CONTENTS

1 EQUIPMENT

This chapter contains rules for equipment, including rules for operating, repairing and maintaining it. Stats for computers, power cells, weapons and armor are given, and various accessories and options are presented in the sidebars.

BREAKDOWNS AND MAINTENANCE

Equipment (including weapons, vehicles and any gadget more complex than a simple screwdriver or knife) requires regular maintenance to work properly. *Exception:* Equipment built from TL13 "living metal" does not require maintenance - if the entire item is made of living metal, it is totally maintenance-free: see p. UT18.

Personal weapons, gadgets and other small items of equipment should get a *maintenance checkup* every week or so if they are being used at all; very large or complex items (such as factories or fighter jets) may need more frequent checkups. To find out how many hours a piece of large equipment can safely operate between maintenance checkups, divide 20,000 by the square root of its cost. The quotient is the "maintenance interval" in hours.

Example: A jet fighter cost $15,000,000. It requires maintenance every 20,000/(square root of 15,000,000) = 5 hours, or about after each flight.

If an item of equipment has *not* been used and has been placed in storage (not sitting out in the rain or desert sand), or has a sealed case, then it doesn't require routine maintenance checkups.

Each maintenance checkup requires 4 hours and should be performed by someone with the appropriate Armoury, Mechanic or Electronics skill at 9 or better and a tool kit or workshop.

If a checkup is missed, roll against the skill of the character who made the *last* checkup (use the average skill, if multiple mechanics were involved). Apply a -4 modifier per additional checkup missed after the first.

If that roll fails, then roll versus the item's Health *(not* hit points). *GURPS Vehicles* and *Robots* have rules for assigning HT scores to equipment; for most equipment, roll versus 12 or the equipment's TL, whichever is *higher.* Failure means the equipment's HT drops by I, representing wear-and-tear; this will increase the chance of a critical failure.

A critical failure means a serious breakdown. Some feature ceases to work, or an individual part of a more complex item breaks down. For any potentially dangerous article of personal equipment (especially weapons), roll on the *Mechanical, Electronic and Biochemical Critical Failure Table,* p. 7. For vehicles and robots, the breakdown will often be the propulsion system (it can no longer move) or the motive system (movement is reduced due to a damaged wheel, leg, track or whatever). For computerized equipment, the computer may malfunction, causing the device to become quirky or unreliable. The GM decides when the breakdown actually occurs; this could be in the middle of an adventure, as breakdowns often occur during use!

Note that ground vehicles, even "healthy" ones, can break down due to stress during routine travel; see the *Ground Vehicle Breakdowns* sidebar (p. 7). Likewise, harsh conditions may result in more frequent breakdowns *regardless* of maintenance; see the *Slime, Sand and Equipment Failure* in the sidebar.

If equipment has lost Health due to missing maintenance checkups, this loss is cumulative. Lost Health can be regained: treat regaining a point of Health as making a minor repair (see *Making Repairs,* p. 7).
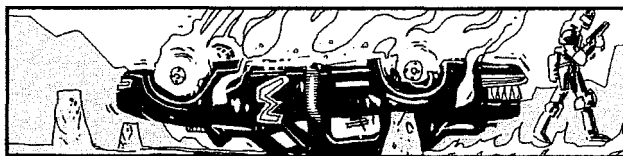
mechanical, electronic and biochemical critical failure table

Use this table for breakdowns, or whenever else a critical failure occurs and it seems appropriate: when alien or ultra-tech equipment is being examined by someone unfamiliar with it, when scientists are experimenting, when ultra-tech gadgetry is being repaired, when damage control is attempted on a spaceship, or (at the GM's option) when a critical failure is rolled during use of an ultra-tech weapon.

3,4 - Your equipment shorts out catastrophically, a vital part breaks or your chemicals interact cataclysmically. Roll 2d for the number of hours/days/weeks (as the GM rules appropriate) it takes to repair damage, get replacement parts, or remix the proper chemicals to compensate for the setback.

5 - An explosion occurs, doing 2d of damage to you and anyone in an adjacent hex.

6 - Same as #5, above, but doing only 1d damage.

7,8 - The botch or breakdown costs you 1 day or 1 hour of time, as appropriate: your next roll (for whatever reason) involving that device is at -3.

9,11 - You narrowly avoid a disaster, by catching the problem in time. No time is lost, but your confidence is shaken. You have a -3 on your next attempt to use or repair the equipment (if you just made the final roll, roll again at -3).

12,13 - Yon lose 1/2 day or 1/2 hour of time, as appropriate, and have a -3 to your next attempt to repair or use the equipment.

14 - You think something is wrong, or that you may have used the wrong procedure, but you're not quite sure because your notes or the repair manual have been mis-placed, gotten out of order, etc. Roll IQ-3 to know for sure (the GM determines truth). If you miss the IQ roll or you did goof, either start from scratch or attempt to complete the work or repairs with a -5 to your skill roll (your choice).

15 - A serious accident or error: a toxic chemical cloud, a sizeable shock or a heavy component falling on you. Roll HT-5 or go to 0 HT. If you make your roll, you still take 1d of damage and pass out for 20-HT minutes.

16,17 - As #15, but you automatically go to 0 HT and take an additional 2d damage. If working with electrical equipment, you take a point of damage every five seconds until someone shuts the power off. You can do nothing during this time except use psionic abilities (at -6) if you have them.

18 - A major explosion. Effects are as #16, 17 above, except that you take 4d damage after going to 0 HT. Anyone within 10 hexes takes 2d damage. Better hope some-one stays conscious and gets you medical aid quickly!

Ground Vehicle Breakdowns

Early automotive vehicles (TL5 and pre-1930 TL6 vehicles) and heavy tracked vehicles like tanks are notorious for being less than mechanically reliable. Even today, armored vehicles traveling long distances are likely to shed tracks or suffer damage to their suspensions. As such, armies prefer to ship tanks on wheeled transports for long distance travel.

A *powered* ground vehicle that (a) doesn't use wheels, or (b) has HT less than 10, or (c) was built in TL5 or the first half of TL6 must make a HT roll for every six hours of continuous travel.

Modifiers depend on how it is moving: +5 if on wheels, +3 if halftrack, skitrack or legs, +2 if on tracks or a "flexibody" (see *GURPS Vehicles*). If TL5: -6. If TL6 between circa 1900 and 1910. -4. If TL6 between circa 1910 and 1920, -2. If TL6 between circa 1920 and 1925, -1. If legs at TL7: -4. If legs or flexibody, at TL8: -2.

If a roll fails, the vehicle's drivetrain or suspension system has malfunctioned in some way: a blown tire, slipped track, etc. It will require 1d man-hours and a Mechanic roll to repair it.

If the roll was a critical failure, the mal-function is more: serious - the vehicle's motive subassembly or drivetrain loses all its hit points and is effectively disabled until repaired. Also, the GM may rule that an accident of some sort takes place.

Making Repairs

Minor Repairs: Repairing damaged equipment that still has hit points remaining requires a half-hour's work per attempt. Roll versus an appropriate skill (usually Mechanic, Electronics, or Armoury). Success restores 1 hit point times the amount the roll succeeded by (minimum 1). All normal modifiers for using the skill apply -see p. B54 for Mechanic skill modifiers. Some items may be more difficult to repair; in general, if an item costs $1,000 or less, roll at +1. If it costs $10,001-$100,000, roll at -1, or at -2 if it costs $100,001-$1,000,000 and at -3 if it costs over $1,000,000.

Major Repairs: A disabled component (one reduced to negative hit points) is seriously damaged. It requires spare parts that cost 1d x 10% of the original price. All rolls are at an extra -2. Otherwise, use the rules above.

Replacement: If a component is utterly destroyed (at –5 x hit points) it *cannot* be repaired, and must be replaced at 100% of the original cost. Replacement normally takes 1 hour per hit point the component had and a skill roll; use the modifiers for minor repairs. A successful skill roll means the replacement is installed, while a failed roll wasted the time, but further attempts can be made at no additional penalty.

Hiring Help: If a character isn't capable of doing repairs himself, he can usually hire a mechanic. A typical rate is $20 per hour; typical skill level is 11 + 1d. Mechanics with esoteric skills, e.g., Armoury (Artillery), may be more difficult to locate.

ALIEN DEVICES, NEW INVENTIONS AND WEIRD GADGETS

Adventurers seem to come across alien artifacts routinely, are often asked to try out experimental devices, and occasionally even invent weird, new gadgets of their own. The sections below present a few ways to handle this; with very minor changes all of these rules can also be applied to strange *magical* artifacts.

Alien Technology

When someone attempts to operate an alien device of unknown purpose, first have him choose a skill and roll against it. If the skill is inappropriate and the skill roll is a success, he realizes that skill doesn't apply and may try another; otherwise. he continues with the useless skill (treat as a failure by 10 for an appropriate skill). The GM then rolls 3d, adds the amount the skill roll was made or failed by, and consults the *Enigmatic Alien Device Button-Pushing Table,* below.

Each attempt takes one minute. Repeated attempts are possible: for each failure of the skill roll, apply a cumulative -1 modifier to the next attempt. The table assumes a device of moderate complexity, including a number of controls without comprehensible labels, e.g., a TL10 blaster rifle, a radscanner or a space suit. Very simple or very complex devices should have appropriate modifiers applied to the GM's roll. The Intuition advantage can be useful in selecting the right skill, and also provides a +4 bonus to the GM's roll.

Example: Hal has found a Precursor artifact that resembles a glowing potato with warts. He wants to figure out what it is, so he uses his Weird Science skill (see p. CI159) of 15 (lacking anything obviously more suitable). Hal's player rolls a 16, so the modifier is a -1. The GM rolls a 7, so poor Hal decides the device is some sort of musical instrument and tries to blow into a hole he finds in one of the warts. Hal breathes in some toxic cooling vapors and suffers 3 points of damage.

Note that Earthlings are unlikely to completely figure out alien tech, unless they happen to have very high levels in relevant skills (or Weird Science), or get very lucky - the cumulative failure modifier will eventually get them in trouble if they don't stop random button-pushing fairly quickly. A different character can start from scratch, though: other people can bring fresh insights on the problem.

These rules can also be used when characters analyze magical devices enchanted with unknown spells and when attempting to understand forgotten research projects. In the latter case, apply a +2 modifier to the GM's roll - at least some of the device's labels will help. If notes regarding the device can be located (taking a Research-5 skill roll), an additional bonus of +4 should be applied to the roll on the table. But even with the manual, operation isn't automatic - the documentation rarely matches the prototype, and someone may have fudged the data!

enigmatic alien device button-pushing table

GM rolls 3d. On repeated attempts by the same character, re-roll results that duplicate or are subsumed by previous results

0 or less - The character takes 3d of damage, and the device is destroyed. (If thedevice is indestructible, it vaporizes everything within 10 yards instead, and islater recovered from the crater by an NPC

1 - The device's primary effect is applied to the experimenter, if possible; if not, the character takes 2d damage.

2 - The device's primary effect is applied to a nearby character, if possible; if not, a nearby character takes 2d damage from a side-effect.

3 - The experimenter takes 3d damage from the device.

