PYRAMID

Issue 3/52 February '13

LOW-TECH II

LORD OF THE MANOR
by Matt Riggsby

CONCEALED ARMOR
by Dan Howard

THE PUCKLE GUN
by Graeme Davis

DELAYED GRATIFICATION
by Douglas H. Cole

LOW-TECH ARMOR DESIGN
by David L. Pulver

RETURN TO EIN ARRIS
by Dan Howard

STEVE JACKSON GAMES

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Article Colors

Each article is color-coded to help you find your favorite sections.

Pale Blue: In This Issue
Brown: In Every Issue (humor, editorial, etc.)
Dark Blue: ***GURPS*** Features
Purple: Systemless Features

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Greg Hyland
Dan Howard

From crops to caravanserais . . .

In This Issue

Once upon a time, a group of heroes could make a difference with well-honed swords, polished armor, and quality gear. This month's *Pyramid* once again steps back into an era of tech where "the net" was what you used to set a trap!

When you have farmers, lands, and crops, you are the *Lord of the Manor.* Matt Riggsby, co-author of ***GURPS Low-Tech Companion 3: Daily Life and Economics,*** uses the foundations laid by ***GURPS Low-Tech*** to help you figure out how many households and which crops you need to provide yourself with a suitable income befitting your Wealth. Use the six sample domains as inspiration or to drop into your favorite setting.

Few towns warmly welcome strangers kitted for battle. For those times when you need to appear less dangerous than you are, let Dan Howard, co-author of ***GURPS Low-Tech,*** demonstrate how you can have *Concealed Armor.* You'll get tips for hiding defenses, historical examples, and ***GURPS*** stats for protection designed especially for those who believe being discreet is the better part of valor.

When the dozens of offerings in ***GURPS Low-Tech*** just won't do, you need to explore the optional world of *Low-Tech Armor Design.* In this month's Eidetic Memory, David L. Pulver – co-designer of ***GURPS Basic Set*** – takes you through the steps necessary to make your own defensive gear, whether you want it primitive, modern, or supernatural.

Delve deeper into the history and variations of *The Puckle Gun* with the co-author of ***GURPS Crusades,*** Graeme Davis. Get additional ***GURPS*** stats and adventure seeds for an invention that was strangely ahead of its time.

Many unarmed and low-tech combat situations involve attacks that depend on each other, demonstrating the benefits of *Delayed Gratification.* Learn how to use this optional new ***GURPS*** maneuver to make your close-quarters battles more effective.

Now that you have new gear, new tips for hiding it, and a new maneuver, you need to *Return to Ein Arris* via a popular traveler stop. Get an overview of caravanserais and the specifics for an example establishment, including a map, suggested residents and regulars, adventure ideas, and a random visitors table. A classic adventure is so much easier when you're well rested!

This month's Random Thought Table considers how to shake up tech expectations, while Odds and Ends suggests ways that *worse* can be better – and includes a Murphy's Rules that strikes at the sole. How will you reimagine the wheel with this issue of *Pyramid?*

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From the Editor

Passport, Past-Port?

"The past is a foreign country: they do things differently there." Thus began L.P. Hartley in his novel *The Go-Between,* and it's been true for a long time (even though that book was published in 1953).

Of course, it's not just the culture or attitudes of the past that makes it "foreign"; it's the tech (or lack thereof) that makes it so strange to us. Yes, the lack of modern conveniences is a challenge, but there's also something *fun* about having legitimate excuses to make use of horses, swords, and trebuchets.

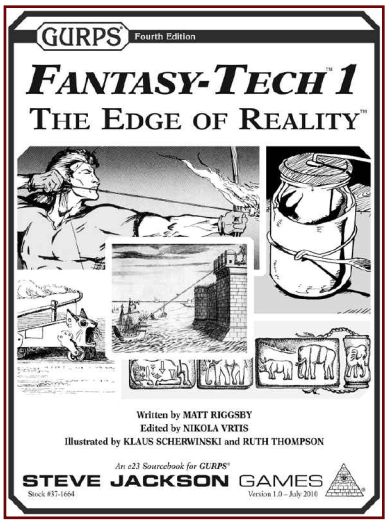
As gamers, we have the power to engage with our fake wares in ways that aren't possible with less immersive pastimes. One of the articles I found fascinating from the old *Roleplayer* contained rules about how to give ***GURPS*** stats to your horse. The game has evolved a lot since that 1990 article, but the desire to codify, tinker, and personalize our accouterments remains as strong as ever.

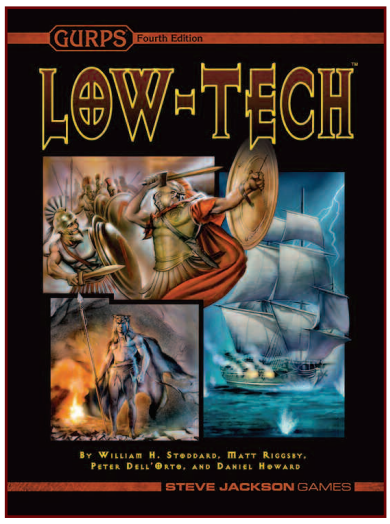
Plus, the more technological lore we internalize as gamers, the more exotic and entertaining we make our "foreign country" feel. It's in this spirit that we present our second issue in support of the ways and means of the past. Use the contents herein to tweak the expectations of the players, enhance the options they have during war or peace, and provide new opportunities and locales to impress (or anger) the natives.

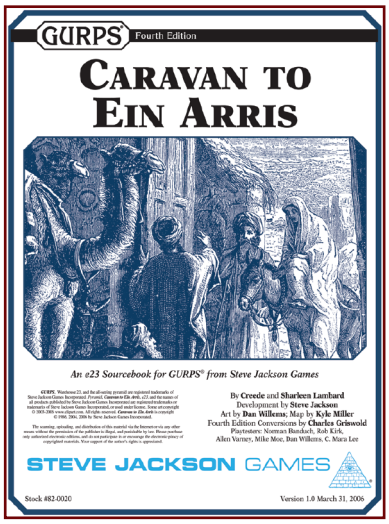
If we've done our job right, hopefully there's information in this era that will inspire a creation or revelation that provides as much joy as the detailed horse stats that some of us labored over decades ago. (Happy pastures to you, Thunderhoof . . . wherever your character sheet is today.)

Write Here, Write Now

Speaking of inspiration and perspiration, how did the dwarven forges of our wordsmiths do this month? Did we craft anything whose praises will be sung in odes to come? Or did something emerge that should best be tossed into Mount Doom? Let our meditative monks know how were doing privately at **pyramid@sjgames.com**, or join the drunken revelry that is the taverns of **forums.sjgames.com**.







Lord of the Manor

by Matt Riggsby

For individual farmers, ***GURPS Low-Tech Companion 3: Daily Life and Economics*** and *At Play in the Fields* from *Pyramid #3/33: Low-Tech* set out detailed guidelines for subsistence agriculture and a few cash crops. If you want to play a farmer and the GM is willing to kick in with a few necessary parameters, you're covered.

However, a lot of work still must be done to take things to the next level. What about the lords of the manor, the plantation owners, and the effendis telling the fellaheen what to do? This article builds on the foundations of ***GURPS Low-Tech*** to finally answer some questions for the up-and-coming overlord: How much income do I get from my peasants and other agricultural workers? Conversely, if I have a given income, how big is my domain, and how many people are in it? As an added bonus, how much land is needed to support a town or other nonagricultural settlement?

Income

At low TLs, the vast majority of a domain's income (and therefore the overlord's) comes from farmers, and the vast majority of those farmers grow subsistence crops: wheat, barley, rice, rye, etc. What the farmers don't consume for themselves, they sell or turn over to their overlord as rent, taxes, or simply his due as the owner of the land. The amount of income an overlord gets from peasants is therefore dependent on the level of control he has over them. However, an overlord isn't limited to the hand-to-mouth existence of subsistence farmers. With enough income from those under him, he can afford to invest in vastly more lucrative crops.

> *Farming looks mighty easy when your plow is a pencil, and you're a thousand miles from the corn field.*
>
> *– Dwight D. Eisenhower*

Subsistence Farming

For these calculations, a typical farming household, as described in *At Play in the Fields,* is Status -1. That household grows a mix of high-yield and low-yield grains, and takes about five weeks for each of two annual harvests, one in spring and the other in fall. This requires a total of 15.6 acres of land at TL1-2, 12.2 acres at TL3, and 11.5 acres at TL4; about the same amount of land is harvested every season, but improving agricultural technology leads to shrinking requirements for fallow land. A reserve for the next season's planting must be stored (assume reserves in the mid-range of what's necessary at a given TL). Additionally, the household's own bare minimum needs taken out of the crops ($300 per month, which can be covered with 300 lbs. of grain). This leaves a surplus of 2,187 lbs. of grain at TL1-2, 4,088 lbs. at TL3, and 9,293 lbs. at TL4. This grain has an average value of $1.25/lb. on the urban market, but it nets a farmer or rural overlord $0.625/lb. if converted directly to cash. It is this surplus over basic subsistence that may be subject to taxation.

An overlord gets income (which is to say, a share of the surplus) from the farmers in proportion to his control over them, indicated by CR. The *Overlord Income Table* (p. 5) lists income for an overlord per subsistence farming household he oversees based on TL and CR. At CR0, there is no overlord and no income; at CR6, he gets the entire surplus. An overlord may derive income from different households at different effective CRs. For example, a domain may include freeholders who operate under relatively light control (say, CR2), semi-free farmers who pay significantly higher taxes and therefore have a higher CR (perhaps CR4), and slaves who are effectively operating at CR6.

The *Overlord Income Table* presents this income in two ways. The first is the average monthly monetary value of the produce the overlord gets from his peasants (realistically, most of the overlord's income would come in large chunks at harvest time, with much smaller amounts in between). The second form is in terms of pounds of grain. Either way, this income may be diverted to pay for the labor of farmers producing cash crops (see *Cash Crops,* pp. 5-7) or shipped to urban centers (see *Urban Carrying Capacity,* pp. 8-9).

Example: At TL3 and CR3, an overlord with Wealth (Filthy Rich) has an income of $70,000/month. He would need ($70,000 / $116.25 = 602.15) about 602 households to provide that income.

Overlord Income Table

CR	TL1-2	TL3	TL4
Income ($)			
1	$19.38	$38.75	$88.75
2	$38.75	$77.50	$176.88
3	$58.13	$116.25	$265.63
4	$77.50	$154.38	$353.75
5	$96.88	$193.13	$442.50
6	$116.25	$231.88	$530.63
Income (lbs. of grain)			
1	31	62	142
2	62	124	283
3	93	186	425
4	124	247	566
5	155	309	708
6	186	371	849

Conditional Modifiers

The *Conditional Modifier Table* (below) gives modifiers to income per household based on environmental and other conditions. The environmental quality modifiers refer to the levels in ***GURPS Low-Tech Companion 3*** (p. 11); they're different from the raw production modifiers because they deal with the difference between subsistence income (which is steady across environmental quality levels) and total production. Harvest-period modifiers concern the length of the harvest season; see *Pyramid* #3/33 (p. 20). In some climates, rapid weather fluctuations force farmers to race against the changing seasons and end up with greater losses than farmers in more gentle climates will get. With a short harvest period, crop losses begin after a month. With a very short harvest region, crop losses begin after two weeks. The "Magic" entry describes the use of the Bless Plants spell (***GURPS Magic,*** p. 161). Modifiers are cumulative.

Environmental quality and harvest period are not necessarily related. Areas with good soil and pleasant weather during the growing season may nevertheless have *short* growing seasons, limited by rapid transitions to winter or monsoon seasons, while some equatorial regions with little or no transition between seasons may nevertheless suffer from poor soil and rainfall.

Conditional Modifier Table

	TL1-2	TL3	TL4
Environmental Quality			
Excellent	+66%	+50%	+37%
Good	+40%	+30%	+22%
Typical	–	–	–
Poor	-40%	-30%	-23%
Very Poor	-66%	-50%	-38%
Harvest Period			
Short Harvest	-10%	-7%	-5%
Very Short Harvest	-28%	-21%	-16%
Magic			
Bless Plants Used	+260%	+180%	+135%

Magic!

In a fantasy campaign, magic can provide a massive boost to productivity, but the logistics may be tight. A ceremonial casting of Bless Plants with 100 spectators – presumably local farmers who can be assumed to be universally in favor of the spell's success – only covers about as much land as a single farmer would have actively under cultivation during any given season. Assuming a household can provide four participants (a household of five, one of whom is too young to meaningfully contribute) and that the ritual castings can be performed at a rate of 10 per day (the caster paces himself by putting in a bare minimum of energy), a hamlet of 25 households could get all of their fields blessed in two and a half days. Round that up to three to account for travel and a little additional rest for the exhausted caster. If repeated ceremonial castings dressed up as planting festivals can go on for a month, a single caster can cover 250 households, which is suitable for a couple of sizable agricultural villages.

This may strain the plausible number of spell casters available in the campaign. If agricultural mages are less common, Bless Plants will probably be used by growers of cash crops. At skill 15, the spell also fails about 4.5% of the time and *critically* fails nearly 2% of the time. Over the course of 250 castings, several farmers' fields will produce distinctly less than their neighbors' (possibly leading to accusations of witchcraft and other malicious magic), and the caster has a reasonable chance of blowing up, being eaten by a demon, or otherwise suffering significant ill effects. In settings where Bless Plants is regularly used to increase farm yields, it may be used by holy people who have special protection from exceptional ill effects.

Example: In a region with Good environmental quality, the TL3/CR3 overlord from the example on p. 4 gets $151.13 per month per household. If that region is also a short harvest region, it's $142.99 per month.

Cash Crops

With his subsistence needs comfortably met and then some, an overlord can do something subsistence farmers can't: invest in lucrative but nonsubsistence production. He can divert some of his income to such ventures as wine-making, ranching, and olive-oil production. Using hired labor, the overlord keeps proceeds from sales himself.

The *Cash Crops Table* (p. 6) lists income produced by a single household for a crop or type of animal husbandry. To cultivate these, an overlord may employ households of non-subsistence farmers by diverting goods with the value of a sharecropper's income (***Low-Tech Companion 3,*** p. 48).

Example: A TL3/CR3 overlord on land with Typical environmental quality might devote the income of three households ($116.25 each) to the support of a single household tending sheep. Instead of settling for about $348 worth of income from selling the grain, he can get $836 from the sale of lamb, sheep's milk cheese, wool, and kid leather.

The common economic crops were historically cultivated in a wide range of environments and didn't require a high level of specialized knowledge, so they're more or less fair game for an overlord who wants to at least attempt to start growing them. Luxury crops are extremely valuable, but historically could only be grown in a narrow range of environments or required highly specialized skills to produce, all of which sharply restricted the range in which they were cultivated; consult notes and descriptions for specifics.

All crops have the following characteristics.

Income: Monthly income for the overlord. For a number of sources, this varies by TL as processing technology improves.

Land: Total land necessary to produce the income, in acres. This includes land to be left fallow in a crop-rotation scheme or land with reduced productivity. For example, for crops with alternating yields, like most fruit, these values assume staggered planting, so one field's off-year is another's on-year.

Prep: The number of years a newly planted crop requires tending before it starts producing income. An overlord must employ farmers to tend the land during this period as well as during productive years. This does not include costs for basic clearing, terracing, irrigation, and so on.

Distribution of Labor

For ease of accounting, the information on cash crops assumes a large number of exclusive subsistence farmers supporting a smaller number of exclusive producers of other crops in their own distinct fields. In practice, it may not work out that way. Some crops are cultivated in small quantities in individual home gardens or are grown as barriers or ornamental plants around fields and pastures. Instead of having a large village full of people growing grain and supporting a handful who tend to the allspice trees or other cash crop, most people may spend most of their labor on subsistence crops, but spend a little time on their own little high-value plant.

Cash Crops Table

Crop	Income TL1-2	Income TL3	Income TL4	Land	Prep	Notes
Common Economic Crops						
Cattle	$1,105	$1,105	$1,105	240	0	[1]
Fruit and Nut Trees	$255	$255	$255	5.8	6	[2]
Pigs	$1,140	$1,140	$1,140	32	0	
Poultry	$1,867	$1,867	$1,867	1.4	0	
Sheep/Goats	$836	$836	$836	40	0	
Luxury Crops						
Allspice	$4,875	$4,875	$4,875	1.65	7	[3]
Chiles	$1,750	$1,750	$1,750	5.25	0	
Cinnamon	$4,000	$4,000	$4,000	3	3	[3]
Nutmeg/Mace	$2,250	$2,250	$2,250	0.55	9	[3]
Olives	$752	$820	$889	5.8	10	[2]
Pepper	$1,313	$1,313	$1,313	0.75	5	[3]
Silk	+$16	+$16	+$16	1	3	[4, 5]
Sugar	$995	$1,327	$1,659	2.6	1	[5]
Tea	$2,678	$2,678	$2,678	3	4	[5]
Tobacco	$4,058	$5,072	$6,087	8	0	
Turmeric	$3,000	$3,000	$3,000	3	0	
Vanilla	$13,750	$13,750	$13,750	1	4	[5]
Vines	$851	$851	$851	5.8	8	[2]

Notes

[1] The income for cattle assumes that milk cows are being provided with a large grain supplement to increase their production. Add $80/month to support costs per household of ranchers.

[2] These crops have a single annual harvest and do not require extensive tending in the off-season. An overlord need only spend half as much on those farmers, who produce enough to support themselves the rest of the year.

[3] The crop may be cultivated using Farming skill, but requires a Craft Secret perk to properly grow and process.

[4] Silk is not cultivated by separate growers. Rather, its timing allows it to be grown by farmers raising subsistence crops. In a silk-growing region, no income needs to be diverted to silk farmers, and the value of the silk is added to the income from all farmers in the overlord's domain. See the description of silk (p. 7).

[5] Growing and processing requires a separate Professional Skill.

Luxury Crops

Luxury crops can be extremely lucrative, but their cultivation is severely limited. Most require rich and well-tended soil and won't grow outside of tropical or subtropical environments. Many have other, more specific requirements of environment and skill that may prevent their propagation and cultivation. Environmental restrictions and other difficulties with cultivation for crops not discussed below are in *At Play in the Fields* (in *Pyramid* #3/33).

Allspice: Allspice is the berry of a tree native to the Caribbean. Trees take seven to 10 years to start producing, and continue to produce for about 50 years thereafter. The berries are dried for trade. The allspice berry has an unusual life cycle that prevents it from being grown outside its native range until TL5. An acre of allspice trees produces 160 lbs. of dried berries per year. Suggested base price $40/oz.

