

G U R P S[®]

LOW-TECH[™]



BY EVAN JAMIESON,
RICHARD MEYER,
AND WILLIAM H. STODDARD

STEVE JACKSON GAMES

STICKS AND STONES...

are only the beginning in *GURPS Low-Tech*! Everything you need for a historical campaign is here, from the first thrown rock to medieval catapults, from loincloths to heavy plate. Extensively researched for historical and technical accuracy, and fully compatible with other *GURPS* material, *Low-Tech* offers you:

- All the hand weapons and ranged weapons from *GURPS Basic Set*, with exotic additions from various ages and countries.
- Over a dozen examples of pre-gunpowder artillery in a variety of sizes.
- Full statistics for many new types of armor, piece by piece, and rules for combining them.
- Options for customizing all this combat equipment to get just what you want, whether it's a spike on your battle axe or a nose-guard on your helmet.
- Over 100 other forms of equipment, fully detailed with game statistics, and ready for use.
- Information on travel and transportation, on foot or horseback, in wagons or chariots, or aboard canoes or warships.
- Historical overviews of the Stone Age, the Bronze Age, the Iron Age, and the Middle Ages, including daily life, crafts, government, and the progress of knowledge.
- A variety of new optional rules: hunting and gathering, primitive surgery, making and repairing arms and armor, riding with any equipment or none, harnessing draft animals, using incendiary weapons, and many others!

If you want new options for equipment, and realistic historical guidelines for its use – *GURPS Low-Tech* is the source you need!



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This book is designed for use with *GURPS Basic Set, Third Edition, Revised*, and *GURPS Compendium I*. It completes the series that includes *GURPS High-Tech, Ultra-Tech*, and *Ultra-Tech 2*, but *Low-Tech* may be used independently, in any medieval or earlier campaign.

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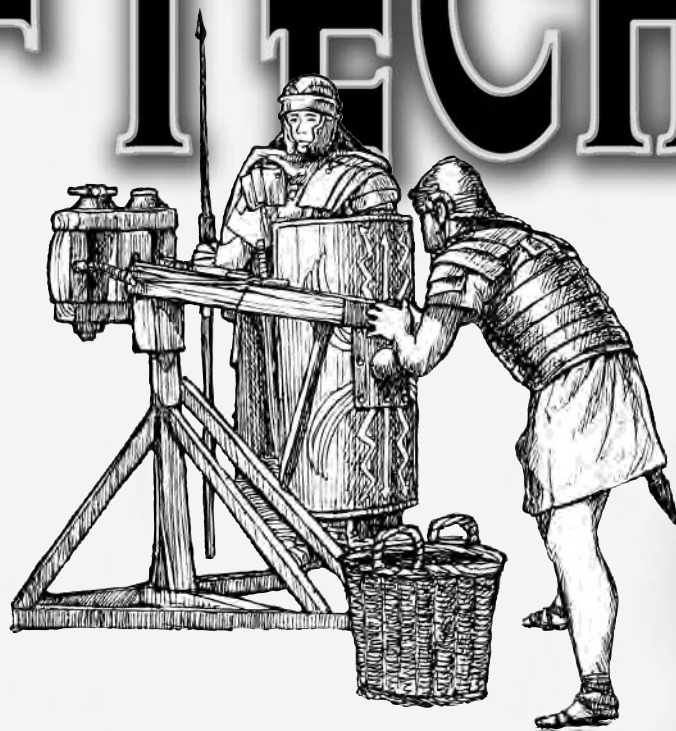
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INTRO⊕DUCTION

GURPS Low-Tech examines the vast period from the dawn of man to the end of the Middle Ages in the year 1450. It completes the series of *GURPS* books that detail the technology of past, present, and future campaign settings. *GURPS High-Tech* covers the period from 1450 to 2000, while *GURPS Ultra-Tech* and *GURPS Ultra-Tech 2* catalog and describe the futuristic devices of science fiction.