4 - A nearby character takes 3d damage from the device.

5 - The experimenter takes 1d damage from a device side-effect.

6 - A nearby character takes 1d damage from a device side-effect.

7 - The experimenter suffers superficial damage from a device side-effect.

8 - A nearby character suffers superficial damage from a device side-effect.

9 - The experimenter suffers an embarrassing mishap while trying to operate the device: he gets a body part stuck to it, or suffers some unpleasant minor side-effect.

10 - The PC forms an erroneous theory concerning the device's purpose, possibly being misled by a secondary function or side-effect.

11 - Nothing happens: the PC gains no useful insight into the device's nature or operation, but at least it didn't do anything nasty...

12 -The character locates one of the device's less-obvious controls (but doesn't find out what it does),

13 - The PC discovers the power switch that turns the device on and off.

14 - The experimenter gets a clue concerning the purpose of the device.

15 - The device's main function is clearly demonstrated (possibly by blowing a large hole in something inanimate - and expensive - nearby), and the character can now operate this function, at a skill penalty of -4.

16 - A procedure is discovered that reliably operates a single secondary function (with no skill penalty).

17 - The location and genera] nature of all secondary device controls is deduced, and these functions can be used at a skill penalty of -4.

18 - The PC figures out how to operate the major controls and can use the main function of the device at no skill penalty.

19 - The operator discovers all the functions of the device, and all relevant operating procedures, and can use all device functions at no skill penalty.

20 or higher - As 19, plus the character finds a totally serendipitous - and useful - application of the device that the creators never thought of!

Modifiers:

Amount character skill roll was made or failed by

-1 for each skill-roll failure after the first

+5 if the device controls are simple and obvious

+1 to **+5** for a device of simple function

-5 for an incredibly complex device with lots of controls (e.g.. a starship. a computer or a TL7 VCR).

-4 for poking at device with a stick

-2 for decent waldos (remote manipulators)

-1 for using psi or magic to manipulate the device from a theoretically safe distance

+4 if the PC has Intuition

+2 if the character has Danger Sense

Improvements at Higher TLs (Continued)

Gadgets

Unless specified otherwise, all devices, *except* for weapons and survival suits or body armor, weigh *half* as much one TL after being introduced and *1/4* as much after 2 or more TLs (round down). Many gadgets also improve in effectiveness.

Armor

Higher-TL versions of armor generally have increased DR; see the individual descriptions for each type.

Power

Any equipment that runs on power cells (see sidebar, p. 15) gains shots or increased operating time at higher TLs- This adds 50% of the original operating time or shots to the listed number for each TL after the one at which the device was first introduced. This is because the high-tech cells *contain* more power (see p. 15). However, many devices also make better use of the power they have available. For weapons, that means that they have more shots, *and* that the shots are more powerful!

Weapon Improvements

Energy Weapons: Energy weapons *are* weapons powered by power cells. This includes all beam weapons, all Gauss weapons and all powered melee weapons, For each TL after the types' first appearance, add +1 to an energy weapon's damage for every 1d of damage it normally inflicts. For weapons with damage adds, 3+ points of: damage adds also gives a +1.

Range also increases. Add 10% to 1/2D and Max range per TL after the weapon fust appears.

Example: TL9 blaster rifle normally does 12d damage, with a 1/2D and Max range of 300 and 800. It gains +12 damage per TL above 9 (+1 for each die of damage done normally), so at TL10 it does 12d+12 damage. In addition, its 1/2D and Max ranges improve by 10% to 330 and 880.

Improvement Limits: Unlike Dumber of shots (see Power, above), damage and range only increase for the first three TLs after the weapon's introduction.

Needlers: Regular and Gauss needlers get 20 more shots per magazine at each TL after the TL of introduction.

Other Weapons: Conventional slug-throwers and other chemical or. spring-powered weapons do not increase in damage, but advanced ammunition types do come into use: Explosive warheads have a 50% increase in damage at TL9, but after that do not gane in power, however, other types of warheads (sonic, nuclear, etc.) become available.

Advanced Technology

When someone invents something of a higher tech level than his "normal" TL, whether using the invention or Gadgeteering rules (see pp. CI121-127), or simply *knowledge of* a higher TL, the GM should roll 3d on the *Guaranteed Play-Balance Table,* below (or simply pick something appropriate). For very complex gadgets (or very unbalancing ones), the GM may want to roll multiple times. At a minimum. gadgets should double in size and weight for every tech level below their nominal TLs.

These rules can also be used for new and innovative magical enchantments.

guaranteed play-balance table

GM rolls 3d, or picks something appropriate.

3 - Roll 3d for each use (each hour of use for continually-operating devices). On a result of 6 or less, an agent of the Interstellar T' vorging Commission teleports in and tells the operator to cease generating k'fith particles at once! If the PC doesn't comply, the agent will frown at the gadget and it will disappear, immediately followed by the agent.

4 - If the gadget is normally hand-held, it is so large and heavy as to need a cart or vehicle to move it around; if normally a vehicle-borne device, it needs a really big vehicle, like a battleship, or must be mounted in a building; if normally the size of a small building, the device takes up a city block.

5 - Each use of the gadget (or hour of constant use) consumes $250 worth of exotic chemicals, rare herbs or the like.

6 - The device has 1d+1 side-effects (see the *Random Side-Effect Table,* below).

7 - The PC carrying the gadget is so inconvenienced by its awkward shape and balance that all his DX rolls are made at a -2 penalty.

8 - The gadget has Id-2 (minimum one) side-effects.

9 - If normally powered by batteries or power cells, the device requires a large power supply, like building power or a vehicle power plant; if normally requiring power in the megawatt range, it needs to be tied into a continental power grid and causes brownouts whenever used. (Magical devices use three times normal fatigue.)

10 - The gadget is twice as large, twice as heavy and uses twice as much power as it should. (Magical items use 50% more fatigue than normal.) If it is a weapon, damage, range and Acc bonus are halved, and SS increases by 4.

11 - The gadget gets too hot to handle after one or two uses, and must cool down for ten minutes before it can be used again. (If used before it cools off, it bums out in a shower of sparks and inflicts Id bum damage on the user.)

12 - Each use of the gadget (or hour of use for constantly-operating devices) consumes $25 worth of exotic chemicals, rare herbs or the like.

13 - The gadget is unreliable, and fails on a skill roll of 14 or higher.

14 - The device requires repairs after every use; it will not work until repaired. (Magical items require a Repair spell after every use.)

15 - The device has a recoil like a heavy projectile weapon (even if it isn't a gun). The user must make a DX roll for every use to avoid being knocked down.

16 - The gadget is very unreliable, and fails on a skill roll of 10 or higher.

17 - The device is very complicated to operate. If a weapon, it takes five seconds to ready. (This represents pushing buttons, setting dials, chanting, etc.) Non-weapon gadgets require two hours of painstaking preparation before each use.

18 - On any critical failure using the device, it self-destructs in some appropriately-spectacular fashion. The user must make a DX roll at -2, or take 2d damage as the gadget vaporizes itself. The entire gadget is gone, and cannot be repaired or even broken down for usable parts.

Weird Technology

These rules are best suited to Cinematic or silly campaigns; proceed at your own risk ...

Weird Science (p. CI159) can be used in conjunction with the inventing and Gadgeteering rules on pp. CI121-127. A successful roll gives a +5 bonus to both the "conception" and "working model" rolls for regular inventions. Gadgeteering gets a +1 to effective skill from a successful Weird Science roll, and Weird Science skill can also reduce or eliminate TL penalties when building gadgets using primitive equipment. The drawback to using Weird Science is that all devices built using this skill have strange side effects - Id-3 of them (minimum one). The GM should roll for these (or choose them) using the *Random Side-Effect Table,* below.

This table can also be used for "experimental" devices that the PCs are given by or steal from mad scientists who use Weird Science and mad wizards who use Weird Magic.

random side-effect table

The GM rolls 3d, or chooses something appropriate.

3 - Each use causes a small, cumulative change in the user's body or mind. Roll vs. HT+4 (IQ+4) for each use, or acquire -1 point toward a physical (mental) disadvantage of the GM's choice.

4 - Every use of the device inflicts Id damage on the user (bypassing DR).

5 - Each use causes 1 point of damage to the operator (bypassing DR).

6 - The gadget mutates one person (choose randomly) within 10 yards into an animal (GM's choice) for 10 turns.

7 - The device makes an incredibly annoying, high-pitched screech when used- This gives everyone within 20 yards a headache for ten minutes (-1 to all rolls). The user gets a migraine (-3 to all rolls for 20 minutes). Earplugs don't help, although Deafness does.

8 - Use of the gadget disrupts electronics of a lower TL: TVs and radios within one mile get nothing but static, computers within 100 yards crash on a roll of 7 or less on 3d; within 10 yards, even flashlights and other simple devices are affected. This effect is popular with scanning devices on UFOs. (Magical items produce local mana disruptions that cause a -3 penalty to all spellcasting within 10 yards for me next ten turns.)

9 - The device produces noxious fumes in a 4-hex radius. These do no damage, but are extremely unpleasant to breathe. Characters must make HT+3 rolls each turn they breathe in the area, or suffer mild nausea for five minutes (-1 to all rolls).

10 - The gadget produces a loud hum in operation (+3 to Hearing rolls to notice it).

11 - Use of the device is accompanied by impressive, but harmless, special effects -beams of colored light, showers of sparks, et cetera. The source of the effect will be obvious to any watcher, and anyone in the area gets a +5 to Vision to notice something is going on.

12 - The gadget emits dense clouds of steam or smoke while in operation. Treat as a Fog spell of radius 4 (see p. B 159 or M40).

13 - Every use of the gadget attracts swarms of vermin of the GM's choice. The swarms disperse ten minutes after the device is shut off.

14 - Using the gadget renders the operator unconscious for 1d minutes.

15 - Each use of the device attracts the attention of nearby demons or punches holes into random dimensions through which strange creatures appear.

16 - The device inflicts one point of damage (bypassing DR) per use, on everyone within 10 yards, including the user.

17 - Every use of the gadget opens a gate into a random dimension for 1 turn; the user must roll vs. DX to avoid falling into the hole before it closes.

18 - Each time the device is used, roll for a *different* random side-effect. (If this result comes up, roll for *two* side-effects!)

Anachronistic Devices

The tech levels listed for most equipment are aimed at "realistic" campaigns. In more cinematic or fantastic campaigns. these limits can be stretched. For each TL "early." add 50% to the cost and 25% to the mass and volume of such a device.

Example: A TL9 Gatling laser, normally $20,000 and 75 Ibs., would cost $40,000 and weigh 112.5 Ibs. in a TL7 *Supers* game with comic-book-style energy weapons.

Data Penetration (Computer Hacking)

Adventurers may want *to* break into •*a* computer system, usually to steal information. The first requirement is access to the computer system itself, whether through *a* communicator or an actual terminal, using a Datalink program (see p. 17). A totally self-contained system cannot be penetrated from outside - but few systems (except military defense-control systems) are totally self-contained.

