 yards per turn on calm water. A mechanism capable of turning rocket propulsion on and off requires considerable ingenuity and often fails.

[Rocket-propelled Machinae use a point of Quintessence every *turn*. Starting, stopping and steering are all likely to require an Arete roll, and when it is botched....]

Direct Use of Quintessence

A few types of Machinae — especially some older Craftmason creations — *do* use Quintessence "directly." This type of Machina tends to be the creation of Artificers who do not belong to one of the European Daedalean conventions. Both Hermetic inventors and eastern craftsmen have a stronger belief and faith in intangible, spiritual forces than do the Daedaleans, so neither finds the concept of invisible fuel improbable or Promethean. Examples include certain instruments that are constructed around exotic crystals or gems that have been stressed subtly and imbued with obscure energies. As these sources are used, the crystals deform, displaying internal flaws or simply cloud over as they are "polluted." The required Prime 3 recharging process in these cases takes the form of a purifying treatment or a nigh-ritualistic "re-attunement" (as an Artisan with a special awareness of the deep structure of the world works on a crystal, it grows clear). Then there are certain Daedalean attempts at perpetual-motion engines, which work by investing a complex substance into the motive process and then returning it to its original state in the last phase. Unfortunately, impurities creep in and the "virtue" of the empowering compound is lost. An alchemically based Prime 3 procedure serves to purify the compound, restoring its balance of essences.

The point about these "magical" devices is that the Prime working tends to be mediated through a physical element of the Machina, which must be subtly "re-empowered." Artificers tend to take a fundamentally materialistic approach to Prime.

Machinae without Quintessence

Some Machinae do not require any kind of "fuel" at all. These are listed with "N/A" for Quintessence in the Appendices. Such devices are usually "reactive" in function — they include armor and other protections, which simply block anything that strikes them. Some are instruments and aids to the senses.

Self-power may seem like an advantage for those who make and use such items. After all, they may aid the wielder countless times in an adventure, rather than merely once per Quintessence point. However, these devices tend to be intrinsically limited and passive; the effects balance out overall. It is up to the Storyteller to decide if a new Machina is "active" and dynamic enough to require Quintessence.

A very few devices may also require a high rating in some Sphere for a "passive" effect, which does not expend Quintessence, and a low rating in another Sphere, which does have a cost. The Quintessence reserve should be determined from the highest Sphere rating that *does* require energy, rather than from the device's full Arete. For example, a suit of armor built for a warrior who has to fight numerous Dream-speakers might incorporate a simple but powerful Spirit 4 effect — a complex set of engravings based on sacred geometry, with alchemical preparations "enameled" into the design. The spirit power makes the wearer immune to possession by minor spirits. The suit also contains a Forces 2 power that causes nearby torches to flare on command at the cost of a point of Quintessence. This is a "four-dot" Magickal Treasure, with Arete 4, but its Quintessence reserve is limited to 10, not 20.

Design

Of course, merely conceiving of a device, wondrous or mundane, does not bring it into being. In fact, most Craftmasons and many High Artisans hold that the hard, meticulous work demanded in their making is part of that which gives devices their virtue (in several senses). And because these are meticulous folk, the first stage of the process is to study or prepare the design.

Mundane Devices have familiar established formulae or methods of manufacture. These may be adapted or improved, but that in itself must be a methodical decision. At the other end of the scale, *all* Machinae involve detailed design work during creation, for they are the personal products of inspired craftsmen. Even relatively commonplace designs such as Horatius' Thunder is regarded primarily as an abstract concept, a good idea. An Artificer setting out to make such a weapon would sit down with what he knew of other versions and decide how *he* would set about the task.

(Partial exceptions in this category are some exotic alchemical formulae, such as that for Abundanti's Oil, which are fairly well-standardized "recipes." But even then, any alchemical expert setting up a new lab would put a subtle personal stamp on the required layout of vats and retorts.)

Although the design process may be formal, even ritualistic, it is also highly personal and not at all standardized. Renaissance craftsmen do not prepare blueprints, let alone hold them in filing cabinets for future reference; that development is part of the Industrial Revolution. Rather, they prepare

rough sketches (probably in charcoal on old scraps of parchment), make terse notes that anyone but themselves and perhaps their apprentices find nigh-impossible to understand, pore over old manuscripts and build partial models.

Research

"Designs" for Mundane Devices probably have no physical existence at all. Every blacksmith knows how to make a plowshare or an ax head. Why put anything down on parchment? A few crankish scholars may sketch these things, but that just shows how unworldly scholars are. In system terms, anyone with ratings in appropriate Crafts knows how to make these things (two dots means one is sure to know all the details). Anyone else has to ask or to work it out from first principles (requiring several successes on some kind of Intelligence-based roll, at the Storyteller's discretion). Pre-existing Unusual and Extraordinary Devices and Machinae *may* be described in Daedalean libraries. The Storyteller always has the right to say that a design is or is not available, and an Intelligence + Research roll may be required for the search. (If you want a totally random check, make such a roll with difficulty 9 for Machinae, 8 for other Devices; four successes result in a decent design, fewer turn up a few useful ideas in proportion to the successes made. (The Storyteller may still require a design to be produced from scratch, but permit research successes to be used to reduce the difficulty.) Each search takes half a day, no extended rolls are permitted and the number of attempts that may be made is equal to the library's rating as a Background.)

Works of Art cannot be researched in this way; they must be original by definition. However, browsing through a good library may turn up some interesting ideas or techniques. Take a day and roll Perception + Research, difficulty 7, if you don't mind producing something blatantly derivative and a little dull. The number of successes achieved is subtracted from the difficulty of one stage in the actual creation process, but the reduction can never be better than -3. Only one such search is permitted; two (as an extended roll) in a library with a Background value of 4 or more.

(All difficulties may be adjusted up or down by the Storyteller if the library is especially apt or inappropriate for the sort of task at hand. A Hermetic sorcerer's books are likely to be of little use to someone trying to create a helicopter, although they *might* contain some interesting observations on experiments concerning the Elemental Correspondences of Air, or a cynical note on the failures of some past magus of House Golo.)

Once a design is found, the Artificer must analyze and adapt it for her own use, taking (6 - Intelligence) days for Machinae, one day for other Devices. Roll Intelligence plus any one appropriate Craft or Science, difficulty 7. Three successes are required for Devices; three plus Background rating for Machinae. Multiple attempts may be made in extended rolls. (A botch means that the Artificer cannot make head nor tale of this crazed nonsense!) Adapting previous ideas is not necessary concerning Works of Art.

Size Matters

The maximum size of a Machina is dictated by its Background rating. A one-dot Machina is never more than a hand-held instrument, whereas two dots permits it to be human-sized (such as a full suit of armor). A three-dot Machina can be large enough to hold or carry two or three people — perhaps four at best; the size of a chariot or some such light vehicle. Four dots permits something the size of a large cart or a peasant's hovel, while five-dot Machinae can include full-sized ships and decent-sized buildings.

Optionally, the size of a Machina may be increased one level in this series by adding one Background point to its cost. Hence a chariot-sized vehicle that uses Forces 2 to fly while carrying a pilot and two passengers has a cost of five. However, each such increase adds two weeks to construction time, and every two increases adds one to the difficulty of the final Arete roll in the process. Also, at the Storyteller's option, large Machinae almost certainly burn through Quintessence (fuel) much faster than "normal."

Occasionally a Verditius mage comes across a device that has been used before — used to the point that it has been bled dry of all virtue. Because the object has already been specifically dedicated and given particular properties, it no longer accepts any attunement other than its original. If there is no one to explain the device and no written reference, the mage is faced with the challenge of discovering the item's precise attunement and function, and of recharging the device. **Assess Affinity** (see page 47) may be used to determine properties and affinities, but the mage must follow the same procedure outlined above for Artificers to ferret out the exact attunement.

Design Ab Initio

If useful research proves impossible or incomplete, the Artificer must sit down and compose a design for herself. This requires a day or two for simple works, up to a week for complex Extraordinary Devices. A Machina requires three times its Background rating in days. (Pure Works of Art disregard this stage, but the artist should probably pause for a few days and prepare some preliminary sketches, if only to show his patron.) At the end of the period, roll Intelligence + Invention, difficulty 6 for Mundane and Unusual Devices, 7 for most Extraordinary Devices and Machinae, or 8 for really bizarre concepts (including most Great Machinae). Five successes are usually required for Machinae, four for Extraordinary Devices and three for anything else. Repeated efforts may be made, treated as extended rolls, but a botch wastes all design efforts so far. (Leaving one's parchment covered in erroneous scrawls....) When Machinae are involved, the Storyteller can and usually should demand that the designer possesses some appropriate Science and may request a roll with that.

Once a design has been prepared, it may be used repeatedly by the creator, perhaps even by her apprentices (once they attain decent levels of skill) and others who work closely with her for years. The premise may also be explained to others who share the designer's language and assumptions, usually taking a few hours; roll Wits + Instruction if the Storyteller feels tiresome.

Determining Capacities

The Artisan having conceived and planned a work of creation, some further thought may be applied at the game level. It is all very well to say that the character may create a cannon, a clockwork telegraph system or a star-faring ship — but what damage can it inflict, how far can it transmit messages or at what speeds can it travel?

There are many concerns applicable to this determination and not all possibilities can be described here. The Storyteller's cautious good sense is always called upon. However, some generalities can be made.

The basic determinants in most cases are: What commonplace devices may accomplish, and what magick achieves. Thus, Mundane Devices and Machinae are actually the two simplest categories. Let us take a sadly popular idea: a personal firearm.

The system mechanics for such are given in **Mage: The Sorcerers Crusade**; difficulty from 6 to 8, damage from 5 to 8, and so on. A well-crafted weapon built by a Sleeper-court gunsmith probably doesn't surpass these capabilities. It is simply a little lighter, more reliable in the long term and finely decorated. A multi-barreled weapon built as a relatively simple Machinae, on the other hand, uses the magick rules: Roll Arete for its innate Forces/Prime effect, determine successes and calculate damage from that. A certain amount of juggling of numbers and interpolation is likely when Enlightened Artificers apply their ingenuity, but Storytellers are doubtless capable of that. These numbers define limits — say, two to nine levels of damage, after a roll.