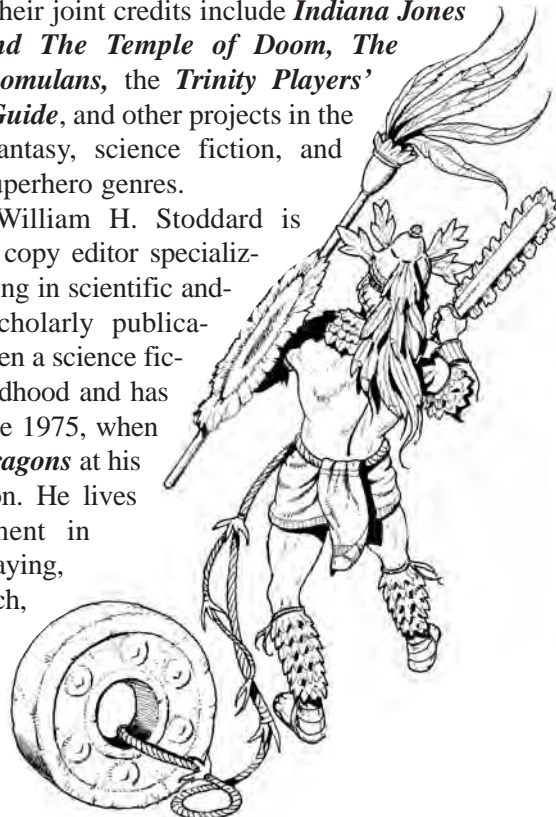
Separate chapters in *GURPS Low-Tech* cover the Stone, Bronze, Iron, and Middle Ages in human history. Although arms and armor make up much of this book, each chapter also describes tools and personal equipment. For the GM, each chapter summarizes advances in agriculture, metallurgy, transportation, and medicine, and identifies societal changes that transformed daily life.

GURPS Low-Tech provides rules for a wide range of tools, weapons, and devices, but it cannot be exhaustive. The bibliography provides a starting point for further explorations of this subject.

ABOUT THE AUTH⊕ORS

Richard Meyer and Evan Jamieson are Boston area gamers and freelance authors. Richard Meyer is starting his third decade as a creator of FRP games and supplements. His past credits include the *Thieves' Guild* series and *Free City of Haven* as the former president of Game-lords, Ltd., the *Mech-Warrior* roleplaying system for FASA, and over 30 other products. Since 1985, he and Evan Jamieson have written supplements as part of the consortium *Adventure Architects*. Their joint credits include *Indiana Jones and The Temple of Doom*, *The Romulans*, the *Trinity Players' Guide*, and other projects in the fantasy, science fiction, and superhero genres.

William H. Stoddard is a copy editor specializing in scientific and scholarly publications. He has been a science fiction and comics fan since childhood and has played roleplaying games since 1975, when he discovered *Dungeons & Dragons* at his first science fiction convention. He lives in a book-crammed apartment in San Diego. Other than roleplaying, his favorite hobby is research, which helped a lot with his work on *GURPS Low-Tech*! His other projects for Steve Jackson Games include the Origins Award-winning *GURPS Steampunk*.



ABOUT GURPS

Steve Jackson Games is committed to full support of the *GURPS* system. Our address is SJ Games, Box 18957, Austin, TX 78760. Please include a self-addressed, stamped envelope (SASE) any time you write us! Resources now available include:

Pyramid (www.sjgames.com/pyramid/). Our online magazine includes new *GURPS* rules and articles. It also covers *Dungeons & Dragons*, *Traveller*, *World of Darkness*, *Call of Cthulhu*, and many more top games – and other Steve Jackson Games releases like *In Nomine*, *Illuminati*, *Car Wars*, *Toon*, *Ogre Miniatures*, and more. And *Pyramid* subscribers also have access to playtest files online!

New supplements and adventures. *GURPS* continues to grow, and we'll be happy to let you know what's new. For a current catalog, send us a legal-sized or 9"×12" SASE – please use two stamps – or just visit www.warehouse23.com.

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

Gamer input. We value your comments, for new products as well as updated printings of existing titles!

Internet. Visit us on the World Wide Web at www.sjgames.com for errata, updates, Q&A, and much more. *GURPS* has its own Usenet group, too: rec.games.frp.gurps.

GURPSnet. This e-mail list hosts much of the online discussion of *GURPS*. To join, point your web browser to www.sjgames.com/mailman/listinfo/gurpsnet-l/.

The *GURPS Low-Tech* Web page is at www.sjgames.com/gurps/books/low-tech/.