Many military systems (including all TL7 systems in the U.S. containing anything other than Unclassified data) and some civilian systems are protected by *Cryptographic* barriers from outside intrusions via the Net. Access to these systems requires compatible cryptographic systems (military-grade systems are usually unavailable - consider them LC 0) *and* current crypto keys. The latter are normally carefully guarded, and may not even be known to the users of the system.

It may be possible to "crack" keys, depending on the level of protection of the crypto gear. Unlike simple passwords. crypto keys are usually very large random numbers, and can only be attacked by using Cryptanalysis skill (p. CI156) on the text of a message. At late TL7, this normally requires both specialized programs and *enormous* computing power - tens or hundreds of millions of dollars worth.

The easiest way to penetrate a system protected by crypto barriers is to acquire the keys somehow. For modern military settings, this typically means suborning a Security; officer who handles keys (many Social skills are useful here), breaking into a high-security safe (which will. generally leave enough traces that all the protected keys will be immediately invalidated), 01 physical access to a crypto unit containing the key of interest; plus lots of time and very specialized gear and training.

Once you get past the crypto barrier to talk to the target system, you *still* typically have to get past password: protection (see below) to access specific data. Some very secure systems use cryptographic identification devices (like physical keys) instead of passwords, so this may present significant additional problems.

Once the intruder is accepted as a legitimate user of the system, he can try to gain access to its databases or programs. Some databases are open to any user, while others require special passwords and are defended by security programs (see below). For instance, once inside a military installation's computer system, a user will have access to dozens of separate databases. Some will be unrestricted, such as the public relations biographies of senior officers. Others, such as the program controlling the installation's recognition monitors, will have limited access and alarm programs if unauthorized attempts are detected.

Any attempt to break into a secure database or program requires a roll against Computer Hacking (see p. CI155). Add bonuses depending on the quality of *Worm* program (see *Intrusion and Security Programs,* p. 14) the intruder is using, and subtract penalties if the database or program is defended by an attached *Security* program- The GM may also add bonuses of up to +5 if the intruder, has obtained passwords or codes that provide partial access to his target.

In some settings (especially less cinematic ones) a specific Computer Hacking skill may not exist: instead, hacking is a process, not a skill. In this case, the roll above is against Computer Programming. Other useful skills include many Social skills (especially Fast-Talk) for getting passwords, Thief/Spy skills for stealing keys and gaining physical access to the system, Scrounging for "dumpster diving" (finding useful notes and manuals; even-passwords; in the garbage) and Computer Operation skill (see below). As well, "connected" Allies, Contacts and Patrons may be able to provide passwords, as can a sufficiently high Security Clearance (see p. CI29). Any of the above can give up to a +5 bonus, at the GM's option.

Each attempt takes one hour. Success means that any defenses are unlocked, and the intruder is inside. If he was trying to break into a database, he can now access it, and alter, erase, insert or retrieve information. If he was trying to get into an existing program, he can attempt to reprogram it.

Failure by 1 to 2 means that the attempt-fails and must be tried again, taking another hour; failure by 3 or more indicates that the computer's defenses, if any, are alerted - see the *Defense* program, below.

COMPUTERS

At TL7, computers are already vital to the operation of society. At higher TLs, their importance continues to increase. These rules cover "generic" computers, with emphasis on TL7-8 systems (TL6- computers are rather limited in capacity, while given the speed of the computer revolution, *anything* could happen by TL9!)

Complexity

Computers have *Complexity* ratings, which govern the type of software they can run and how fast they can run it. Complexity 1 is the simplest; Complexity 6+ computers may be self-aware. Each jump of +1 Complexity marks an order of magnitude performance increase.

Programs are also rated for their Complexity. A computer cannot run programs of a higher TL or Complexity (but see *Program Types,* below). The number of programs that can be run concurrently is based on Complexity: a computer can run (wo programs of its own Complexity, or 20 programs of one Complexity lower, and so on. This can be combined; for instance, a computer could run one program of its own Complexity and ten programs of one lower Complexity level.

Using Computers

Computer Operation skill is required at TL7-. At TL8+, all computers can have voice-instruction capability; Computer Programming rolls are not required for most purposes, and Computer Operation rolls are at +3. At TL9, Computer Operation skill is almost never necessary, and is therefore almost unknown.

Complexity 2 computers can give simple spoken replies; Complexity 4+ systems can understand idiomatic conversation and reply in kind (within the machine's realm of expertise); users may give any instructions to computers they control (if they have the appropriate programs). The GM has the ultimate decision as to the capabilities of a program and the response of a computer when given an order that is impossible be follow. Simple systems can be dangerously literal-minded!

The exact capabilities of a computer depend on its library of programs. Running or switching a program takes one second. Maximum memory storage (for databases) is 100 gigs x Complexity at TL8+, 10 gigs x Complexity at TL7.

Program Types

For gaming purposes, programs are broken down into two types: *analysis* and *real-time.* Real-time programs are things like Personality Simulation and robot skill programs that must be able to run at full speed at all times. Analysis programs include databases, Environmental Analysis, Navigation, etc. They generally take about 10 minutes to execute when run on a system of their own Complexity.

A real-time program is useless on a machine of lower Complexity than the program - it simply can't run fast enough. An analysis program can be run on a lower-
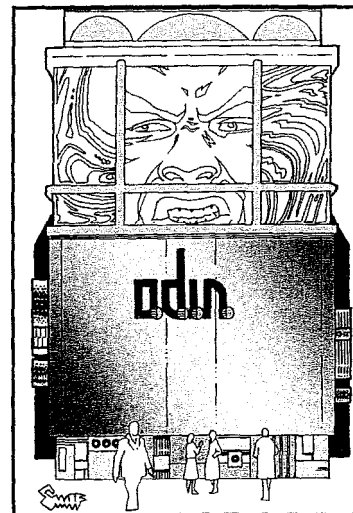
Complexity machine from the same TL, but each 1-point deficit in Complexity increases the time it takes to run the program by a factor of 100! Increases in Complexity *reduce* the time by a factor of 10, but only if the computer treats the program as if it were +1 Complexity.

TL Differences

No system can run a program of a later TL. Systems can run programs from the *immediately previous TL* without difficulty; beyond this, specialized (and archaic) hardware will have to be found to interpret the media, and the GM should *decrease* effective Complexity of the computer by 1 ... most systems lack the capability to translate archaic machine languages!

Other Capabilities

Any computer can also be linked via a communicator or cable to another computer. The smaller computer then becomes a terminal of the larger one, giving access to all its power. Of course, to communicate with a computer, the communicator must first have its comm-number and any necessary passwords. Accessing an otherwise secure computer is difficult,

In addition, any computer equipped with a microphone or camera can be used as a digital recorder, to the limit of its storage capabilities.

Hardware

Small ("Personal") Computer

The computer itself easily fits into a pocket or a briefcase, but is usually linked to peripherals that are considerably larger. They can be linked to mainframes for even greater data access. A TL8 personal computer is Complexity 2 and runs for one year on a B cell.

Minicomputer

This is the workhorse of the computer business. Almost every middle-class household at TL8 has a system like this, serving as the "house brain." Small businesses, or separate departments within a larger business, also use mini systems. Using its integral modem, a minicomputer can be linked to a network for even greater data access. At TL8. a minicomputer is Complexity 3 and uses building power, or can run for six months on a C cell.

Microframe

These multi-user systems are used in such situations as large passenger ships and university learning centers. A TL8 microframe is Complexity 4. It runs for six months on an E cell, or indefinitely if connected to the mains.

Mainframe

Used for control and systems-monitoring functions for a major business, manufacturing complex or laboratory. It normally uses vehicle or building power. If it has an emergency power backup, this will be a bank of 50+ E cells (which will keep the computer running for about a week). A TL8 mainframe is Complexity 5.

Macroframe

Sometimes referred to as a supercomputer or megacomp, it is most often found administering the traffic, sewage, power and other maintenance functions for an entire city! It will also handle the local government's bureaucracy and paperwork. Until TL9, these systems *must* be installed in buildings or vehicles. The machine

Data Penetration (Computer Hacking) (Continued)

A large computer may have thousands of gigabytes ("gigs") of information in its databases, and finding a single item can be difficult, but the more time spent in an illegal search, the more chance of tripping an alarm program. To make such a search, determine the size of the database being examined before rolling against the questioner's Computer Operation skill Penalties are -1 for a database of up to 10 gigs, -2 for 11 to 100 gigs, -3 for 101 to 1,000 gigs, and so on.

Each search attempt requires 10 minutes. If the user is unauthorized, failure by 3+ activates the system's *Defense* programs (if any). On a legal search, each attempt still takes 10 minutes and has the same penalties for amount of information stored. Failures simply mean no informa-tion for that search - a long enough search will find anything in the system! Of course, the information simply might not be there; that is up to the GM, and characters may or may not even discover that the search is futile.

Intrusion & Security Programs

These specialized programs are used 10 protect against data penetration - or to facilitate it. Remember that more complex and expensive versions of these programs give higher skill levels (see p. 16).

Defense: A Defense program does not prevent intrusion - but if an intruder fails his skill roll by 3+ and is detected, it goes into action. A Defense program has an effective skill of 14. Roll a Quick Contest of Skill between the Defense program and the Computer Hacking skill of the intruder. If the intruder wins, he escapes, and may try to reenter the system again later. If the Defense program wins, it pinpoints the location of the intruder terminal and alerts human security forces. An *Active Defense* program may also insert a computer virus (see below) into the intruder's system. Active Defense programs are often illegal (Legality Class 1). A Passive Defense program is Complexity 3 and costs $5,000. Active Defense programs are Complexity 6 and cost $250,000.

Security: A Security program is assigned to a particular program or database in the computer to protect it against unauthorized access- Any data penetration attempt has a penalty of -8. Additional protection can be bought just as for raising the skill of a program - doubling the cost and adding 1 to the Complexity adds another -1 to any penetration attempt Complexity 2, $30,000.

Virus: These are special programs that may be used to infect other programs or databases. If an infected program is loaded into a compuler, or a virus is inserted into the system by an Active Defense program. all programs on that computer will become infected (and can pass it along if copied!).

Some time (delay varies with the program) after the virus has been initially released, it activates its programming. Typical programs erase everything stored in the computer, or change random pieces of stored information (-4 to all skill rolls augmented by the computer), or can even cause the computer to physically damage itself! More sophisticated virus programs might subvert the target computer, turning it into a spy for the virus creator. $1,000, Complexity 2.

A *Target Virus* is written to get into a specific system (or type of system) and change specific pieces of data. Otherwise it functions as a normal virus. $10,000 (in custom programing fees), Complexity 3.

Worm: A Worm program adds 2 to any Computer Hacking/TL roll for a data penetration attempt, or provides a skill level of 12. In some places, Worm programs may be illegal (Legality Class - 3 or less). Complexity 3, $25,000.

uses building or vehicle power, but will almost definitely have a large bank of E cells (usually 100+) in case of long-term power outages. They are usually the property of government agencies or major corporations.

Options

Several options may be added to any computer to alter its capabilities. For strict accuracy, all computers up to late TL6 should be built with the "dedicated" option. representing simple mechanical or electro-mechanical analog computers.