Chiles: Chiles are a relatively easily cultivated annual plant and among the earliest domesticated in the New World. Despite the name "chile pepper," chiles are unrelated to black pepper and Szechuan pepper. The New World is host to a wide variety of chile peppers, providing a huge range of sizes, colors, flavors, and degrees of heat. Though often used fresh where they are cultivated, they are dried or otherwise preserved for storage and trade. An acre of land produces 150 lbs. of dried chiles. Suggested base price $5/oz.

Cinnamon: Cinnamon is the bark of a tree native to southern India, but it grows well in other tropical regions. Cinnamon is cultivated by coppicing (see ***GURPS Low-Tech,*** p. 21). Young trees are cut back, and multiple shoots are allowed to grow for two to six years before they are cut off themselves. The bark is removed from these shoots and dried. An acre of cinnamon produces about 100 lbs. of dried bark per year. Suggested base price $60/oz.

Nutmeg and Mace: Nutmeg is the seed of the fruit of the nutmeg tree, another tropical plant. It takes up to nine years for a tree to begin producing, but it yields fruit fairly steadily for about 50 years thereafter, or even longer with slowly declining performance. The fruit, which is edible though its value is negligible, is removed to reveal the seed (nutmeg proper) and mace, a coating around the seed with a similar but lighter flavor. An acre produces about 100 lbs. of dried nutmeg and mace per year. Suggested base price $90/oz.

Pepper: This creeping vine prefers humid tropical lowlands, usually grown on supporting trees or artificial trellises. Vines must grow for five years before they bear fruit, and will bear for about as many years thereafter. Once harvested, berries are dried to become familiar peppercorns. Black and white pepper are the same berries, just treated differently: black pepper is harvested when nearly ripe and simply dried; white pepper is harvested when fully ripe and allowed to ferment so the skin can peel off. An acre of pepper produces about 105 lbs. of dried peppercorns per year. Suggested base price $50/oz.

Silk: Silk requires mulberry trees, which have the same labor requirements as almond trees (*Pyramid* #3/33, p. 17) to prepare. Silk producers harvest leaves and feed them to silkworm larvae as they grow, killing most of them after they produce silk cocoons. The entire process takes about three months, but almost all the labor involved is in the last few weeks. Under reasonably good conditions, a household can produce two "crops" of 50 lbs. of raw silk fiber per year, each of which can be supported by an acre of mulberry trees. With enough mulberry trees, residents of tropical regions can produce up to *eight* rounds of silk per year. Moreover, with careful timing and climate control, these can be scheduled to avoid planting and harvesting seasons, so silk can be produced in addition to subsistence crops. Instead of requiring subsistence farmers to support dedicated silk farmers, farmers in silk farming regions can *also* produce silk without interfering with their subsistence production. Raw fiber sells for $2/lb.

Turmeric: Turmeric is a rhizome (a thick root-like structure) that grows best in sandy soil in well-watered tropical regions. It is typically cultivated much like potatoes: a nodule with an eye-like growth bud is planted, and the plant is harvested by uprooting it after a year or two. An acre can produce about 1,200 lbs. per year. It can be used fresh, but it is often dried to 20% of its original weight. Suggested base price $5/oz (dried).

Vanilla: Vanilla is the fruit (not actually a bean, but it resembles a string bean while growing) of a climbing vine in the orchid family native to Central America. It prefers shade and needs to climb, so like pepper, it would often be grown with trees for support. Plants require three to five years to start bearing fruit, and continue bearing for a little over a decade. Once harvested, the fruit are heat-treated (quickly roasted or scalded with hot water), stored in a humid environment to develop flavor, dried, and finally aged for several months before shipped and sold. An acre of vanilla produces 275 lbs. of cured vanilla. Suggested base price $100/oz.

Not Growing Luxury Crops

Knowing the immense value of luxury crops, why would anyone not grow them? Historically, hardly anyone could, which is part of what made them so expensive. Most would only grow in quite specific ecological conditions, which might not be completely understood even in their native lands. For example, attempts to sprout seedlings for new allspice trees instead of gathering them from the wild failed until it was discovered in the 19th century that the seeds first had to pass through the digestive tract of a bird. Vanilla couldn't be grown outside of its native range until about the same time, when hand-pollination techniques were discovered that could substitute for the particular bees that pollinated vanilla beans in the wild. Tea grows well in high altitudes around the world, but it has fragile seeds and wasn't successfully exported from China until, again, the 19th century, when portable greenhouses were invented.

On top of that, many producers of luxury crops knew the value of what they were growing and took steps to prevent competition. Production techniques may be regarded as state secrets, and master growers may be prohibited from traveling. The Dutch, for example, chemically treated all of their nutmeg before export from Indonesia to prevent it from sprouting, while the early modern Chinese frowned on emigration and restricted the movements of foreigners, in part to limit access to tea plants.

Ignorance was also rife. Medieval Europeans knew little about spices save that they came from "the east," and much early information that reached them was inaccurate. For centuries, many believed that pepper grew on trees that were periodically burned down to kill the venomous snakes patrolling them. Industrial spies seeking out luxury crops have to overcome both official resistance and their own preconceived notions of how things work.

In practical terms, this means that it's entirely realistic for a GM to ruthlessly prohibit the propagation of luxury crops. Even if the knowledge to cultivate them is available, a suitable environment may not be in the offing, or suitable seeds may not be viable.

Sample Domains

To simplistically figure out how many people and how much land an overlord has in his domain, divide the overlord's job income by the income from a number of subsistence farming incomes for his TL and CR to get number of households. Then multiply the number of households by the amount of land necessary for subsistence farming.

With some additional effort, this basic format can be personalized. Use the following pre-made establishments for inspiration or to map out the domains of wealthy landlords who are, quite realistically, engaging in more than mere grain farming. For example, a TL1 aristocrat with Wealth (Filthy Rich) – income $65,000 – might own a string of five regular *villas* and one *fine* one. Adjustments to fit a specific income can often be made by adding or removing a handful of regular farmers. Unless otherwise noted, all domains assume Typical environmental quality.

Villa (TL1-2): This is an estate suitable for a Bronze or Iron Age aristocrat, as a source of modest income, insurance against hard times, and a quiet place in the country to retire to. The workers are all slaves (CR6). There are seven households tending olive groves, seven tending vines, two raising pigs, two herding sheep, 29 supporting all of the above, and two simply growing grain for the landlord. They produce an income of $10,071 per month on 668 acres.

Fine Villa (TL1-2): This is a similar establishment to the above simple villa, but since it sits on land with Good environmental quality, it produces significantly more. Its inhabitants are the same as for the regular villa, except it has eight households growing grain for the landlord rather than just two. It produces an income of $15,073/month on 761 acres.

Village (TL3): This modest-sized village is mostly dependent on growing grain, but the overlord owns sizable flocks of sheep as well. The inhabitants aren't slaves, but they're tied to the land or otherwise heavily restricted (CR4). The village includes five households of shepherds and 49 of farmers growing grain (11 of whom support the shepherds), for an income of $10,046/month and 798 acres.

Wealthy Village (TL3): Resembling the basic village, this larger settlement has more livestock, including a herd of cattle. It has a total of 70 households. Two each tend pigs and cattle, and five tend sheep; 61 grow grain, with 20 of them supporting the herdsmen. The village provides an income of $15,000/month on 1,488 acres.

Chateau (TL4): This is a small vineyard and some attached agricultural land. The overlord has modest control over his tenants, effectively CR3. A dozen households tend grape vines, supported by eight households of subsistence farmers. It produces $10,212/month on 162 acres of land.

Spice Plantation (TL4): In addition to ordinary agricultural produce, this little settlement maintains a small grove of cinnamon trees. Three households tend cinnamon trees, alongside 10 households of subsistence farmers, four of whom support the cinnamon farmers. It produces $15,396/month on 132.4 acres.

Urban Carrying Capacity

The basics are fine for those who want to play gentleman farmer or rural landlord. However, world-building GMs and kingdom-ruling PCs have bigger concerns. The same kind of agricultural productivity that supports the peasant farmers and provides a surplus for their overlords also sets an upper limit on the size of nearby towns and cities. The maximum size of an urban settlement depends on a number of factors.

Quantity of grain consumed by city-dwellers. The tables assume each urban household requires 600 lbs. of grain per month. Urban households are on average Status 0, so they eat better than Status -1 peasants. Though even wealthier and higher-status people live in cities, they're offset by a large urban underclass. Moreover, consumption of subsistence foods rises slowly with Status. Richer people spend most of their additional wealth on exotic foods and manufactured goods, not more loaves of bread.

Amount of farm surplus available to send to an urban center. This is equal to the difference between a peasant farmer's bare subsistence requirements and his total production, which happens to be the same as the value an overlord can get from a farm household at CR6. In both cases, it's what the household doesn't absolutely require to consume for itself. The urban center doesn't care if the peasant farmer gets paid for it or if everything ends up in the hands of a rural overlord.

Density of farms. The tables are based on an average number of farms per square mile: 31 per square mile through TL2, 39 at TL3, and 42 at TL4. These figures are close to a feasible maximum density. They assume three-quarters of the land within the area is arable fields. The remainder provides room for houses, ponds and other water sources, roads, grazing for an economically insignificant number of animals, and areas of wild land that provide wood and other resources that farmers gather in small quantities. In many places, the density will be significantly lower, since the landscape can be punctuated with hills too steep to cultivate or patches of rocky, sandy, or swampy land unsuitable for agriculture.

Efficiency of transportation. Transport has a cost, and the farther things go, the more the buyer has to pay. This is expressed as a percentage of agricultural produce consumed per mile of transportation. For human bearers and beasts of burden, that cost is 3.3%. If goods are transported by cart, it's 1.7%. For transport largely by boats along rivers it's 0.34%, or 0.068% for transport by sea (exceptionally extensive canal and river systems may come close to this as well). Most cities fall in the range between cart and river travel.

Size of the area supporting the urban center. This is a radius in miles. Larger areas naturally support larger populations, but at diminishing returns as transport costs eat into what makes it to the city.

The *Urban Carrying Capacity Table* (below) shows the maximum urban population (in households) that may be maintained by an urban center's immediate agricultural hinterland (the radius in miles), that is, the efficiency of each type of transport. Multiply that figure by five to get total population. Dashes indicate that the size of the area is too large to support a single urban center using the preferred transportation method. When carrying produce with bearers, the cost of transporting goods exceeds the value of the goods themselves past 30 miles, after 60 miles for carts, and after 300 miles for river transport.

Urban Carrying Capacity Table

	Efficiency (in Households)			
Radius (in Miles)	***Beast of Burden***	***Carts***	***River***	***Sea***
TL1-2				
2	110	113	115	115
4	421	440	457	460
6	901	967	1,024	1,035
8	1,520	1,678	1,812	1,838
10	2,249	2,556	2,818	2,870
12	3,056	3,587	4,039	4,129
14	3,910	4,754	5,471	5,615
16	4,783	6,042	7,113	7,327
18	5,642	7,435	8,960	9,265
20	6,458	8,918	11,009	11,427
22	7,200	10,475	13,258	13,815
24	7,838	12,089	15,703	16,425
26	8,341	13,746	18,341	19,259
28	8,679	15,430	21,168	22,316
30	8,822	17,125	24,183	25,594
35	–	21,308	32,515	34,756
40	–	25,217	41,946	45,292
45	–	28,607	52,426	57,190
50	–	31,233	63,907	70,441
55	–	32,849	76,338	85,036
60	–	33,212	89,673	100,965

Urban Carrying Capacity Table (Continued)

Radius (in Miles)	*Efficiency (in Households)*			
	Beast of Burden	*Carts*	*River*	*Sea*
TL3				
2	277	283	288	289
4	1,056	1,105	1,147	1,155
6	2,261	2,427	2,569	2,597
8	3,815	4,210	4,546	4,613
10	5,643	6,415	7,071	7,202
12	7,667	9,001	10,134	10,361
14	9,812	11,930	13,730	14,090
16	12,001	15,162	17,849	18,386
18	14,158	18,658	22,483	23,249
20	16,205	22,379	27,626	28,676
22	18,068	26,285	33,269	34,666
24	19,669	30,336	39,404	41,217
26	20,931	34,494	46,023	48,329
28	21,780	38,720	53,119	55,999
30	22,138	42,973	60,683	64,225
35	–	53,469	81,592	87,216
40	–	63,278	105,257	113,653
45	–	71,784	131,556	143,510
50	–	78,374	160,365	176,763
55	–	82,431	191,561	213,387
60	–	83,341	225,022	253,358
TL4				
2	682	697	710	713
4	2,602	2,723	2,827	2,847
6	5,571	5,982	6,331	6,401
8	9,402	10,376	11,204	11,369
10	13,907	15,808	17,425	17,748
12	18,896	22,182	24,975	25,534
14	24,182	29,400	33,836	34,723
16	29,576	37,366	43,987	45,311
18	34,891	45,982	55,409	57,295
20	39,937	55,151	68,083	70,669
22	44,527	64,777	81,989	85,432
24	48,472	74,762	97,108	101,578
26	51,584	85,010	113,421	119,103
28	53,675	95,423	130,908	138,005
30	54,557	105,904	149,550	158,279
35	–	131,771	201,078	214,940
40	–	155,944	259,400	280,091
45	–	176,908	324,211	353,672
50	–	193,148	395,210	435,622
55	–	203,147	472,091	525,880
60	–	205,390	554,553	624,386

To extrapolate carrying capacities based on other assumptions, the GM may use this formula:

$$\text{Carrying Capacity} = (6 \times D \times ((G \times R^2)/2 - (G \times C \times R^3)/3)))/H$$

It uses these factors:

D is the density of farms per square mile within the catchment area.
G is the average quantity of grain available per farm.
R is the radius of the catchment area in miles.
C is the percentage of grain consumed by transport.
H is the average quantity of grain required per household at the urban center.

This assumes that a settlement is at the center of a hexagonal catchment area (see ***GURPS Fantasy,*** p. 93). A settlement growing up in an uninhabited area can have a circular catchment area; in that case, multiply by 2 × pi rather than by 6.

Imperial Capitals

The tables work out reasonably well for small to medium-sized cities, but not for the very largest. An imperial capital like Rome or Beijing, with populations of a million or more, would require a catchment area of over a hundred miles, but such cities typically coexisted with other cities within that radius. Very large cities, usually capitals of large empires, were exceptions to the rule of settlements being supported by their immediate rural hinterland. Instead, they were supported by a combination of their own surrounding agricultural territories and market towns farther away collecting produce from farms near them, to which the capital was connected by efficient sea transportation, or extensive river and canal networks that provided similar efficiency. Rome, for example, was supported by North African grain, shipped over the Mediterranean.

Figuring out support for such large cities is dependent on geography, but a method like this can be used: Determine the size of a typical market town, the radius of the area from which it draws grain, and the average distance of market towns to the capital. The difference between the amount of grain the market town needs and the amount it draws in from its catchment area can be sent to the capital at the cost of sea or river transport, depending on how the goods must be shipped.

Example: Consider a market town population around 5,000, a reasonable size for a small Roman town in North Africa, a TL2 setting, with primarily transportation by carts. That's fairly close to the population supportable by a six-mile radius, so we'll use those figures (that is, six miles and 967 households). However, the town collects grain from a 30-mile radius, which could support 17,125 households, for a surplus of 16,158 households worth of grain. That surplus may be shipped overseas at a cost of 0.068% of the grain to be shipped per mile. Assuming that the grain travels an average of 600 miles (the distance, for example, from Tripoli to Rome, and somewhat farther than the distance from Antioch to Constantinople), about 59% of the grain makes it to the capital for consumption, or enough for about 9,533 households. It would take 105 such market towns to feed a city of a million households under those circumstances.

About the Author

Matt Riggsby holds degrees in anthropology and archaeology and, like the rest of his generation, works with computers. He has been the author or co-author of books on database design and development, as well as the ***GURPS Low-Tech*** series and many articles for *Pyramid* magazine. He works for a company that produces TL8 medical devices, and lives in a TL6 house with his wife, son, and a pack of domesticated but semi-trained carnivores.

Concealed Armor

by Dan Howard

Under his tunic Shivaji wore a shirt of mail armor and below his turban he concealed a steel cap for the protection of the skull. What offensive arms he had, nobody could see, but concealed in his left hand was a set of steel claws ***(bagh nakha)*** *fastened to the fingers by a pair of rings, and up his right sleeve lay hidden a thin sharp dagger called a scorpion* ***(bichua)*** *. . .*

Shivaji mounted the raised platform and bowed to Afzal. The Khan rose from his seat, advanced a few steps, and opened his arms to receive Shivaji in his embrace. The short slim Maratha only came up to the shoulders of his opponent. Suddenly Afzal tightened his clasp, and held Shivaji's neck in his left arm with an iron grip, while with his right hand he drew his long straight-bladed dagger and struck at the side of Shivaji. The hidden armor rendered the blow harmless. Shivaji groaned in agony as he felt himself being strangled. But in a moment he recovered from the surprise, passed his left arm round the Khan's waist and tore his bowels open with a blow of the steel claws. Then with the right hand he drove the ***bichua*** *into Afzal's side. The wounded man relaxed his hold, and Shivaji wrested himself free, jumped down from the platform, and ran towards his own men outside.*

— Henry Sage, ***Shivaji and His Times***

There could be many reasons why you would want to conceal the armor that you are wearing: It might be illegal in your society; you might want an unfair advantage during a duel; or it simply isn't socially acceptable – how would people today react if you walked into a restaurant or night club wearing an assault vest and a ballistic helmet? In many historical societies the wearing of armor was likely to arouse suspicion and was taken by the courts as a sign of malicious intent; if you were involved in a fight and it was discovered that you were wearing armor, then it would automatically be assumed that your assault was premeditated. This needs to be emphasized in campaigns where the PCs like to wear their adventuring gear around town. The very presence of body armor, even if it was perfectly legal to own, would be seen by many as a provocative act; see p. B286 for specifics. Typically, this is -2 to reaction rolls in any civilian encounter where the person would not be expected to be wearing armor. Furthermore, the result would never be better than neutral. Of course, if the adventurers concealed their armor, the negative reaction would likely be *worse* if this armor was discovered; the modifier should be at least -3.

Hiding Armor

Some articles of clothing – such as a padded doublet or leather jacket – already have some protective capacity, but arouse no suspicion from average folks; nothing is being concealed and no Holdout roll is needed. Anyone familiar with the garment or the material would realize that it might present some resistance to a weapon.

It might be possible to improve its resistance a little by using better quality material such as silk (***GURPS Low-Tech***, p. 104) or leather of quality (***Low-Tech***, p. 105); this doesn't require a Holdout roll either. To resist a more solid blow, however, the clothing needs heavier reinforcing. While you needn't try to hide your satin and deerskin doublet, you'll want to conceal the fact that it has been lined with mail or reinforced with steel plates.