Thus, a wheel lock (an Unusual Device) has characteristics similar to a matchlock, but fires a little faster and more accurately. A well-balanced, double-barreled wheel lock with simple sights might qualify as an Extraordinary Device, with slightly greater range and the option to fire a second shot (but beware the day when a spark from the first shot sets off the second). A heavy shoulder-braced weapon might be Unusual, depending on its other characteristics. But if that large weapon has a damage rating of more than nine or 10, it stresses the limits of what nature permits at this date — and its cumbersome design probably gives it poor accuracy (difficulty 8 or maybe even 9).

Similarly, mundane clocks are large, chime the hours and are accurate to a few minutes every day, while those Enlightened in the Sphere of Time can judge seconds with precision. A Daedalean-made clock might "chance" to be precise to within a minute a day. An Extraordinary ship, built by and for Void Seekers, might end each such day having gained a couple of miles on its mundane rivals. In the 20th century, a Morse Code operator is said to have sent 40 words in a minute, so that might be the limit for flickering Daedalean lamps and signal-flags (without vain use of Mind or Time Arts). Armor can exceed a protection rating of 6 (equal to expensive tournament plate) only through the Ars Praeclarus — and so on.

Materials

Artificer creations take the capabilities of the age's Enlightened science to its limits and hence demand the highest capabilities of their materials. Inventions are not quite as exotic as some more ostentatiously "magickal" devices (which forever require the scales of dragons, feathers of griffins, bark from unknown trees or gemstones from lost mines). But even so, an inspired designer sometimes conceives of a Machina that can be built *only* with materials that present a challenge to even Void Seekers.

By and large, however, materials need simply be very good — absolutely pure, perfectly tempered, cut with diamond and polished with silk. The Sphere of Matter can be a great help in such endeavors — but curiously enough, not for creation so much as for testing.

Given their long-established knowledge of practical alchemy and other such arts, Daedaleans *can* often create or transform base matter into something like what they need, but the results are rarely satisfactory. An Artificer may believe that some such transformation is permanent — and indeed, it may be under normal circumstances — but the conditions under which it is then used may be abnormal, rendering the material unreliable. Furthermore, transformations may have all manner of unknown side effects. As the Craftmasons often observe with dour satisfaction, laziness often leads to more trouble than it saves. Even use of Matter 3 shaping arts to facilitate work is often disdained; the Resonances created by such workings can play havoc with delicate preparations across the workshop.

However, simple Matter 1 Arts give Artificers many methods for examining the quality and nature of material, enabling them to determine whether it is indeed up to standard. A Daedalean workshop is full of strange crystals and phials of testing reagents, used delicately and deftly at each stage to ensure that the Work is sound and is not damaged by what is done to it. Craftmason building sites undergo similar effects achieved by careful testing of Resonances and intricate geometrical measurement.

Thus, making Machinae and other Devices often involves Matter, even if the functions of the finished item bear no obvious relation to that Sphere. This is not to say that those few Artificers who know nothing of Matter cannot make things, but their efforts perforce involve greater expense, additional mundane tests, false starts — and perhaps less reliability in the finished item.

The other Spheres sometimes employed in the selection and application of materials are Entropy and Prime. The former is useful most often in its simplest form, as an adjunct to Matter. It is also

called upon once an assemblage has progressed too far for simple examination by eye; Entropy can reveal weak points and instabilities (and unexpected strengths). When a particular item is to be reproduced many times, a perfectionist Artificer may actually build a Machina incorporating Matter 1 and Entropy 1 effects — a "testing frame" that ensures that each copy is built perfectly. Prime is used mostly when laziness or necessity causes an Artificer to resort to creative Arts in the course of manufacture. However, Prime 4 effects may be built into subtle but powerful Machinae, especially fortresses and portable defenses, which become *perfectly* robust when activated. Some Platonist Daedaleans also claim to use Prime to access the realm of pure form, providing perfect templates for their Work — but that is a controversial technique, subject to many accusations of pride and vanity.

Cannon and Damage

Daedaleans have access to at least one mundane tool that does far more damage than any but an archmage could inflict: artillery. If any Sleeper mercenary can inflict 10 or even 25 health levels with a lump of brass and some black powder — who needs spells? (A question that the Order of Reason intends to ask the whole world.)

Although the Ars Praeclarus may be employed to improve upon cannons, the engines are ultimately limited in scope. Use and study of cannons does little to advance knowledge in general; their sheer violence makes them useless tools for creating other Works. The Order of Reason deploys cannon that are better made and more precise than those of mundane armies, but Reason's aren't very different in *kind*. Marked improvement in artillery comes through a long, relatively dull process of experimentation and gradual enhancement.

That subtle improvement has its own appeal, though. Daedalean-made artillery rarely does more than a level or two additional damage over mundane artillery. However, application of the simplest knowledge of Matter and Entropy means that it is far less likely for an Artificer gun to misfire or burst (at least until enemy wizards have their say). Similarly, application of Connection Arts (in the form of the most practical aspect of sacred geometry) makes Daedalean gunners deadly in their aim (and for that matter, Craftmason knowledge of building means that they know exactly where to target attacks on fortresses). Forces can make a shot smooth and well-timed.

Such artillery improvements are mostly a matter of roleplaying and Storyteller judgment — refraining from inflicting the persistent accidents and supply problems that afflict mortal artillerists. Daedalean cannon usually count as Unusual Devices (for their perfection), Extraordinary at most (for small but sensible enhancements, giving a point or two of improvement here or there). They are rarely Machinae.

Manufacture

With designs complete and materials gathered, creation can begin. This is often a lengthy process that has at least the appearance of ritual. Fixed and scrupulous formulae usually ensure that a craftsman performs a task *exactly* the same way on each occasion; ritual maintains a sense of pride and mystery about important works.

The time taken for manufacture depends very much on the thing being made, of course, and is left to the Storyteller's judgment. Blacksmiths make or repair scores of horseshoes and can turn out arrowheads in even greater quantity — but a suit of plate mail requires days of work, careful fitting and the specialized knowledge of a master armorer rather than a common smith. Some projects — especially exotic ones — are joint efforts, requiring more than one Craft; a Daedalean war-balloon, for example, involves seamstresses, alchemists, wood-workers and fine metalwork — even before its guns are mounted.

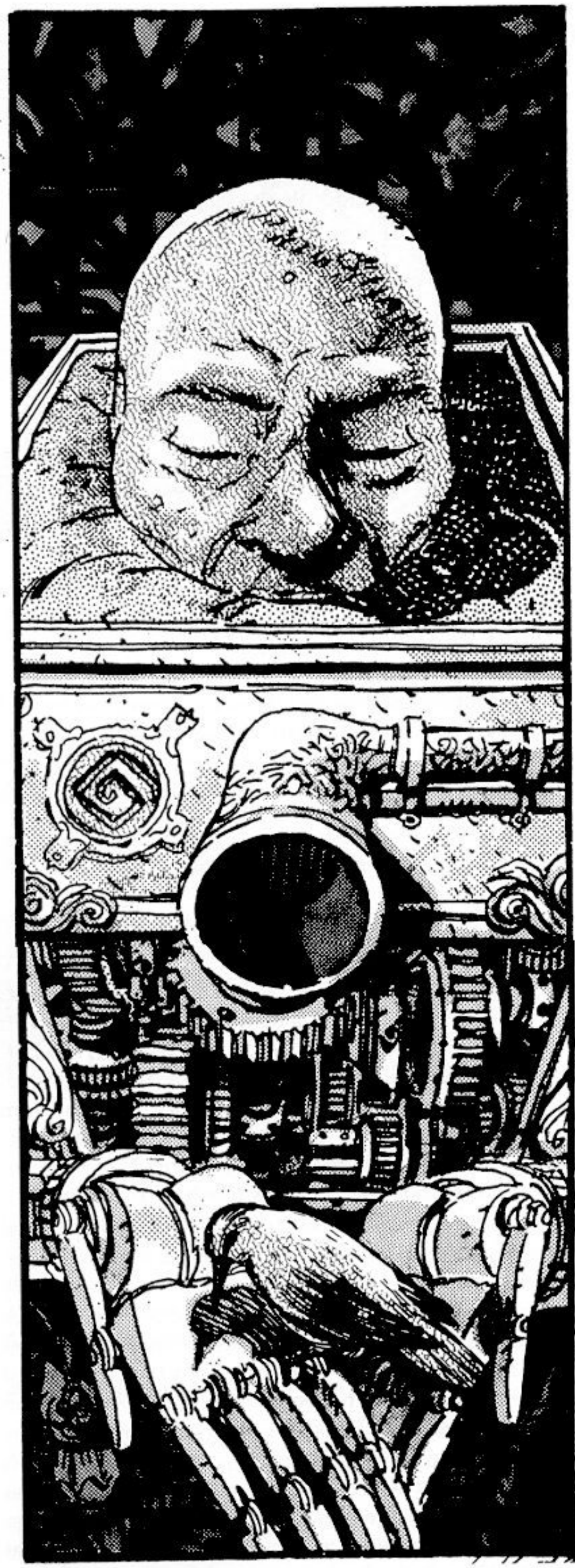
(Works of Art, incidentally, can involve anything from a few days — for a clever portrait sketch — to years, as with Leonardo's great unfinished equestrian sculpture.)

In game terms, routine work such as day-to-day smithying does not require die rolls (except perhaps once per game week for color, with a botch implying some small accident; multiple successes indicate a profitable week). Interesting work carries the implied risk of failure. Tests usually involve rolling Dexterity + Craft for relatively mundane pieces, Intelligence + Craft for more cerebral efforts, Perception + Artist for Works of Art, and Intelligence + Alchemy for the brewing of exotic potions.

Creating Machinae usually requires one month per dot in the Background rating of the intended product, with good or poor designs, materials and secondary talents raising or lowering that number (but hardly ever to less than three-quarters of the base). Double that time or more for Great Machinae. Creation time may be required to establish a consistent, continuous laboratory process with some relatively well-known alchemical formulations, such as Abundanti's Oil. The stuff may then flow out at the rate of, say, a barrel a week given a supply of the right ingredients. (Fortunately, Storytellers have many ways to control characters who acquire a productive lab; equipment can break, rivals can be jealous and laboratories can *always* burn.)

At the end of the creation period, roll the maker's Arete vs. difficulty 4 + the completed Machina's Background rating. Three successes are required (more for Great Machinae). So long as the roll is not botched, repeated rolls can be made weekly until enough successes are accumulated. ("It is nearly done, my lord, but the clockwork requires a little more tensioning....") A botch wrecks the work, often dramatically.