Compact **(TL6):** The computer is substantially reduced in size and weight, but is much more expensive as a result.

Dedicated **(TL5):** A dedicated computer can only run a single software program. Historically, all computers up to late TL6 should be built as dedicated computers.

Dumb **(TL7):** The computer is less sophisticated than usual. This subtracts 1 from Complexity but makes it much cheaper.

Genius **(TL7):** The computer uses state-of-the-art processing technology. This adds 1 to its Complexity, but greatly increases price.

Hardened **(TL7):** The computer is built with optical systems, or more sophisticated forms of hardening at higher TLs, in order to resist attacks such as electromagnetic pulses, as well as computer surveillance systems such as TEMPEST.

High Capacity **(TL7):** The capacity of a system can be enhanced by 50% (to *three* programs of its own Complexity, etc.) for a 50% price increase.

Neural-Net **(TL8):** The computer is built to simulate the way an animal (such as human) brain structure works. This makes it self-programming. The "mega-computer" described in *Space* and *Ultra-Tech* is a TL9 macroframe with the neural-net option. A neural-net's main advantage is its ability to learn programs on its own, gaining skills in much the same way as a human with Eidetic Memory 2.

By itself, the neural-net option gives an effective IQ of Complexity + 4 for learning purposes, but no DX; the computer cannot learn DX-based skills. Combined with a robot brain, this option makes the computer semi-sentient, with limited self-initiative; however, it has no interest in anything beyond following its user's orders - it is not "self-aware." Treat this combination like a normal robot brain, but one that can *learn.* It has its usual DX, but its effective IQ is Complexity + 4.

Robot Brain **(Late TL7):** The computer has a brain optimized to control a vehicle or robot. This option gives it a built-in operating system that allows it to move, control its limbs (if any), run built-in equipment, process information from its sensors, and understand orders to the limit of its IQ. The robot has an effective DX of (Complexity/2) + 8 and IQ of Complexity + 3. It is programmed to obey its owner and will follow commands literally. The disadvantage of this option is that it *halves* the number of programs a robot can run (one program of its own Complexity, 10 of one less Complexity, etc.). For more details on robot brains, see pp. R57-65.

Sentient **(TL10):** Any computer with a Complexity of 6 or higher (after options) can be built to be sentient. A sentient computer is a fully self-aware "artificial intelligence," or "AI," with the same capabilities as a neural-net, but with an IQ equal to Complexity + 5. The robot brain option is still required to give the computer a DX and enable it to learn DX-based skills.

Fully-sentient AI systems are considered people in some places; they can't be "enslaved" and are eligible for citizenship. In some places they are property, with varying degrees of "civil rights," but never equal to "natural sentients." Other governments outlaw AI completely.

Sentient computers should be considered characters, complete with quirks and disadvantages.

Select the computer from the table below (small to macroframe), decide which options it has. and work out and record its statistics:

computer table

Type of Computer	Weight	Cost	Complexity
Macroframe	4.000	$2 million	TL-2
Mainframe	500	$200,000	TL-3
Microframe	200	$40.000	TL-4
Minicomputer	40	$15,000	TL-5
Small computer	2	$1,000	TL-6
TL Modifier			
Built at Late TL5	x5	x2	-2**
Built at TL6	x2	xl.5	-2**
Built at TL7 or TL8	x1	x1	-
Built at TL9	x1/2	x1/2	-
Built at TL10+	x1/4	x1/4	-
Options			
Compact	x1/2	x2	-
Dedicated	x1/2	x1/5	-
Dumb	x1	x1/5*	-1
Genius	x1	x7*	+1
Hardened	x3	x5	-
High-Capacity	x1	xl.5	-
Neural-Net	x1	x2	-
Robot Brain	x1	x1	-
Sentient	x1	x3	-

Weight: This is the weight of the computer. If the computer has multiple modifiers or options that affect weight, then all multipliers that affect weight are applied in succession.

Cost: Just as with weight, if a computer has TL modifiers or options that affect cost, multiply the cost by each in turn.

* For small computers, "genius" multiplies cost by 20 instead of 7, and "dumb" multiplies cost by 1/20 instead of 1/5. For mainframe and macroframe computers, "genius" multiplies cost by 20 as well; "dumb" versions still cost only 1/5 as much.

Complexity: The computer's Complexity is based on its type and TL, modified by the options chosen. E.g., a TL10 minicomputer with the "genius" option has 10-5+1 = Complexity 6.

** Penalty does not apply if computer has the "dedicated" option.

Terminals

All computers require at least one terminal if they are to be used by humans. *(Exception:* At TL10+, holographic displays remove this limitation for small computers, making "wristcomps" feasible.) Each terminal allows one person to use the computer. Note that terminals do *not* come with computers. Unless the computer is intended strictly for an unmanned vehicle, or as a backup, it should have at least one terminal!

A single terminal *can* be connected to multiple computers, giving a single user access to them all; however, the user is still restricted to working with one computer at a time, and it takes one second to switch a terminal between computers.

Adding a terminal to a computer does not increase its capacity in any way. If multiple users try to exceed its capacity (e.g., by running more programs of a given complexity than the computer can handle), then they will simply be unable to do so.

Terminals are assumed to have a keyboard and monitor; the standard terminal of TL7-8 has a high-resolution color display and a keyboard input device, supplemented by a voice input system at TL8+. Holographics appear at TL9, neural interfaces at TL10. As well, TL8+ terminals for Complexity 3+ computers come with sound synthesizers, enabling them to convey information through speech, to play music, etc.

Power Cells

At TL8+ most equipment runs on standardized *power cells*. How they work is up to the GM, These rules assume that they use plutonium, metastable helium, antimatter or something equally esoteric and expensive. They can't be recharged, and can't be discharged quickly enough to explode. Any cell will store power indefinitely if not in use; they have indefinite shelf lives. Unless otherwise specified, they are good for 2 years continuous use.

Higher-TL cells contain more energy: at each successive TL after the introduction of a device that takes power cells, increase the number of shots or the operating time by 50%.

Power cells are heavy for their size. The consequences of breaking a cell depend on what is in it; the more destructive the contents, the harder they are to break, Antimatter or plutonium cells are *not* fragile.

Types of Power Cells

There are six sizes of power cells, designated by letter from AA (the smallest) to E (the largest). Power cells increase in power exponentially. An A cell is ten times as powerful as an AA cell, a B cell has ten times the power of an A cell, and so on.

AA cell: This cell is a disk the size of a pinhead, 1/16" in diameter and 1/32" thick. AA cells are used to power microbots, brain implants, calculators, etc. They cost $2; 500 AA cells weigh 1 ounce.

A cell: An A cell is a cylinder 1/4" in diameter and 1/8" tall, A cells are used to power wristcomps, short-range radios and other devices with smalt power requirements. An A cell costs $10; 25 weigh 1 ounce.

B cell: B cells are cylinders 1/2" in diameter and 1/2" tall. They are used to power various sorts of hand-held equipment, including small, easily-concealable weapons. B cells cost $30; 20 weigh 1 pound.

C cell: This is a 1" diameter by 2" tall cylinder. C cells are the most common power source for personal weapons, tools and equipment They are the most familiar power source in most advanced societies; equipment designed for larger or smaller cells often has an adapter for C-cell operation. C cells cost $100 and weigh 1/2 pound.

D cell: A D cell is a cylinder 2" in diameter and 4" tall. D cells power military weapons and heavy equipment; TL8+ battlefields are littered with expended D cells in the way that TL7 battlefields are littered with expended cartridge-cases and machine gun links. Each D cell costs $500 and weighs 5 pounds.

E cell: Each E cell is a cylinder 4" in diameter and 6" tall. E cells power vehicles, support weapons and other power-intensive, systems. An E cell costs $2,000 and weighs 20 pounds

TL	Weight	Cost
5-6	100	$2,000
7-8	40	$1,000
9	20	$500
10+	10	$250

Weight and cost are for typical terminals suitable for use as work stations. Personal terminals (e.g.. on laptops) may be cheaper, smaller and lighter.

Power Cells
(Continued)

Replacing Power Cells

It takes 3 seconds to replace an A, B, C or D cell with a new one, or 6 seconds to replace a tiny AA or large E cell. Speed-Load (Power Cell) skill (see p. B52) applies to B, C and D cells being reloaded into weapons. Successful use of this skill reduces the time to 1 second. Life-support systems, and other items that cannot afford power interruptions, have two or more cells, so that if one is drained another takes over immediately. They are also usually equipped with a warning system to notify the user that one cell has been expended.

Jury-Rigging

In an emergency, wrong-sized cells can be used. To do this requires a roll against Electronics-2 and 3d+10 minutes of work. A failure means the jury-rig delivers no power; a critical failure damages the gadget- A larger cell can be substituted for a smaller one, lasting no more than twice as long. A set of 10 smaller cells can be substituted for the next larger size, usually lasting only a short time (details are up to the GM, depending on the Electronics skill of the tinkerer; on a good roll, the GM should warn the technician what to expect from his jury-rig).

The GM may also rule that different planets or nations use different voltages or sizes for their power cells. This means an Electronics roll, of difficulty set by the GM, will be required to use familiar power cells in strange equipment (or vice versa).

Lower-TL cells can be used to power a higher-TL device, but this is always a jury-rig. High-TL devices using lower TL cells will, at best, function like the lower-TL version of that same device; a bad roll on the jury-rig could result in failure to oper-ate, or even damage to the device. The penalty to the Electronics roll for jury-rigging increases by -2 for each difference in TL (Electronics-4 for one TL of difference, Electronics-6 for two TLs, etc.).

Low-TL devices can use higher-tech cells, getting increased operating time (see p. 9) but no other increase in efficiency. However, if the TL of the cells is more than 1 greater than the device's TL, the GM may require an Electronics roll, with appropriately cinematic results on a failure. ("The TL13 power cells just destroyed your flashlight, but before it melted, the beam went through the wall.")

Example: A TL8 laser rifle gets 12 shots from a TL8 C cell. Using a TL9 C cell, it would now get 18 shots, but no extra damage. With a TL10 cell, it could get 24 shots, if it worked at all.

TL8+ Storage Devices

Mass Storage: As storage capabilities rise, system storage capacity (hard disk, laser disk, etc.) will increase beyond the normal user's ability to fill it.

However, systems running truly massive database programs will require extra storage capacity. If a system is to hold databases of more than (Complexity x 100) *gigabytes* ("gigs"), it will need extra mass storage. At TL8, one *terabyte* of protect-ed memory (1,000 gigs) costs $10,000. weighs 500 IDS., and takes up about a cubic yard.

Removable Media: Software is stored on memory units called *disks.* A TL8 optical disk is about 3" across and holds 10 gigs of data. At TL9, they are dime-sized, with the same capacity. At higher TLs. size stays the same, with memory density increasing by a factor of 10 per TL. Blank disks are always $5 apiece.

Other Peripherals

Printer (TL7): Attached to any computer (even a wristcomp), the printer can produce typeset quality printouts or photographic-quality color pictures. It uses the computer's power cell. The printer weighs 4 pounds and costs $100 at TL8. A hun-dred sheets of paper or printing plastic weigh 1/2 pound and cost $1.