> *A clean glove often hides a dirty hand.*
>
> *– English proverb*

Flexible armors move with the body like clothing and so are the easiest to conceal. If the armor is rigid, but thin, then it, too, can be fairly easy to hide. ***Low-Tech*** introduced some expanded rules for concealing the armor that a character is wearing (see ***Low-Tech***, p. 102). In summary, the Holdout penalty is equal to the armor's DR if it is rigid and DR/3 if it is flexible (round up). Any DR bonuses caused by material quality such as silk, fine leather, or hardened steel do *not* count toward calculating the Holdout penalty. However, armor is harder to hide on the extremities than elsewhere on the body. Modify the Holdout penalty by an *additional* -1 if armor is being concealed on the head, neck, hands, or feet.

The Holdout modifier assumes that the armor is being concealed under ordinary clothing (see ***Low-Tech***, pp. 97-98). Summer clothing gives an additional modifier of -3, while winter clothing gives +3. If the person is trying to hide regular armor (e.g., wearing a jacket over it), then use the Holdout skill modified by the type of clothing and the armor's Holdout penalty. If the armor has been specifically made for concealment, then the Holdout penalty will be reduced a little, based on the skill of the original maker. If the armor is expertly tailored (***Low-Tech***, p. 110), then Holdout penalty is reduced by another point, or *2* points if masterfully tailored.

Example: Sir Gnaff is wearing an expertly tailored DR 5 heavy mail haubergeon. ***Low-Tech*** would give this a Holdout penalty of DR/3 (round up) or -2. Add +1 for expert tailoring and the total is -1. He is trying to hide the armor under some winter clothing (+3), which gives him a total Holdout modifier of +2. If he tried to conceal expertly tailored mail gauntlets on his hands, then they would have a Holdout modifier of +1.

> *He held a dagger in each hand and wore no jacket tonight, just a black turtleneck that looked like it was made of neoprene – or was hiding armor underneath.*
>
> *– Liz Braswell and Celia Thomson,* ***The Fallen***

Searching for Armor

This involves a Quick Contest between someone's Search skill and the Holdout skill used to hide the item (*Search*, p. B219). If the net bonus to Holdout is +3 or more, then a skin search is required. Normally, the Holdout modifier needs to be -2 or worse for a skin search to automatically succeed but, with armor, a skin search will find it no matter what the Holdout modifier is. Note that this assumes that the armor is being *worn;* if it is stowed, then the Smuggling skill and a different modifier is used.

Example: Sir Gnaff has a Holdout skill of 11 and his concealed heavy mail has a Holdout modifier of +2 (total 13). He rolls 10, so he made it by 3. Sentry Stubbs has a Search skill of 12 so he needs a roll of 8 or less to find it with a visual search and a roll of 9 or less with a "pat down." A skin search *automatically* finds the armor, regardless of the Holdout modifier.

Hidden Armor

By far the most common form of concealed armor is mail. It was both flexible and capable of resisting the cuts and thrusts of most blades. One excellent depiction of this is the late 13th-century wall painting of St. Merkourios in the Church of St. Klimenta in Macedonia, in which the lapel of his shirt is turned out to reveal a liner of mail underneath.

Wearing concealed armor during duels seems to have been common enough for there to be complaints about the practice in certain texts. Duelists adopted the custom of removing their coats beforehand to demonstrate that neither party was wearing armor. This lead to people wearing armor under their shirts so duelists had to strip to the skin before commencing.

In the armor descriptions, DR with "*" denotes flexible armor.

Historical Examples

Herodotus wrote that the Persian general Masistius was set upon when his warhorse was killed, but he survived for a short while because under his tunic was a hidden corselet of golden scales (archaeologists have found Persian gold plated scales). He continued to fend off the assailants until one of them realized that their attacks were having no effect on his body and so stabbed him in the eye.

Roman senators sometimes concealed armor under their clothing during times of trouble. Cicero wore armor under his toga during the Cataline conspiracy. Dio wrote that Augustus regularly concealed armor under his imperial robes when in the senate.

Saladin had two assassination attempts made against him. On the second occasion, an assassin attacked his head as he rested in a captain's tent, but the mail cap he wore under his turban saved him. He grabbed the assassin's arms until help arrived.

Shivaji, the Maratha, concealed a mail shirt under his clothing when he went to confront Khan Afzal in 1659. It enabled him to survive a surprise attack and kill Afzal before his escape.

In 1708, Hugh Shaw was killed in a duel by the Master of Sinclair after Shaw's sword was bent during the fight. His brother later accused Sinclair of having secreted a pad of "paper in his breast," which caused the sword to bend.

In China, the lamellar armors of military soldiers were modified to be less conspicuous when they attended the emperor's court. This resulted in a garment tailored in courtly fashion but reinforced with metal plates riveted underneath (*brigandine*). Over time, this style became so fashionable that even civilians started to emulate it by wearing garments studded with rivets in the same patterns but without the metal plates (*faux brigandine*).

King James I goes in the opposite direction, and urges all concealed armor to be *forbidden* at court. In his book *Basilikon Doron* (1599), he wrote: "And therefore banish not only from your Court, all traitorous offensive weapons, forbidden by the Laws, as guns and such like, but also all traitorous defensive arms, as 'secretes,' 'plate-sleeves,' and such like unseen armor: For, besides that the wearers thereof, may be presupposed to have a secret evil intention, they want both the uses that defensive armor is ordained for; which is, to be able to hold out violence, and by their outward glancing in their enemies eyes, to strike a terror in their hearts . . ." He follows by saying that men should openly declare their intentions by honestly displaying their armor when at court.

Jazerant

This defensive item consists of mail sandwiched between padding and covered with a layer of fine cloth or leather (see ***Low-Tech***, p. 107). The name comes from the Arabic *kazaghand*, which is first documented in the Middle East in the 12th century. By the 15th century, the *jazerant* had evolved into the *gestron* – the same armor, but shorter and better tailored. It is ideal for concealment. Any type of mail can be made into a jazerant but light mail is the easiest to hide.

The stats below are for a top made of light mail and a Status 2 doublet with long sleeves.

A light mail shirt with long sleeves: DR 3*, $750; 18 lbs., -2 DR vs. crushing, Holdout -1. A Status 2 long-sleeved doublet costs $360 and weighs 2.4 lbs. To combine these into a jazerant requires the *Combination Gadgets* rule in ***Low-Tech*** (p. 14). The base cost of this is $750 + $288 (or 0.8 × $360) = $1,038. Weight is 18 + 1.9 (or 0.8 × 2.4) = 19.9 lbs. According to the *Concealing Armor* rules (***Low-Tech***, p. 102), it costs 2 × base cost, or $2,076, to remove the -1 Holdout penalty.

Concealed Jazerant (torso, arms): DR 3*, $2,076, 19.9 lbs., Holdout +0, -2 DR vs. crushing.

Brigandine

While not generally worn as a concealed armor, the *brigandine* is almost as easy to hide as a jazerant. The trick is to use light plates and to carefully tailor it to snugly fit the wearer. Once this is done, all that is needed is an outer cover of nice cloth or soft leather to cover the rivets.

An expertly tailored light brigandine has DR 3, $5,400, 8.5 lbs., Holdout -2. A Status 1 sleeveless tunic costs $96 and weighs 1.6 lbs. The weight of the combination is 8.5 + 1.3 (or 0.8 × 1.6) = 9.8 lbs. Its cost is $5,400 + $77 (or 0.8 × $96) = $5,477. A brigandine that removes 2 points of Holdout penalties costs 3 × 5,477 = $16,431.

Note that the cost of the clothing is a tiny fraction of the total cost of this armor. The wearer may as well spend more money on finer clothing with which to conceal it.

Concealed Brigandine (torso): DR 3, $16,431, 9.8 lbs., Holdout +0.

Jack of Plates

This is an armor of small plates sandwiched between layers of padding (see ***Low-Tech***, p. 107). Superficially, it looks just like a quilted garment but, because the plates are overlapped and laced together (similar to light scale armor), it doesn't move like one, and the plates can be heard rubbing together when the wearer moves. The European jack of plates is listed in the *Armor Table* in ***Low-Tech*** (p. 110). Its Holdout penalty is -2 (DR 3, but +1 Holdout; see ***Low-Tech,*** p. 107).

A variant worn in Asia consisted of each plate (usually hexagonal in shape) being sewn into a separate pocket, which reduced weight and improved flexibility. In Japan it was called *kikko*. This type is much easier to conceal but, because the plates do not overlap, the armor provides less protection.

Asian Jack of Plates (torso): DR 2*, $300, 10 lbs., Holdout -1. There are small gaps between the plates that would let an impaling or piercing attack bypass the DR on a roll of 1 on 1d. The armor would also be susceptible to targeted chinks (p. B400) even though it is classed as flexible. Since clothing is already included in the construction, the cost to remove Holdout penalties is based just on the cost of the armor. *Double* the cost ($600) to remove the -1 Holdout penalty.

Reinforced Clothing

Instead of wearing regular armor and trying to hide it, there are other, more subtle ways to help protect a civilian from injury. These methods are more accurately called "reinforced clothing" rather than armor. Most of these modifications are very difficult to detect without a physical search.

The easiest way to reinforce clothing is to sew patches of mail or small plates in strategic locations. One of the Norse sagas talks about a warrior called Freystein who survived a sword cut on his neck because he had sewn plates of horn into the collar of his hooded felt hat.

Low-Tech has a section discussing reinforced armor (p. 105) and some of those methods could be applied to clothing as well. The most common was to sew metal splints to the inside of a sleeve or trouser leg (splinted armor), which gives the wearer DR 1 vs. cutting on the arms and/or legs. Add $20 and 1 lb. for the metal, and use the rules for concealing armor (***Low-Tech***, p. 102) to determine final cost and Holdout modifier. None of these items can be detected without a tactile search.

What follows are a few historical examples of reinforced clothing. They might not be appropriate for the middle of a battlefield, but they could save an adventurer's life if he's surprised by a knife during a tavern brawl or mugged by a cutthroat in a dark alley.

In the descriptions, DR with "*" denotes flexible armor.

Plated Sleeves

The Kumogakure Ryu ninja are reputed to have worn armored sleeves, but these are more likely to be regular splinted forearm armor (*kote*), and not specifically designed to be concealed. A better example of plated sleeves can be found in 16th-century England. They consist of lightly padded cloth sleeves with thin, narrow plates sewn into vertical pockets down the arm. They are constructed in a similar manner to an Asian jack of plates (above) except that the plates are rectangular instead of hexagonal. When assembled and covered with fine cloth, they look just like regular puffy sleeves on a 16th-century doublet. Because the plates do not overlap, they make no noise, but protection is lower than that provided by a regular jack of plates. These would work well if combined with, say, a brigandine (above). This construction can be concealed in the rest of the doublet as well. Treat as an Asian jack of plates.

Although lighter and more pliable defences than the cuirass, the brigandine and jack were very effectual for protection against arrows, for we find, according to Walsingham, that the rioters under Wat Tyler shot at a jack belonging to the Duke of Lancaster, but were unable to damage it, and eventually cut it to pieces with swords and axes.

– Charles John Ffoulkes, ***The Armourer and His Craft***

Plated-Sleeves (arms): DR 2*, $150, 5 lbs., Holdout -1. Small gaps between the plates might let an impaling or piercing attack bypass the DR on a roll of 1 on 1d. Targeting chinks (p. B400) applies. *Double* the cost ($300) to remove the -1 Holdout penalty.

Mail Collar

Mail was occasionally sewn into the collar of a garment to protect the wearer from assassination. The armor is particularly useful against blades, but not very good against strangulation. However, these collars are specifically constructed to improve rigidity; it is done either by threading leather thongs through the links and pulling them tight, or making a denser weave by using thicker or smaller links. The stats for banded mail (***Low-Tech***, p. 107) are appropriate for both types.

A light mail collar has DR 3*, $25, 0.6 lbs., -2 DR vs. crushing. Banding adds +50% (or $12.50) and 0.3 lbs., and gives it DR 3 against all attacks. However, because it is no longer flexible, its Holdout penalty is the same as its DR (or -3) plus an *additional* -1 for the neck location, which gives a total penalty of -4. A cloth collar has a negligible cost and only weighs 0.1 lb. Since the mail already includes stats for light padding, the GM can feel free to ignore the clothing when calculating the cost and weight of the concealed collar. So, to remove 4 points of Holdout penalties, the collar will cost five times the base cost, or $187.50.

Concealed Mail Collar: DR 3, $187.50, 0.9 lbs., Holdout +0.

> *Seating himself, he left his hat on as a mark of disrespect to the court – an affront they chose to ignore.*
>
> *– John Hostettler,* ***Dissenters, Radicals, Heretics and Blasphemers***

Secrète

The *secrète*, or *capeline*, is a small, close-fitting steel skullcap. Its very name implies its potential for concealment. James I mentions it by name in his *Basilikon Doron,* but versions of it can be found dating back to the Bronze Age. The *secrète* is basically a light steel dome with cutouts that allow the bottom edge to curve around the top of the ears. It has to be custom made for the wearer so as to fit the skull as closely as possible. The lightest versions can easily be covered by most types of hat so it is difficult to spot with a visual search. They can be even harder to find by integrating them into the construction of the hat itself.

The *secrète* is a light plate pot helm (DR 3) that is expertly tailored. At TL4 it can be made from *hardened steel* but *fluting* will give an *additional* -2 penalty to Holdout. These skullcaps fit closely to the head; they can have a lightly padded liner but it is not enough to protect the skull from concussion, so the potential for getting stunned is higher (see *Stunning Hats*, below). A Status 2 hat is $120, 0.5 lbs. A DR 3 pot helm is $200, 1.6 lbs., Holdout -4 (-3 from DR, -1 for an extremity). Combining the two is $200 + $96 (or 0.8 × $120) = $296, weight is 1.6 + 0.4 (or 0.8 × 0.5) = 2 lbs. Multiply cost by five to remove all 4 points of Holdout penalties ($1,480).

Concealed Iron Secrète (skull): DR 3, $1,480, 2 lbs., Holdout +0.

Stunning Hats

Unlike a regular helmet, reinforced hats have little or no padding – just a thin liner between the metal and the skull. If you are hit in the skull and the attack delivers more than *half* the total DR (including the skull's natural DR 2), then you must still roll vs. HT to avoid stunning (see *Effects of Stun*, p. B420).

Example: A DR 6 helmet is worn without padding. The combined DR of helmet and skull is 8. An attack does 4 points of damage, so the helmet resists the attack. The attack did not do more than half the combined DR and so the victim is in no danger of stunning. If the attack delivered 5 points of damage or more, then he *would* have to roll vs. HT to avoid stunning.

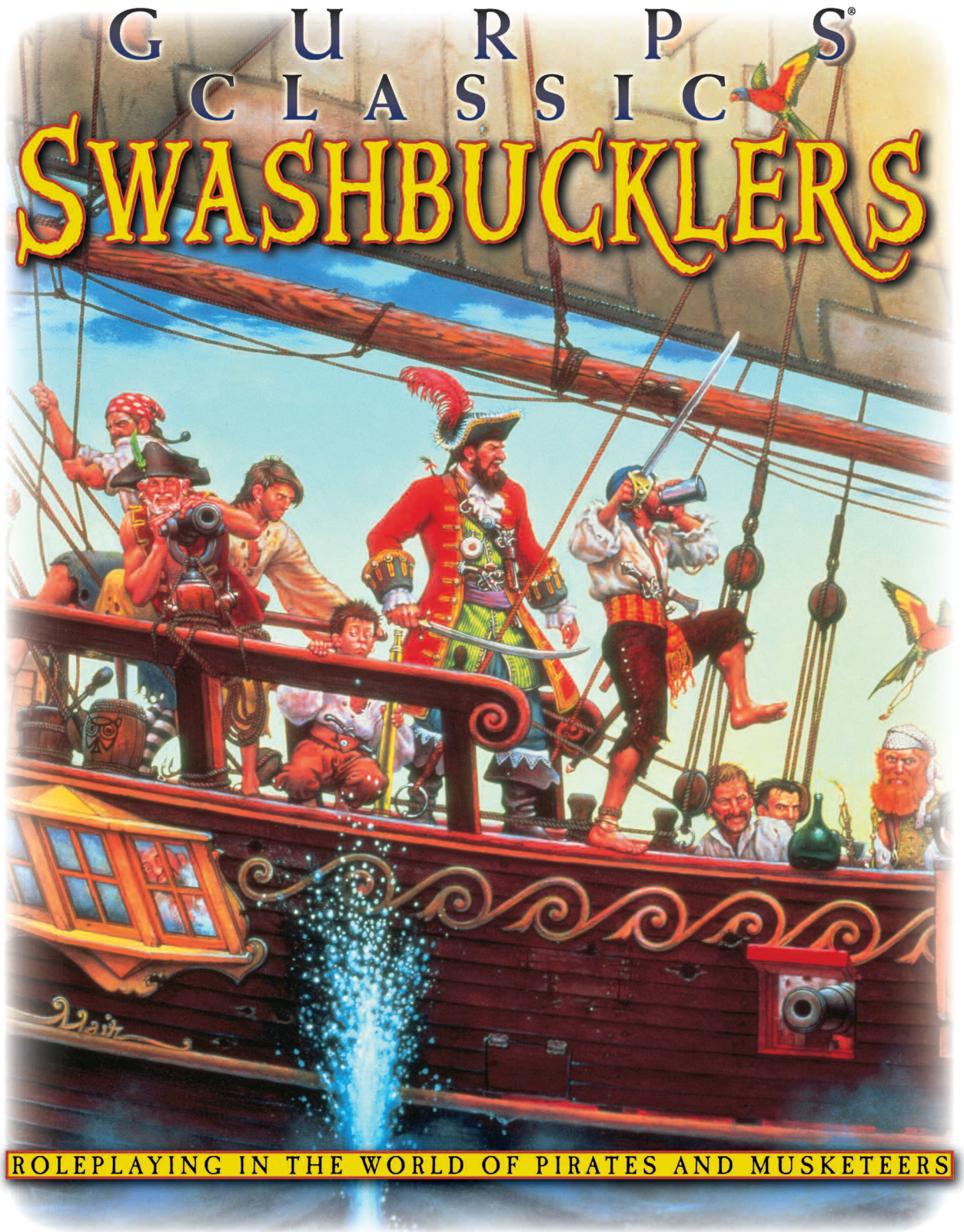
Judge Bradshaw's Hat

John Bradshaw was the man who presided over King Charles' trial in 1649. His hat survives and is currently on display in the Ashmolean Museum in Oxford. It is a typical 17th-century flat-topped, wide-brimmed hat, but it is reinforced with a steel rim and circular top plate with vertical steel strips in between. This plating is sandwiched between two layers of beaver and covered with velvet. Without the reinforcing, it would be a regular Status 2 hat ($120, 0.5 lbs.). However, the plates were made thick enough to resist a potential pistol shot from the gallery during the trial. It is similar to a flat-topped steel helmet with a brim, but it weighs three-quarters as much due to gaps between the vertical plates. Any attack delivering impaling or piercing damage bypasses the plates completely some of the time (1-2 on 1d). From the top, the plates give better coverage. Anyone shooting from the gallery (or any elevated position) would only bypass the plates on a roll of 1.