PAGE REFERENCES

Rules and statistics in this book are specifically for the *GURPS Basic Set, Third Edition*. Any page reference that begins with a B refers to the *GURPS Basic Set* – e.g., p. B102 refers to page 102 of the *GURPS Basic Set, Third Edition*. Page references that begin with CI indicate *GURPS Compendium I*. Other references are EG to *GURPS Egypt*, GR to *GURPS Greece*, and VE to *GURPS Vehicles*. The abbreviation for this book is LT. For a full list of abbreviations, see p. CI181 or the updated web list at www.sjgames.com/gurps/abbrevs.html.

“Us put ’un up like this-yur, an’ ’ee wurked all right; us put ’un higher an’ ’ee didden wurk so gude, so us put ’un back where ’ee be, an’ let ’un bide.”

– J.G. Landels, *Engineering in the Ancient World*



hen archaeologists began to classify ancient artifacts, they recognized distinct stages in the growth of technology. C.J. Thomsen classified the material in the Copenhagen Museum (opened 1819) into ages of Stone, Bronze, and Iron; his student J.J.A. Worsaae showed that the three technologies occupied successive strata in excavations. In 1865 a British archaeologist, John Lubbock, divided the Stone Age into the Old and New Stone Ages. Anthropologists studying present-day non-European societies borrowed this classification for their own purposes.

GURPS classifies early technology into the same stages, or Tech Levels (TLs), with one more added: The Middle Ages. The Stone Age is TL0, the Bronze Age is TL1, the Iron Age is TL2, and the Middle Ages are TL3. But there’s more to technology than materials. A fuller classification needs to look at several other technologies.



TECH LEVELS 0-3

Here are the typical forms taken by several major technologies at the TLs this book discusses:

<i>TL Materials</i>	<i>Energy</i>
0 Wood, leather, stone	Fire
1 Bronze, ceramics	Draft animals
2 Iron, concrete, glass	Water mills
3 Steel	Windmills, horses with horse collars
<i>TL Tools</i>	<i>Construction</i>
0 Hand tools	Shelter
1 Machines	Monumental architecture
2 –	Keystone arch
3 –	Dome
<i>TL Transportation</i>	<i>Warfare</i>
0 Walking, sledges, boats	Stone weapons, shields
1 The wheel, the sail	Metal weapons, armor, chariots
2 Riding	Infantry formations, artillery, galleys
3 Stirrups	Armored cavalry
<i>TL Food</i>	<i>Medicine</i>
0 Hunting, gathering, horticulture	Herbs
1 Agriculture, herding	Military surgery
2 Two-course rotation	Bleeding and purging
3 Three-course rotation	Amputations, extracts

HISTORICAL PERIODS

In Near Eastern and European history, the timeline of technological development is as follows: TL0, before 4000 B.C.; TL1, 4000 B.C.-1200 B.C.; TL2, 1200 B.C.-500 A.D.; TL3, 500 A.D.-1450 A.D. Different dates may be relevant to other civilizations. The highlands of New Guinea were scarcely explored until after World War II, when Europeans and Americans moving from TL6 to TL7 made contact with villages still at TL0.

BEFORE TLO

Some earlier **GURPS** material considered “TL0” to mean literally “no technology.” As a result, some equipment used by Stone Age people was classified as TL1. In **GURPS Low-Tech**, such inventions are reassigned to TL0, along with other well-documented achievements of Stone Age peoples, ancient or recent. “No technology” can be shorthand as “TL(-1)” if necessary. Don’t use this value in numerical formulas; TL(-1) means, literally, no technology. (Stretching the point, the termite probes used by chimpanzees might count as late TL(-1).)

“TAKE WHAT YOU LIKE,” SAID GOD

Players in low-tech campaigns will want their adventurers to own or invent higher-tech devices. Let them. (See pp. B186-187.) At the experimental stage, there is little standardization; each new example of an invention will be unfamiliar, giving -2 to skill rolls (see p. B43). If the device is invented during play, no one is skilled in its use or able to train anyone else. Its use starts out at the default level and it takes 200 hours to learn the skill at the 1/2-point level. The process should be roleplayed, with careful attention to mishaps.