Text Scanner (TL7): This is a light-sensitive plate which can read a document or picture (10" x 15" or smaller) into a computer's memory, either as a graphic image or text. Cost is $40 and weight is two pounds at TL8.

Software

A variety of programs are available. The cost listed is for an original copy of the program with documentation. Programs are rated for Complexity, as described above.

Increased Skill

Some programs provide a bonus to operator skill, or have a built-in skill level. Standard programs give a +2 bonus to appropriate skills, or an effective skill level of 12. More expensive and sophisticated versions of these programs may be pur-chased, for every +1 skill over and above this, double the cost and *increase the program's Complexity by one.* (This is an expansion of the Expert System rules in *Ultra-Tech* and *Space,* replacing the previous rules for automatic skill bonuses at
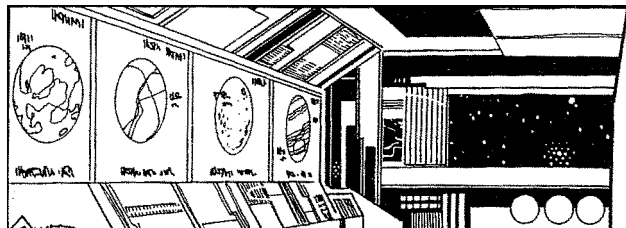
increasing TLs.) This does not apply to *skill programs* for robot brains, which provide character points toward a skill rather than a level or bonus.

Note that bonuses to the same skill from multiple programs are not cumulative.

New or Custom Programs

At TL8+, a system can be programmed to do just about anything. Good programming is expensive at any Tech Level. The GM should allow custom programs to be ordered, but make them costly. Some programmers are better than others, regardless of cost. A custom program is very likely to have some amusing bugs in it when it is first used.

If someone wants to write his own computer program, see *Reinventing invention* (p. CI125).

Copy Protection

Copy protection for computer programs is a dead issue at TL7 and 8. As programs become more sophisticated, a user simply *cannot* run them without the appropriate documentation. On the other hand, more advanced tech levels may dispense with paper entirely. When the documentation is also on a program disk, piracy may become practical again, and copy-protection schemes may reappear.

Thus, the GM has two options. A simple projection of current trends would indicate that no copy protection will exist. Documentation and technical assistance will be available only to authorized owners, making "stolen" copies worthless.

For a more Cinematic future, effective copy protection could be common. When trying to load a pirated version of a program onto a computer, a roll at Computer Operation-2 or Computer Programming is required to successfully defeat the copy protection. A failed roll corrupts the program that is being loaded -a *critical* failure loads the program normally, but introduces a virus into the system. Needless to say, the GM should make all of these rolls in secret.

Copy protection also provides for some interesting adventure threads - the PCs as a group of intergalactic game pirates, for instance!

Sample Programs

For detailed lists of programs, see *GURPS Cyberpunk, Robots, Space, Ultra-Tech* and *Vehicles.*

Accounting: Used to manipulate numbers, do financial projections, and so on. Complexity 2; $1,000.

Datalink: This enables a computer to link (through a cable or communicator) with another electronic device, such as a computer, portable radar, scanner, etc. - at TL8+, almost all computers have universal jacks for attaching other devices. The computer can now display data from the other device on its screen, and can be used to give instructions through the link. This is also the program used to communicate with other computers through communication networks. Complexity 1; $400.

Electronics Repair: In conjunction with the probes from an electronic tool kit, this program troubleshoots any electronic device in its technical manual database (roll against the program's skill). A success tells the operator what to fix and how to fix it (it gives a +2 to Electronics or Electronics Operation or a 12 in the appropriate skill, whichever is higher, *for repairs only).* Complexity 2; $500. See below for databases.

Engineering: This is an advanced CAD (computer-aided design) engineering program. There are different programs for each Engineer specialty. It adds +2 to the appropriate Engineer specialty. Complexity 2; $5,000 plus cost of databases.

Expert Systems: These are programs with the knowledge of an expert in a particular skill, such as Shipbuilding, Biochemistry or Arctic Survival. Although they can be asked what-if questions, they are unlikely to bring any new insights to a

Power Cells (Continued)

Explorers, merchants or diplomats who must spend a long lime in a culture of a lower TL are well advised to have equipment adapted to the power sources of the lower TL. Higher-TL devices can be permanently adapted (as distinct from jury-rigged) to lower-TL power cells. Number of shots or operating time is the same as that of the equivalent lower TL weapon. For devices that do not exist at a lower TL, shots and operating time are up to the GM. The rule of thumb is to *halve* shots and time for each drop in TL (round down).

It is possible to adapt even more archaic power sources to the operation of higher-TL equipment. This is normally a Task (see *long Tasks.* p. B93) and the details are up to the GM. One Task that may be especially useful is adapting a recharger unit to primitive power sources.

The GM who feels that these calculations don't add to the game is free to declare that power cells were perfected at TL8 and don't change with increasing tech levels.

Rechargeable Power Cells (TL8+)

At the GM's option, any TL8+ society can have rechargeable power cells. In this case, they last only half as long, or provide half as many shots, but may be recharged at any power plant, including that of a spaceship, in about a day. This amount of power should be available at negligible cost though a futuristic power grid. These are otherwise identical to normal power cells (p.15).

Power Cells
(Continued)

Energy Banks

An energy bank stores electrical power. Energy stored in an energy bank is measured in kilowatt-seconds (kWs) - one kilowatt of power for one second. An energy bank consists of a bank of power cells plus their housings and power conduits. The four types of power cells commonly used in an energy, bank are B, C, D and E cells.

Energy banks use either rechargeable or non-rechargeable batteries or cells. Non-rechargeable cells must be replaced when the energy bank is drained. Rechargeable cells can be recharged by plugging into any power plant. Rechargeable cells are usually written with an r in front of the type; for instance, rC indicates a rechargeable C cell.

To design an energy bank, decide on the type and number of batteries or power cells that make it up, then add up the stored kWs of power, weight and cost as shown below.

Energy Bank Table

Type	TL	Weight (lbs.)	Cost	Energy (kWs)
9v cell	7	0.1	$2	18
r9v cell	7	0.1	$2	9
12v cell	7	20	$50	1,800
r12v cell	7	20	$60	900
B cell	8	0.05	$30	(TL-6)x180
rB cell	8	0.05	$30	(TL-6)x90
C cell	8	0.5	$100	(TL-6)x1,800
rC cell	8	0.5	$100	(TL-6)x900
D cell	8	5	$500	(TL-6)x18,000
rD cell	8	5	$500	(TL-6)x9,000
E cell	8	20	$2,000	(TL-6)x180,000
rE cell	8	20	$2,000	(TL-6)x90,000

The cost, weight and energy are per cell in the energy bank.

problem, and cannot be used for original research or invention. Expert systems are available for all Professional and Scientific skills and for Survival, Diagnosis and Intelligence Analysis.

Expert system programs have an effective skill level of 12 for Mental/Average skills, 11 for Mental/Hard skills and 10 for Mental/Very Hard skills. They are used in place of the character's own skill, but the time taken to perform a skill with the assistance of an Expert System is doubled. Expert System programs cost $10,000 for Average skills, $20,000 for Hard skills and $50,000 for Very Hard skills, and are Complexity 3.

Interpreter: This program translates from any language to any other language, as long as appropriate databases are on line. Nonverbal languages can be handled if appropriate sensors and "speakers" are available; costs vary widely. Typical language skill is 14, although this depends on the database. Complexity 4; $10,000.

News Daemon: This program constantly scans news channels for stories and articles on subjects it is set to look out for. It can mark them for later retrieval, flash a message on the screen, or call a communicator code for an instant alert. Complexity 1; $500.

Personality Simulation: The computer can simulate emotions, quirks, etc., and use highly idiomatic speech. In a robot, it can also simulate gestures and physical mannerisms. It can be programmed with a specific personality (even duplicating a real or fictional person) or left to develop its own (generally based on those around it). Simulators can be very simple, but one good enough to fool those "talking" to it for any length of time is Complexity 5 and costs $20,000.

Robot Skill Programs: These can only be run by computers with the robot brain, neural-net or sentient options. Each skill program grants the computer a number of character points in a specific skill. In theory, any skill can be bought as a skill program, but to properly use many of them will require the robot to have limbs or built-in equipment, and tasks that require true creativity or empathy (GM's option) are impossible unless the computer is sentient. Note that neural nets and sentient computers can only learn IQ-based skills. Use the table on p. B44 to determine the skill level. The more points the program grants, the higher the Complexity:

Points	Complexity
0.5	1
1	2
2	3
3-4	4
5-8	5
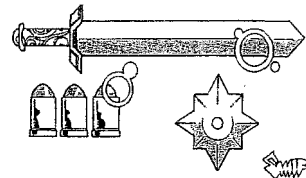
Each 8 extra skill points (or fraction thereof) increases Complexity by +1. Mental skill programs cost $2,000 per character point, while physical skills cost $4,000 per point. For programs granting more than 8 character points to a skill, multiply cost by 2.5; for more than 20 points, multiply by 5. At TL9, halve the cost; at TL10+, quarter the cost.

Because computer brains have perfect recall, skill points placed in mental skills effectively count quadruple, just like a human with Eidetic Memory 2. Multiply character points *after* calculating the Complexity and cost of the program.

Translation (TL11): This program can analyze and translate entirely new languages with as little as ten minutes' exposure to conversation, starting at a skill level of 5, and adding a point to skill for each additional half-hour of exposure, up to a maximum of 11. Non-verbal languages can be handled if appropriate sensors and "speakers" are available; cost varies widely. The program is Complexity 6. Cost depends on the level of language that can be translated: $5,000 for Easy only,

$7,500 for Average, $10,000 for Hard and $25,000 for Very Hard languages. When confronted with a language above its program level, (for instance Hard when it is programmed only to Average) the machine may refuse to attempt translation, turn out gibberish, or make dangerous errors.

Word Processing: A complete, state-of-the-art desktop publishing system used to create and manipulate text and image files. Complexity 2; $850.

Databases

These hold basic information. Normal cost is about $1,000 per gigabyte for sensitive or technical information. Database access is considered to be a Complexity 1 task. Some representative databases:

Lengthy novel ....0.01 gig
Complete national road atlas ....0.1 gig
Navigation charts of entire ocean or country ....1 gig
Plans of 100 small or 10 complex vehicles ....1 gig
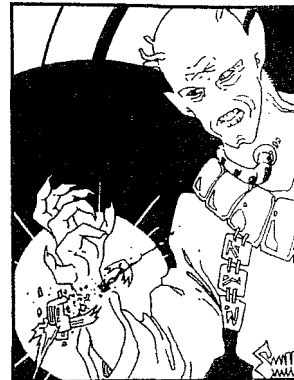Detailed global navigation charts ....100 gig
Public or school library ....100 gig
City or college library ....1,000 gig
Big city or university library ....10,000 gig
Large university or copyright library ....100,000 gig
Everything ever printed ....100.000.000 gig (?)

