GURPS® Fourth Edition

LOW-TECH™

COMPANION I

PHILOSOPHERS AND KINGS™

Written by MATT RIGGSBY and WILLIAM H. STODDARD
Edited by SEAN PUNCH

*An e23 Sourcebook for **GURPS**®*

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Stock #37-1661

Version 1.0 – November 2010

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GURPS System Design ▮ STEVE JACKSON
GURPS Line Editor ▮ SEAN PUNCH
Managing Editor ▮ PHILIP REED
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Page Design ▮ PHIL REED and JUSTIN DE WITT
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GURPS FAQ Maintainer ▮ VICKY "MOLOKH" KOLENKO

Additional Material: Paraj Mandrekar, David Morgan-Mar, Kenneth Peters, and David L. Pulver

Research Assistance: Susan Koziel and Paraj Mandrekar

Lead Playtester: Jeff Wilson

Playtesters: Douglas Cole, Shawn Fisher, Martin Heidemann, Leonardo Holschuh, Rob Kamm, MA Lloyd, John Brent Macek, Garðar Steinn Ólafsson, Leigh O'Neil, Kenneth Peters, Emily Smirle, Shawn K. Stevenson, Antoni Ten Monrós, and Dustin Tranberg

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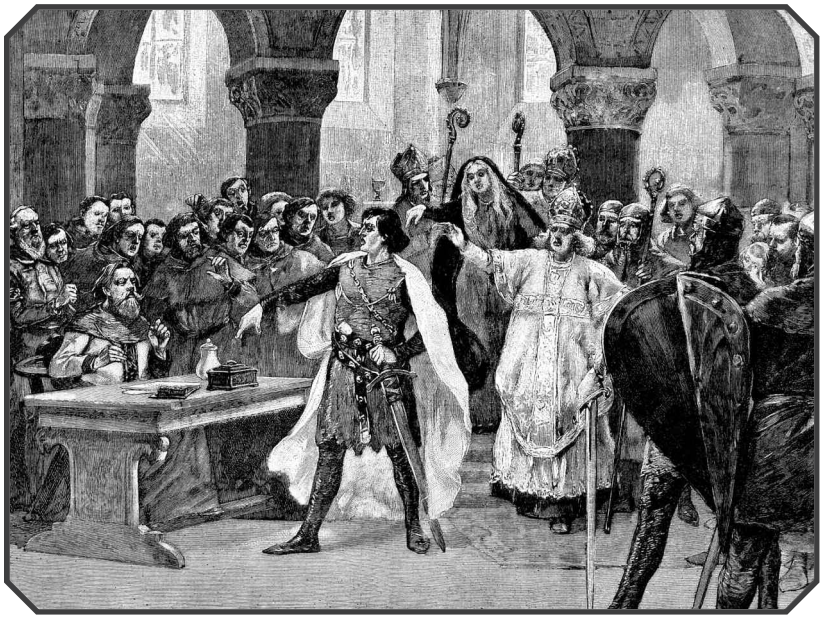
Introduction

The primary meaning of "technology" is "the use of tools." This is mainly the domain of craftsmen. Kings, nobles, priests, scribes, and bureaucrats rarely do physical labor or work with tools. Yet their societies' technology indirectly affects the skills they *do* use – and some technologies, such as record-keeping and medicine, are *mainly* used by such learned folk. More broadly, certain functions of the educated classes can be viewed as a kind of technology. Administration, mathematics, writing, religious disciplines . . . all involve a form of know-how.



GURPS Low-Tech Companion 1 examines these broader aspects of technology. Note that it's an appendix to ***GURPS Low-Tech.*** Many of the concepts discussed here draw on that work, although that supplement isn't *required* to use this one.

About the Authors

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 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.

William H. Stoddard is a professional copy-editor specializing in scientific and scholarly books in fields ranging from aerospace technology to archaeology. Fortunately, he likes reading nonfiction; his research library is threatening to take over his apartment, and he regularly visits the nearest university library for supplemental reading. His other pleasures including cooking, reading science fiction and alternate history, and running and playing in RPGs. His previous Steve Jackson Games work includes co-authoring the original ***GURPS Low-Tech*** and writing the latest edition of ***GURPS Fantasy.*** He lives in San Diego with his cohabitant Carol, two cats, two computers, and far too many books!