Bradshaw's Hat (skull): DR 6, $5,808, 3.3 lbs., Holdout -4. From above, the brim protects the face on a roll of 2-6 and the gaps in the plates mean that DR is bypassed on a roll of 1 for any impaling or piercing attack. From the same level, it protects the face only on a roll of 6 and DR is bypassed completely on a roll of 1-2.

About the Author

Dan Howard has an arts degree in history and classical studies. He is co-author of ***GURPS Low-Tech*** and author of many articles and supplements for Steve Jackson Games. Dan has written a book titled *Bronze Age Military Equipment,* for Pen and Sword Books Ltd. and has published an ebook called ***Compact Castles,*** available on e23. He holds a second dan black belt in Oh Do Kwan Tae Kwon Do and has competed internationally. Other interests include military history, ancient armor research, permaculture gardening, and renewable energy. He lives in Maitland, Australia, with his wife and three children.



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Eidetic Memory

Low-Tech Armor Design

by David L. Pulver

Low-tech armor design has long been a contentious subject in ***GURPS.*** Game designers have used historical and archeological scholarship, along with information gleaned from modern testing by armorers and enthusiasts who recreate ancient and medieval armor. Yet this approach can be hampered by a lack of hard data, largely due to the relatively few instances in the last century or two of people using real low-tech weapons against people protected by real low-tech armor with intent to kill.

In contrast, we have very good data on the penetration of modern and historical ballistic weapons through materials like iron and steel, as well the weights by thickness per unit area of such plating, and, from anatomical studies, of the area of the human body. Moreover, ***GURPS*** has already set specific values for the protective qualities of such materials. These values have, of necessity, been calculated for the vehicular design rules I've worked on, and some of them may be applicable to personal armor as well. I have used them for this purpose, on occasion, in my own ***GURPS*** campaigns.

What this article provides are *highly optional* rules for a "ground up" look at TL1-4 armor design, using a system based on that used to calculate vehicular and high-tech armor. These rules are not intended to replace those found in ***GURPS Low-Tech,*** but rather to provide further options for the GM who likes tinkering with the way armor is created. The system is by no means as historical as ***Low-Tech,*** but it is highly customizable, and does offer some further flexibility and insight into the nature of armor.

System Overview

This system uses surface area and material values to build armor on a piece-by-piece basis. In both ***GURPS*** *Third Edition* and ***GURPS*** *Fourth Edition,* a basic principle of ***GURPS*** has been that one point of Damage Resistance is equal to the protection of 1/70 of an inch of rolled homogenous armor steel plate (RHA for short). That is, RHA steel has DR 70 per inch. (Typical mild steel, like that used in a ship hull or a car body, has about DR 50-55 per inch.) These statistics have set the damage and protection of most TL5+ weapons and armor. What is RHA? It's a general term used for the grade of modern steel armor used as a basis of TL6-7 tank hulls and other applications, and is essentially a standard, good-quality high-strength low-alloy steel. As the name suggests, it is homogenous rather than face-hardened, to avoid making it too brittle.

Another concept used in armor discussions is weight of armor per square foot. How is this derived? Quite simply: RHA is steel, and typical steel has a density of 490 lbs. per cubic foot. An inch is 1/12 of a foot, so a square foot of steel therefore weighs 490/12 = 40.83 lbs. Since one inch of RHA is set at DR 70 in ***GURPS***, then that means that each point of RHA DR weighs 40.83/70 = 0.583 lbs. per square foot. Similar calculations can be used for other armor materials if the density is known and the armor's DR per inch can be estimated. (Armor DR per inch can be estimated from bullet- and projectile-penetration studies.) Material values of this type, derived from armor tables developed for designing vehicular armor, are presented below.

You can also use it to build multiple pieces at once, by selecting a greater coverage of armor – though doing so may be less realistic than designing each piece individually. These rules can be used with options in ***Low-Tech*** or the ***Basic Set.***

Follow this step-by-step procedure to design new armor. Most of the steps are very fast!

Step 1: Tech Level and Name. Pick the TL at which the armor is built, as well as an appropriate name.

Step 2: Coverage and Surface Area: Decide on the hit location – or partial location – that will be protected by the piece of armor being built. Calculate its surface area coverage in square feet. Record this value.

Step 3: Armor Material: Choose the material used in that piece of armor. Record its material weight and cost multipliers.

Step 4: Construction Type: Choose a construction type, such as mail or plate. Some types are only available for certain materials.

Step 5: Damage Resistance: Decide on the armor's DR.

Step 6: Time to Don: Determine if the armor counts as flexible, and calculate the time it takes to put it on. (This works with the rules on p. 102 of ***Low-Tech.***)

Step 7: Weight and Cost: Calculate these stats using a formula based on the values determined in steps 1-5.

Step 8: Armor Statistics: Record the armor's statistics block. Take note of any special factors that apply to the armor, such as reduced DR against crushing attacks.

Optionally, you can then add any customization options from ***GURPS Low-Tech.*** See *Compatibility with Low-Tech* (below) for exceptions.

Compatibility With *Low-Tech*

These rules are designed to work with the ***Basic Set*** without needing ***Low-Tech,*** but they can also be used with the armor rules in ***Low-Tech***.

To do this once the armor is designed, feel free to add any customizing options from ***Low-Tech***. The only options that should not be included are those that relate to construction or material qualities already covered implicitly in the design formula, such as the use of materials like stone, bronze, or wood, or the use of cheaper or more expensive quality materials.

Step 1: Tech Level and Name

This system can build armor from TL0 on up. Statistics are even provided for a few TL6-8 materials as a comparison, and for building armor for modern mercenaries or time travelers who create low-tech suits out of modern materials like titanium alloy.

The armor's material and construction type can use any methods available up to that TL. Thus, the armor's TL is the higher of the material or construction TL. You may want to give the piece a unique name, as it's hard to keep straight the many variations of "light cheap iron DR 5 shin armor"!

Example: Let's build some TL4 armor. We'll call it a "Zikaran Breastplate," named for the city where it is manufactured.

Step 2: Coverage and Surface Area

Based on data used for burn victims, the human (male) body has an average area of about 21 square feet. About 7 square feet of this is devoted to the torso. Using numbers derived from the *Armor Locations* table from ***Low-Tech*** (p. 100), see the *Coverage Table* (below).

Example: The armor will cover the chest (5.25 square feet).

Extra Detail: Armor, Surface Area, and Size

As a general rule each +1 or -1 to SM affects surface area by the factor shown in the *Adjusting for SM* chart (***Low-Tech,*** p. 8). You can apply that factor to surface area right away, or just multiply the final cost and weight by the factor.

For more detail, you can scale armor individually to particular body sizes and weights. To do this, divide the character weight by 150 and raise it to the 2/3 power (i.e., find the cube root, then square it). Use this as a multiple to surface area, rather than adjusting for SM. The formula is:

Coverage Table

Partial locations are in italics. Those locations marked as "both" protect two limbs (or partial limbs) or extremities; you can armor just one of them – e.g., the left leg – for half the surface area. Total body coverage is 21.35 square feet, determined by adding up the locations Head (2.1), Neck (0.35), Torso (7), Arms (3.5), Hands (0.7), Legs (7), and Feet (0.7).

Location	*Area Coverage*	*Note*
Head	2.1 square feet	Includes skull and face.
Skull	1.4 square feet	
Face	0.7 square feet	
Neck	0.35 square feet	
Torso	7 square feet	Includes chest and abdomen*.
Chest	5.25 square feet	No penalty to target; treat as torso*.
Abdomen	1.75 square feet	-1 to target; treat as torso*; includes groin.
Groin	0.35 square feet	
Both Arms	3.5 square feet	Includes shoulders, upper arms, elbows, and forearms.
Both Shoulders	0.7 square feet	Protects arm only on 1d roll of 6.
Both Upper Arms	0.7 square feet	Protects arm only on 1d roll of 5.
Both Elbows	0.35 square feet	Protects arm only on 1d roll of 4.
Both Forearms	1.75 square feet	Protects arm only on 1d roll of 1-3.
Both Hands	0.7 square feet	
Both Legs	7 square feet	Includes thighs, knees, and shins.
Both Thighs	3.15 square feet	Protects legs only on 1d roll of 5-6.
Both Knees	0.35 square feet	Protects legs only on 1d roll of 4.
Both Shins	3.5 square feet	Protects legs only on 1d roll of 1-3.
Both Feet	0.7 square feet	

* There's a 1-in-6 chance a hit to these locations will hit the vitals.

Surface Area Multiplier = (character's weight / 150)$^{2/3}$.

Example: Our armor won't use these extra detail rules, but suppose we built the armor for a slender female elf with an 88 lb. weight. If so, the optional surface area multiplier would be (88 / 150)$^{2/3}$ = 0.7, so the 5.25 square feet torso would be only 3.675 square feet.

Step 3: Armor Material

Choose a material type for the armor. Several types are available, described below, with stats shown in the *Armor Material Table* on p. 18.

Bone (TL0): Animal bone is strong but brittle, and can be made into scale armor or helmets.

Cloth (TL0): This is tough padded cloth fabric.

Horn (TL0): This includes horns and various natural materials such as ivory, shells, and hooves; used to make scale armor.

Leather (TL0): This is prepared cured animal hide.

Wood (TL0): This is dense wood such as oak or teak.

Bronze, Cheap (TL1): The copper-tin alloy is the most common material for TL1 armor and still in use at TL2, but rarer at higher TLs due to its cost.

Bronze, Good (TL1): This is the typical quality of bronze used in most armor.

Copper (TL1): Too soft to make good armor, but useful for ceremonial armor or very early TL1, or for some fey folk or mages who cannot abide the touch of iron.

Stone (TL1): This is used for scale armor assembled from pieces of chipped stone.

Iron, Cheap (TL2): This represents average-quality smith-forged iron, roughly the equivalent of mass-produced mild steel of today.

Iron, Good (TL2): This represents low-tech, high-quality smith-forged iron. Limitations on the technology mean that larger iron plates are unavailable until TL4.

Lead (TL2): Too soft and heavy to make good metal armor, but some super-strong races that don't like the touch of iron may use it anyway.

Steel, Strong (TL3): Roughly equivalent to modern RHA steel, but requiring a lot more effort to make.

Steel, Hard (TL4): This represents the highest-quality smith forged steel.

Adamant (TL^): This is a magical crystal or stone with triple the strength of stone, as detailed in ***GURPS Fantasy***. It may represent other fantastic crystalline materials.

Orichalcum (TL^): This is a legendary metal with triple the strength of bronze, as detailed in ***Fantasy***. It may represent various super-strong fantasy metals.

As a comparison and for modern versions of historical armor, a few higher-tech armor materials are included on the table. They also make a good baseline for what semi-magical alloys or legendary master smiths might accomplish in fantasy settings.

Aluminum Alloy (TL6): One-third the density of steel, but only half as strong.

Steel, Very Hard (TL7): Armor incorporating high-hardness steel alloys.

Titanium Alloy (TL7): This is an early "wonder material" (first refined in 1946). Titanium is very strong for its weight, and retains that strength well at high temperatures.

Aramid Fiber (TL8): The material used in Kevlar soft body armor can also represent ballistic plastic fabric or fantastic giant-spider-silk armor (TL^).

Material data on cane, straw, and paper armor types (detailed in ***Low-Tech***) were not available. If these exotic armor types are desired, just use the ***Low-Tech*** system.

Example: We decide to use good iron as the material (WM 0.6, CM $25).

Adhemar: Your armor, sir.
William: What about it?
Adhemar: How stylish of you to joust in an antique. You'll start a new fashion if you win. My grandfather will be able to wear his in public again, and a shield, how quaint.

– A Knight's Tale

Armor Material Table Key

TL: The Tech Level at which the material becomes available for armor.

Material: A designation for the material.

WM: This is the armor weight multiplier; it is the weight of one square foot of armor with DR 1, assuming the armor is of solid, flat construction.

Cost: The entry shows the base cost per pound of worked material.

DR/inch: For reference purposes, this is the DR per inch of a one-inch (25mm) thickness of that material. Some materials have a split DR as detailed in their notes.

Max DR: To avoid armor of unreasonable thickness for wearing, this is the maximum DR that any single layer of worn armor should possess.

Notes: Special notes regarding the armor, abbreviated as follows.

B (ballistic) indicates that the armor's DR is multiplied by 4 against cutting or piercing damage. The Max DR limit applies *before* factoring in this multiplier.

C indicates the armor is combustible; if DR is penetrated by *burning* damage it can catch fire. See *Making Things Burn* (p. B433); treat the armor as *resistant*.

F indicates the armor material is flexible *if* it has no more than 25% of its rated DR per inch. Flexible armor provides flexible DR, but can be donned in 2/3 the usual time.

S indicates the armor is semi-ablative (losing 1 DR per 10 damage absorbed).

Construction: The construction types (see step 4, below) that can be used for that material.

Armor Material Table

TL	Material	WM	Cost	DR/inch	Max DR	Notes	Construction
Low-Tech Materials							
0	Bone	1	$12.5	8	4	S	scale, solid
0	Cloth	0.85	$8	4	4	CF	fabric
0	Horn	1	$12.5	8	4	–	scale, solid
0	Leather	0.9	$10	8	4	CF	fabric, layered fabric, scale
0	Wood	1.4	$3	1.5	2	CS	scale, solid
1	Bronze, cheap	0.9	$60*	48	9	–	mail, plate, scale, solid
1	Bronze, good	0.6	$100*	68	14	–	mail, plate, scale, solid
1	Copper	1.6	$80	30	5	–	mail, plate, scale, solid
1	Stone	1.2	$12.5	13	5	S	scale, solid
2	Iron, cheap	0.8	$15*	52	10	–	mail, plate, scale, solid
2	Iron, good	0.6	$25*	68	14	–	mail, plate, scale, solid
2	Lead	2	$12.5*	30	4	–	plate, scale, solid
3	Steel, strong	0.58	$50*	70	14	–	mail, plate, scale, solid
4	Steel, hard	0.5	$250*	81	16	–	mail, plate, scale, solid
^	Adamant	0.33	$900*	27	15	S	scale, solid
^	Orichalcum	0.2	$3,000*	204	41	–	mail, plate, scale, solid
High-Tech Materials							
6	Aluminum	0.45	$15	31	5	–	mail, plate, scale, solid
7	Steel, very hard	0.45	$20	90	18	–	mail, plate, scale, solid
7	Titanium	0.4	$50	57	12	–	mail, plate, scale, solid
8	Aramid Fabric	0.16	$80	12	6	BF	fabric, layered

* Divide cost by 5 at TL5+. Divide cost of steel (only) by 25 at TL6+.

That armor was forged in the foundries of my grandfather. Wear it proudly, and it will carry you to victory!

– Thorin, in ***The Hobbit***

Step 4: Construction Type

The weight of armor material assumes solid construction from armor with no joins or gaps. Obviously, this is practical for flexible material such as cloth, but not for rigid armor that is designed to be wearable and removable. The *Armor Material Table* lists what construction types are applicable for given materials at various TLs. Refer to the descriptions and the *Construction Table* below, and select an appropriate construction type from those available.

Fabric: This is simply a padded or quilted garment.

Layered Fabric: Multiple layers of stiffer fabric for better protection against impaling damage.

Scales: This turns a solid material like iron into a flexible material by cutting the material into small platelets or chips and lacing them together. Scales are heavy but inexpensive. A wide variety of material can be made into scales. This also includes various lamellar and splinted armor designs.

Mail: Uses interlocking metal wire rings. This is costlier than scales, but provides better protection for its weight.

Segmented Plate: Uses large, overlapping horizontal bands of armor that are laced together, such as Roman *lorica segmenta*. It is fairly inexpensive (for metal plate armor) but heavy.

Plate: Armor made of solid plates or, sometimes, castings, carefully shaped and designed to use less material in areas determined to be of reduced vulnerability in order save weight. This reduces the weight per point of DR but leaves the armor vulnerable to both *Chinks in Armor* (p. B400) and *Harsh Realism – Armor Gaps* (see ***Low-Tech,*** p. 101).

Solid: This represents flat or gently curved plates. It's not really possible for armor added to a humanoid form, but it can be used to represent substantially cheaper flat-topped or faced helmets if applied to the skull and for things like armor for vehicles, houses, doors, boxes, etc. Rules for targeting chinks in armor should not apply.

Example: The construction will be Plate.

Construction Table Key

TL: The minimum TL that this construction option is available. Note that often this is higher than the TL of the material.

CW: The construction weight multiplier.

CC: The construction cost multiplier.

Don: Time to put on armor, per square foot.

Notes: The effect on DR, as covered in step 5.

Construction Table

TL	Type	CW	CC	Don	Min DR	Notes
0	Fabric	1	1	2.14	1	-1 DR vs. impaling.
0*	Layered Fabric	1.2	1.5	4.28	2	
1	Scales	1.1	0.8	4.28	2	-1 DR vs. crushing unless armor is DR 5+.
2	Mail	0.9	1.2	2.14	2	-2 DR vs. crushing.†
2	Segmented Plate	1.45	1.5	6.42	3	
1‡	Plate	0.8	5	6.42	3	
1‡	Solid	1	1	2	10	Rarely used in body armor.

* TL1 for leather.
† If mail has DR 10 or more, it has -20% DR vs. *crushing* damage instead of subtracting 2.
‡ If made of iron or steel it is TL4 when used for any location except the head.

Step 5: Damage Resistance

Choose the armor's DR. Considerations to keep in mind are:

Maximum DR: The armor can't exceed the Max DR value for the material type specified on the *Armor Materials Table* (p. 18).

Minimum DR: The armor can't be less than the Min DR specified on the *Construction Table* (above).

A greater DR will increase cost and weight, as shown in step 7. If this is a major concern, calculate the weight and cost per point of DR first, and then choose actual DR.

Example: Good iron can have up to DR 14; plate requires at least DR 3. We go with DR 7. This fits nicely between the medium and heavy plate in ***Low-Tech***.

Step 6: Time to Don

Time required to put on the armor is calculated by multiplying the Don value of the construction type by the covered surface area. If the armor uses a flexible material type and it has 25% or less of the DR per inch, it is flexible; if so multiply time to don by 2/3. Round all times to the nearest second.