MUSCLE-POWERED WEAPONS

Below is a selection of muscle-powered weapons taken from various *GURPS* supplements, broken down by skill used to wield the weapon. Many of these are variations on the weapons listed on pp. B206-207. Where this is stated, assume that they are identical in all respects to the weapons listed in the *Basic Set,* except as noted - damage, reach, cost, weight and so on may differ slightly. For wholly new weapons, full statistics are given.

AXE/MACE (DX-5); p. B49

Boarding Axe (TL4): A billed axe used during Age-of-Sail boarding actions. Not made for throwing. Treat as an axe from the *Basic Set.*

Cleaver (TL3): A heavy-bladed meat cleaver, used as a weapon. Treat as a hatchet.

Francisca (TL2): See the entry under *Axe Throwing,* below. When used in hand-to-hand combat, treat the francisca as a hatchet.

Hammer (TL2): A short, metal-headed club with a flat striking surface.

Heavy Club (TL1): The wooden club existed in many varieties. Some ended in stone and some had a wooden ball at one end. Still others had four knobs of wood at one end with a pointed dp.

Kama (TL3): A long-handled, Japanese sickle. When the sickle-blade is attached to a chain, it creates the *kusari-gama* (see p. 28).

Masakari (TL3): A Japanese axe; treat as an axe.

Nata (TL3): A Japanese hatchet; treat as a hatchet.

Gumbai (*Iron Fan*) (TL3): A Japanese "combat fan" - a concealable weapon made of iron. The gumbai is a non-folding fan with a large, flate blade.

Tomahawk (TL1): Western-manufactured trade tomahawks are made of iron and can be used as either small maces or axes, depending on their edges. Some tomahawks are spiked like a small fireman's axe and can be used for piercing skulls (impaling damage). Traditional axes are stone.

Fatigue and Power Cells

In some settings, the energy stored in ultra-tech power cells can be used as fatigue to power magical spells. The rules for fatigue in relation to Energy Spells given in *GURPS Grimoire* are, unfortunately, incorrect. The actual relationship is:

1 kWh = 10 Fatigue.

Fatigue stored in a particular type of power cell will vary by TL. At TL8 it is:

AA cell =0.01 Fatigue.
A cell =0.1 Fatigue.
B cell = 1 Fatigue.
C cell = 10 Fatigue.
D cell = 100 Fatigue.
E cell =1,000 Fatigue.

At higher TLs, increase TL8 Fatigue by 50% per extra TL. Thus, a TL9 D cell stores 150 Fatigue, a TL10 D cell stores 200 Fatigue, and so on.

As well:

1 megawatt = (approximately) 2.8 Fatigue per second.

These corrections will affect the examples given for the Lend Power, Conduct Power and Draw Power spells.

Use of Human Bodies

An environment with limited resources demands that nothing be wasted. Human bodies can be used to produce many items. Hair can be spun and woven, and the skin can be tanned to produce a thin-leather. The bones can also be used to make knives and arrowheads, as well as jewelry for adornment or trade. Tendons can provide sinewy material for binding. Even teeth have trade value; some cultures use them for decoration.

Weapon	Type	Damage	Reach	Cost	Weight	Min ST	Special Notes
Hammer	cr.	sw+2	1	$35	4	12	1 turn to ready after swing.*
Heavy Club	cr.	sw+2	1	$20	2	7	1 turn to ready after swing.*
Kama	cut.	sw+2	1,2	$70	3	11	1 turn to ready after swing.*
Gumbai	cr.	sw+2	C,1	$100	3	11	1 turn to ready after swing.*
Tomahawk							
(metal)	cut.	sw+1	1	$45	2.5	8	May be thrown.
	imp.	sw	1				Using spike on had of blade.
Tomahawk							
(stone)	cr.	sw+1	1	$10	3	9	

* Becomes *unready* if used to parry.

AXE THROWING (DX-4); p. B49

Francisca (TL2): The francisca is the Norse throwing axe. It is essentially a hatchet with a large curved head. This was often elaborately decorated with inlays of silver wire. It can be used as a hand weapon, but only as a last resort - it's small. Treat it as a hatchet.

Mace (TL3): Maces were often thrown in combat.

Tomahawk (TL1): See the entry under *Axe/Mace,* above. The tomahawk can also be thrown.

Weapon	Type	Damage			Ranges		Cost	Weight	Min
			SS	Acc	1/2D	Max			ST
Mace	cr.	sw+3	12	1	ST/2	ST	$50	5	12
Small Mace	cr.	sw+2	11	1	ST	STx1.5	$35	3	11
Tomahawk (metal)	cut.	sw+1	10	2	STx1.5	STx2.5	$45	2.5	8
Tomahawk (stone)	cr.	sw+1	11	1	ST	STx1.5	$10	3	9

BLOWPIPE (DX-6); p. B49

Fukiya (TL3): See the description under *Blowpipe (Fukiya),* below. Use the *Blowpipe* rules on p. B49, but with the stats given on the table.

Weapon	Type	Damage			Ranges		Cost	Weight	Min
			SS	Ac	1/2D	Max			ST
Fukiya	Special	See p.B49	10	1	-	ST/2	$30	1	none

It Doesn't Have to be Steel

Although steel is the default material for bladed ancient and medieval hand weapons in *GURPS,* not all such weapons are made from it. At TL2 or less, steel simply hasn't been invented yet, while even high-tech adventurers may find themselves in an area where-for economic, cultural or mystical reasons-steel is known but *unavailable.*

Stone Weapons (TL0)

In terms of breakage, all long stone blades and points (e.g., knives, swords and spear heads) are considered to be of *Cheap* quality, while stone axes are treated as *Good* quality. This does not affect price until TL1, when bronze becomes available: then, all stone weapons become available for *Cheap* prices. Note also that even a *Cheap* metal weapon from a more advanced culture is superior to a stone point, in that a broken metal weapon can be reforged and reshaped, while broken stone is worthless.

Obsidian (TL1): Obsidian is a shiny, jet-black rock (actually a kind of glass) found only in volcanic areas. Contrary to "pulp realism," it isn't much better than flint or any other kind of stone for making weapons from: honed to a keen edge, it *is* very sharp, but also becomes extremely vulnerable to-blunting and breakage. Assume that any obsidian blade can be given a keen edge (+1 damage, like *a Fine* weapon); however, such a blade will break on 1-5 on 1d if used to parry a heavy weapon (see p. B111), and will lose its keen edge (and the +1 damage bonus) if used to parry or to strike DR 2+.

BLOWPIPE (FUKIYA) (DX-4 or Blowpipe); p. CI132

Fukiya (TL3): A small, Japanese blowpipe, used by ninja at close range (reach C, 1) to blow powder or bamboo slivers with various effects. It is a hollow tube two or three feet long which can be easily concealed. When firing bamboo slivers, use the regular Blowpipe skill (see *Blowpipe,* above). When blowing powders, use the Blowpipe (Fukiya) skill and the stats below.

Weapon	Type	Damage	Reach	Cost	Weight	Min ST	Special Notes
Fukiya	See above	See above	C.1	$30	1	none	Can also be used as a ranged weapon; see *Blowpipe,* above.

BOW(DX-6);p.B50

Dai-kyu (TL3): A Japanese composite longbow, made of wood sandwiched between two pieces of fire-hardened bamboo. The staff is held together with glue and thread. It is asymmetrical, with two-thirds of its length rising above the archer's left shoulder. This allows it to be used on horseback, unlike the European longbow which can only be used on foot. Use the composite bow stats in the *Basic Set*.

Han-kyu (Half-bow) (TL3): The han-kyu is a small bow, used by ninja, that can be concealed in the sleeve of a kimono (+1 to Holdout). A ninja's quiver (made of cloth) holds 12 arrows and can also be hidden in his kimono sleeve. Use the stats for the short bow in the *Basic Set,* but it's composite construction and concealability change cost to $600. Weight is 2.5 lbs.

BROADSWORD (DX-5, Shortsword-2 or Force Sword-3); p. B50

Backsword (TL4): The primary weapon of the Elizabethan Englishman was a basket-hilted, single-edged broadsword or "backsword." While the backsword lacked a reverse edge, it had a stronger blade. It is similar to a broadsword with a thrusting tip, but parries gain +1 PD from the full basket hilt, which also gives DR 4 to the sword hand.

Cavalry Saber (TL4): A heavy, slightly-curved broadsword used to chop down at foes from horseback.

Dau (TL3): A heavy-bladed Chinese scimitar, the dau can be used for chopping or thrusting.

Estoc (TL3): A narrow stabbing sword, three to four feet long and weighing about two pounds. The blade is round, square or triangular in cross-section, with no sharpened edges, for forcing its way through the links of chain mail. An estoc is normally used for thrusting attacks.

Hook Sword (TL3): A bizarre Chinese sword. This blunt weapon has a hooked "point," used to snare weapons using the Jitte/Sai skill. To strike with it, use the Broadsword skill. If the Jitte/Sai skill is not known, attempts to disarm are resolved normally (see p. B111), but this weapon gets a +1 bonus to the attempt (reducing the penalty to -1). Its handguard is usually edged, allowing the user to slash enemies with it; use Brawling or Karate for this attack. Use the normal damage for a punch, but make it cutting instead of crushing.

Jiann (TL3): A straight, Chinese sword tapering to a point. It is used primarily for thrusting. The jiann is sometimes known as the "T'ai Chi Sword."

Kombo (TL1): A Japanese club. Treat as a light club.

Macauitl (TL1): This is an Aztec sword about 3' long. Both blade and pommel are made of wood, and cutting power comes from obsidian or flint blades glued into grooves at each side of the wooden blade. Most swords lack points, and are used as cutting weapons; rare pointed swords can also impale.

It Doesn't Have to be Steel (Continued)

Silver Weapons (TL1)

Characters who must combat demons, undead, were-creatures and so on may wish to purchase silver weapons.

Pure silver hand weapons (swords, daggers, etc.) or arrowheads cost 20 times the price of ordinary steel ones, but break as though they were of *Cheap* quality. Silver - coated or edged weapons cost only three times the listed value. Silver bullets (TL4+) must be made of solid silver, and cost 50 times the normal price!

Note that these prices assume availability - silver weapons will probably be unavailable except in superstitious areas that have recently suffered a plague of weres!

A PC with the appropriate Armoury skill can make silver bullets or weapons given time. Note that silver has a much higher melting temperature than lead (well over 1700°, compared to just over 600° lead can be melted on a kitchen stove; silver takes at least a blowtorch. Silver is soft, however, and can easily be hammered or swaged into a chosen shape.

Pure silver weapons do full damage against creatures that are affected *only* by silver; coated or edged weapons do -1 damage per die. Either will do double damage to a were-creature. Against target that can be damaged by normal weapons silver weapons and silver-coated weapons do their regular damage.

Bronze Weapons (TL1)

Bronze weapons may be of any cost but those which cost more than the listed price are still only of Good quality; they are simply more lavishly ornamented that normal. They do no extra damage and have a 1-in-3 chance of breaking when used in parry a very heavy weapon that is also bronze (see pp. B99 and B111). Any bronze weapon, no matter what its price, is considered to be of *Cheap* quality, with a 2-in-3 chance of breaking, when used in parry a heavy weapon of superior metallurgy (iron or steel). In a bronze-using culture, iron weapons can only be had at *Fine* prices; once iron becomes common, bronze weapons can be had for *Cheap prices.*

Iron Weapons (TL2)

Use the rules for bronze weapons (above), except that iron is considered to be superior to bronze - but still inferior steel - for breakage purposes. In an iron using culture, steel weapons can only be had for *Fine* prices: once steel becomes common, iron weapons can be had for *Cheap* prices.