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Errata. Everyone makes mistakes, including us – but we do our best to fix our errors. Up-to-date errata pages for all ***GURPS*** releases, including this book, are available on our website – see above.

Rules and statistics in this book are specifically for the ***GURPS Basic Set,*** *Fourth Edition.* Page references that begin with B refer to that book, not this one.

Chapter One
Kings

Not all low-tech societies have actual *kings*. Many have chiefs or simply elders; some are surprisingly egalitarian. But most groups larger than families eventually need leaders, if only to settle disputes and organize labor. This road leads to the state, which requires laws, infrastructure, and an economy more efficient than barter – all of which depend on record-keeping. And if there *is* a king, his goal might be building an empire!

Politics

The most visible "social technology" is a society's political organization. Historically, demands on scarce resources, a need for defense, and a desire to organize trade and mediate disputes led to methods of defining roles for and relationships between individuals.

Stateless Societies

Societies at TL0 and into TL1 had little or nothing in the way of visible government. They conducted themselves more like extended families than like consciously political units. However, as these groups grew and their members came to know one another less well, they developed more formalized mechanisms.

Bands

The earliest human societies were simple family *bands*, ranging from a single nuclear family to around 100 people at most. Such groups of hunter-gatherers would travel across the landscape, occasionally trading or squabbling with other bands (to whom many members might be distantly related).

Bands are very informally organized, and their structure is fluid. Those that become too large split with a minimum of political and personal turmoil, while smaller groups can merge if that suits their members. Younger people often find mates in other bands, joining one band or another, or strike out on their own with a few like-minded friends. While band members are usually related, the sole *requirement* for membership is a willingness to live together.

A distinguishing characteristic of bands is lack of specialization. There are no distinct professions and only vaguely differentiated social roles. Almost every adult member can perform nearly any day-to-day task. No member depends on any other to start fires, hunt or gather food, look after children, build shelter, or petition the gods.

Differences in skill and aptitude *are* recognized; for instance, someone who's better at knapping arrowheads may find himself doing that more often than average. As well, certain tasks might be divided up by age and sex. Among known hunter-gatherer groups, for example, hunting large animals is an overwhelmingly male task, while women typically provide the bulk of care for infants. Even in those societies, though, women sometimes hunt and trap smaller game, and men gather plant foods (if not as much) and spend some time with small children.

Social Traits in Bands

Some social traits associated with complex societies are present in simpler ones but work differently. Others don't exist at all! For example, bands don't have formal, hierarchical advantages like Status and Rank. Most of the traits under *Privilege* (p. B30) haven't been invented yet, either, although the GM might use Claim to Hospitality (p. B41) to represent a mutual gifting relationship with members of related bands. Bands *do* have Social Regard (p. B86), however – notably for elders and particularly skilled individuals.

Cultural Familiarity (p. B23) also needs rethinking. In a world (or a campaign, at least) full of TL0 societies, lack of direct, long-range communication can mean that Cultural Familiarities cover areas comparable in size to mid-sized countries rather than the continent-sized regions of higher TLs.

Social, political, and economic skills that are mostly about personal and small-group interactions *do* exist. For example:

- *Merchant* is used to negotiate exchanges, however technologically unsophisticated the society.
- *Leadership* exists as a skill, if not a profession – although a leader is unlikely to be able to lead more than a small group
- *Public Speaking* is often *very* common for storytelling – a primary means of entertainment for low-tech societies – even if the "public" is limited to a handful of listeners.

Skills for coordinating large organizations and negotiating complex processes haven't been invented yet, though. Examples include Accounting, Administration, Finance, Intelligence Analysis, Law, Market Analysis, Politics, Propaganda, and Strategy.

Membranophones

In ordinary language, *drums:* instruments based on setting a stretched skin in motion, usually by striking it with the hands or a stick. Most membranophones have a resonant cavity beneath the skin.

Tuned Drum: A drum with a skin that vibrates at a specific note. Often used in sets with different tunings; some tuned drums can be retuned by changing the tension on the skin. *Examples:* bongos, tabla, timpani. *Defaults:* Untuned Drum at -3; Untuned Percussion at -4.