Building a Machina is usually treated as a vain work, but without witnesses; the Scourge *notices* the hubris of Daedalus. Be sure to call for a Fortune Die in the final Arete roll; Scourge effects



at this point can be interesting. They should not, for the most part, wreck the Machina (unless the Arete roll botches), but they may twist it, giving it all manner of unforeseen quirks. Unreliability, excessive noise in use, curious mystickal Resonances.... Boons are just as possible as flaws, too. A Machina might well emerge slightly better than expected. Clever engineers try to learn from lucky accidents. A few succeed.

Special Cases Automata, Machine Intelligence and "Senses"

Artificer devices — even Machinae — are essentially simple tools; extensions of the wielder's arm and intellect. They may permit the application of great force in arcane ways, they may behave in perverse and unpredictable fashions, but they do not make their own conscious decisions, despite what some brethren think.

This makes Devices rather different to, say, the fetishes wielded by many a shaman, which are empowered by the spirits they contain. Life for Artificers is usually simpler and sometimes more frustrating as a consequence. Tools do what they are built for and asked to do, not necessarily what is wanted. Even the most advanced vain automaton that seems to mimic life in every respect with its clockwork or pneumatic mechanisms is bound by the determinate nature of its construction. The creation follows a limited set of commands, not because it is subject to a Geas (like some bound spirits), but because that is all it is ever capable of.

One may deduce correctly from this that few if any Artificers have advanced to the limits of the Mind Sphere (Mind 5). Even those who have probably seem limited compared to the more supernaturally inclined masters of the Sphere. Explaining the existence of Mind in terms acceptable to the Ars Praeclarus tends to lead to a dualistic philosophy, placing the higher functions of Mind forever in the realm of mysteries.

(In truth, a few wild automaton builders wonder if machines can be made complex enough to defy prediction. Tales of Roger Bacon's "Brazen Head" seem to suggest that machines may acquire ideas other than those given them by their makers. But this is arrant nonsense to materialists and horrendous blasphemy to theologians.)

The question of how automata "sense" the world around them is one that many folk forget to ask — perhaps fortunately, as any 20th-century researcher of computer senses can attest.

Artificer Improvisation

Players brought up on comic books and bad television may argue that their characters should be able to modify machines in the midst of action, perhaps radically revising their functions. "After all, we unconsciously control reality, right? And if there's one bit of reality we know about, it's these gadgets! So — I'm turning my flame-thrower into a jet pack...."

Well, maybe.

Once in a while "gadgeteering" along these lines makes for an entertaining story or resolves a problem that would otherwise stymie the characters. However, any Daedalean device worthy of the name teeters on the brink of plausibility to begin with; revising its function is playing with fire, literally. The results are almost invariably vain and the Scourge is likely to come down with *interesting* effect, punishing the error of pride as well the sin of over-hasty engineering. And remember: The power of the Ars Praeclarus comes from recognizing, defining and working within the rules that govern the universe. Warping such rules is a denial of the whole point of an Artificer's existence.

But it's going to happen anyway, so let's talk systems.

A character who comes up with such an idea must have several dots in Crafts or Sciences appropriate to the proposed trick, else any ideas are vague. Take a turn or two to assess the possibility, then roll Wits + the *worst* of Invention or the relevant Craft or Science, difficulty 7. Four successes are probably about enough to come up with a way to accomplish most bright ideas. (No extended rolls or repeated attempts are permitted!) The character also needs tools appropriate to the task; the Storyteller can decide about that. The effort takes a number of turns equal to *at least* three times the modified Machina's Background rating. (A flat three turns is the minimum if it's a simple device — but then, it's unlikely to have the power to be worth modifying.) The Storyteller secretly rolls Dexterity + the most appropriate available Craft, difficulty 8. Five successes usually means a completely successful modification, three or four means something that sort of works, and a botch.... Well, use your imagination. The Storyteller *also* rolls Perception + the most appropriate available Science, difficulty 6, and decides *from that* what to tell the player about the relative success of the attempt.

Then the fun begins. Scourge effects resulting from jury-rigged equipment are especially colorful.

(Of course, one can simply use a Machina in inappropriate ways as the relevant tool for a vain working. That's probably slightly safer than modifying, but Storytellers are always entitled to pile on extra difficulty or Scourge effects if ideas get *too* silly.)

The answer is usually that automata use (rather mystickal) principles of correspondences. The typical High Artisan-designed automaton's "eye" consists of a set of tiny material "samples," tempered and attuned so that they respond to similar or "opposed" materials nearby with slight but definite physical actions. (A magnet's response to iron is the first and simplest such reaction that Artificers study.) Complex mechanisms detect and respond to this reaction. Thus, an automaton is unlikely to be, say, dazzled by bright light (although anything is possible), but an alchemist with *detailed* knowledge of an automaton's design might come up with all manner of innocuous-seeming compounds that could blind or "befuddle" it.

In system terms, building an automaton capable of even the most limited actions requires that it be granted a number of distinct effects. A Matter 1 working is needed to grant it the ability to respond to its surroundings. Forces 1 is needed if it is to "hear." A Mind 3/Prime 2 effect is needed for even the basic semblance of reactive thought, shaping the automaton's "brain" to follow subtle patterns modeled on thought, and then setting a flow of Quintessence to render the shadows of intellect permanent. A few automatons may have personalities of a sort, granted through true Mind 5 workings, but these should always be wonders and mysteries.

(Some Artificers with a special interest in Mind claim that it would be possible to build an automaton whose mechanism Resonated with the intellect of a specific individual. This would imply a Mind 4 effect whereby the "operator" leaves her inert body to use the automaton's powers instead. An interesting concept....)

Spirits

One way to produce a "Magickal Treasure" with its own intellect (the classic shamanic approach) is to awaken or implant a spirit within it. Although Daedalean Artificers do not deny the existence of spirits — a few hold that such entities have a special relationship with Devices, from inspirational muses and angels to beings called into existence by the power of invention — they are not much given to working with them. Yet every rule has exceptions.

There are a few dark tales of renegades offering immaterial demons or Umbrood use of automatons as material bodies, granting them power in the real world. There are clearly magicks that would permit this, in obscene defiance of the high ethic of the Ars Praeclarus. More tolerable theories hold that spirits might be "awoken" from potentiality by an Artificer of sufficient wisdom. This notion is sometimes put forward as an explanation of Roger Bacon's legendary Brazen Head. (The swift self-destruction of that device may show how vain such ideas are.) Some academic High Artisans further say that Hebrew lore concerning the creation and animation of golems may not be incompatible with the Ars Praeclarus, and might even provide a bridge between that and the powers of Spirit.

Appendices

Appendix 1: Exemplars

There may be made instruments of navigation without men to row in them, as huge ships to brook the sea only with one man to steer them, which shall sail far more swiftly than if they were full of men. And chariots that shall move with an unspeakable force without any living creatures to stir them... yea instruments by which to fly...

— Roger Bacon

The creations of Daedalean Artificers can be divided into a number of categories. Those presented here would be disputed bitterly by Artificers of different cultures and schools of thought, but they serve. Obviously, the instances given for each are merely examples; the burning creativity of High Artisans ensures that the full list grows every day.

Alchemical Formulae

Although many Artificers prefer solid metal and physical force to the subtleties of the alchemical arts (which retain the disquieting tang of mysticism imparted by the Solificati), most pride themselves on their pragmatic adaptability. Some innovators even make detailed study of such topics. Pure metals of perfect strength or fuels that burn almost without being consumed are too useful to spurn. Abundanti's Oil (see **Mage: The Sorcerers Crusade**, page 287) is the most widespread Daedalean alchemical formulation, but there are others.

(In fact, the incendiaries detailed in **Crusade Lore** probably constitute the greatest practical advantage granted the Order of Reason by its alchemists — but they represent the alchemical equivalent of Unusual or Extraordinary Devices at most.)

•• The Bond of Ibn Daud

Arete 2, Quintessence 10, Cost 4

With some of their more experimental Devices involving truly bizarre combinations of delicate materials, High Artisans must sometimes use fastenings more refined than nails or chains. Glues made of boiled-down bones are good enough for mundane purposes, but when the joint must be truly perfect, an alchemical formulation that actually transforms and interlinks the material structure of the two parts seems appropriate. Finding other more whimsical uses for this bond is left to individual Daedaleans.

[This is basically a Matter 2 effect; an additional Life 2 component enables it to work on living materials. Each point of Quintessence rendered to this "essence of adhesion" produces a drop of liquid that instantly joins up to a square foot of any two solid surfaces, creating a bond as strong as the weaker of the two materials. The bond can be released only by various moderately tricky Matter 2 effects (or by crude cutting). Glues

are a casual enough idea — this one merely seems very good. Any occasional Scourge effects associated with this substance strike the character who applies it and may take the form of accidents or odd side effects with the chemical itself.]

The substance is carried in crystal flasks. It dries out slowly if spread thin, taking about an hour to lose its effectiveness. However, it takes effect immediately if a second solid surface comes into contact in this time. This drying time permits the substance to be used for tricks and traps, but it is an odd dark green color and has a slight but strange odor, so victims usually have to be tricked rather cleverly.

•• Vap'rous Candles of Lethe

Arete 2, Quintessence 10, Cost 4

Craftmasons are not as crass and blundering a crew as some would claim; subterfuge has its place in their schemes. Finding that certain sleep-inducing formulations release their virtue when burned or heated, Masons swiftly conceived a use for the effect. About a minute after being lit, these candles release an invisible vapor with a very slight spicy scent. The effect induces deep but natural sleep.

"Sleep-inducing vapors" are recognized widely enough that these candles are generally treated as casual; Scourge effects are almost unknown, save in the slightly tricky manufacturing process.

[The candle works only in enclosed spaces no larger than a good-sized private room. Multiple candles can flood a hall with vapors, but a well-ventilated area prevents anything more than partial effects, if that. Victims have a chance to notice the scent — roll two successes with Perception, difficulty 8 — but may or may not realize what effect it has on them (Storyteller's option). That effect is a simple combination of Mind 2 and Entropy 2, causing a victim's thoughts to decay toward a simple desire and inclination for sleep, usually succumbing Stamina + 1 turns after exposure to the vapors. Characters within two turns of dozing off are too sleepy to respond to the fact that others have already done so. This sleep is perfectly natural-seeming, and victims can be woken in conventional ways, such as by a little shaking. Those not otherwise in need of a regular night's sleep doze for about 6 - Stamina hours.]