The obsidian blades require frequent repairs. A sword can take 30 points of damage (or 15 per edge for purists) before becoming totally useless. A cheap sword can take 15, a fine one 60, and a very fine one 90. A blow through cloth, flesh, or living bone will cause 1 point of damage to the blade. A blow through wood causes 3 points; metal does 5 points. A blow at stone shatters the side that hits (i.e., 50% of the total points of the sword).

The sword is rarely used to parry; to do so, use the flat surface of me sword. A critical failure on a parry shatters the obsidian blades and destroys the sword as a cutting weapon, although it can still be used as a club.

Otta (TL3): A son of Indian club, the otta is a curved stick that resembles an elephant's tusk.

Scimitar (TL3): A long, curved broadsword designed for chopping, usually from horseback.

Spatha (TL2): An iron thrusting broadsword used by Roman cavalry troopers; treat as a thrusting broadsword.

Sword-Rapier (TL4): This Elizabethan blade was a compromise between the rapier and the broadsword. It was more slender than a broadsword but shorter than a rapier. The resulting weapon was held in favor among military men long after the rapier died out. Sabres carried by infantry officers in the U.S. Civil War had blades very similar to those of sword-rapiers.

Weapon	Type	Damage	Reach	Cost	Weight	Min ST	Special Notes
Backsword	cut	sw+1	1	$550	3	10	Has a full basket hilt. (See p.
	imp	thr+1	1				
Cavalry Saber	imp	thr+1	1	$500	3	9	
or Scimitar	cut	sw+1	1				
Dau	cut	sw+2	1	$700	5	11	
	imp	thr	1				
Estoc	imp	thr+2	1	$500	2	10	
	cr	sw+1	1				Blunt-edged.
Hook Sword	cr	sw+1,	1	$200	3	10	Can disarm.
	cut	thr	C,1				Bladed hand guard.
Jiann	imp	thr+1	1,2	$700	3	8	Used primarily for thrusting.
	cut	sw	1				
Macauitl	cut	sw+1	1	$500	3	10	Usually blunt-ended.
							1 turn to ready after swing.
	imp	thr	1	$550	3	10	Stats for a sword with a point.
Otta	cr	sw+1	1	$60	3	10	S-shaped club.
	cr	thr+1;	1				
Sword-Rapier	cut	sw+l	1	$500	2.75	10	Can also be used with Fencing
	imp	thr+1	1,2				

Options for Low-Tech Swords

Scramasax (TL2)

The scramasax was a type of blade rather than a class of weapon. It was made by grinding an iron bar to a single edge, and then clipping off one corner diagonally to give a point. They range from a few inches to three feet long. The shorter ones were almost certainly tools rather than weapons - the equivalent of a pocket-knife. Larger blades might be used as daggers or machetes, and the three-foot versions were almost certainly the poor man's sword.

The scramasax was a cheap, low-quality blade, made with the minimum of effort. No decorated examples have been found.

Any sword or knife can be a scramasax. Treat It as a "cheap" weapon (p. B74), It has a 2/3 chance of breaking when it parries a heavier weapon. Furthermore, because it's iron or *very* poor steel, it doesn't hold an edge well: -1 to all damage rolls. The price of a scramasax is *half* that of the equivalent sword or knife.

Falchion (TL3)

A *falchion* was a woodsman's and hunter's sword, with a single-edged blade which flared out to a deep, rounded tip, almost like that of a meat cleaver. It was a machete as much as a sword. Falchions came in all sizes from large knife to two-handed sword; short swords were most common. They do damage as a blunt-pointed sword of the same size, but are +1 to cutting damage on a swinging attack and -1 to crushing damage on a thrusting attack. Falchions are half again as heavy as a sword of the same size. Because of the thick blade, they break as if they were one level of quality better. Any falchion of broadsword size or greater is an unbalanced weapon and takes one turn to ready.

CLOAK (DX-5, Buckler-4 or Shield-4); p. CI132

There are a wide variety of special techniques involving the cloak. The use of cloaks is detailed under the *Cloak* skill, pp. CI132-133.

Heavy Cloak (TL3): The heavy cloak is used as a shield; treat the defensive maneuver as a Block, figured at 1/2 Cloak skill. The cloak provides PD 2. The cloak has DR 1, and it takes 5 points of cutting damage to render a heavy cloak useless. An impaling attack of 2 points of damage is necessary to penetrate a heavy cloak - damage over that amount gets through to the cloak wielder. Crushing damage has no effect on it. Note that the cloak is damaged (and impaling attacks get through) only if the defense roll was made by *only* the number of points of its PD.

Light Cloak (TL3): Also used to Block, the "light cloak has PD 1. It has DR 1, and it takes 3 points of cutting damage to render a light cloak useless. Any impaling damage over 1 point gets through to the attacker.

Weapon	Type	Damage	Reach	Cost	Weight	Min. ST	Special Notes
Heavy Cloak	Special	See p. CI132	1+	$50	5	none	Used to Block (PD 2). Can be thrown.
Light Cloak	Special	See p. CI133	1+	$20	2	none	Used to Block (PD 1). Can be thrown.

CROSSBOW (DX-4); p. B50

Chu-Ko-Nu (TL3): The infamous "Chinese repeating crossbow." It contains a magazine of 10 bolts over the stock, with an automatic loading mechanism. It can fire once per turn until the magazine is empty; treat it like a gun with RoF 1, Shots 10 and Rcl -2. Unlike most crossbows, it has a Malf number (see p. 68): on a roll of 14 or higher, the complicated mechanism suffers a malfunction. It requires two hands to operate.

Composite Crossbow (TL3): This is a Middle Eastern crossbow which replaces the plain bow of more traditional designs with a composite bow, making for a superior weapon. Treat the composite crossbow exactly as any other crossbow in *GURPS,* but with the better statistics listed.

Pistol Crossbow (TL3): A light, one-handed crossbow. Although the weapon has a minimum ST of 7 to operate, the bow itself cannot have a ST above 5.

Weapon	Type	Damag	SS	Acc	Ranges 1/2D	Max	Cost*	Weight	Min ST	Special Notes
Chu-Ko-Nu	imp	thr+2	10	4	STx15	STx20	$500/$2	10	9	2 hands to fire.
Composite Crossbow	imp	thr+5	12	4	STx25	STx30	$950/$2	7	7	Max. dam. 3d+2. 2 hands to fire.
Pistol Crossbow	imp	thr+2	10	3	STx15	STx20	$150/$2	4	7	

* *Cost:* The number after the slash is the cost per bolt.

DX, BRAWLING (p. B50) or KARATE (p. B51)

Tessen (Combat Fan) (TL3): These fans were specially made of hardwood and added metal blades to provide both a cutting and blunt weapon. Closed, the fan could be used with the Karate skill to do extra damage (count as brass knuckles). Open, it was used as a slashing weapon (roll vs. DX-2), although it did not do much damage. It was not uncommon for the fan blades to be poisoned.

Neko-de (Cat's Claw, Bladed Hand) (TL3): This edged glove - a ninja specialty - is +4 to Holdout when folded (+1 when worn). Karate bonuses apply when using this weapon.

Shuriken (TL3): See the entry under *Shuriken,* p. 31. Shuriken can be held in the hand and used in melee combat, adding +2 damage to Karate or Brawling attacks.

Tekko (TL3): Japanese "brass knuckles" (see p. B 112).

Weapon	Type	Damage	Reach	Cost	Weight	Min ST	Special Notes
Tessen	cut	thr-2	C	$40	1	none	Max. damage 1d-1.
Combat Fan							Uses Karate or DX-2.
	cr	thr	C,1				Receives Karate bonuses.
Neko-de	cut	sw-2	C	$100	1	none	Receives Brawling
							or Karate bonuses.
	imp	thr	C				

Basket Hilt (TL4)

A basket hilt is a metal guard on the hilt of a sword, wrapping around the swordsman's hand. It is intended to protect the hand from blows, and can itself be used as a weapon. They can be used on any weapon, including two-banded weapons (note that very few Asian weapons used basket hilts).

A basket hilt weighs one pound, has PD 3 and DR 5, and adds 25% of the cost of a Good weapon. This PD applies only to the sword hand and only when the weapon is in hand. The basket hilt gives PD 1 to the entire body when used against melee weapons (counting as a very small shield) but does not count against missile weapons and does not protect against attacks from behind. This PD also applies only when the weapon is in band, not when it is sheathed. DR only applies to the covered hand. A basket hilt costs the same, no matter what the quality ot the weapon: For example, a good broadsword costs $500. A basket: Hilt: for it costs $125. A fine broadsword costs $2,000, but a basket hill for it still costs $125. Of course, much more money could be spent on elaborate decoration.

A normal basket hilt is not large enough to allow one to wear a gauntlet on the sword hand. One could be custom built, so that a hand wearing a gauntlet would fit: this would double the cost of the hilt. A hand inside a gauntlet, that is inside the basket has the DR of both but only the PD of the basket.

A basket hilt changes the balance and grip characteristics of a sword. There is a -2 penalty for unfamiliarity unless the user has spent one day familiarizing himself with the feel of the hilt.

Using the basket hilt in close combat is at -2, and uses DX, Brawling, Karate or Boxing (this penalty can be eliminated With the Close Combat maneuver on p. CI167). The basket acts as brass knuckles, giving +2 to punching damage.
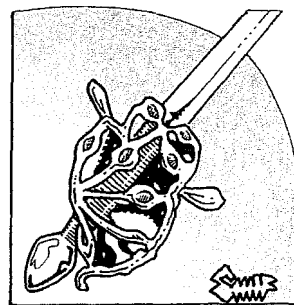
Blade Quality and TL

Advanced materials and machining allow blades to hold a keener edge At TL7+ bladed weapons are *Fine* quality by default with *Good* weapons costing only 40% the listed price and *Very Fine* weapons available for 4 times the listed cost At TL8+, any blade can be made *Superfine* for 20 times the listed cost, a superfine blade does +3 damage

High-Tech Materials (TL7)

Alternatively, high tech hand weapons can be made of fiberglass high-impact plastic or carbon fiber composites Such weapons are light (weight is halved), expensive (cost doubles) and cannot be detected by metal detectors. They have the same number of hit points as regular weapons (most of these materials are very strong for their weight) and damage is like wise unaffected the power lost due to reduced weight is more than made up for by the speed at which the tip of a long, light weapon can be swung In all other respects, treat these as *Good* quality weapons of the appropriate type (unlike TL7+ steel weapons, which are treated as *Fine*) Blunt weapons (batons, clubs, tonfas, whips and so on) are available in all the usual quality grades, edged weapons can be no better than *Good* quality, and are often *Cheap*.

FENCING (DX-5); p. B50

See p. B99 for fencing parry rules.