PRICES IN \$KINS

Some previous **GURPS** treatments of Stone Age peoples (see pp. D86-87 and D112-114) cited prices in \$kins. This does not reflect the actual value of any animal skin, nor do incomes in \$kins reflect the economic output of Stone Age tribes . . . it was a matter of flavor. Since the \$kin and the \$ are both arbitrary units, **GURPS Low-Tech** uses the \$ for all prices, to keep things simple.

WEAPONS AND WARFARE



The Bronze Age was an era of well-documented conflict. Every major culture was beset by war at some point during this time period, and some (such as the Minoans and Hittites) were destroyed. Other civilizations, such as the Egyptians, succumbed for a time to foreign invaders, whose advanced military technologies were then assimilated into the conquered society. Resource-rich regions such as the Levant became prizes to fight over, and standing armies, composed of professional soldiers supplemented by foreign mercenaries, became the rule rather than the exception.

Technological progress resulted in the invention of important new weapons, including the battleaxe and the composite bow. As man's destructive capabilities expanded, his preoccupation with developing both personal (shields, helmets, and armor) and large-scale (city walls and fortresses) defenses also grew. But the invention that most altered the practice of war during the Bronze Age was the chariot. For about 500 years, these horse-drawn wheeled vehicles ruled supreme on the battlefield. Rulers assembled large and expensive chariot forces that faced off against each other, reducing other troops to auxiliary roles.

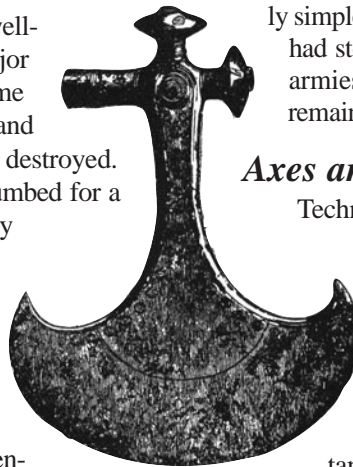
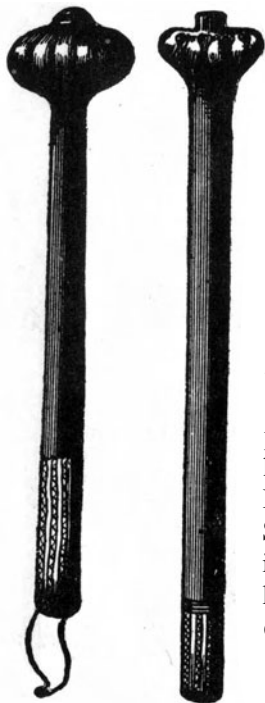
HAND WEAPONS

During the Bronze Age, soldiers continued to outfit themselves with the traditional hand weapons of TL0, such as the axe and spear.

In most parts of the world, the TL1 versions of these weapons were equipped with metallic rather than stone heads. In addition, an innovative hand-to-hand weapon appeared that could only be produced through metalworking: the sword.

Mace

The mace was a potent weapon in the hands of the earliest Bronze Age armies. Swung downward at a foe, it had a good chance of knocking him unconscious or even cracking his skull. Maces in this period were normal-

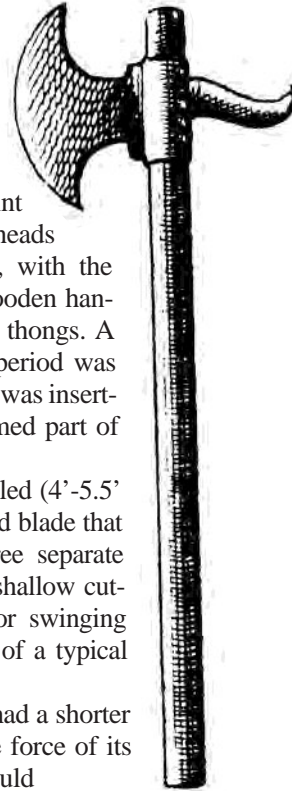


ly simple round balls without spikes or flanges; many still had stone heads. After the development of the helmet, armies turned to other weapons, though maces remained in ceremonial use long afterward.