••• Lethe's Spheres

Arete 3, Quintessence 10, Cost 4

It didn't take long for someone to point out that the Vap'rous Candles of Lethe were all very well, but only when the user knew where people were going to be. What about something similar, but that could be thrown much like Greek Fire? An ingenious alchemist and glassblower from India had the perfect answer: orange-sized glass spheres filled with the same sort of vaporous concoction. These are considerably more obtrusive than candles, as the glass must be shattered to release the vapors, but a cunning character can likely manage to use them quietly.

[The vapors work exactly like Vap'rous Candles; the difference is the vector for the fumes. Each sphere holds about as much as a candle would give off. If a character wants to immobilize an entire hall, she must find a way to open multiple spheres.]

Weapons of War

The obvious way to use the Ars Praeclarus in the creation of weapons and armor is in Forces effects, with Prime added as necessary. However, there are many other options and the needs of the combatant guilds (and of many folk in other Conventions) ensure that Enlightened armorers remain busy. Matter workings are often involved in crafting, if not in a finished item's overt powers; military gear is best made strong.

The two instances of weapon-Machinae in **Mage: The Sorcerers Crusade** (page 287) both need some comment:

First, the cost and creation of *Titan's Armor* is an example of some interest. The strength of refined "dragon's egg" comes from a Matter 2 effect, refining what are by some standards "natural" metals to the limits of their potential strength and usefulness. This is generally a passive effect, but the secondary awe-inspiring effect of the fine and impressive suit sometimes requires testing in system terms (yet the metal's strength may be assailed by other magicks). The Arete of this two-dot Magickal Treasure is therefore raised to 4, for a total cost of 6. Many other defensive creations may be built along similar lines. Scourge effects tend to be limited to the manufacturing processes and to Pride or Vanity Scourgings associated with the intimidating look of the suit.

Second, *Horatius' Thunder* has an incorrectly calculated cost. Its enhanced Quintessence brings its actual cost up to 8.

•• Serpent Blade

Arete 2, Quintessence N/A, Cost 4

Named because it strikes swiftly, quietly and lethally, this weapon might seem mundane at first (its use should be considered casual unless witnesses are expert smiths or weapons masters). The Serpent Blade is in fact *merely* a nigh-perfect sword for use with the still-obscure art of fencing, forged from some of the finest steel known to Artisans. There is a little dragon's egg ore in the alloy and also a touch of "perfected lead," making the blade dark and less prone to ringing. Apart from being virtually unbreakable, the Serpent Blade can actually cut through hostile Matter or Forces magicks. [Roll Dexterity + Fencing, difficulty 7, to intercept such assaults. On any successes, the user gains use of Countermagick based on the blade's Arete or can add a die to her own Countermagick.] A Forces 2 effect prevents the blade from glinting when it catches the light or making overmuch sound when drawn or used, if the wielder prefers to remain unobserved.

••• The Purifier's Needles

Arete 3, Quintessence 15, Cost 6

Named with a certain amount of irony, these slender metal darts are the creation of a rising young High Artisan with an interest in the fine qualities of metal. Unfortunately, the alloy of which they are made is mostly silver, which makes them expensive — but they are considered invaluable.

Each has a needle-sharp point and is finely balanced, but that is not their primary value. Silver is famously sovereign against all manner of spirits and bogeys and the "needles" exploit of this weakness. The points are also prepared and actually faceted using subtleties of sacred geometry. They can cut through all manner of magickal defenses as a result.

These darts may be recovered after use and eventually reused. However, if they strike metal or stone or fail to penetrate some powerful magick, they have to be re-forged.

[A needle can be hand-hurled much like a spear, but for only Strength +1 damage and with +1 difficulty. They may also be fired from a heavy crossbow, pot-de-fer, small cannon or bolt-throwing ballista. In each case they do normal damage for the weapon, with a maximum of 8. (When fired from larger weapons, needles must be wrapped in wadding or mounted on a wooden carrier.) They are made to penetrate the subtle defenses often thrown up by users of Forces or Spirit magick. The damage they do is augmented by an Entropy effect. Roll their Arete as Countermagick versus any Spirit or Forces spell intended to deflect them from their flight, and reduce the protection or armor value of any stone, metal or magickally enhanced material by two. Needles do not eliminate the spells they overcome — merely punch straight through them. The weapons are generally casual in use because they simply appear to be fine-quality missiles.]

••• Hail of Division

Arete 3, Quintessence 15, Cost 6

This five-barreled firearm resembles a smaller, lighter copy of *Horatius' Thunder*, which is not entirely misleading. Being made light enough to use one-handed at a pinch, its simple lead bullets are rather small. Indeed, an ordinary single-shot firearm usually does more damage than this weapon's Forces 3/ Prime 2 attack. However, the firearm is less expensive than Horatius' Thunder and its superior range and multiple shots still make many Daedaleans prefer it to conventional firearms. As with Horatius' Thunder, this weapon's Quintessence actually represents a batch of ammunition. Its unlikely rapidity of fire makes it vain.

With a further enhancement, the weapon can have a basic *Truth-Seeing Stone* (see below), attuned to the Sphere of Entropy, affixed to its upper section by way of an aiming sight. If the wielder takes a turn to aim and the target has a significant weakness (determined by the Storyteller), the next shot *may* be able to exploit that failing.

••• Helm of Heimdal

Arete 3, Quintessence 15, Cost 6

Named after a Norse god by a disrespectful High Artisan, this helmet appears to the most casual glance as a typical, if ridiculously ornate, component for a suit of overpriced tour-

nament armor. Indeed, it serves well enough as protection, although heavy blows may knock some of the internal mechanisms out of alignment. In truth, it was designed as a useful tool for an Enlightened artillery captain.

Within the visor is an array of lenses and gems, some of them extraordinary crystals from mysterious and remote sources, cut and polished to refract not only light but all manner of subtle Resonances. Many of the features that appear to be florid decorations on the helm are not; they are switches and levers that allow a practiced wearer to move the lenses into an uncountable range of positions. Below the visor slit, but still in the wearer's line of sight, is a miniature mechanism that acts as a sort of mechanical calculator, also controlled by external levers.

All of these features would give an un-Enlightened wearer nothing but a skull-splitting headache, but those who are intended to use this device soon grasp its significance. By transforming Resonances and subtle influences into "sensible" form, the helmet grants the Connection-based ability to perceive any object, however remote, in every aspect as if from every angle at once, within and without. A linked Mind effect enables the wearer to comprehend what is seen, despite its infinite subtlety, and to *calculate* its weaknesses and strengths (using Entropy effects).

Thus, the wearer may assess a fortress and make a rough count of its garrison almost at a glance. Slightly more prosaically, the helm-wearer can examine a cannon for weak points and warn if it is about to explode. Other applications, such as looking along a planned line of march for ambushes, may be improvised as one goes along. Note that these effects are vain. Swift, private uses may pass as "unobserved," but detailed examination of that which one cannot actually see — and then described to others — is rather ostentatious.

Unfortunately, the helm's delicate mechanism is prone to slip out of alignment and the gems and lenses must be polished, treated alchemically or replaced periodically. Any use therefore costs a point of Quintessence (in the form of delicate attunement rather than gross fuel), which can be replaced by only days of work in the shop of a highly skilled Artificer.

••• Armor of Achilles

Arete 3, Quintessence 15, Cost 6

This Machina resembles a rather archaic and much overdecorated suit of lightweight plate, with "Classical" styling and many brass components. However, even a casual observer notes the spindly wheels attached to the feet. A closer look reveals that most of the joints incorporate intricate springs and levers.

In fact, this is a diligent if oddly *literal-minded* application of the Ars Praeclarus and sacred geometry to the Sphere of Time. In order to accomplish the well-known Time effect of speeding up its wearer, mechanisms respond to the slightest movement — seemingly little more than the decision to act — by accelerating and amplifying the motion. Obviously, this makes it difficulty for the wearer to accomplish many mundane tasks, so the armor can be deactivated — but it still makes climbing, jumping and much social interaction rather hard.

Although it is light and cumbersome, the suit is built using a true High Artisan grasp of the Sphere of Matter; treat it as the equal of mundane Mail armor for protection and encumbrance.

[Activating the armor takes one turn and a point of Quintessence; roll its Arete for the usual Time 3 effect, including duration. If the armor is switched off at any point or the wearer is rendered unconscious, it must be reactivated for further use. "Quintessence" represents tension in a small, incredibly powerful spring. Restoring the armor's charge requires that it be dismantled by an expert Artificer who knows the design, and the spring must be rewound using complicated devices built to exploit the Spheres of Forces and Matter.]

•••• Jagg'd Blade of Rending

Arete 4, Quintessence 20, Cost 8

In the hands of a Sleeper, this seemingly overcomplicated polearm functions as a halberd, with +1 difficulty due to poor balance. An Awakened or other supernaturally aware wielder can use it in the same way, but without the difficulty penalty (being able to recognize the weapon's subtle elegance). However, the wielder may press a secret catch in any combat turn to activate one of the spring-powered mechanisms hidden within the head and shaft.

The Jagg'd Blade was in fact created by a warrior High Artisan of rather dark humors. Many of his own Convention consider it an unduly vicious weapon, which in A.D. 1450 is an opinion that takes a little provoking. It uses a number of interacting Entropy effects, involving parts of the head that extend and retract, while weights shift within the shaft so that the blade weaves through the air, striking with ease, accuracy and near-total unpredictability. [The attack is resolved normally, but is difficulty 5 and does Strength +7 damage.] The real terror of the blade is that it rips targets to shreds; inanimate objects are rendered beyond repair, while living victims are wounded horribly, bleeding from a half-dozen gashes and often crippled for life despite their best armor or parrying skills.

[The blade's destructive power is an Entropy 4 effect. The damage is therefore Aggravated and may demand swift medical treatment. The weapon can also leave scars. Each such employment uses a point of Quintessence, representing a spring much like those in the Armor of Achilles above, and is recharged by similar means.]

Vehicles

The idea that a machine should be vastly useful to a traveler is strange to many folk of this era. Carts and chariots are ancient enough, but they are simple things that serve to merely direct the energies of harnessed beasts. It is muscle and live sinew that does the work. Daedalean Artificers have their own ideas.

Machinae built as vehicles often demand the expenditure of extra Background points for increased size, as described in Chapter 5. They need not incorporate especially powerful use of any Spheres — motion is simply motion — but they tend to be financially expensive, rather vain and sometimes invaluable.