Example: Since the armor is 5.25 square feet, it takes 5.25 (area) × 6.42 (Don value of plate) = 33.7 seconds to don, rounded to 34 seconds.

Step 7: Weight and Cost

Use the formula below to calculate the weight and cost of the armor. To instead calculate the weight and cost *per point* of DR, just use "DR = 1" in the formula.

Armor weight (in pounds) = LSA × WM × CW × DR.
Armor cost = armor weight × CM × CC.

LSA is the location surface area from the *Coverage Table* (p. 16).

WM is the material weight from the *Armor Material Table* (p. 18).

CW is the construction weight multiplier from the *Construction Table* (above).

DR is Damage Resistance.

CM is the material cost from the *Armor Material Table.*

CC is the construction cost multiplier from the *Construction Table*.

The final weight and cost, after *all* calculations are done, should be rounded to two significant figures – that is, round $126 to $130, or 23.5 lbs. to 23 lbs.

Example: Let's work out how much the armor weighs. The armor has LSA 5.25 (chest area) × WM 0.6 (good iron) × CW 0.8 (plate) × DR 7 = 17.64 lbs. Cost is armor weight 17.64 × CM $25 (good iron) × CC 5 (plate) = $2,205. We round the weight to 18 lbs. and the cost to $2,200.

Step 8: Armor Statistics

Record the armor's statistics block using the standard format with the addition of a "don time" ("Don") entry. Note any modifications to DR against different damage types. An * after DR should denote flexible armor, as defined under *Time to Don* (above).

Example: Our armor has these statistics:

TL	Armor	Location	DR	Cost	Weight	Don	Notes
4	Zakaran Breastplate	Chest	7	$2,200	18	34	–

Impressive! You've upgraded your armor! I've made some upgrades of my own . . .
– Iron Monger, in ***Iron Man***

About the Columnist

David L. Pulver is a Canadian freelance author. An avid SF fan, he began roleplaying in junior high with the newly released ***Basic Dungeons & Dragons.*** Upon graduating from university, he decided to become a game designer. Since then, David has written over 70 roleplaying game books, and he has worked as a staff writer, editor, and line developer for Steve Jackson Games and Guardians of Order. He is best known for creating ***Transhuman Space,*** co-authoring the ***Big Eyes, Small Mouth*** anime RPG, and writing countless ***GURPS*** books.

The Puckle Gun

by Graeme Davis

GURPS Low-Tech (pp. 92-93) offers a brief description of the Puckle Gun, but this unusual weapon has quite an interesting history and design. Expanded rules and ***GURPS*** stats for four versions can better represent its once-cutting-edge concepts.

History

English inventor, lawyer, and writer James Puckle patented his "Defence Gun" in 1718. A tripod-mounted, heavy musket, its main purpose was to defend ships against boarders. The gun used a revolving magazine that made it capable of firing nine rounds per minute – more than three times the fire rate of a conventional musket in the hands of a trained and experienced soldier.

Another innovation was the weapon's choice of barrels: one firing conventional round shot for use against Christians, and another firing square shot for infidel Turks (which, it was suggested, would convince the Turks of "the benefits of Christian civilization"). The Turks, or more accurately the Barbary Corsairs who owed nominal allegiance to the Ottoman Empire, were a constant threat to Christian shipping in the Mediterranean and Atlantic until their bases in present-day Libya and Tunisia were conquered by France in 1830. (The United States Marine Corps famously went to "the shores of Tripoli" in the First Barbary War of 1810-1815.)

The Puckle Gun was demonstrated successfully more than once. The *London Journal* of March 31, 1722 reported that "one man discharged it 63 times in seven minutes" in a rainstorm. Damp is one of the greatest problems facing black-powder weapons, and this sustained fire rate in the rain (which must have included time spent changing magazines) was impressive.

Despite this, the Puckle Gun was not adopted by the British armed forces, and Puckle had trouble finding investors. One newspaper of the time observed drily that the gun "only wounded those who hold shares therein." A major drawback was the complexity of some components. Although details are sketchy, consistently machining the breech and the cartridges to the tolerances needed for a good gas seal must have been a challenge.

Although the Puckle Gun never entered military service, Lord Montagu purchased at least two Puckle Guns in 1722 for an expedition to colonize the Caribbean islands of St. Lucia and St. Vincent. Threatened with French intervention from Martinique and unable to secure the backing of Royal Navy ships in the Caribbean, the expedition withdrew before accomplishing its goal. It is not known whether the Puckle Guns were ever fired.

The Gun

The details of the Puckle Gun are hard to pin down. The few documentary sources report its bore as 1," 1.25," and 1.5"; its revolving magazine is said to hold either nine or eleven shots. Puckle's drawing shows six- and nine-chambered cylinders for round shot and a six-chambered cylinder for square shot.

The barrel of a Puckle Gun was 3' long and made of "brass," which at that time meant cast bronze. The choice of metal may reflect the gun's intended use as a shipboard weapon; an iron barrel would have been prone to rust.

The preloaded brass cartridges were mounted on a circular plate that screwed into place at the breech of the weapon. After firing, the screw was loosened, the plate was rotated to bring the next cartridge into position, and the screw was tightened again before firing.

The weapon was swivel-mounted on a tripod. It had another screw mechanism (called a "crane" in Puckle's drawing) to elevate and depress the barrel.

> *. . . moreover, so great is the rapidity of fire, that ships armed with the gun cannot be boarded by any attacking force.*
>
> *– James Puckle*

Surviving Examples

Blackmore and Willbanks (see *Bibliography,* p. 22) both mention a Puckle Gun in the Tower of London Armoury, and imply that it is an original. Online references call attention to one at the Royal Armouries Museum in Leeds, which was opened in 1996 to display more of the collection. This seems likely to be the one from London.

Two Puckle Guns are on display at former Montagu homes in England: one at Boughton House in Northamptonshire and the other at the Palace of Beaulieu (pronounced *Byoolee* by the English) in Essex. It seems likely that these are from Lord Montagu's ill-fated Caribbean expedition.

Puckle Gun Table

In addition to the nine-shot, 1.25" Puckle Gun covered in ***GURPS Low-Tech***, the table below presents a 1" Puckle Gun with an 11-shot magazine, a 1.5" gun with a six-shot magazine, and a 1" square-barreled version with a six-shot magazine. Terms and notation are as defined on pp. B268-271.

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*Notes*
4	Puckle Gun (1" round)	2d-2 pi++	1	55/510	75/1.9	1	11(10i)	16M†	-8	1	$1,700	[1, 2]
4	Puckle Gun (1" square)	2d pi++	0	40/400	40/1.9	1	6(10i)	18M†	-6	1	$1,800	[1, 2, 3]
4	Puckle Gun (1.25" round)	2d+1 pi++	1	55/510	90/3.6	1	9(10i)	18M†	-8	1	$1,800	[1, 2]
4	Puckle Gun (1.5" round)	3d+1 pi++	2	55/510	90/6.2	1	6(10i)	20M†	-10	3	$2,000	[1, 2]

Notes

[1] Normally used with a tripod mount: $380, 20 lbs.

[2] Empty spare cylinder $130, 6.5 lbs. (1" round); $145, 6.5 lbs. (1" square); $200, 10 lbs. (1.25" round); or $290, 14.5 lbs. (1.5" round).

[3] Malf. 12 (p. B407).

Defending King George, your country and lawes,
Is defending yourselves and the Protestant cause.
– James Puckle

There is a replica Puckle Gun at the Buckler's Hard Maritime Museum in Hampshire, England. The village of Buckler's Hard was founded by Lord Montagu as a port for the Caribbean trade, and was originally called Montagu Town. However, Montagu's trading enterprise fared little better than his expedition.

ADVENTURES

As a TL4 weapon, the Puckle Gun can appear in any historical and quasi-historical campaign set in the 18th century, including the late ***GURPS Swashbucklers*** period, Western involvement in Tokugawa-era Japan, and Russia in the reign of Peter the Great. Its fire rate exceeded that of an infantry musket well into the 19th century, so it would remain effective even in later settings like ***GURPS Scarlet Pimpernel*** and ***GURPS Age of Napoleon.***

A ***GURPS*** campaign can ignore the manufacturing problems that kept the Puckle Gun from being adopted by the British military. This rapid-fire weapon becomes a familiar sight in British military actions by land and sea, foreshadowing the appearance of water-cooled machine guns in World War I.

It is less of a departure to suppose that one or two talented metallurgists and gunsmiths can make Puckle Guns in limited numbers. While too rare and expensive for widespread deployment, the gun is issued to 18th-century special forces teams for use in clandestine missions. Puckle Guns are also highly sought after by groups of adventurers, foreign agents, and ambitious villains.

The following adventure seeds suggest ways to introduce the Puckle Gun into 18th-century ***GURPS*** campaigns.

London, 1718

The War of the Quadruple Alliance (1718-1720) sees Britain allied with France, the Holy Roman Empire, and the Dutch Republic against Spain. Among Britain's concerns in this war is ending Spanish support for the rebellious Jacobite faction in Scotland.

The British government is not interested in sharing Puckle's weapon. Governments across Europe – even allies – would pay well for Puckle's drawings, and even more for the prototype itself. The Jacobites would love to spirit such a weapon north to Scotland and turn it against the hated English on the battlefield.

The PCs are foreign agents or British spy-hunters. To complicate matters, multiple groups of foreign agents skulk around London, racing each other to obtain the Puckle Gun for their country or faction.

One set of plans is in the Patent Office in London, and another is at the offices of the Master-General of the Ordnance, along with a working prototype. Both these locations are fairly secure. If enemy agents cannot breach them, they may decide to kidnap Puckle or members of his family, and pressure him into obtaining the gun for them or producing a new set of drawings.

For an added twist, Puckle might not be the designer of the weapon that bears his name. As a solicitor he often acts as a legal proxy for others, and the gun's actual designer has a reason for wishing to remain anonymous. The race is on to discover the identity of the gun's true inventor and to reach him before the agents of any other power.

The Caribbean, 1718-1722

The year 1718 saw the deaths of Edward "Blackbeard" Teach and Stede Bonnet, two of the last great figures of the Golden Age of Piracy. Lord Montagu – who is familiar with the weapon and has an interest in expanding Britain's Caribbean territories – hires the PCs to conduct secret field trials against the pirates. In addition to taking on two notorious pirates, the expedition is targeted by the forces of France and Holland, Britain's rivals in the Caribbean. Both would love to add this weapon to their own arsenals.

Montagu's expedition to St. Lucia and St. Vincent was the only confirmed instance of Puckle Guns going into the field. Historically, the French fleet at Martinique did not attack Montagu's seven ships, but in a ***GURPS*** campaign, having seen their effectiveness on the battlefield during the War of the Quadruple Alliance, French officers will stop at nothing to acquire the weapons.

New England, 1721-1725

Known by various names (including Dummer's War, Father Rale's War, and the Fourth Indian War), fighting has broken out along the border between New England and New France (modern-day Maine, Vermont, Quebec, and New Brunswick). Backed by France, warriors of the Wabanaki Confederacy have attacked British settlements, sparking a series of reprisal raids by British forces. As matters escalate, three British forts at the mouth of the Kennebeck River are attacked.

The Puckle Gun was designed as a point defense weapon, and its presence at any of these forts will strengthen them considerably. Adventurers accompanying Lord Montagu's Caribbean expedition may find themselves diverted to New England to strengthen the frontier forts. Those investigators in London may be sent to New England with a handful of the new weapons. In either case, they must run a French gauntlet to reach their destination.

The Ohio Territory, 1754-1763

The Puckle Gun was aging by the time of the French and Indian War, but it could still outperform a standard infantry musket. As France and Britain struggle for control of the Ohio Territory, both sides build forts along the Ohio, Allegheny, and Monongahela Rivers. Control of these forts is the key to winning the war, and any weapon that strengthens their defenses is valuable.

As a British expedition under Captain William Trent constructs a fort at the Forks of the Ohio, Major George Washington of the Virginia Militia returns from a diplomatic mission and reports to Governor Dinwiddie that the French will not withdraw. War seems inevitable. Washington, promoted to lieutenant colonel, is ordered to strengthen Trent's forces at the new Fort Prince George.

The most pressing need is for artillery, but Dinwiddie's arsenal at Williamsburg is small. Washington strips a handful of Puckle Guns from the city's walls and orders the PCs to hurry ahead while he assembles more reinforcements. They must make their way to Fort Prince George through largely unknown territory, confronting natural hazards and hostile natives along the way. They may arrive too late and find the French have destroyed Fort Prince George and begun construction of their own Fort Duquesne – or they may be just in time to fight off a determined French attack and change the course of history.

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"Puckle Gun 1781," **youtube.com/watch?v=8nTqV7o2jE8.** Shows a model Puckle Gun firing. A hot wire is used instead of a flintlock firing mechanism.

"An Early Machine Gun," **upload.wikimedia.org/wikipedia/commons/3/31/Puckle_gun_advertisement.jpg.** Sales sketch shows Puckle's annotated drawing.

About the Author

Graeme Davis is the author of ***GURPS Vikings, GURPS Middle Ages 1,*** and ***GURPS Faerie,*** among other publications. He works as a freelance writer and editor, mostly in the video games industry, and is line developer for Rogue Games' ***Colonial Gothic*** roleplaying game. He first came across the Puckle Gun while researching unusual technologies for SEGA's 18th-century strategy game *Empire: Total War.*

Delayed Gratification

by Douglas H. Cole

The heartstone pulsed on his foe's chest: Strike it once, and the entire undead legion would collapse into dust.

Indigo Montana had tried to strike it directly, but his enemy knew what to protect. Indirect, then: a lightning-fast thrust low at the unprotected leg. As expected, his foe moved to counter – but Indigo was too fast, and the necromancer's guard too high. He scored, and seeing his opening, struck at the heartstone, his foe's sword out of position for a good parry.

Most low-tech fights get up close and personal – hand-to-hand combat in all its "grunting, sweating, staring into the other guy's eyes" glory. ***GURPS*** executes these struggles on a one-second time scale – perfect for allowing specific details into your fight. These not only include mighty swings and lightning-fast sneaky thrusts, but also sequences of blows designed to open your foe up to that one successful attack that is so critical in ***GURPS*** combat resolution.

The Deceptive Attack allows trading -2 to your attack roll for -1 to any defense your foe attempts in warding off that particular attack. The rules are not specific as to *what* constitutes such an attack (see *What Is . . . a Deceptive Attack,* ***GURPS Martial Arts,*** p. 111), but it can include timing, angle, and speed. It allows skilled attackers to face equally skilled defenders on an appropriately level footing, preventing fights from devolving into fishing for a critical hit.

Currently missing as an attack possibility is a way to throw an *actual blow* that is designed to compromise your foe's defenses for a follow-up. Here is one optional rule you might add to your campaign.

> *I watched you in the battlefield last night. I never saw anyone fight like you.*
>
> *– Godric, in* ***True Blood*** *#2.5*

Setup Attack

A *Setup Attack* – a new attack maneuver – combines the delayed gratification of a Feint with the attack/defense roll tradeoff of the Deceptive Attack and Riposte.

The basic Setup Attack is a Deceptive Attack whose effect is delayed until the next attack. The aggressor launches whatever attack he wants, and voluntarily takes -2 to hit for every -1 he wants to inflict on his foe's *next* defense if his roll on the Setup Attack succeeds. The basic Setup Attack has all the rules and restrictions of a Deceptive Attack – you cannot lower your skill below 10, it is incompatible with Telegraphic Attack on that blow, etc.

The advantage of the Setup Attack is that the defensive penalty stacks with *any* attack on the next turn. So, while you can't throw a Deceptive Telegraphic Attack, you *can* deliver a Setup Attack, followed by a Telegraphic Attack, hoping the effectiveness of your setup more than offsets the +2 to defenses Telegraphic Attack causes.

The defensive penalties imparted by a Setup Attack have an expiration date: the next attack launched by the aggressor (see *Multiple Attacks and Setups,* p. 24), or at the end of the attacker's following turn – *whichever comes first.* If he cannot take advantage of the opening your setup created immediately or during his next turn, the effect is lost.

The defender may be able to avoid your attack and the setup through skill or nimbleness. His margin of success on his defense (Block, Dodge, or Parry) always directly reduces the applied penalty from the Setup Attack, and may reduce it to zero. A critical success on a defense roll invalidates *any* setup (even a cumulative one, if using *Stacked Setups,* p. 24).

Example: Arconix is wielding a shortsword, facing Baltak, who is armed with a one-handed spear and a medium shield (+2 DB). Arconix has Shortsword-16, while Baltak has Spear-12 and Shield-12, giving Parry and Block of 11. Arconix attempts a Setup Attack and chooses to lower his skill to 10, inflicting -3 to his foe's defenses on his next turn. He makes his roll exactly, but Baltak blocks, making his own roll by 1; Arconix's setup is reduced to -2. On his next turn, Arconix risks a Deceptive All-Out Attack (Determined), launching a single swing to Baltak's torso at Shortsword-14, with a -3 to Baltak's defenses from his Deceptive Attack, *plus* the -2 from the Setup Attack last turn. Arconix is near-certain to hit, and Baltak's defenses are reduced by -5 this attack, leaving a Parry and Block of 6. Baltak will probably need to retreat, and even then, the odds are not in his favor.

The following turn, Arconix tries again. This time, he launches an All-Out Attack (Double). His first attack is rolled vs. Shortsword-12, as he accepts -4 to his first attack in exchange for -2 to defend against his second attack. Baltak blocks, making his own roll by 1, which reduces the setup penalty from -2 to -1. Arconix makes his second attack Deceptive, rolling vs. Shortsword-14, so Baltak is at -2 to defend: -1 from the setup and -1 from the Deceptive Attack.

The original Setup Attack is a *real* attack. If it hits, and the target fails to defend, it will do damage as usual. Reductions voluntarily taken for a Setup Attack *do* lower the chances of a critical hit for the attacker! Lowering Spear from 24 to 14 or less means you will *only* roll a critical hit on a 3 or 4.

Multiple Attacks and Setups

Setup Attack is an attack option, not a maneuver. As such, a fighter who launches an All-Out Attack (Double) can use his first attack as a Setup Attack, and take advantage of that setup in his next attack. Likewise, by accepting -6 to both the Setup Attack and the follow-on attack with a Rapid Strike, a skilled fighter can preserve his own defenses. A Dual-Weapon Attack, however, is considered *one* attack, not two – a Setup Attack penalizes your foe's defenses on your *next* attack, so no benefits are gained on the Dual-Weapon Attack itself unless preceded by a Setup Attack.

Setups as Techniques

If the floating, stackable bonus that is more akin to the Deceptive Attack mechanism is too powerful, the GM could allow the Setup Attack as a technique, instead.