Untuned Drum (IQ/Average): A drum used purely as a rhythm instrument, with no specific tuning. *Examples:* bass drum, bodhran, snare drum, tambourine (struck). *Defaults:* Tuned Drum and Untuned Percussion at -3; Large Concussion, Rattle, Scraper, and Small Concussion (*IQ*-based) at -4.

Other Instruments

A few instruments don't fit any of these categories. For example:

Bullroarer (IQ/Average): A shaped piece of wood or other material at the end of a long cord, played by whirling it through the air to make a loud noise.

New Musical Traits

If music is important to the campaign, then in addition to detailed Musical Instrument specialties, the GM may opt to use two new traits.

New Quirk: Can't Read Music

Like languages, music can be read and written. In societies that have written music, learning to sing or play an instrument normally includes learning musical notation. A musician can sight-read a new piece with a Singing or Musical Instrument roll at -2. One with the quirk Can't Read Music can only learn new pieces by ear. Musicians from cultures without musical notation *always* have this quirk, and need to memorize tunes. You must have at least one point in Singing or Musical Instrument to take Can't Read Music.

New Technique: Sight-Reading

Hard

Defaults: Musical Instrument-2 or Singing-2.

Prerequisites: Musical Instrument or Singing, *and* cannot have Can't Read Music; cannot exceed prerequisite skill.

In societies that have musical notation, playing a new piece from written music gives -2 for unfamiliarity. A musician who improves Sight-Reading can roll against it instead to play *any* unfamiliar piece straight from the written music.

Musical Scales

The ancient Greek mathematician Pythagoras discovered that musical scales had a mathematical basis. By dividing a string into halves, thirds, and other fractions, he showed that length ratios based on small numbers produced notes that harmonized with each other. For example, a string tuned to G was 2/3 as long as one tuned to C. Because of this discovery, the word "harmonics" was used for centuries to mean the study of fractions.

At TL2-3, Western music was based on ratios of whole numbers: multiples of 2, 3, and later 5. Each musical key had a different set of ratios and required instruments built to fit those ratios. At TL4, composers began to use *equal temperament,* with scales built on the 12th root of two, an irrational number; none of the resulting scales was perfectly harmonious, but they were close enough to satisfy listeners. Johann Sebastian Bach helped to popularize the new system, with musical works such as *The Well-Tempered Clavier.*

Other cultures use different scales: East Asian music is often pentatonic (five notes per octave rather than seven), Near Eastern music uses quarter-tones (halfway between the half-tones of Western scales), and Indian music has many different scales. Penalties for Cultural Familiarity (p. B23) apply when playing an instrument or a musical work with an unfamiliar scale.

Mathematics and Astronomy

GURPS Low-Tech discusses advances in mathematical technology, including measuring devices and notation. However, *mathematics itself* moves forward as technology progresses. Each TL brings new mathematical concepts and methods, enabling mathematicians to solve problems that earlier TLs couldn't handle. The following list summarizes these developments by TL, along with which Mathematics specialties are available.

TL0 – There are *no* mathematical skills! Very simple mathematics is possible: deciding which of two objects is larger, recognizing how many objects are in a small group (up to about half a dozen), matching objects with tally marks, etc.

TL1 – *New Mathematics Specialties:* Applied, Surveying. *Key Mathematical Developments:* practical geometry, used to calculate areas and volumes; nonpositional numerals; basic arithmetic, including addition, subtraction, and simple fractions.

TL2 – *New Mathematics Specialties:* Pure. *Key Mathematical Developments:* use of definitions and proofs in mathematical theory; plane and solid geometry; identification of prime numbers and other special categories of numbers.

TL3 – *Key Mathematical Developments:* positional numerals; long division and other sophisticated arithmetic; algebraic equations; plane and spherical trigonometry.

TL4 – *New Mathematics Specialties:* Cryptology, Statistics. *Key Mathematical Developments:* analytical geometry (graphing equations); calculus and infinite series; logarithms; binary arithmetic; mathematical theory of probability.

Herbal Pharmacy: Sample Herb List

GURPS Low-Tech describes general categories of medicinal herbs. Each culture will have its own list of specific plants with recognized effects. Here's a sample list of herbal cures available in medieval Europe. Rules for most of the indicated uses appear in ***Low-Tech;*** for spermicides and abortifacients, see *Contraception* (p. 27) and *Abortion* (p. 27), respectively.