Expeditions into the starry void require Spirit 5 effects — the region beyond the clouds is perceived as the domain of spirits. Venturing there in one's own body requires mighty workings. Skyrigger vessels are five-dot Machinae that also embody effects from the Spheres of Connection (which can transcend the terrifying expanses of the Void), Forces (enabling controlled flight in atmosphere), Matter (so that hulls hold together in such exotic realms) and Prime (to empower the rest).

Crusade Lore offers brief details on a number of vehicles with a military purpose. Of these, the *Armored Chariot* is considered an Unusual Device, (attaching armor, guns and blades to a chariot is easy enough, if eccentric), while *War Balloons* are rated as Extraordinary Devices (although mounting useful cannon, let alone building multi-decked fighting craft, is far more than any Sleeper knows for centuries).

Clockwork tanks are true Machinae. They use Matter 2 effects to render their propulsive systems reliable, and have two levels of increased size. Thus, they can be considered two-dot Magickal Treasures with Arete 2 and Cost 6. (They have no need for Quintessence, being clockwork-powered.) However, these vehicles are cumbersome and expensive and need large crews. They are not really appropriate for players' characters to own and should require a high Resources Background to crew and run.

Many Machinae-vehicles require their own special Skill to use, although some are built to be handled with commonplace Crafts such as Coachman, Boatman or Sailor.

•• Jonah's Chariot

Arete 2, Quintessence N/A, Cost 6

Named with somewhat blasphemous wit, this vessel is actually a simple shallow-diving submarine with a crew of 10— eight of whom are required to man the retractable oars that usually serve to propel it (at about eight yards per turn). The craft uses Matter 2 effects to maintain hull integrity and the clockwork engine that can be used to propel it (through a screw-propeller) at up to 15 yards per turn for up to six turns. A simple periscope and snorkel are fitted for obvious purposes.

The chariot has a small but adequate ramming-spike on the prow, so the vessel has some value in battle. The hull has an Armor rating of 8 (see **Crusade Lore**), but a mere couple of damage levels are enough to cause a significant leak. A normal tactic is to approach enemy shipping slowly under oars, then pause for a few minutes while the oarsmen wind up the clockwork. A swift sprint hopefully sees an enemy holed, with enough spring power left for the chariot to make its escape.

Most crews prefer reconnaissance missions, dropping off spies in hostile lands, and quests for sunken secrets. Void Seekers have copied this design of Machina and proclaim themselves very pleased with it for purposes of peaceful exploration.

•• Clockwork Sycamore

Arete 2, Quintessence N/A, Cost 4

Said to have been inspired by the seed after which it is named — or more likely by the screw-propulsion used in some Daedalean submarines — this spring-powered helicopter takes half an hour for a half-dozen burly fellows to wind up. It then flies for a bare half-dozen turns [but at 35 yards per turn, swift as a galloping horse]. Its uses are limited, though there are some.

•• Bird of Reason

Arete 2, Quintessence 10, Cost 5

A simple steam-powered ornithopter with the ability to carry a pilot and one heavy passenger or two slender allies in a pinch, the Bird of Reason is most often used for messenger duties and reconnaissance. Some large Explorator ships carry one of these Machinae in their holds, for use in spying out land or sea ahead. Otherwise, the device's hunger for alchemically refined coal as fuel, its unpredictable vulnerability to the Scourge and its general limitations restrict the vehicle's usefulness — but do not negate it.

[The vehicle burns one Quintessence point of fuel every three minutes and has a movement speed of nine yards per turn. Passengers may carry missile weapons or bows if battle is imminent and they are bold. The bird's structure is rather flimsy, with an Armor rating of 3.]

••• Iron Kraken

Arete 3, Quintessence 15, Cost 8

If Jonah's Chariot grants the Order of Reason the ability to seek power beneath the waves, this evolution of the idea enables them to make war in the realm of Poseidon. The Iron Kraken is a submarine craft in the form of a great metal squid; its power comes from an engine that burns about one Quintessence point's worth of fuel (Abundanti's Oil) per hour, to either move the craft with a pair of screw-propellers at up to 10 yards per turn, or at up to 15 yards if the crew is prepared to burn through a point of fuel within a minute or so. The engine can alternatively be used to wind a large clockwork mechanism that enables the craft to move at eight yards per turn; an hour's winding sees the spring fully tensioned, which is good for half an hour's useful operation. The clockwork engine is sometimes necessary because the oil engine swiftly renders air foul and unbreathable, and the craft often has to dive deeper than its snorkel can extend.

(Some Iron Krakens also carry sails to increase their range. They are slow, wallowing things when they set sail, not managing more than four or five yards per turn, but at least doing so costs no oil.)

The Iron Kraken can carry a score of men with full arms and equipment, and has space for a trio of light cannon that can be deployed swiftly through sealable portals in the hull for surface battles. However, the ship's most startling weapons are its 10 fully effective tentacles, which draw power from the engine or clockwork through intricate mechanical linkages.

Each has Strength 5 and can be operated from behind a crystal viewing portal by a trained crewman (using his Dexterity if required for combat purposes). Each crewman can work one tentacle. The ability to grasp crew off enemy vessels' decks and to drag entire boats down strikes fear into even those who recognize the Kraken for a device and not a monster.

The Iron Kraken uses a combination of Forces, Matter and Prime effects. Its hull has an Armor rating of 9.

••• Artificer's Badger

Arete 3, Quintessence 15, Cost 6

The eccentric Enlightened scholar Florian of Arles is convinced that lost races of beings guard ancient secrets beneath the earth. (He claims that ancient treasures occasionally found in the ground are proof of this. "After all, if they were dropped and sank into the soil by their old owners, why would they suddenly rise up again? No, they must be somehow drawn to the light from subterranean hoards, whither they were taken deliberately!") Florian was drawn into the Celestial Masters by fellow scholars and there joined the House of Daedalus. Working in alliance with various High Artisans, he has created a Machina to prove his theories (and to prove that exploring beneath the world is as important as exploring above the sky).

The Artificer's Badger is an experimental self-powered tunneling machine that uses a steam engine for power. Florian points out that on long expeditions he can plan to seek out coal for fuel — but the machine's current range of a few miles prevents him from accomplishing much as yet. (He may be eccentric, but he is not suicidal; he always turns back with a margin of fuel in hand.) Florian currently argues rather fruitlessly with numerous Daedalean groups for aid and resources in building a bigger machine. So far no warrior-Daedaleans have chosen to explore this idea's rather obvious potential as a siege-craft. They probably consider it too cumbersome and vain.

[The current Badger has a two-person cabin, lit by a lamp with a small supply of Abundanti's Oil. Alchemical preparations keep the air fairly fresh through Matter 2 effects, which are not part of the vehicle design as such, but which are produced by an Enlightened occupant with the correct capabilities. The tunneling itself is a Forces 3, Matter 2, Prime 2 effect; great steam-powered claws ram earth aside and compress it or force it behind the vehicle. Each point of Quintessence represents high-grade coal that keeps the Machina running for about an hour. The Badger also requires days of maintenance after every use. It can move at up to 10 yards per turn through the softest earth, but denser conditions slow it considerably. Only solid granite actually stops it dead.]

••• Rocket Chariot

Arete 3, Quintessence 15, Cost 6

Driven, it is remarked, by Daedaleans who are generally assumed to be the next thing to Marauds, the Rocket Chariot has two clear advantages: ridiculously fast movement (including the ability to skim over short stretches of swamps and open water) and to leap chasms thanks to its kite-like gliding wings that may be unfurled from the sides. Alchemical trickery allows the rocket to be slowed or stopped if required. The only actual use found for this device is military — mostly scouting and terror-attacks, although scythe blades fitted to the sides can make a butchery of opponents (if they do not scatter first).

[The Chariot moves at 40 yards per turn on flat ground and burns a Quintessence point of fuel every *turn*. Stopping takes a turn or two. Blades do damage equal to the chariot's current movement divided by five.]

Tools

Machinae can be means as well as ends. Many are indeed tools used in Daedalean workshops, of no interest or use beyond.

•• Hephaistos' Tables

Arete 2, Quintessence N/A, Cost 4

This set of three three-legged, wheeled tables were built as a demonstration masterpiece by a High Artisan with a taste for Homeric myth (and little shame about vanity in his works). The tables incorporate small hidden clockwork motors, so perfect that they need to be wound only once per hour or so. The tables can move under their own power bearing several score pounds on reasonably flat floors. Moreover, they are attuned through the mysteries of sacred geometry to the mind of the one who made them, following him around the room so that his equipment and materials are ever at hand.

•• The Adze Unparalleled

Arete 2, Quintessence 10, Cost 4

Sometimes Daedalean workshops must produce standard mundane items in large quantities, especially when war threatens. Wise masters anticipate this and produce simple but nigh-perfect tools that save immense amounts of time later. For example, this carpentry tool almost seems to guide the hands of a junior but Enlightened craftsman, splitting wood evenly and neatly every time and never breaking or growing blunt.

[The Entropy and Matter effects are self-explanatory. Actually, the adze uses a point of Quintessence with each application of its power, so it is employed judiciously — but even so, it can be invaluable. The Quintessence is restored by a Prime 3 procedure using a small forge; there should always be one Artificer available with the ability to re-energize these tools.]

Craftmasons, with their veneration of hard work, are of two minds about such "lazy" devices. They approve of any that accomplish goals that could not otherwise be fulfilled. For example, Craftmasons' mastery of sacred geometry and building skills allows them to create winches and cranes that can raise startling weights and to place them with great accuracy. However, if creation can be accomplished through sheer handiwork, it should be.

Instruments

Strange as the applications of Artisan philosophy may be, a deeper strangeness underlies: the idea that the world can be measured out and divided like so much cloth. Thus, the most subtle and "passive" of Artificer creations are also the most extreme. These are the instruments by which they assess the universe and thus dominate it.

The Scourge strikes through even these Devices, but in subtle forms. They rarely burst or shatter. Rather, as they extend the senses of their users, these items twist and invade those users' minds. Merely because something is observed does not make it true — and truth itself can be a very dangerous thing.