Setup Attack

Hard

Default: prerequisite skill-6.
Prerequisite: Any unarmed or Melee Combat skill; cannot exceed prerequisite skill.

A setup attack is used to impose a defensive penalty to a fighters *next attack,* so long as that attack is launched on his current or immediately following turn. A successful setup attack is a real attack, and if the attack succeeds, strikes home as usual. In addition, a successful attack imposes -2 to Parry, as well as -1 to Block and Dodge.

Turning Setup Attack into a technique makes it viable for explicit inclusion into Combinations (see ***Martial Arts,*** p. 80).

Optional Rules for Setups

The Setup Attack is simple and makes a nice alternative to a Feint. You don't lose the possibility of an attack actually striking home, it soaks one of your foe's defenses, and is slightly less sensitive to the vagaries of die rolls . . . but you have to take a penalty to your skill. *Many* options can be used to make Setup Attacks more interesting.

There Can Be Only One

The generic rules for Setup Attacks penalize all defenses against a follow-up attack. It would be reasonable to only penalize the defense used at full penalty, while all *other* defenses suffer half that penalty (round down). If the Setup Attack is found to be too powerful for a particular campaign style, this is a good way to tone it down.

Extreme Variability

Instead of using the Deceptive Attack exchange rate, where -2 to hit provides a -1 to your foe's defense, the exchange rate for attack and defense can be altered. Each -1 to hit yields a -1 to your foe's defense, but the defender also *doubles* his margin of success on his defense roll when mitigating the Setup Attack (a defense that succeeds by 2 mitigates up to a -4 setup penalty).

This option can lead to very high penalties to your foe's next turn, but is also even more strongly dependent on your foe's defense roll. While mimicking the strong dependence on skill found in a Feint, this option really makes setups revolve around luck, and potentially invites abuse via Luck-based advantages or *Influencing Success Rolls* (p. B347).

Stacked Setups

Neither Feints or Setup Attacks usually stack from turn to turn. However, permitting repeated *consecutive* setups is possible. Allow the penalties to grow each round, but the defense roll is applied against the entire cumulative setup benefit. Thus, if an attacker had thrown several Setup Attacks, accumulating -5 to his foe's defense, but the defender makes his next defense roll by 5 or more, all of that previous work has been lost!

Lather, Rinse, Repeat

Repeated setups can get obvious. Optionally, the GM can give the defender a bonus to defend against consecutive Setup Attacks. A flat +2 (similar to a Telegraphic Attack) to the second and following setups can be used to represent this. Alternatively, the bonus can build: +1 for the second Setup Attack, +2 for the third, and so on, doubling each time. This ever-increasing bonus is most appropriate if using *Location, Location, Location* (p. 25), since it could represent using essentially the same move each time.

Don't Do Something – Just Stand There

While not necessarily a life-prolonging strategy, a Setup Attack is predicated on drawing your foe's attention elsewhere. If the target of a setup makes *no defense at all,* all benefits of the Setup Attack are lost. The attacker obviously suffers no penalties to his next attack, either.

Everyone's Invited

A Setup Attack is designed to draw the defenses to a particular line, which opens other areas. As such, a Setup Attack can impact a foe's ability to defend against attacks by your companions, as well. Anyone attacking the foe while the setup is in effect may claim a bonus equal to *half* the defensive penalties of the original setup. Optionally, the shared (and halved) defensive penalties might only apply against whatever active defense was used against the original Setup Attack.

Additionally, the GM might allow performing a setup whose full benefit is *only* enjoyed by his allies! Given an appropriate perk (Shield Wall training or any perk that implies close coordination and practice with a team of fighters), a warrior can derive no benefit himself, but pass on the *full* value of the setup to any who share that perk.

So, a legionnaire with Shortsword-19 might make a setup thrust to his foe's face (at the usual -5 for location), accepting an additional -4 to hit, and forego his own bonus, instead allowing any of his allies within reach to attack his target at -2.

Location, Location, Location

The nature of a setup – a full-power blow designed to pull attention away from a follow-on attack – allows some useful specificity. Restricting the nature of a setup's follow-on attack plays well with many of the other ideas presented above.

When launching a setup, the attack must designate a hit location that will be attacked, and suffers the full penalty for that hit location. You can only derive the benefits of the setup if the attack falls within limits based on the nature of the follow-on attack.

- The *same* location can only be targeted at full effectiveness if the follow-on blow uses a different striker than the Setup Attack. No defensive benefit is gained by repeatedly using the same fist to attack the same location. *Stacked Setups* (p. 24) provide an exception, since attacking the same location can serve to focus a defense in one place.
- Any follow-on attack by the same attacker may benefit from the Setup Attack if it targets a different location than the Setup Attack. A stab to the torso with a sword in the right hand receives full benefit so long as the next attack is *not* to the torso (or locations contained *within* the torso).

Thus, you *can* follow a left-hand blow to the head with a second blow to the head (a left-hand hook followed by a right foot-uppercut, for example), or a strike to the wrist with the primary weapon followed by a thrust to the vitals with that same weapon, at full effectiveness.

This option combines well with *Everyone's Invited* (pp. 24-25). Our legionnaire could thrust to the face (-5), additionally accepting -4 as above, and allies would benefit with -2 to defend against their own attacks so long as they're *not* to the face, for as long as the setup is in effect. Combining both of *those* rules with *There Can Be Only One* (p. 24) would mean that if the foe parried the blow, the -2 would only apply to his attempts to *parry* allies' blows; dodges and blocks would only be at -1.

Feints and Setup Attacks

The Setup Attack serves somewhat the same purpose as a Feint, but can be more explicit. It may attack a specified hit location for a known penalty. It requires your foe to commit to a defense, or be hit by a full-power attack to the targeted location. It also carries benefit for your allies, though it may limit target location. Like a Feint or Riposte, Setup Attacks are best carried out by warriors who can accept large penalties, but unlike Deceptive Attack, the Setup Attack trades delayed gratification for a potentially magnified penalty.

The result of a Feint is (by default) hidden from the deceived party. Setup Attacks can be very effectively played as being fully obvious. The defender will know he's out of position for a follow-on attack, and may well react accordingly – All-Out Defense, stepping backward, or attempting to disengage or change the mode of the attack.

Parting Shot: Hamburgers on Tuesday

I will gladly pay you Tuesday for a hamburger today.
– J. Wellington Wimpy

The Setup Attack can be use to either supplement or replace Feints in both realistic and cinematic games. Players who have a good instinctive feel for the probability of landing successful blows using the attack/defense roll mechanism may prefer Setup Attacks to Feints for that reason alone: more certainty over the odds.

GURPS has extensive rules for penalties to hit, and to defenses, for footing, lighting, attack sequence, shock, and many interesting options presented in the ***Basic Set*** and ***Martial Arts***. Feint has not received such loving attention, and it's not always clear whether it's a valuable option – some find it indispensable, even game-breaking; others don't use it, seeing it as sapping fun or not worth it. Setup Attacks provide an alternate investment: accepting a penalty to a current attack in exchange for a benefit on a following attack, inverting Wimpy's Law, and allows the player and GM to benefit from all the attention and optional rules goodness written for attacks and defenses.

About the Author

Douglas H. Cole has been role-playing since 1981, and playing ***GURPS*** since 1988. He has been an active playtester for both Third and Fourth Editions, and acted as lead playtester for ***GURPS High Tech*** and ***GURPS Tactical Shooting***. He is an avid target shooter and movie-watcher, enjoys postponing woodworking and home improvement projects, and is an inveterate ***GURPS*** rules tinkerer. Douglas has earned two doctorates: a real one from Northwestern University in Materials Science and Engineering, and a cool one in ***GURPS*** Ballistics from Illuminati Online University. He currently lives near Minneapolis, and manages a thin-film coating development group for a hard-disc-drive company.

Special thanks to Peter Dell'Orto, Jonathan Helland, and Jeromy French for being excellent sparring partners for rules development.

Eragon: This won't be fair to you, old man.
Brom: Humor me . . . Oh dear; I see the effect of your training.
– Eragon

Return to Ein Arris

A Caravanserai on the Desert Road

by Dan Howard

In the free introductory ***GURPS*** adventure ***Caravan to Ein Arris,*** the PCs are guards hired by a merchant named Halmarro the Red to escort his caravan from the Lantari city of Khedris in the south to Ein Arris in the north. Positioned on the Desert Road between Khedris and Tatsoria, the adventurers might find a waystation *(caravanserai)* such as the one described here. Because the building and services are based on archaeological reports of genuine, real-world caravanserais, this location is suitable for any low-tech, historical, or fantasy setting.

We crossed the river beds all etched in stone
And up the mighty mountains ever known
Beyond the valleys in the searing heat
Until we reached the caravanserai.

– Loreena McKennitt, "Caravanserai"

Origin of the Caravanserai

A *caravanserai* (from the Persian *kārvān-sarā,* or "caravan lodging") is a waystation or guest house for travelers – a combined inn and trading post. Some also served as postal stations, poll stations, and taxation offices. They sustained and promoted the movement of commerce, information, and people across a network of trade routes in Asia and the Middle East. On the Silk Road, caravanserais were usually spaced about a day's journey apart (18-25 miles on flat terrain) from one another.

These guest houses were established by monarchs, state administrators, wealthy individuals, merchants' guilds, and religious groups (trade routes were also pilgrimage routes). A degree of prestige was gained from sponsoring a caravanserai.

Travelers on the trade routes included merchants, messengers, pilgrims, and emissaries. Raiding and robbing along these roads were common occurrences, so caravanserais were established as places of refuge for travelers and to house a small garrison of soldiers who patrolled the local roads. Safe roads meant more trade, which meant more revenue for the government and a more prosperous (and less rebellious) populace.

The concentration of merchants in one space encouraged mercantile activities – buying, selling, displaying, and storing a wide range of goods. Over time, some caravanserais became commercial centers in their own right, and settlements sprang up around their walls. Some acted as a kind of bank where merchants could leave goods and currency for safekeeping.

Typical Establishments

The size of the building was governed by the number of travelers – the relative importance of a particular road could be determined by the size of the caravanserais dotted along it. The quality of the caravanserai varied greatly depending on the significance of the route, the level of sponsorship, and the status of a typical visitor. A small, cheap establishment might provide little more than a key to a small dusty cell, a tattered mat on the floor for sleeping, and a jug of water. Those with better sponsors might include a clean room with a sleeping platform, fireplace, and cooking utensils; food and fodder; grooming for animals; even a shoe repair service. Some had a resident cook that prepared free meals.

Water was used for drinking, bathing, and ritual ablution. It was supplied either from a well in the courtyard or from large rainwater cisterns located outside the walls. An aqueduct or pipe brought water from the cisterns into the building.

Braziers and fireplaces provided warmth. Candles and lamps were used for lighting.

Construction

A typical desert caravanserai was constructed around a quadrangular courtyard. The structure seems to have been based upon a type of fort called a *rebāt*. The high, windowless walls were usually made from mortared brick or local stone. On each corner was a round tower. The solitary entry was usually protected by some sort of gatehouse.

The courtyard was surrounded by arcaded porticos raised a step above the courtyard to discourage animals from straying. Each "bay" in the portico was rented out to merchants as storage space. (It was rare for goods to be stolen from a caravanserai.) The porticos led to vaulted sleeping cells arrayed along the outer walls. Each cell had a raised platform against the wall, which served as a bed. A small mosque called a *masjid*, often located in the center of the courtyard, was provided for worship. It was raised above ground level on a stone platform.

In each corner of the caravanserai was a larger domed space reserved for particular services, such as a bath house, grain mill, guard post, VIP quarters, blacksmith, stables, or storage.

A hallway (*ayvān*) often split each portico in two. These may have contained additional sleeping quarters for wealthy travelers or a prayer room (*masjid*) oriented to face the direction of Mecca (the *qibla*).

Services

The caravanserai was open to both native and foreign travelers. A charitable foundation, it provided free lodging, water, and limited services for up to three nights. The basic operations were funded by a wealthy benefactor such as a religious group, merchants' guild, or the state. Apart from free lodging and water, other services could include some or all of the following.

Barber

In addition to running the bath house (see *The Baths*, below), he cut hair, shaved faces, performed dentistry, let blood, and gave massages. Being privy to many conversations, the barber was the hub of news and gossip.

Cobbler

The shoes of travelers were repaired or even replaced if needed. Apart from basic footwear that was provided for free, the cobbler may have had a range of better quality shoes and boots for sale, and is likely to have other leatherworking skills.

Cook

The establishment provided one free, simple meal each day for all lodgers. Special meals could be prepared if appropriate compensation was offered.

Doctor

The doctor gave free medical care, including basic surgery. Patients recuperated in the infirmary.

Entertainer

Musicians and dancers were sometimes retained by more ostentatious sponsors.

Guard

The roads around the caravanserai were patrolled for a distance of half a day's march. For a fee, the soldiers would provide an escort along the road up to the same distance.

Imam

This religious leader led the congregation in Friday prayers and delivered the weekly sermon. The imam also provided spiritual guidance, and presided over ceremonies such as weddings and funerals. Some had judicial authority.

Farrier

The farrier was a combination of smith and horse vet specializing in hooves. At the caravanserai, his services were usually offered for free. He would care for the horses' hooves and was capable of making and fitting horseshoes. The farrier also had general smithing skills and so could perform basic repairs on tools and weapons.

The Baths

Your town is only a perfect town when there is a bath in it.
– Abu Sir

Moslems are required to be clean in both body and soul, so the ablution ritual is an important part of Islamic culture. Cleansing was required before entering a mosque, after a long journey, during convalescence, before donning new clothes, after giving birth, and so on. The original Islamic baths were Roman baths taken over during Arabic conquests of Asia Minor. The prophet Mohammed believed that the *hamman* ("spreader of warmth"), in addition to cleansing the body, enhanced fertility, and so encouraged its use. However, unlike Roman baths, pools of water were discouraged because only running water was considered suitable for ablution. The hamman could be visited by men at any time except during specific periods of the day that were reserved for women. It had to be cleaned and prepared before dawn each day so people could bathe before morning prayer.

The hamman consisted of several rooms: the undressing room, the warm room, the hot room, and the furnace room. The furnace room housed the hypocaust system, which provided heat to the "hot room." In the "undressing room," bathers removed their clothing and donned a bathing kilt (covering waist to knee) and a pair of wooden sandals (called *nalin*) that raised the feet out of the water. They then collected a towel. The bather first relaxed in the "warm room" to get used to the heat before moving to the "hot room." This room was built around a large, flat, heated stone in the center. Bathers could lie on this to heat up more quickly and to receive massages from attendants. Small side chambers with basins filled with water allowed the bather to wash in private. These had no doors – a towel was hung over the entrance to indicate that the cubicle was in use. The basin was refilled with clean water after each occupant. The bather then went back out to the warm room where he relaxed with a snack or beverage before leaving to fetch his clothes.

Postal Service

The couriers usually worked for the local authorities, passing messages between postal stations. For a fee, a personal message or small package could be relayed through the network of stations to a settlement that might be hundreds or even thousands of miles away. The greater the distance or urgency, the larger the fee.

Shopkeeper

Various stalls in the courtyard supplied all manner of goods to travelers. They also allowed caravans to offload some of their trade goods. Some caravanserais developed into independent bazaars with dozens of shopkeepers and stall owners peddling their wares.

Stablehand

Someone tended to the animals. He helped unload the pack animals and stored their baggage in an open portico bay. Water and fodder was free.

Workshop

Mainly used for repairs. Tools, workbenches, and supplies for maintaining the building were located here. Sometimes it was combined with the farrier's shop (p. 27).

Not everyone who applies will be hired, of course, but nothing ventured, nothing gained. And you've worked for the Merchants' Guild in the past when you needed a stretch of steady pay. Right now you are looking for a chance to travel and do something a little out of the ordinary. This might be that chance.

– GURPS Caravan to Ein Arris

The Prophet's Rest

Rising out of the barren landscape is a sprawling complex constructed of whitewashed brick. This caravanserai, called *The Prophet's Rest*, is large and well-provisioned, receiving travelers on a regular basis. Being located just two days north of the city of Khedris, it is sponsored by that city's merchants' guild. They built the caravanserai partially because of charitable obligations and partially as an attempt to control any trade that took place outside of the city walls. A stone carving of the guild's coat of arms set with colored tiles is displayed in the brickwork above the entrance. The entry, hallways, and *masjid* are decorated with geometric patterns, stylized religious inscriptions, and animal motifs.

The following area descriptions numbers in parentheses which correspond to the numbers on the map (p. 30).

At each corner is a round tower (3) and a semi-circular tower (4) is located at the center of the northern, eastern, and western walls. Each tower has a ladder leading up to the roof and parapet, which enables guards to quickly move from one tower to another. Outside of the caravanserai, near each corner tower, is a large, partially buried, cistern that collects rainwater from the roof. Terra-cotta pipes bring the water from the four cisterns into the building.

Gatehouse (Entrance)

A domed gatehouse (1) in the southern wall, protected by two semi-circular towers (4), is the only entrance to the Prophet's Rest. It is barred by a pair of reinforced wooden doors and a portcullis. The gatehouse leads to an entry hall (2), which is richly decorated.

The guards change shifts after the evening meal, and it is then that the doors are closed for the night, but the portcullis usually remains open. Late arrivals can gain entry by banging on the doors. The night guard in a gatehouse tower will call down to ascertain their identity before opening the doors.

Courtyard (Picketing)

The central courtyard (5) is open to the elements. Animals are picketed here but get some shelter from the overhanging roof of the portico and from several trees growing here. A well in the southwest corner (6) has two elongated water troughs nearby (7). In the center is a large paved area. In the middle of this is a small mosque, called a *masjid*, with a domed roof (8). It is a small two-story structure; the ground floor consists of an archway in each wall and a stair leading up to the mosque on the upper floor, which has large windows. The imam leads prayers from here. In a different fantasy setting, the *masjid* could be replaced with a small temple or shrine to a local deity.

Guest Rooms

Around the courtyard is a columned portico (9) raised about half a meter above the courtyard, split by a wide hallway called an *ayvān* (12). Each arch in the portico forms a "bay," which is rented out as storage space. Strong traditions and social customs protect the goods stored here; theft is rare.

The back of each bay leads to a hallway (10), which has guest sleeping cells arrayed along the walls (11). Each cell has a lockable door, a sleeping platform against the wall, a blanket, a basin and jug of water, cooking utensils, and a small fireplace.