Axes and Polearms

Techniques for casting bronze enabled TL1 armourers to fashion axe-heads in shapes and lengths than were unattainable by Stone Age flint knappers. Early axe-heads were commonly tanged, with the tang inserted into a split wooden handle that was bound with leather thongs. A sturdier design developed later in the period was the socketed axe, whose wooden handle was inserted into a tubular metal socket that formed part of the axe-head.

Epsilon Axe. This unique long-handled (4'-5.5' long) Egyptian axe had a crescent-shaped blade that was attached to the axe handle in three separate places. This blade provides a wide but shallow cutting surface best suited for a slicing or swinging attack, rather than the downward slash of a typical battleaxe.

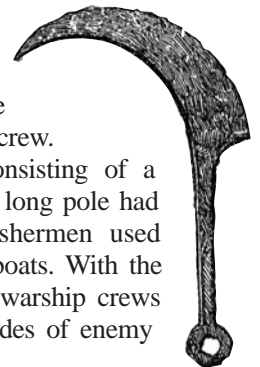


Egyptian Battleaxe

Battleaxe. The true battleaxe had a shorter blade, designed to concentrate the force of its swing on a narrow edge that could penetrate helmets or armor. Bronze Age armourers developed blades of several shapes; these are all classified as battleaxes, though the more effectively shaped ones can be considered Fine weapons.

Ko. The Bronze Age Chinese produced very long axe-like weapons (averaging 10') with two or three triangular blades thrusting out at right angles to the shaft, spaced about a foot apart. Such weapons were used by charioteers to repel attack at close quarters, but could also strike upward at a chariot's crew.

Hook. Weapons consisting of a metal hook mounted on a long pole had various shipboard uses. Fishermen used them to lever large fish into boats. With the beginning of naval warfare, warship crews used them to grapple the sides of enemy vessels.



Greek Foot Soldier with Mace

MAKING THINGS BURN

Apart from causing direct injury to living beings, flame attacks can set things on fire. The following rules represent this process for the incendiary agents available at TL3 and below.

Materials are classified into six categories of readiness to burn:

Type A (super-flammable): black powder, distilled naphtha

Type B (highly flammable): alcohol, paper, tinder

Type C (flammable): dry wood, kindling, light clothing, oil

Type D (resistant): heavy clothing, leather, pitch, rope, seasoned wood

Type E (highly resistant): flesh, green wood

Type F (non-flammable): brick, metal, rock

When a material is first exposed to a heat source, it will be set on fire immediately if sufficient burning damage is inflicted. Damage required is as follows:

Type A: negligible (candle flame or spark)

Type B: 1 point

Type C: 3 points

Type D: 10 points

Type E: 30 points

Type F: does not burn

If a heat source could cause enough damage to set a material on fire, but does not do so immediately, roll once per second so long as contact continues. Materials one or two categories above the highest category it could so affect may be set on fire through prolonged contact, if they are not of category F. For each 10 seconds of contact, roll 3d; fire results on a 16 or less for materials one category up, and on a 6 or less for materials two categories up.

Some examples of incendiary agents are as follows:

Torch	1 (added to crushing damage)
Flaming arrow	1 (added to arrow damage)
Large, hot fire (1 hex)	1d-1
Fire lance	1d-1
Greek fire	1d
Furnace	3d
Molten bronze/iron	3d

For example, a bonfire causes up to 5 points of damage. One roll could set light clothing on fire, so roll every second for this. It cannot set heavy clothing or flesh on fire with one roll, so roll after every 10 seconds; heavy clothing starts to burn on 16 or less, flesh on 6 or less.

Once a material starts burning, it may act as a further source of ignition; make separate rolls for it as if it were the nearest comparable incendiary source. For material to be rendered structurally unsound, it must suffer cumulative fire damage equal to its hit points. Take its DR into account for each second in which damage is inflicted.

MEDICINE

During the early Middle Ages, medical knowledge in Europe declined; ancient texts were copied in monasteries, but not always understood. European medicine can be considered to be effectively TL1. The revival of medical knowledge after 1000 A.D. reflected the influence of the Near East, initially transmitted through the School of Salerno.

Medicine in the Near East also looked back to ancient texts as authoritative. A Nestorian Christian school and hospital translated ancient Greek texts into Arabic, and they were relied on by Christians, Jews, and Muslims, from Persia to Moorish Spain. This led to new encyclopedic compilations of medical knowledge that were the basis for true TL3 medicine in the Near East, and later in parts of Europe. Greek humoral theories were combined with careful clinical observation. Many new drugs were discovered in the Near East as well.