• **Time-Divider**

Arete N/A, Quintessence N/A, Cost 2

Artificers can transcend the limitations faced by Sleepers when creating accurate portable clocks. Such a fist-sized mechanism, enclosed within an engraved brass case, is created using subtle knowledge of materials and mechanisms and works better than anything that Sleepers will see for centuries. (In fact, the principles involved are so eccentric and the workmanship required so exceptional that the design never becomes known outside the Order of Reason; the chronometers of future centuries are actually far *simpler*.)

This type of device is often sold to or copied by Void Seekers (to aid with navigation) and Celestial Masters (to make their astronomical work more reliable). The external appearance and the exact information displayed varies significantly among individual examples. Few have anything like the sort of clock-face that a modern observer would recognize; many show the positions of the stars or the phases of the moon, or chime at certain significant moments (on the hour, say, if the maker is unimaginative). Although an un-Awakened user may be able to employ such a device, one generally requires at least a dot or two in some relevant field of knowledge to understand the piece.

• **Truth-Seeing Stones**

Arete 1, Quintessence 5, Cost 2

Many Artisans have difficulty with such "mystickal" spheres as Prime or (especially) Spirit. To aid them, their less limited colleagues provide these gem-stones. Each is prepared using gem-cutting techniques (considered new and experimental in the mundane world) in combination with the laws of sacred geometry, and mounted in silver wands engraved with complex symbols (which are actually shorthand notes on the correct use of the items and the interpretation of what is seen).

The user gains the benefit of a single specific Level 1 sensory effect simply by squinting through the facets of the gem. Many different types of gem exist; common versions of this type of instrument grant the ability to perceive ghosts, Crays or weak points in physical structures. This is generally casual magick — anyone can see for themselves that gem-stones show the world in interesting ways — but each use is slightly stressful for the stone and the user, as reflected in a Quintessence cost. When its Quintessence reserve is used up, a stone becomes cloudy and opaque until recharged.

• **Spy-Glass**

Arete N/A, Quintessence N/A, Cost 2

Lenses have been in use for years (eye-glasses are known, albeit rare and expensive), but the telescope is not given to Sleepers till the beginning of the 17th century. The Celestial Masters are not prepared to wait, and other Daedaleans can find uses for such devices. Design involves Connection. Manufacture requires some aptitude with Matter. The result is a delicate instrument of unknowable value.

(The mundane reasons why Sleepers do not create such instruments are various and weighty. They include the poor quality of available lens-glass, the technical problem of grinding lenses accurately and a lack of understanding of mathematical optics. Of course, none of these obstacles are insuperable to the masters of sacred geometry. However, the instruments they create are the products of personal inspiration, magickal thought and arcane theory; they are intricate, delicate, powerful and varied.)

The power of a Daedalean Spy-Glass is proportional to its size and portability. A pocket-tool barely manages 10 times magnification. The long, heavy brass instrument used by a captain on the deck of an Explorator ship might manage almost a hundred times. A huge astronomical glass, employed in a Celestial Master's observatory and not designed to be removed, might magnify the heavens a thousand times (to frightening effect).

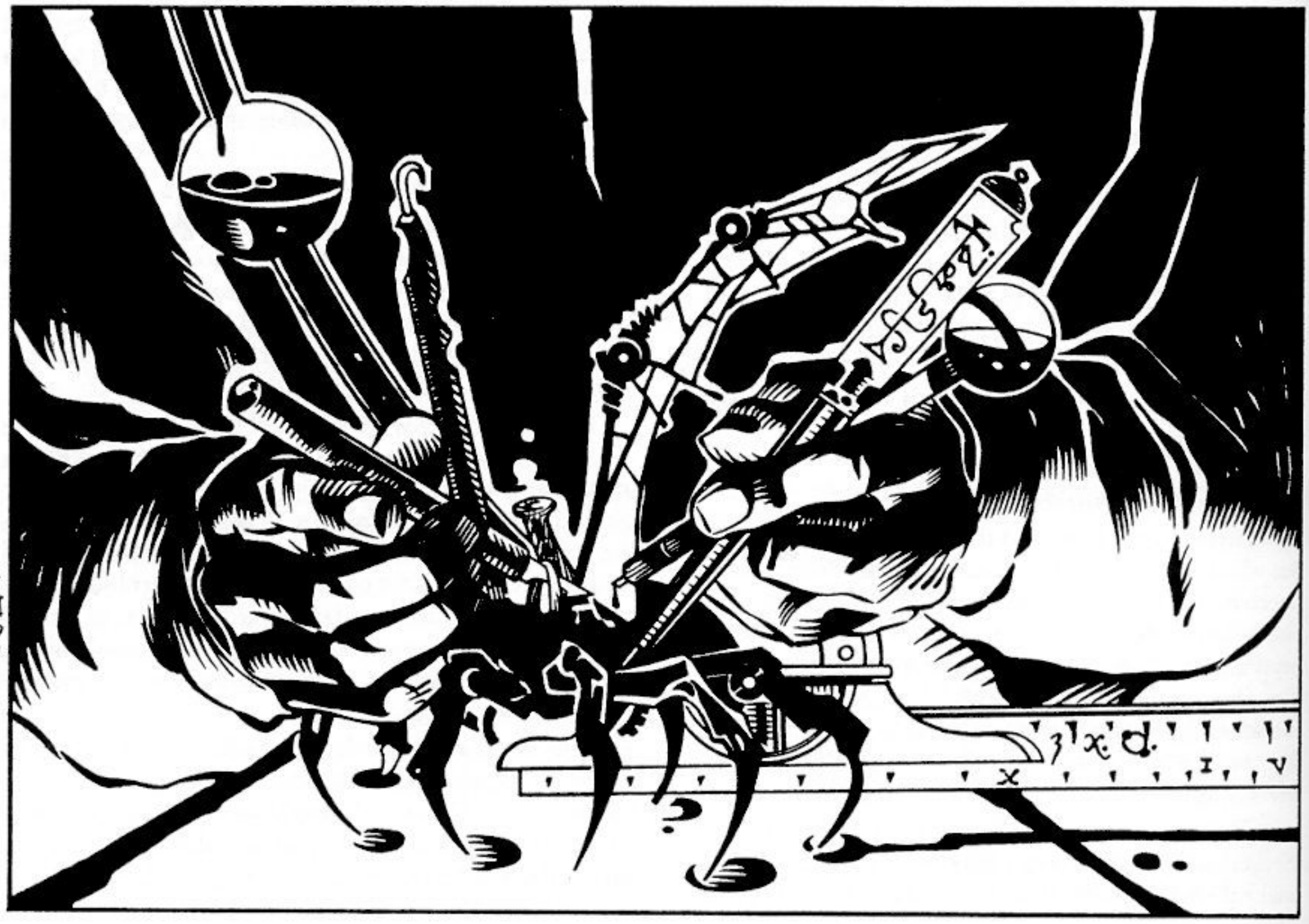
Prostheses

The idea of incorporating mechanical constructs into the human body is considered exotic, even among High Artisans. However, accidents do happen, so there has always been a place for the well-made prosthetic — and Artificers make them very well indeed.

•• **Body-Forger's Arm**

Arete 2, Quintessence 10, Cost 4

This simple replacement forearm is a basic but useful example. Careful mechanical attachments to the wearer's upper arm and body, and judicious use of advanced knowledge permit the limb to respond almost as well as a natural arm [a specific Mind 2 effect]. It cannot be used for delicate purposes, but it can grip and punch. It can also transmit muscular effort from the upper arm. Hidden clockworks within may even allow the strength of some actions to be amplified slightly [accomplished with Forces 2]. A prosthetic arm's lack of sensitivity (except for the slight sensations that do cross back through the Mind link) can even be an advantage; the hand feels no pain. Lastly, as a mundane but useful touch, the arm has a keen-edged, needle-tipped blade folded



away within, ready to be unfolded in a moment — a useful hold-out in some emergencies [treated as a dagger in combat].

Automata

The creation of machines that look and walk like men is one of the recurrent myths and dreams of every culture that has developed any sort of mechanical contraptions. In practice, the trick always proves painfully hard and continues to do so for centuries to come — there are a thousand separate problems to resolve along the way. However, those who are Awakened to the mysteries of sacred geometry can work with laws and powers that resolve any problem. Artisans have built a number of *automata*.

Of course, these devices are generally terribly vain; they represent a direct challenge to God, for creation in the image of man is a mockery of His creation. There are many Artisans who dislike such works, let alone more devout folk such as Gabrielites — and the Scourge displays its own opinion of the idea. On the other hand, to command a servant of reliable metal is a very appealing idea to many Artisans.

The two battle-automata detailed in **Crusade Lore** are relatively simple examples. With Mind 3/ Prime 2 to give them any kind of semblance of thought, Matter 1 for basic senses and Matter 2 for their clockwork mechanisms, these devices rate as four-dot Magickal Treasures and cost eight Background points to any character who wants something of such limited usefulness. Remember, these two devices are functionally mindless in battle and their clockwork runs down after a few turns. Using steam power rather than clockwork and perhaps replacing controlling mechanisms with a human operator (thus turning automata into vehicles) might improve these Machinae a little — but at what cost in convenience?

Artisanship does have its lighter side: Some automata are built not for war but for pleasure. These are the most exacting of the clockwork machines as they are the very smallest — only the steadiest hand and the most ingenious mind can create such tiny springs and gears. When the basic machinery is finished, the most refined eye and practiced hammer are required to create the outer body. Most are made of delicately worked gold and set with jewels. Though these items do not do anything in particular of use, there is no doubt that these Machinae are priceless in both a mundane and an Artistic sense.

One other factor limits automata availability: the Scourge. This fine technology is still on the very outer reaches of even Awakened ability; Sleepers are stunned into disbelief by its delicacy. Building a near-perfect replica of a living thing treads too close to the domain of the Divine Creator. The

sheer hubris of the act is enough to send any but the most resilient of Artificers reeling.

Treat these precious items as five-dot Unique Magickal Treasures, costing 10 Background points. Creation of what amounts to a wind-up toy is highly individual; Storytellers and players should generate their own ideas and work the actual building of an item into a story.

••••• The Emperor's Songbird

Arete 5, Quintessence 20, Cost 10

An emperor in a faraway land loved birds dearly. He had rooms full of caged songbirds, a mew full of the fiercest hunting hawks and an orchard full of wild sparrows. But the emperor was not satisfied with the creatures he had. All were too brown, too dull, too big, too small, too ugly — always there was something amiss with his birds. So the emperor called his finest advisors and craftsmen together and offered a thousand gems and a thousand gold pieces to the man who could bring him a perfect songbird. Each advisor returned with some exotic species of bird caught in a bamboo cage, and each advisor was turned away.