Northwest Corner (Food)

The northwest corner is used for food storage and distribution. The cook prepares one free meal each day to be served at dusk. It usually consists of bread and stew, and typically enough is left over for late-comers. At other times of the day she serves meals and beverages to paying customers. Food is stored in the pantry (13). In the mill (14), grain is ground into flour. Meals are prepared in the kitchen (15) and served in the refectory (16) – a couple of long tables with benches and a few smaller stools and tables are in the corners of the room. Two latrines are in this corner, one near the north wall and another near the west wall.

Northeast Corner (VIP Suite)

The northeast corner contains the VIP quarters. Any person of importance or anyone who makes a large donation to the caravanserai will be given this suite to use for the duration of their stay. It consists of two circular rooms – one for men (18) and the other for women (19). The room in front (17) is for servants and attendants. The back room (20) is for storage and guards. There are two latrines in this corner, one near the north wall and the other near the east wall.

Southwest Corner (Workshops)

The southwest corner contains the work rooms. The cobbler's shop (21), workshop (22), farrier's smithy (23), and quartermaster (24) are all reached by a central passageway leading to the corner tower (3). Each room has a bed for the craftsman. A latrine is near the west wall.

Southeast Corner (Baths)

The southeast corner contains the baths, managed by the barber (see p. 27) and his family. It costs a small amount to use the baths; the rest of the cost is subsidized by the sponsor. The truly destitute can use the baths for free. The barber's wife does the laundry and attends the women during their allotted bathing period. His sons perform all of the chores not handled by the barber.

Bathers leave their clothing in the undressing room (26). In here, the barber's youngest son hands out towels, bathing kilts, and wooden sandals.

In the warm room (27), bathers relax on a bench, acclimatizing to the heat, before entering the hot room. Guests can buy refreshments to sip while they relax in this room.

The hot room (28) is a circular, steamy chamber with a domed ceiling and faceted glass windows, benches around the wall, and a large circular stone slab in the center, which is heated by a hypocaust. Five doorways lead to small rooms, each with a basin of water for private bathing (see *The Baths*, p. 27, for more details). In the furnace room (29), hot air is pumped through the hypocaust system under the raised tiled floor.

The barber's room (25), with its domed ceiling, is where he and his family sleep. It is also where guests are privately seen for medical care, but he cuts hair and shaves men's faces in the warm room (27).

Administration

The southern section of the building houses the manager, the guards, and some of the employees. The stables (30) are reserved for more expensive riding horses or animals that are ill. Two of the six stalls are occupied by a courier's horses, while the other four are for guest mounts. The pack animals are normally picketed in the courtyard.

Next to the stables is the captain's room (31) and the barracks (32) followed by the guard room (33), which is adjacent to the entry hall (2). On the other side are the manager's rooms (34, 35), the courier's room (36), the janitor's quarters (37), the imam's room (38), the doctor's room (39), and the infirmary (40).

Guard Duties

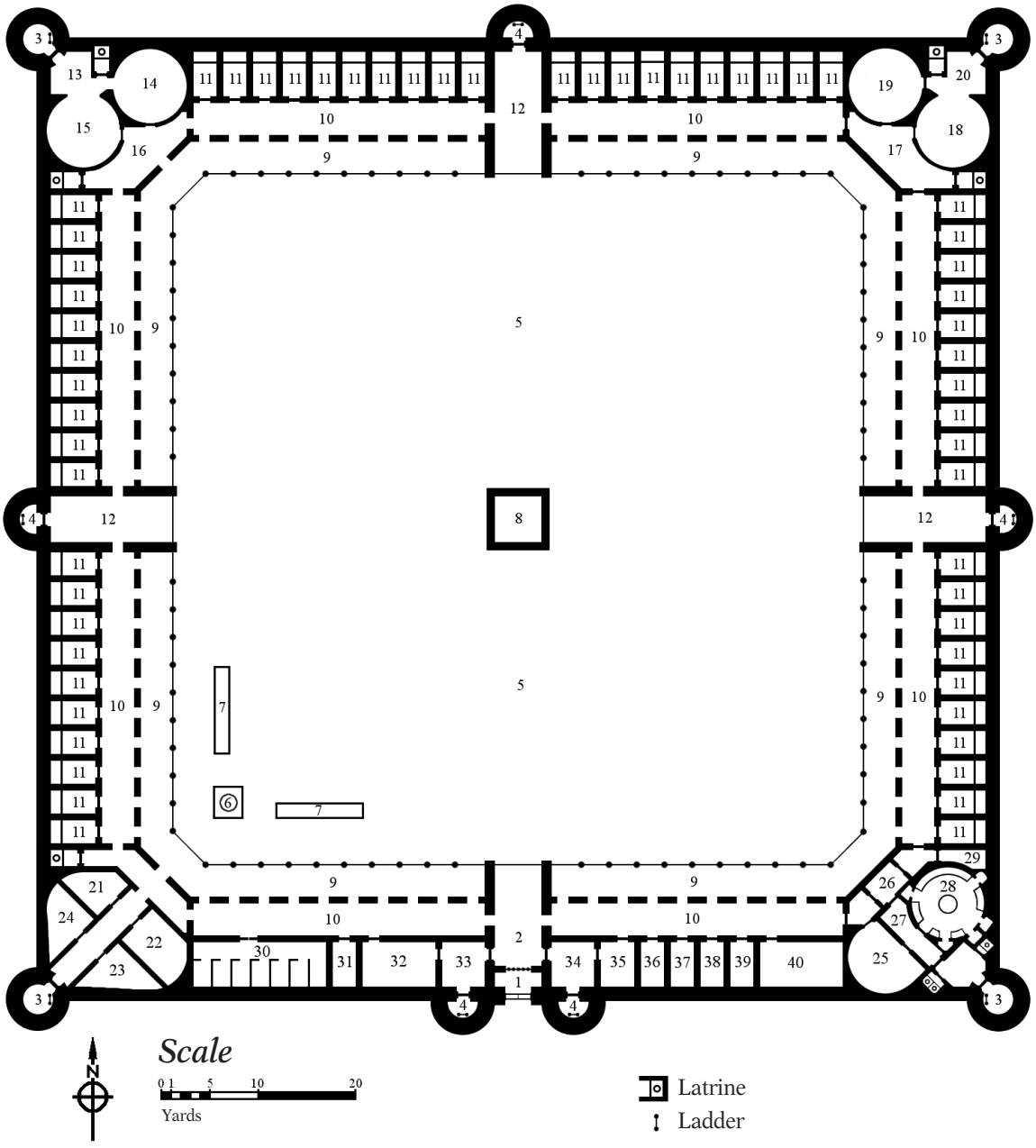
Eighteen guards are on stationed at the Prophet's Rest, plus their captain and his sergeant. During the day, a six-man squad patrols one of the roads leading away from the caravanserai up to a distance of half a day's march before stopping for a meal and returning before dark. The other dozen guards work two four-hour shifts each day. At any time, at least four guards are on duty. Two guards man the towers in the gatehouse, and the other two stand watch in the northeast and northwest corner towers. Off-duty guards can be summoned if there is trouble elsewhere in the complex.

NPCs

In addition to many regular visitors, the Prophet's Rest is inhabited by workers who maintain the building and serve the guests. Upkeep is paid for by sponsorship and business profits. Some basic needs are provided for free, but there are plenty of commodities and services for sale here, too. When guests first check in they are given a key to their room and a token for a free meal at the refectory. They are also invited to visit the cobbler to get their shoes mended.

Ahmad (Manager)

The manager of the caravanserai. Ahmad looks shifty and speaks a little too quickly, but he is actually an honest man. He charges fair prices for his services, and it is rare for guests' belongings to go missing. He runs a tidy establishment and his staff trust him. His wife, Nadira, and two daughters take care of the guests and make sure the rooms are clean and properly furnished.



Key

1. Gatehouse
2. Entry hall
3. Round tower
4. Semi-circular tower
5. Courtyard
6. Well
7. Water trough
8. Mosque *(masjid)*
9. Columned portico
10. Hallway
11. Sleeping cell
12. Decorated hall *(ayvān)*
13. Pantry
14. Mill
15. Kitchen
16. Refectory
17. VIP quarters – servants' room
18. VIP quarters – men
19. VIP quarters – women
20. VIP quarters – storage and guards' room
21. Cobbler's shop
22. Workshops
23. Farrier's smithy
24. Quartermaster
25. Barber's room
26. Baths – undressing room
27. Baths – warm room
28. Baths – hot room
29. Baths – furnace Room
30. Stables
31. Captain's quarters
32. Barracks
33. Guard room
34. Manager's office
35. Manager's quarters
36. Courier's quarters
37. Janitor's quarters
38. Imam's quarters
39. Doctor's room
40. Infirmary

Map of the Prophet's Rest

Ahmad resides in the two rooms to the east of the entrance and has a variety of wares for sale from the mundane to the exotic. If a guest needs a particular commodity, then Ahmad will know where to find it or who to ask. He also acts as a money-changer and money-lender.

Abdas (Imam)

The resident imam leads prayers from the *masjid* in the center of the courtyard and offers spiritual guidance to those who ask. Abdas is young for an imam and is ambitious. He hates his assignment at the Prophet's Rest and can't wait to leave. The imam's manner is abrupt and unfriendly, but he isn't overly strict in enforcing religious tenets. However, he wouldn't do anything that might compromise his aspiration to have his own mosque in a large city.

In that space of country about which Cleomenes had inquired, the Persian king has various waystations with excellent caravanserais; these are all splendid and beautiful, the whole of the country is richly cultivated, and the roads good and secure . . .

– Herodotus, ***Histories***

Behrouz (Trader)

When Behrouz recently came of age, his father, a prominent member of the Khedris Merchants' Guild, gave him a string of camels and a trading route of his own. It is an easy run from Khedris to Tatsori and his caravan regularly stops at the Prophet's Rest. Behrouz is renowned as a gambler, both in business and pleasure. His wagers pay off more often than not, so he is slowly amassing some wealth for his young family in Khedris.

Dareia (Cook)

This elderly matron is the head cook in the Prophet's Rest. The manager pays her to provide one free meal for every guest at dusk, but she supplements her income by cooking for paying customers during the rest of the day. Everyone regards her as a motherly figure, but she runs her kitchen with an iron hand. Her husband, Faraz, works as the resident cobbler. She recently helped her son, Wasim, secure a job as one of the guards at the caravanserai. Her youngest daughter, Yazmeen, helps in the kitchen. Dareia is hard on the female workers, including her daughter, but is overly indulgent with the young men – her son worst of all.

Deeba (Silk Merchant)

Deeba has a stall at the south end of the courtyard where she sells silks and other fine textiles. When business is slow, she works as a seamstress, but the income isn't critical since she is married to Roshan, the captain of the guard. The couple has four children, the youngest of which is a toddler who stays with Deeba. The other three attend a boarding school in Khedris.

Elaheh (Trader)

One of the few female caravaneers in the area, Elaheh is a small-time trader but has a reputation for taking the more dangerous trade routes. She plans her expeditions carefully to minimize the risks, however. She is not married and doesn't plan to marry until her career is firmly established and she has enough wealth to hire her own network of traders and caravaneers.

Faraz (Cobbler)

The resident shoemaker. The manager pays him to repair guests' shoes and to provide free replacements when necessary. As a sideline, he makes good-quality shoes and boots to sell from his shop and is a skilled leatherworker. His wife is Dareia the cook, and his children are Wasim and Yazmeen. Faraz thinks that his wife has turned his son into a spoiled, lazy, good-for-nothing slob, but he dotes on his daughter. Faraz recently started secretly banking money with Ahmad so that his wife can't let Wasim squander the dowry he is trying to save for his daughter.

Farrokh (Carpenter)

Farrokh is a carpenter by trade, but he does a lot of repairs and maintenance around the complex. He has his own workshop, which he sometimes shares with Karim. The two men work together on larger projects. Farrokh incurred a gambling debt with the Khedris Merchants' Guild and agreed to indenture himself at the Prophet's Rest for a period of three years in return for forgiveness of all financial obligations. That was five years ago, and Farrokh now works as an employee of the caravanserai. He still likes to gamble, but no longer wagers more than he can afford to lose. His son, Saeed, is apprenticed to Rustam the farrier. His wife, Tahminah, tends the garden in the courtyard.

Farzeen (Scribe)

Son of Ahmad and Nadira, Farzeen works as a scribe for the Merchants' Guild in Khedris. He is intelligent and diligent, and makes time to visit his parents at the Prophet's Rest whenever he can. He is unmarried, but is secretly involved with the young wife of a guild master. There will be a great scandal if knowledge of the affair becomes public.

Karim (Janitor)

When an arrow wound turned gangrenous after a battle, Karim lost his leg and his profession all on the same day. This ex-soldier limps around the Prophet's Rest working as a janitor and handyman, using a crutch for support. Karim isn't bitter about his lot in life and will regale guests with exaggerated tales of his military exploits when relaxing in the baths. He has a different story every time someone asks him how he lost his leg.

Think, in this batter'd caravanserai
Whose portals are alternate night and day,
How sultan after sultan with his pomp
Abode his destined hour, and went his way.

– Rubaiyat of Omar Khayyam

Kaspar (Auditor)

Kaspar works as an agent for the Merchants' Guild of Khedris. He checks up on guild enterprises to make sure that everything is running efficiently. Once or twice a year, he visits the Prophet's Rest and is generally satisfied with Ahmad's performance. Kaspar is scrupulously honest – he would consider a bribe or other attempt at corruption to be a slight on his honor. He has been known to challenge offenders to a duel (at which he is both skilled and experienced).

Mehrdad (Sergeant)

When he was a child, Mehrdad was very sickly. He almost died several times, and his parents subsequently cosseted him. By his early teens, Merhdad was sick of being wrapped in wool. He secretly started exercising and lifting weights and, on his 15th birthday, ran away to join the army. It proved the making of him. Today, Mehrdad has a tanned, muscular, commanding presence. He is second-in-command of the garrison at the Prophet's Rest, and is tipped to take over when Roshan moves on. Lifting weights and working out is like a second religion for Mehrdad – his compact build makes him a good wrestler. He is unmarried but has had several offers from women with plump merchant dowries.

Nadira (Housekeeper)

Nadira is Ahmad's wife and helps manage the caravanserai. She and her two adolescent daughters keep the rooms tidy, the water jugs full, and the cooking utensils clean. Laundry is done in a water trough in the courtyard. They also help in the kitchen during the evening meal and with washing afterward.

Parvin (Merchant)

Parvin's father has no sons to which he can pass control of his business, so he has been training his eldest daughter instead. She is a shrewd negotiator and can be vicious when necessary to further her family's goals. A fierce rivalry has developed between her family and Sepehr's family.

Payam (Courier)

While Ahmad is the postmaster, Payam is the actual courier. This small and wiry young man's job is to take messages and packages between Khedris and Tatsori. He can make the 50-mile run between Khedris and the Prophet's Rest in a single day if he takes an additional horse as a remount. His routine is to leave before dawn, rest the horses between remounts while he naps in the shade for a couple of hours around noon, and arrive at his destination just before dusk.

Raheem (Guard)

One of the guards in the caravanserai. Raheem came from a poor farming family and is generally honest and hardworking, but is starting to be led astray by his friend, Wasim. He is not stupid, but he is naive, believing pretty much everything that people tell him.

Roshan (Captain)

Tall and dashing, Roshan is the youngest son of a minor noble family. With little prospect of inheriting his father's estate, he joined the army as a junior officer. Roshan used his family's influence to get promoted while still young, and the Prophet's Rest is his first posting as captain. Garrison duty is not glamorous, but he knows that he needs some command experience. The captain is happy to let Ahmad manage the caravanserai, and limits his authority to the guards under his command. His second-in-command, Sergeant Mehrdad, is good with the men, so Roshan doesn't really need to do much except for paying the men on time and keeping the paperwork up to date. His wife, Deeba, owns a stall in the courtyard.

Rustam (Farrier)

The resident farrier, Rustam is an experienced horse vet and a fair smith – being able to make far more than just horseshoes. He is getting old now, and his back has been causing him some grief. He has taken on Farrokh's son, Saeed, as an apprentice.

Saeed (Apprentice Farrier)

Son of Farrokh and Tahminah, 15 year-old Saeed has been apprenticed to Rustam the farrier for two years now and can do a lot of the work himself. His exposure to the frequent foreign visitors at the Prophet's Rest has caused him to be torn between his duty to his family and his master, and his desire to travel the world to visit the exotic places he has been hearing about all of his life.

Sepehr (Merchant)

A handsome middle-aged merchant with striking blue eyes, Sepehr's family is the second most powerful in Khedris, next to Halmarros and his family. Sepehr is the eldest son in his family and is responsible for this part of his family's trading network. His younger brothers travel further afield, learning their trade with more experienced and reliable retainers.

Shaheen (Guard)

A guard in the caravanserai, Shaheen is conscientious, and Mehrdad believes that he is a good candidate for promotion. Shaheen is besotted with Yazmeen, but her mother thinks that her daughter can do better than marry a lowly soldier. Shaheen thinks that a promotion will raise his prospects in Dareia's eyes, and she will then approve of his courtship.

Tahminah (Gardener)

Wife of Farrokh and mother of Saeed, Tahminah tends the garden in the courtyard which includes a few trees and shrubs, and a herb and vegetable patch. The waste water from the laundry and baths keep the plants thriving – a green oasis in the desert.

Wasim (Guard)

Wasim's mother, Dareia, recently secured for him a job as a guard because she thought that he would look handsome in a uniform. He is tall and athletic but lazy and selfish. He frequently borrows money from his mother to spend on what his father, Faraz, considers to be frivolous pursuits. It is only a matter of time before Wasim shirks his duty and security is compromised.

Yazmeen (Kitchen Hand)

Daughter of Faraz and Dareia, Yazmeen works for her mother in the kitchen. She likes to help her father when he makes shoes. She is becoming a skilled leatherworker and does most of the decoration work. She would like to marry the soldier, Shaheen, and her father approves, but not her mother.

Action

The Prophet's Rest is intended to be an add-on for ***Caravan to Ein Arris***. The GM doesn't need to make any changes to the original adventure to accommodate it; when the caravan sets out from Khedris the PCs are in the advance party that travels along the Desert Road. They will arrive at the caravanserai at the end of the second day. They can rest there overnight before continuing onward in the morning. The sandstorm occurs at its usual time, three days after leaving the Prophet's Rest (five days out from Khedris), and the adventure proceeds as normal. If the GM wishes, he can give the party some encounters in the caravanserai to delay them, such as the ones described on the following pages.

If the players wish to continue campaigning in the land of Lantara after the caravan adventure is over, the Prophet's Rest can be used as a regular venue in which to stage subsequent adventures. Alternatively, the party could start their adventures at the waystation. The PCs could be merchants, caravan guards, religious pilgrims, or simply travelers. A caravanserai as large and frequently visited as this one has many opportunities for adventure and excitement, as seen in the scenario ideas described below.