Herb	*Uses*
Agrimony	Astringent, Vulnerary
Aloe Vera	Cathartic, Vulnerary (especially vs. burns)
Arnica	Anti-inflammatory (vs. arthritis)
Balm	Astringent, Calmative, Carminative
Broom	Emetic
Buckthorn	Cathartic
Calendula	Vulnerary
Catnip	Calmative
Chamomile	Carminative
Cinnamon	Cathartic, Purgative
Comfrey	Vulnerary
Dandelion	Cholagogue
Fennel	Carminative, Expectorant, Tonic (women's)
Feverfew	Analgesic (vs. headaches), Febrifuge
Foxglove	Aquaretic, Tonic (vs. heart disease)
Garlic	Tonic (general), Vermifuge, Vulnerary
Gentian	Cholagogue
Goldenrod	Aquaretic
Hemp	Analgesic, Antiemetic, Tonic (women's)
Hops	Calmative
Horehound	Cholagogue, Expectorant
Horse Chestnut	Anti-inflammatory
Hyssop	Expectorant
Juniper	Abortifacient, Aquaretic, Spermicide
Lovage	Aquaretic, Calmative
Mallow	Demulcent
Meadowsweet	Analgesic, Febrifuge
Mustard	Rubefacient
Oak (bark)	Astringent
Pennyroyal	Abortifacient
Peppermint	Carminative, Cholagogue, Expectorant
Pomegranate	Spermicide
Poppy	Sedative
Raspberry	Tonic (women's)
Rue	Abortifacient, Sedative, Vermifuge, Vulnerary
Sage	Astringent
Senna	Cathartic, Purgative
Shepherd's Purse	Coagulant
Silphium	See *Contraception* (p. 27)
Spearmint	Spermicide
St. John's Wort	Calmative, Sedative, Vulnerary
Tansy	Abortifacient, Vermifuge
Thyme	Expectorant
Valerian	Calmative, Sedative
Vitex	Tonic (women's)
Wild Carrot	Spermicide
Willow	Analgesic (vs. headaches), Anti-inflammatory, Febrifuge
Wintergreen	Rubefacient
Wormwood	Vermifuge
Yarrow	Cholagogue, Vulnerary

Glossary: Pharmaceuticals

For *game effects* for most of these drugs, see ***GURPS Low-Tech.***

abortifacient: Causes a toxic reaction that induces labor; see *Abortion* (p. 27). In addition to herbs, small doses of *cantharides* (described in ***Low-Tech***) can be used this way.

analgesic: Diminishes pain by decreasing the sufferer's sensitivity to it. *Local* analgesics suppress the sensory receptors for pain. *Central* analgesics decrease the brain's response to pain.

antiemetic: Counteracts nausea and prevents vomiting.

anti-inflammatory: Decreases inflammation of the muscles and joints.

aquaretic: Promotes urination, helping to flush out bladder infections, and preventing the recurrence of kidney stones.

astringent: Counteracts inflammation of the skin and suppresses itching.

calmative: Diminishes anxiety or excitement, and encourages sleep.

carminative: Lessens abdominal pain from gas.

cathartic/purgative: Speeds the passage of food through the digestive system, leading to rapid and/or voluminous excretion.

cholagogue: Enhances the secretion of bile.

coagulant: Helps stop bleeding.

demulcent: Soothes throat pain from respiratory infections and prevents coughing.

emetic: Promotes vomiting.

expectorant: Promotes the flow of nasal phlegm.

febrifuge: Reduces the severity of a fever.

rubefacient: Produces a mild inflammation that counteracts muscle pain when applied to the skin.

sedative: Suppresses overall central nervous system activity.

spermicide: Lessens the chance that sexual activity will lead to pregnancy; see *Contraception* (p. 27).

tonic: Term for two distinct categories of substances: (a) *general* tonics promote overall health and fitness; (b) *women's* tonics stabilize female hormonal cycles.

vermifuge: Promotes the expulsion of worms from the digestive system.

vulnerary: Applied externally to a wound to aid healing and resist infection.

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