The last craftsman came forward with a small box. Stooped and crabbed with age, the doddering inventor slowly lifted the lid to expose the most beautiful golden bird the emperor could have dreamed. Hands steady despite his years, the man pressed a tiny ruby set in its head, and the bird began to sing. The emperor snatched up the box and ordered a gilded cage built and all the other birds released — he had his perfect songbird, a bird that would never fly away, never refuse to sing, never sing any but its one little song.

[This device requires seven points of Quintessence each time it is triggered. For such a staggering amount of fuel, this little bird does nothing at all but warble a sweet, if short, tune.]

Buildings

A well-constructed building can be a work of Craft — perhaps the highest of all Works. This value makes the Craftmasons' few overt strongholds formidably powerful; every stone embodies the power of sacred geometry in some way or another.

One obvious common feature of such special buildings is the strength of their walls. Alchemical tricks and old mundane secrets are combined to make stonework and mortar up to twice as strong as any mundane structure of like dimensions. Other tricks may be more vain, but can still be justified....

•••• Daedalean Passages

Arete 4, Quintessence 20, Cost 9

Those who honor Daedalus can hardly fail to pay tribute to his most famous building-work; those who master sacred geometry know exactly how to use this inspiration. The inner passages and corridors of Artificer-built structures often seem to defy normal ideas of space and logic — mostly because they do.

A building constructed with Daedalean Passages actually permits one who knows the nature and secret logic of the place to lead small groups through illogical-seeming convolutions, making it easy to catch or ambush intruders. However, each such use of the place in defiance of normal geometry is inherently vain and expends a point of ambient Quintessence (which can be restored later by certain ancient Craftmason ceremonies). Defenders prefer to rely on a latent Mind 3 effect to find their way (which unfortunately also tends to make life difficult for new apprentices and many brethren). Quite simply, anyone unaccustomed to the system who ventures through it tends to become lost and confused — space not *actually* warping for them, but persistently *seeming* to.

Quintessential Ingeniae

Many High Artisans believe that the once-much-admired Master Liam O'Thomas has studied the superstitious mysteries of alchemy too long. Oh, to be sure, his aptitude with the Sphere of Prime has grown impressive, but the idea of building Machinae to weave the "Stuff of the World" *directly* — that surely is a denial of the rational basis of the Ars Praeclarus.

O'Thomas and his few wild-eyed disciples build strange Devices that appear half-complete to other Artificers' eyes. These inventions typically incorporate potent Prime effects to gather and manifest Quintessence (in the form of raw force "from nowhere") and then channel it into specific effects based on other Spheres: fire, images, dreams, ice, ghosts. All Spheres have been created or invoked by these "Quintessential Ingeniae." Needless to say, the Devices are also immensely vain and Scourge-ridden.

Even the Enlightened tend to mutter away hubris after hearing O'Thomas speak, but his results do attract some interest. His unattended Machinae can produce effects that are normally considered to require a trained and active mind. None of the Order has ever proven that the obliging and courteous O'Thomas is guilty of violations of their laws, so some continue to study with him.

[Quintessential Ingeniae are easy enough to define in system terms, but should not be accepted or trusted by most Daedaleans. They should serve as plot devices, not as personal toys.]

••••• Pluvius' Javelinman

Arete 7, Quintessence 35, Cost 12

A relatively *minor* Quintessential Ingenia, Pluvius' Javelinman is a hut-sized assemblage of crystal discs, set at all angles and driving each other by friction. Around and among these discs is a towering array of copper rods. On one side is a set of wooden levers and cranks that operate the mechanism. Once set in motion, the discs spin freely and even accelerate, drawing energy (Quintessence) from the world around them.

After three turns, the Machina begins hissing and sparking. The very air seems to grow oppressive and ominous. Any magick worked within 30 yards of the Javelinman is performed at +1 difficulty as the machine twists the very fabric of the world. But that is not its main purpose. After about five turns, the weather in the area turns downright stormy as vast sparks leap upward from the rods. After 10 turns, lightning bolts shoot from a doom-laden sky, supposedly on points selected by the Machina's operator.

This is a Forces 5 effect, with extensive use of Prime to empower it. Observers tend to find the machine terrifying, which may or may not be a deliberate Mind effect. Needles to say, use of the Javelinman is quite phenomenally vain.

Appendix 2: Mundane Destruction and Defense

But remember, please, the Law by which we live,
We are not built to comprehend a lie,
We can neither love nor pity nor forgive.
If you make a slip in handling us you die!
We are greater than the Peoples or the Kings-
Be humble, as you crawl beneath our rods!—
Our touch can alter all created things,
We are everything on earth—except The Gods!

— Rudyard Kipling, *The Secret of the Machines*

The Artisans fight a war. They comfort themselves with the knowledge that no one else is as well-equipped for the struggle. Inevitably, they are the single group best acquainted with the mundane military technology of the Dark Fantastic. Thus, given the tragically endemic violence of the times (and of roleplaying games), it is worth reviewing the contents of mundane armories of the age.

Melee Weapons

Bring up the brown bills.

— William Shakespeare, *King Lear*

Renaissance warfare involves a goodly assortment of hand-to-hand weapons for warriors to choose from — not that one can or should generally wander around with battlefield equipment. The armies of the age mostly use cavalry lances and infantry polearms — long shafts, deadly at the charge or in massed formations, clumsy elsewhere. The halberd and its cousins are also frowned upon by Sleeper watchmen and innkeepers as a sign that the peace is threatened. The favored tool of the lone hero is the *secondary* weapon of the soldier: the sword.

The swift, slender fencing-rapier is becoming popular, but it remains a gentleman's personal defense — something that doesn't weigh one down or get in the way too much. To a serious soldier, fencing blades are a joke, too feeble to penetrate decent armor (although a *good* fencer can aim for eye slits and junctions between armor plates). The battlefield sword of the day is a slightly more refined version of the old knightly broadsword; fairly heavy, two-edged, good for cut and thrust. In the east, where light cavalry has long been important in armies, the preference is for the curved scimitar — much like the saber of future days; a slashing weapon, good for use from horseback. The Swiss, Germans and Scots — big men, proud of their personal heroism — may show up with huge two-handed swords worn over the back without a scabbard, and horrible in action if a trifle clumsy. The one-handed "Swung Weapons" listed in **Mage: The Sorcerers Crusade** are less common, mostly being carried by knights in armor who desire something to batter through the plate armor worn by their counterparts.

As for those halberds and pikes, they come in many varied shapes and names, but the differences are largely a matter of show and national tradition. The English among others favor the "bill," with a curved edge and a vicious projecting pointed hook. Others prefer the true halberd, with its ax-like blade. Most have a spear-like point, allowing them to stab as well as swing. Multiply spiked and mace-like heads look formidable, but don't cut through armor as well as a blade or single spike.

Spears can range from short strong boar-hunting implements to lances and pikes. Some such as the "partisan" have broad bladed heads, close in weight to those of halberds. These are common junior-officer's weapons as they look imposing and can be used to point the way without being too cumbersome. (Treat partisans as ordinary spears, used two-handed.) The pike is the mass combat weapon of the coming age, when the Swiss and Germans demonstrate the devastation that a determined mass of pikemen can wreak on almost any foe. Yet the pike is always far too long for a one-on-one brawl.

Muscle-Powered Missiles

That fellow handles his bow like a crow-keeper. Draw me a clothier's yard.

— William Shakespeare, *King Lear*

A few shepherds still practice with the sling. A few eastern cavalry still carry darts or javelins. But in this age the best non-gunpowder missile weapons use the power of the bow. This ancient technology has spun off several useful ideas, which remain of interest to Artisans.

The simple short bow is for poachers and peasant levies who can be hoped to get a few shots off in battle before they sensibly run away. Professional soldiers know that the short bow is far outperformed by other missiles to be much real use. The longbow is much more effective. Nearly as tall as a man, it grants yard-long arrows the force to punch through plate armor, and yet it is relatively simple as weapons go, being cut from a single piece of yew-wood. (An expert bowyer knows and works with the subtle structure of the wood.) The drawback is that it requires considerable trained strength to even draw such a weapon correctly. Real skill is also needed to unleash devastating arrow-storms with decent accuracy and effect. The old joke is: To train a longbowman, you must start with his grandfather. Only the Welsh and English ever really decided to trust their free peasants enough to train and muster longbow armies. These days, those peasants are tired of the incessant practice involved and ignore strict laws banning such frivolous and sinful alternatives as football and shove-ha'penny. In a few decades, the skill becomes a hobby for crusty traditionalists — one of whom, Roger Ascham, makes it a philosophical exercise of some subtlety.

(Incidentally, the great bows borne by the samurai of far Japan can be considered equal to the Welsh longbow for practical purposes. Samurai, too, must train for long hours to achieve acceptable bow-skills. Their bows are asymmetric to facilitate use from horseback, but are used in displays of individual mastery rather than to throw up arrow-storms.)

The compound bow is the most complex expression of the bowyer's art. It's designed to project arrows with force approaching that of the longbow, while remaining shorter and handier in form. It is the traditional weapon of Asia's horse-archers. The bow's construction involves laminated horn and various woods, and is something of a secret. In ages past, European kings imported Asian craftsmen to make and tend their personal hunting-weapons. Even today, this skill could give an eastern Artisan an excuse for making his way to Europe and to find well-paid employment once there.

Crossbows had their antecedents in ancient Greece and early Byzantium, but were then forgotten in Europe, save in the West. (It may be that the Craftmasons chose to preserve crossbows to grant the peasantry a way of defeating the ever-heavier armor worn by noble knights.) An important element of crusader armies, crossbows have grown ever more sophisticated and powerful; they may incorporate a compound bow or even be made of fine steel. This makes them able to punch bolts through the heaviest armor — but at the cost of ever-greater loading times. For this reason and their expense, crossbows never gain a convincing edge on the battlefield, leaving the nobility secure in their disdain for missile-armed peasants (unless they are English longbowmen). Light, perhaps one-handed crossbows are possible, but utterly lacking in hitting power. Even the finely crafted crossbows beloved of many Craftmasons and some Artisans are useful mainly in only street-fights and for clandestine work.