Because of its isolated nature, most of the action in a caravanserai revolves around interaction between the residents. In addition to the extensive list of NPCs on pp. 29-33 that could become sources of conflict, the following adventure suggestions can assist the GM with designing encounters for visitors or residents. The *Random Visitors Table* (below) can also add inject variability into daily life.

Random Visitors Table

In addition to the supply caravan that arrives every week or so to reprovision the Prophet's Rest, each day there is a pretty good chance that others will also visit the caravanserai. If the GM needs some inspiration for his campaign, then he can roll 3d at dusk each evening and consult the following table to see who arrives.

3 – VIP. An important person and his large entourage stop for a visit. See *Sultan's Visit* (p. 35) for a sample scenario.
4 – Emissary. A foreign dignitary and his small retinue stop to refresh for a few days.
5 – Entertainers. A traveling troupe of entertainers are to perform here for a few nights.
6 – Pilgrim. A pilgrim, on his way to a holy site, stops overnight.
7-8 – Caravan. A merchant's caravan arrives at the gates. It includes 3d pack animals and 2d people.
9-11 – Nothing. No visitors show up today.
12 – Courier. A courier arrives with an important message. It may be for Ahmad or Roshan, or he may be stopping here to pass the message to Payam, who will relay it on to Khedris or Tatsori.
13 – Official. A minor city official arrives with his mistress. He plans to impose on the hospitality of the caravanserai while he entertains his companion away from the scrutiny of polite society.
14 – Trader. A trader stops for the night, but he only has a single pack animal with him. He won't let anyone help him unload the baggage, and he takes everything with him into his sleeping cell. Either his cargo is very valuable or it is illegal – maybe both.
15 – Stranger. A foreigner arrives at the caravanserai. He gives his name and business at the gate – something seems suspicious, but that is insufficient reason to refuse entry.
16 – Audit. Kaspar, an agent for the Merchants' Guild, is here to perform an inspection. Everyone is a little nervous – people try to hide anything that may look suspicious.
17 – Plague. A group of ragged travelers are seeking entry at the gate. They don't look very healthy, and it is suspected that they may have a contagious disease.
18 – Attack. Bandits or agents of a rival power are attacking the caravanserai. See *Attack!* (p. 34) for some additional ideas.

Arson

Someone has set fire to the goods in one of the storage bays that has been rented out to a wealthy merchant. There is enough water and sand available to extinguish the fire before it spreads, but most of the merchandise in that bay has been destroyed. Ahmad will need to pay compensation if he can't find the culprit. He engages the PCs to help investigate the issue. The most likely suspect is an agent of a rival merchant family, but it's possible that Ahmad is the target and the arson an attempt to damage his reputation.

Attack!

Bandits or the forces of a rival city attempt to raid the waystation. The frequency of attack depends on how close the caravanserai is located to reinforcements and what the local political situation is like. A small band would pose as a merchant's caravan and then attack when they are inside. A larger force would try scaling the walls or breaking through the gate. While the building is designed in a manner similar to a fort, there aren't enough men inside a caravanserai to adequately defend it against a determined attack. The nearest reinforcements to the Prophet's Rest are two days (about 50 miles) away in Khedris, but it would take a day for a good rider with news of the attack to get there, meaning that the caravanserai needs to hold out for a minimum of three days.

Blackmail

Islamic religion forbids gambling and alcohol, but the prohibition isn't always strictly enforced. The Prophet's Rest allows its non-Moslem guests to partake of both but only in moderation. Management also looks the other way when members of the staff fraternize with the guests so long as they are discrete. Wasim is the worst offender. When they are off duty, Wasim convinces Raheem to join him with the infidels to participate in the partying. Someone finds out and blackmails Wasim's parents. Faraz laughs in the blackmailer's face and dares him to expose his son. Dareia, however, can't bear to see her beloved son shamed. She hires the PCs to make the blackmailer "go away."

Escapees

A ragged bunch of people request entry. They say that they are pilgrims who are being pursued by slavers. The pursuers tricked them by claiming to be the soldiers of a local noble and asked if they wanted an escort. One night, the soldiers drew their weapons and captured the pilgrims for sale at the nearest slave market.

In reality, the "pilgrims" are escaped convicts being pursued by men who really *are* soldiers for a local noble. If the convicts learn that their scheme has been discovered, they might do something desperate.

It is possible that *both* stories are partially true. The ragged band is a group of escaped convicts on the run from the noble, but they were originally pilgrims who were unjustly convicted.

Feud

Plenty of rivalries crop up between various merchant factions, and all sorts of tricks and scams are used to try and gain an advantage. This time, things go too far. One merchant accuses another of hiring bandits to raid his caravan – during the attack, his father was killed. Both sides are facing off in the courtyard, and weapons are being produced. If the PCs are working for one side then they will be expected to participate in the fight. If not, then they might try and calm the situation. Any action will need to occur before the guards can assemble; when breaking up a brawl, they get very heavy handed.

Grain Hoarding

One of the local merchants has rented several storage bays in the Prophet's Rest to store this year's grain harvest. The plan is to pay a premium for all of the early harvests and to destroy the crops of those who plan to harvest later. Once shortages in Khedris drive up grain prices, he intends to come to the rescue with his hoard and get a healthy profit in the process. He has made a deal with one of the local bandit clans to give them a share of the profits if they attack the farms that he nominates. The PCs become involved when the farm of a friend or relative is torched by the raiders.

How to Host a Murder

An important guest is found murdered during the night. Captain Roshan heads the investigation. Nobody is allowed to leave until the culprit is discovered. The GM could use a boxed murder mystery game as inspiration; the PCs need to question the other residents and guests to determine the clues presented in the game. If it would make a better story to have one of the PCs become the killer (or be suspected of accomplishing the deed), the GM must cleverly use character flaws and dependents to provide a target that the adventurer will *want* to kill, thus creating the underlying motive for the crime.

Waystations, crossroads, notorious hotspots for power forces since ancient times. Time is only wafer thin in places like this – who knows who many souls have been trapped here from time before time?

– Prof. Wyvern, in ***Randall & Hopkirk (Deceased)*** *#2.1*

Outpost

The Khedris Merchants' Guild has decided to sponsor a second waystation further north along the Desert Road toward Tatsori. It is to be located one day's journey from the Prophet's Rest. It will not be as large as the current caravanserai, consisting of little more than an inn with a walled courtyard. Ahmad is given charge of the logistics, and building materials start to arrive at the Prophet's Rest. He can't convince Roshan to give him some men to guard the supplies and to protect the construction crew, so he asks the PCs if they want to work as guards. The local bandits see this building as an attempt to "muscle in" on their territory (which it is), and will try various ways to stop its construction.

Robbery

A caravan just arrived at the Prophet's Rest. The master reported being robbed about half a day's journey north along the road. No bandit activity has been this close to the caravanserai for many years. Sergeant Mehrdad selects six guards to go with him to investigate.

An injured Mehrdad returns that evening with a single companion and tells the gathered crowd that they were ambushed. The rest of his men were killed or captured. The captain decides to lead the next expedition himself, taking eight fresh men and asking for civilian volunteers. Normally, the guards patrol on foot; this time, Roshan commandeers horses. Several owners object, but Ahmad intervenes to negotiate compensation that is satisfactory to both parties.

Sandstorm

A sandstorm whips up in the middle of the desert and batters the Prophet's Rest. Animals are taken inside – empty storage bays are used as makeshift shelters. Captain Roshan can't decide whether he should send out men to look for stranded travelers.

The storm ends up lasting for weeks. After the first week, tensions start to escalate as people who normally only spend a day or two together are forced to endure each other's company for much longer. After the second week, tempers flare, and fights are more common. In addition, provisions are starting to run low because there is no opportunity to resupply. Ahmad has to decide whether to start rationing food, which would further exacerbate tensions.

Stiff Guest

One of the guests has died in his sleep, and Ahmad wants to get the corpse out of the complex without any of the other guests finding out, so he can protect the reputation of his business. (It doesn't look good when a guest dies under the host's roof.) The PCs realize that Ahmad is acting suspiciously, and decide to find out what is going on. They discover that he is trying to conceal a dead body, and naturally jump to the wrong conclusion.

Sultan's Visit

The wealthiest sultan in Tatsori is planning on stopping at the Prophet's Rest on his way to an important meeting in Khedris, but few people know about it yet. Ahmad pulls out all the stops to ensure that his stay is a memorable one. His first problem is working out how to remove a foreign emissary from the VIP quarters without causing offense. He also wants to convince the less reputable guests (including the PCs) to leave before the Sultan arrives. He needs to make all of the preparations before word of the Sultan's visit becomes common knowledge. Otherwise he'll never get rid of the riff-raff without forcibly evicting them.

> *Khan, this unblest hole is no place to be lingering at in such an afternoon – look at the storm that is brewing up in yon wild gully – heaven knows who may be lurking there besides – worse companions than the weather. In the name of God, let us push on, and get to that same caravanserai before the night and the darkness overtake us.*
>
> *– James Baillie Fraser,* ***Tales of the Caravanserai***

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About the Author

Dan Howard ia the author or co-author of many articles and supplements for Steve Jackson Games. For more details on his background, see *Concealed Armor* (pp. 10-13).

Random Thought Table

The Future Is a Moving Target

by Steven Marsh, *Pyramid* Editor

Back when the Internet was nowhere near as ubiquitous as it is today, I remember seeing an article about what the hot jobs of the future were going to be. (I recall reading this article online, so I'm guessing it was sometime in the mid-to-late 1990s.) One of the hot employment prospects mentioned was travel agent. The writer's logic was that Baby Boomers of the future were going to retire soon, and there'd be an explosive demand for folks who could help pair people with suitable flight and accommodation arrangements.

Of course, the explosive travel-agency growth of the new millennium has failed to materialize (although a quick search via Google tells me that it may *any day* now). The biggest reason for this lack of travel-agent nirvana is a development the 20th-century prognosticators could not have anticipated: the triumph of the Internet. It turns out that most folks are happy to make their own travel plans using their ticket-buying website of choice, saving a few bucks in the process.

What does any of this have to do with men in armor hitting each other with swords?

There's an inherent problem that most gamers have in playing low-tech settings: It's too easy to use outsider knowledge (without even meaning to). For example, they realize that a glaive will do one more point of damage on average than a naginata. Or they recognize what effect the arrival of archery, cavalry, or artillery will have on local landscape. Or they get what a game-changer that news of the New World will bring.

Even if we can insert that "what the heck?" sensation in our characters, for the most part, it's going to be an inversion or projection of what we know to be the truth: "I'm ensuring my hero is scared by that thing I know is a gun."

Given how rare game-changing technological advances were in Ye Olde Days, this immediate (subconscious) projection of our modern knowledge on elements of surprise makes it difficult to effectively roleplay the astonishment that stems from those changes. It's also tricky to recreate the chaos of "what will happen next?" – either in the short-term of battlefield chaos or the long-term of social shifts.

In hindsight, it's easy to see why the employment prognosticator advocating a career as a travel agent was wrong. However, it was a fine guess at the time – and it would have only taken some minor tweaks to reality for it to have been true (say, excessive Internet fees that strangled the online airfare marketplace in its infancy, or post-9/11 regulations that required all air travel accommodations to be filtered through a human agent). Similarly, it's possible to introduce that era of uncertainty to bygone days by fudging with expectations.

Anachronistic Arrivals

Perhaps the most common way to confound a setting's expectations is to have some element of tech arrive early. Mongols with cannons in the 10th century would certainly rattle the most jaded historical-minded gamer. Introducing any element of gear a tech level or two early is a good way to shake up a setting, and keep players going, "What the heck?"

The trouble with this is that – as gamers – we know how that's going to play out. Once tech starts down the gunpowder path, we have a good idea of what's going to happen there . . . and as soon as cannons are invented, the players will be waiting until they arrive in a smaller, handheld models.

A Rich Fantasy Life

Fans of the ***GURPS Low-Tech*** series know there's a supplement that is invaluable to the speculation from this article: ***GURPS Fantasy-Tech 1: The Edge of Reality.*** This supplement is all about what might have been, what almost certainly wasn't (but is fun to think about), and what could have been possible if folks had gotten their act together a smidge sooner.

Broken Expectations

Perhaps a more fruitful way to create that element of uncertainty is to deliberately alter elements of history or tech that the players wish was true. Let's look at an extended example here.

It's a new campaign. The heroes are in the vicinity of Spain in 1493. The heroes learn that Queen Isabella's enemies are trying to make political hay out of the fact that the Columbus expedition she funded has failed to return. The PC explorers are tasked with retracing Columbus' steps as best they can, discover what happened to him. The heroes set out . . .

. . . and then the GM says, "All right; it's 1503. What characters will you be playing now?" Have the players generate new PCs, and the campaign continues. If they investigate, they learn that the previous group of heroes – like Columbus – never returned, and no one knows what happened to them. However, as a result, no one has been eager to follow the same route.

In one fell swoop, the GM has established multiple mysteries – one that is entirely independent of player knowledge ("What happened to the previous heroes?") and two that are relying on the players believed understanding of what could have been ("What happened to Columbus?" and "Is there even a New World?"). Then – further into the campaign – if the new PCs are given an opportunity to retrace the previous expeditions' paths . . . do they dare do so? Do they dare not?

These expectations can be broken in smaller ways, too. For example, what if the earliest methods of creating gunpowder weapons resulted in handheld rifle-like wands that are effectively silent? (Or maybe the laws of physics are a bit askew in this setting such that gunpowder's composition is more bottle rocket than bang.) Now describe it to the players: The enemies wave giant staff-wands at your allies, and they fall over, wounded and bleeding. Sure, the players might think it's gunpowder or gunpowder-related . . . but they may just as easily think it's magic, or something else new and deadly.

As a final example, the heroes discover that the locals in a humid new region use a sword made of a different kind of metal that seems to outperform their own wares. If they arm themselves with these new finds, they discover that the new weapons don't work well once they return home. They might eventually discover that the humidity of the surrounding environment is necessary to allow the metal to breathe and remain honed (or whatever pseudoscientific explanation you want to provide). The heroes now have a what-the-heck mystery to solve that pertains to low-tech advances they can't fathom, and plays off their expectations.

Sadistic Statistics

As a possibility that can work as a good middle ground from those presented here, perhaps some element of technology works exactly as expected almost all of the time, but misfortune (or fortune) kept it from performing as expected at a key moment . . . which led to that technique being abandoned or ill-considered for a number of years.

As a modern example, the United States space shuttle program had two fatal mishaps with its vessels. If those two losses had been the first two launches, instead of being far along into an established program, it's quite likely we never would have had a shuttle program to speak of – or if there was, it would have been years or decades later.

If winds or other circumstances proved decisively disastrous the first three times archers faced off against armored melee attackers, then the advances of archery might never find their training or battlefield niche. (This is especially true if those battles were such that a kingdom fell or a noble lost his life as a result – "dumb as an archer" might be an adage applied to those tho entrust the weapon to crucial situations.)

This technique is especially useful if applied in conjunction with those mentioned previously. Are bows and arrows less effective because an early advance in armor has dampened their penetrative power? Are they weaker because the laws of physics are somehow different in this world? Or has it just been bad luck?

The Shocking Truth

To my own chagrin, I note that the mystery of "metal relying on static electricity" isn't entirely fabricated. As a child growing up in South Florida, I firmly believed that static electricity was an overzealous exaggeration at best by science textbooks eager to prove themselves useful – not unlike the tongue taste maps I learned as a kid that turned out to be entirely erroneous and fabricated. It turns out that the humidity levels of everyday life in Fort Lauderdale are so high, it's nearly impossible to generate much of any kind of charge; you can rub balloons and glass rods all day with rabbit fur and barely get enough of a tingle to get one hair to stand up.

My perception of this changed when I moved to Pennsylvania as an adult and found my hand blown back by touching doorknobs on cold winter days. For several days that first winter, I wandered around in slack-jaw amazement, befuddled that the scientific theory I had dismissed was painfully true.

Even today, I still view static electricity more as this strange devil-magic than as something scientifically understood.

A New Sense of Adventure

The future is easy to predict in hindsight. However, it's much trickier – and more exhilarating – to try to get it right while you're in the thick of things. With these techniques, you can bring the sense of adventurous uncertainty to any PC brave enough to pick up a bow and arrow, travel the seas in search of passage to India, or harness the devil-magic of static electricity.

About the Editor

Steven Marsh is a freelance writer and editor. He has contributed to roleplaying game releases from Green Ronin, West End Games, White Wolf, Hogshead Publishing, and others. He has been editing *Pyramid* for over 10 years; during that time, he has won four Origins awards. He lives in Indiana with his wife, Nikola Vrtis, and their son.

Odds and Ends

Do It *Worse*?!

Random Thought Table: Better, Faster, Stronger in *Pyramid #3/52: Tech and Toys III* explored positive advances in technology: new devices that are faster, better, cheaper, smaller, or previously impossible. However, sometimes technology is noteworthy for being *worse* in some aspect than the former ways – say, doing something less elegantly, but faster; or, doing it slower but of a higher quality. No one would confuse the beauty of an illuminated manuscript with the smudgy blockiness of a printing-press output, but civilization as a whole was willing to put up with lesser-but-faster (and cheaper) printed products. Releasing technology with flaws is often a way for inventors and companies to test customer interest and to earn money to create improved products.

In general, technology will only gain a foothold by being *worse* if the minuses are minor inconveniences or easily mitigated. Thus, "doing it worse" will only be marketable in conjunction with one or more significant advances – something might be smaller but more expensive (making it attractive to rich travellers), or cheaper but with a drawback of some sort (making it popular with the average citizen, but disdained by the intelligentsia).

For some flaw inspiration . . .

- *Slower:* Using a slower piece of equipment means that results take longer to happen, but they will be superior in some way to similar methods.
- *Costlier:* Consider the beneficial aspects of the gadget, and compare them to the modifications listed in ***GURPS Low-Tech*** (p. 14), including the guidelines for combination gadgets. Use an equivalent cost factor to adjust the price.
- *Drawbacks:* See p. B476 and p. B479 for table full of possible bugs and side effects. At minimum, the device adds a penalty to skill use when relying on it compared to similar items.
- *Larger:* Either simply multiply the weight by 1.5 (for being clunky), or use the suggestions for combination gadgets in ***Low-Tech*** (p. 14).
- *Previously possible:* While this gadget has at least one feature that makes it more attractive than similar inventions, it also lacks at least one feature that those other versions have.

Murphy's Rules

by Greg Hyland

The best brewer sometimes makes bad beer.

– German proverb

About *GURPS*

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GURPS rules and statistics in this magazine are specifically for the ***GURPS Basic Set,*** *Fourth Edition.* Page references that begin with B refer to that book.