Similar encyclopedic compilations of medical knowledge were produced in India and in China. The Indian surgeon Sushruta listed 20 sharp and 101 blunt instruments as needed for surgical practice. Indian surgeons developed the operation of lithotomy, or surgical removal of bladder stones; this can be considered minor surgery (see pp. 21-22).

The first dissections took place in Europe near the end of the period, and the first anatomy was published in 1316. However, anatomy did not become a mature branch of knowledge until TL4; medieval dissections must be considered early experiments.

Chinese medicine developed variolation, the first form of immunization. The pus from a light case of smallpox was inoculated into the skin of a healthy person. This calls for a roll against Physician skill. On an ordinary success or failure the inoculated person is mildly ill for a few days. On a critical success there is no illness; on a critical failure a full-blown case of smallpox results. This procedure was introduced into India, but reached Europe only after 1700.

Diagnosis made little use of instruments, relying mainly on the physician's senses and questions about the patient's diet and habits. Collection of urine specimens to check for blood, sugar, or sediment was known in the Near East and Europe.

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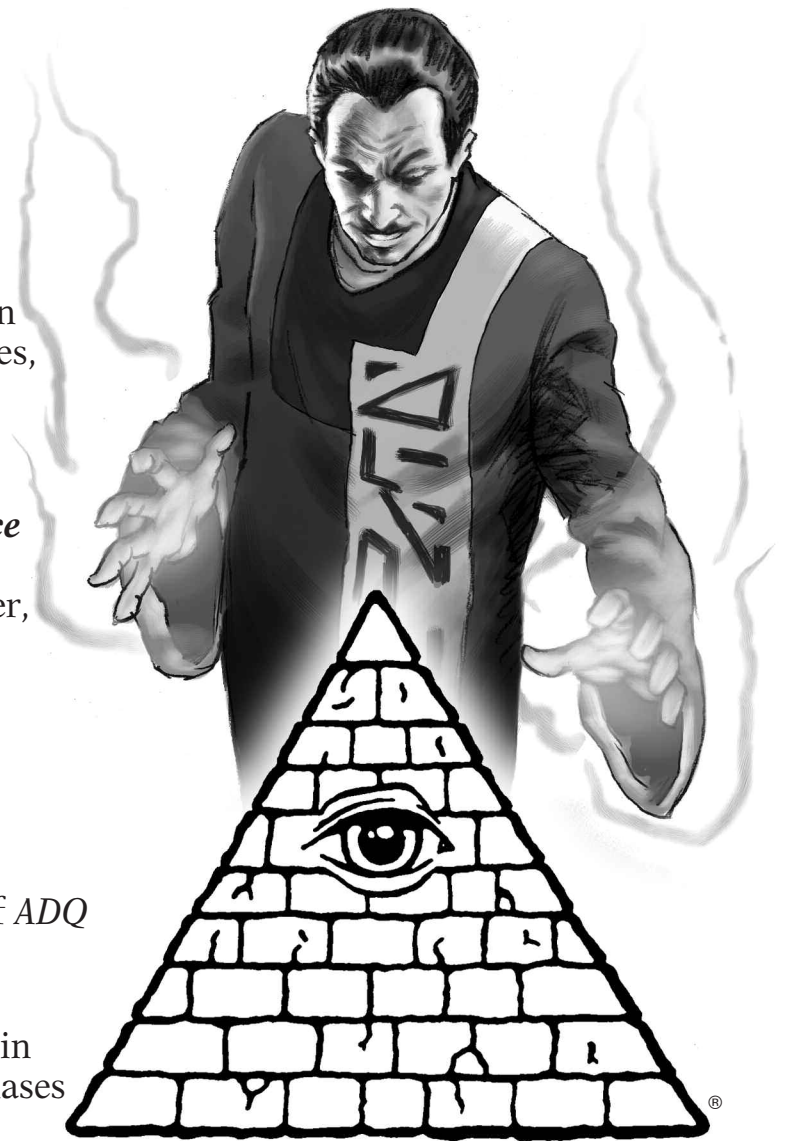
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