In China, the crossbow has been the favored missile weapon for centuries. Chinese Artificers invented clever trigger mechanisms that gave their homeland a deadly advantage over its barbarian neighbors. Chinese troops may even carry *repeating* crossbows, with from two to 10 bolts held in a gravity-feed "hopper," and a winding mechanism that draws and releases the

bow repeatedly. [In system terms, this weapon is difficulty 7, damage 2, range 40, and concealment class L, with a minimum Strength of 2. It can fire at least every turn, possibly *faster* with increased difficulty. The repeating crossbow's main purpose is to enable massed troops to put up a short, withering burst of fire. Reloading the "magazine" takes two turns.]

Longbows and crossbows are serious military weapons, despite the spread of guns (which are clumsy, unreliable and dangerous to use). Yet they have limitations that make guns increasingly appealing: Bows demand all that training, lose effectiveness as the wielder grows weary and are vulnerable to bad weather. (A damp bowstring stretches and slackens. A clever Artisan with an eye for detail might think about finding some fiber that does not.)

The sling should not be ignored entirely. Some Daedaleans find it a handy means of hurling flasks of exotic formulations over long distances. It takes a little mastery, but it is cheap and simple. Its cousin is the staff-sling — a sling on the end of a shaft, swung to hurl projectiles with greater force if less accuracy. [Each is fired using Dexterity + its own special Skill. Slings are difficulty 7, do damage equal to the user's Strength, rate 1/2, are trivially concealable, have no minimum Strength and a range of 40. Large unbalanced missiles such as alchemical flasks may reduce range and increase difficulty. Staff-slings are difficulty 9, damage Strength +1, Rate 1/2, concealment class L, minimum Strength 2 and range 60.]

Personal Firearms

If the longbow showed what could be done to destroy the aristocracy's mastery of the battlefield, the gun makes the lesson easy to teach. With cannon evolving into handguns, death is becoming democratic.

There are three designs of firing mechanism ("lock") approaching widespread use in this era: the cannon-lock, the matchlock and the wheel lock. However, no Artificer with any self-respect is seen with a cannon-lock, which is no mechanism at all — just a touch-hole and a hand-held match or hot wire. The wheel lock is a new invention (see page 17). That leaves the matchlock as the casual standard.

The matchlock consists of a burning slow-match and a small "pan" that holds a little "priming powder" adjacent to a larger charge behind a bullet. Pulling the trigger brings the match down on the pan. A good design such as a Daedalean construction has a built-in protective cover over the pan to keep rain off and to prevent accidents. This cover is moved aside immediately before firing. The system is crude and vulnerable, but functional.

A *really* clever Enlightened Artificer might come up with the *flintlock* — something unknown to Sleepers for another century. This firearm uses a flint to strike sparks from a piece of steel. The weapon, along with its pre-prepared cartridges and standardized-caliber ammunition, is far too convenient and deadly to be thought godly by most folk and is hopelessly vain in any use until the wheel lock is generally accepted.

Rifling

Rifling becomes known to European Sleepers around A.D. 1475, so the Order of Reason knows about it throughout the Dark Fantastic age. Some of the deadliest guns used by Enlightened warriors incorporate rifling. However, rifled guns are not used much by Sleepers — or even by brethren of the Conventions.

Rifles can be more trouble than they're worth. A muzzle-loading rifle is not only expensive, but the bullets must fit snugly in the barrel (so that they engage with the rifling when fired). All that means weapon and bullets must be manufactured more precisely. The guns are also hard work to load. Rifle bullets may fly more *straight*, but the tight fit as they are fired means that they do not necessarily fly so far overall, or at least not with so much force.

[For a quick system adaptation, say that any type of personal firearms may theoretically be rifled. (Rifled artillery is a ways off yet.) Rifling reduces difficulty numbers by one when shooting (except at point-blank range), reduces damage by one, has no effect on range (greater accuracy being balanced by lower velocity) and increases the number of turns to fire by two.]

Armor and Shields

There's my gauntlet; I'll prove it on a giant.

— William Shakespeare, *King Lear*

The advance of firearms one day renders armor superfluous, but for now good plate can still be called "bullet proofed" with plausibility. Enough fights involve swords and spears that even chain mail or leather seem well worth the wearing. However, *good* armor is expensive and the truly useful stuff is horribly heavy. Most rank-and-file footmen get by with scraps of leather and old chain ("Crow's Mail" in system terms), although wealthy employers may issue helmets and breastplates.

Armor is not something to wear in polite company without good cause, but kings and nobles supposedly at peace may invest in finely made shirts that hide metal plates or links under silks and velvet — the age's equivalent of a bullet-proof vest. [This armor gives a couple of points of protection against attacks that are likely to hit the torso or arms; the penalty for encumbrance is negligible, although this stuff is uncomfortable on a hot day or if worn for long periods.] Shrewd Artificers might recognize the creation of good secret protections as a potentially profitable project!

The large shield of the Middle Ages falls out of favor these days — it doesn't stop a bullet unless covered in heavy and expensive metal. The halberd and arquebus are also two-handed weapons, which makes carrying a shield impossible. However, the small round "target" or buckler is still used; it can be made light enough to not get in the way when not wanted. This small shield can even be used with fencing weapons. In practical terms, only professional soldiers have much excuse to carry the "War Shield." Bucklers are commonplace enough.

Artillery and Wagons

Siege engines (as described in **Crusade Lore**) are well-known across the civilized world. When gunpowder arrived, it was first used in large cumbersome cannon and rockets. All such weapons have mostly been used to bring down enemy fortresses; they are too slow for armies on the march or for fighting scrappy combats in the open field. The "siege train" — a mass of straining oxen, sweating laborers and thoughtful practical specialists — follows behind until the enemy is driven back into cities and castles, when walls must be hammered down. Archaic engines are often built on the site where they are used, with only the essential mechanisms being carted about the countryside. Even cannon have to be cast on the spot or abandoned when retreat must be hasty. Many a fallen town's church bells are claimed for melting by the captain of the artillery.

Light engines *have* been used in open battle. A number of simple-seeming but useful embellishments make guns more mobile; wheeled carriages are the most obvious. Cannon still fire slowly and are not accurate enough to slaughter entire enemy regiments — but they may frighten green troops or horses, or "sting" a unit that has been ordered to hold position during a rash charge.

Incendiaries (in the form of Greek Fire and such — see **Crusade Lore**) are useful in sieges, but generally lack the range to make them very useful in open battle (although pots can be hurled from large siege engines).

War-Wagons: The nomadic peoples of the eastern steppes have long used wagons to carry their families and belongings, and have sometimes used such to form barriers when under attack. In recent centuries, this idea has been taken up and developed by some of their more settled neighbors in eastern Europe. The tactical system has perhaps reached its height among the armies of the nationalist religious reformers of Bohemia — the Hussites.

This peasant movement faces a deadly threat from noble Catholic armies that include well-trained knightly cavalry. The Hussite response, perhaps inspired partly by Craftmason emissaries, is to develop their wagon-trains into mobile fortresses from which crossbowmen and gunners can shoot the aristocratic enemy with impunity. Craftmasons and their allies regard this tactical system with great interest (despite the fact that Gabrielites regard Hussite independence as dangerous). Whenever the Order fields a true army, it may well draw on Hussite ideas. Although the Hussites originally use ordinary farm wagons, they soon build vehicles intended purely for war, reinforced and armored to hold off enemy counterfire.

Appendix Three: Bibliographica

The histories of technology and of craft training, science and art in the Renaissance are substantial topics. Rather than attempt to provide a comprehensive bibliography, it is better to offer some suggestions.

Little is as useful as a good encyclopedia. The ***Britannica*** still leads the field for sheer depth of information, but plenty of other books and CD-ROMs serve well enough. The art of this period is also very well-documented in specialist volumes, usually full of appealing illustrations. In addition to reading, a visit to a good museum — especially one that focuses on arts and crafts of the period or on military history — can be worthwhile, if possible.

For a good general introduction to the history of technology and some idea of just how much had been achieved or suggested by any given date see ***Ancient Inventions***, by Peter James and Nick Thorpe.

Military Technology

Late-medieval and Renaissance warfare is quite well-documented, but descriptions of the arms and equipment used can be sketchy and spread throughout large volumes. The best places to look may actually be books published for wargamers or model-makers, who share the roleplayer's interest in the look of things and the Artificer's love of telling detail. Such books are also usefully pitched at the intelligent amateur.

The Wargames Research Group publishes ***Armies of the Middle Ages***, by Ian Heath, in two volumes. It combines useful line-drawings with extensive historical research. ***Renaissance Armies 1480-1650***, by George Gush, published by Patrick Stephens Limited, is similar but may be harder to find.

GURPS High Tech, by Michael Hurst, published by Steve Jackson Games, deals with technology — mostly firearms — from the Renaissance through to the modern day. This is a very useful guide to the tricky practicalities of the things Artificers like, if you want to get realistic.

(The campaigns and wars of the age are very much a part of the book's general history and are often covered in social and political context.)

Non-European Technology

The history of technology in China is covered in Joseph Needham's monumental multi-volume ***Science and Civilisation in China***. Most readers will find more than enough information for their needs in Colin Ronan's abridgment; Volume 4 deals with some useful topics.

For early Indian technology, see Professor O.P. Jaggi's ***History of Science, Technology and Medicine in India***, another huge work.

Cathedral, Forge, and Waterwheel: Technology and Invention in the Middle Ages, by Frances & Joseph Gies. This book provides an excellent foundation for understanding how much eastern technology was integrated into European life by the Middle Ages. It does leave off a bit short of the Renaissance period, but its information is presented in such a way that it's not hard to draw conclusions a few decades further out. The book is also a good resource for western technology and its development.

The Middle East: A History, Third Edition, by Sidney Nettleton Fisher. There's a reason textbook-style works are used in college courses: They are packed with information. This one is quite perceptible, but the chapters on Middle Eastern history are all-inclusive — technology, academia, culture; what more could there be? Though he leaves out six-demon bags, Fisher spends most of the book on more modern Arabic history, which is generally useful for players and Storytellers looking for future fates for their **Sorcerers Crusade** characters.

Other RPG Material

Steam Age and *The Lost Notebooks of Leonardo da Vinci* (R. Talsorian Games) are supplements for ***Castle Falkenstein***, the "Victorian fantasy" RPG. The game is full of weird and nicely depicted ideas for steam, clockwork and magick-powered technology. The ***Lost Notebooks*** are actually presented as a fictitious Renaissance technomagickal text and could be a good source of distinctly strange Machinae.

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