Dress Smallsword (TL4): A shorter, lighter version of the smallsword (below), designed specifically to be worn around town and on formal occasions as a dress piece.

Fencing Saber (TL4): An edged sword, but not heavy enough for chopping. Maximum cutting damage is 1d. It has a 1-in-3 chance of breaking if it hits DR 2 or more when swung.

Foils (TL4): A "foil" was any blade with a blunt tip and no edge. Foils are identical to real weapons except that they do only crushing damage, and thrusting attacks do 1 point less damage than a sharp-tipped sword. It is possible to mistake a "sharp" for a "foil" if one does not look closely.

Jiann (TL3): See the description under *Broadsword,* p. 24. It can be used with the Fencing skill if the fighter's encumbrance is Light or less.

Rapier (TL4): A light, stiff, long and narrow thrusting sword. The rapier parries with 2/3 Fencing skill, rounded down, but can make only 1 parry per turn. Most rapier fencers carry a main-gauche (p. 29) for additional parrying, or a buckler for blocking. A rapier can be up to 2/3 a character's height plus 6" in length before it becomes too long to use easily. Divide length in excess of this (in inches) by 6 and round to nearest whole number. The result is the penalty to all attacks, parries and fencing maneuvers made by that person while using such a weapon.

Rapiers became narrower over time, going from 1 1/8 inches wide in 1550 to 5/8 inches in 1660. "Extra-narrow" rapiers could be more effective against fine mail (see p. 43), but they would also be more fragile. If an "extra-narrow" is used to parry a swung attack from a weapon three or more times its own weight, it has a l-in-2 (1-3 on 1d) chance of breaking instead of the usual 1-in-3 chance.

Slashing Rapier (TL4): Like the rapier (above), but with a cutting edge. This weapon was popular with Italian fencers. Thrusting damage is still thrust+1 impaling, but it can also do swing/cutting damage. It takes 1 turn to ready after a cut, because the long blade overbalances the hilt.

Smallsword (TL4): A short, light and relatively flexible sword intended only for stabbing. Often carried when something more serious than a dress piece but less unwieldy than a rapier (above) is needed.

Swordcane (TL4); A smallsword can also be concealed in a heavy cane. This costs $450 and weighs 4 lbs. When drawn, the fencer has a smallsword (above) in one hand and a light club (use the Broadsword skill) in the other. For $350, a sleeker version is available, which weighs 2,5 lbs. When drawn, the fencer is armed with a dress smallsword (above) and a baton (use the Short Staff or Shortsword skill).

Sword-Rapier (TL4): See the description under *Broadsword,* p. 22.

Weapon	Type	Damage	Reach	Cost	Weight	Min ST	Special Notes
Dress Smallsword	imp	thr	1	$300	1	none	Max. damage 1d.
Fencing Saber	imp	thr+1	1	$400	2	none	Max. thrust damage 1d+2.
	cut	sw-1	1				Max. swing damage 1d
							May break.
Jiann	imp	thr+1	1.2	$700	3	8	Parry is 2/3 Fencing skill.
	cut	sw	1				
Rapier, Early	imp	thr+1	1.2	$500	2.5	7	Before 1620.
							Max. damage 1d+1
Rapier, Late	imp	thr+1	1.2	$500	2	7	Extra-narrow blade. After 1630
							Max. damage 1d+1.
Slashing Rapier	imp	thr+1	1.2	$1,000	2	7	Max. thrust damage 1d+1.
	cut	sw	1.2				1 turn to ready after a swing.
Smallsword	imp	thr+1	1	$400	1.5	none	Max. damage 1d+1.
Sword-Rapier	imp	thr+1	1.2	$500	2.75	10	

FLAIL (DX-6);p.B50

Any attempt to parry a flail is at -4; attempts to block are at -2. Fencing weapons cannot parry flails.

Collapsible Nunchaku (TL7): These 20th-century models are concealed in a belt-case (+1 to Holdout) and are opened with a fling of the wrist (1 turn to ready unless a Fast-Draw (Collapsible Nunchaku) roll is made). Damage and other stats are the same as a nunchaku, below.

Grain Flail (TL1): An agricultural implement pressed into service as a weapon.

Kusari (TL3): See the entry under *Kusari,* p. 28. If used with the Flail skill, it does its listed damage but does not have the special Kusari skill abilities.

Nunchaku (TL3): An Okinawan flail, made of wood. It consists of two short sticks joined together by a length of rope or (in more recent times) a short chain.

Three-Part Staff (TL-3): This nunchaku variant (see above) is an extremely hard weapon to learn; any attack with it is at -3 to skill until 24 hours have been spent in practice, and even after that, attacks are at -1 to regular Flail skill. It can attack once using the reach listed on the table, or it can be treated as two separate nunchakus, able to attack twice in the same turn (see *Dual-Weapon Attack,* p. CI167). In the latter case, reach is 1 or C.

Weapon	Type	Damage	Reach	Cost	Weight	MinST	Special Notes
Grain Rail**	cr	sw+2	2.3	$20	8	12	1 turn to ready.* -2 to block.
Nunchaku	cr	sw+2	1.2	$20	2	10	1 turn to ready.* -2 to block.
Three-Part Staff**	cr	sw+4	1-3	$60	5	11	1 turn to ready.* -2 to block. All attacks are at DX-1.
	cr	sw+2	C,1				Used as two separate attacks.

* Becomes *unready* if used to parry.

** Requires two hands.

GARROTE (DX-5);p. CI134

Any garrote requires two hands.

Garrote (TL1): A favorite assassin's weapon. Its effects are described under the Garrote skill (p. CI134). Wire garrotes are not available until TL6. A combination rope garrote or wire garrote/nunchaku can be made; it does -1 damage when used as a nunchaku (see above). Treat the wire garrote version as a Cheap weapon for breakage purposes.

Monowire Garrote (TL9): This is identical to the wire garrote described above, but it does +1d damage and has an armor divisor of (10).

Weapon	Type	Damage	Reach	Cost	Weight	Min ST	Special Notes
Rope	cr	thr	C*	$1	2oz.	none	Damage only if wrapped around neck.
Wire	cut	thr	C*	$5	1oz.	none	See p. CI134.

*Must be wrapped around the neck from behind.

HARPOON (Spear Throwing-2); p. CI134

Harpoon (TL2): A large iron spear with a line attached. Used almost exclusively for hunting.

Weapon	Type	Damage		Ranges			Cost	Weight	Min ST
			SS	Acc	1/2D	Max			
Harpoon	imp	thr+5	11	2	ST	STx15	$60	6	11
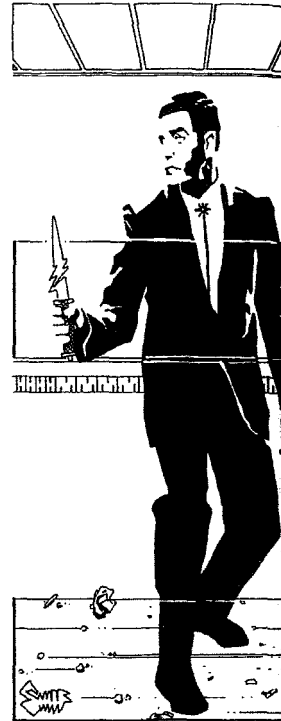
Options for Ultra-Tech Swords

Vibroblades (TL8) These vibrate several thousand times per second adding +1d to cutting or impaling damage and an armor divisor of (5). Any bladed weapon can be made in a vibro version. Turning on the vibro effect takes a turn but a successful Fast-Draw roll activates the blade as it is drawn. When not activated a vibroblade performs like a normal one. Adds $200 to the price of a knife, $400 to the price of a sword or $1,000 to the price of any other bladed weapon. Weapon quality modifiers are applied to the *final* cost.

Monomolecular Blade (TL9) This is an edged weapon with a strand of monomolecular wire stretched along the edge, giving +1d additional cutting damage and an armor divisor of (10). Any swung cutting weapon (but not thrusting or impaling weapons) can be made in the monowire version. Adds $500 to the cost of a knife, $1,000 to the cost of a one-handed sword and $1,500 to the cost of a larger cutting weapons, including two-handed swords. Weapon quality modifiers are applied to the *final* cost. Monowire weapons cannot also be vibroblades.

Options for Ultra-Tech Swords (Continued)

Sonic Blade (TL10): A powered hilt which, when activated, projects a two-foot blade of coherent sound, powerful enough to liquefy tissue or tear the flesh off bones. It is used with the Force Sword skill. It can be activated as it is being readied on a successful Fast-Draw roll; otherwise it requires a turn. A sonic blade does 5d(5) crushing damage; if damage from the weapon is more than double that necessary to cripple a limb that is hit, that limb is completely torn off. Any hit to the head requires a HT roll or the target's eardrums will be shattered, rendering him deaf. Any armor hit by a sonic blade loses 1 DR at the location hit. Natural aimor (fur, scales, etc.) loses as many points of DR in that spot as the damage it blocks.

A sonic blade cannot physically parry another weapon (except for a force sword, see below), nor can it be parried, but it can damage a weapon. If a sonic blade hits a weapon (or is hit. by one), it does normal damage to that weapon rather than parrying the blow. If the opposed weapon is an activated vibroblade, damage is doubled. A sonic blade can physically parry a force sword and vice versa without damage, but it cannot parry (or damage) another sonic blade $2,500, 2 lbs.

Force Sword (TL11) This weapon is described on p. B50. It can be used with either the Force Sword skiIl or with a variation of the Katana skill Katana (Force Sword) defaults to and from the normal Katana skill at 3. When used two-handed and with Light Encumbrance or less, Parry is 2/3 skill. A force sword does 4d(5) impaling or 8d(5) cutting damage $3,000, 2 lbs.

JITTE/SAI (DX-5 or Shortsword-3); p. CI134

Jitte (TL3): A blunt, forked disarming baton.

Sai (TL3): A small, forked disarming baton, similar to the jitte, above. It sometimes has a stabbing point.

Tjabang (TL3): This Indonesian weapon is identical to either a jitte (if blunt) or a sai (if sharp).

Tokushu Keibo (TL7): See the description under *Short Staff,* p. 30. The weapon also has jitte-like hand guards, and it can be used as a jitte, but at -3 skill - the guards are very small.

Weapon	Type	Damage	Reach	Cost	Weight	Min ST	Special Notes
Jitte	cr	thr	C,1	$20	1	7	Blunt point; used to disarm.
	cr	sw	C				
Sai	imp	thr	C,1	$30	1	8	Sharp point; can also disarm.
	cr	sw	C				Swing strike is like jitte.

KATANA (DX-5 or Broadsword-2); p. CI134

Most of these weapons can be used either one- or two-handed. Swing damage is +1, Parry is 2/3 skill and default is Two-Handed Sword-2 for two-handed use. See p. CI134.

Bokken (TL3): This hardwood katana replica was used for practice. It is only slightly less dangerous than a real katana, however. Its hardness and weight make it a formidable blunt instrument. When used two-handed, the bokken adds +1 damage to the swing.

Gum (TL3): This long, Korean sword can be straight and double-edged or slightly curved and single-edged like the Japanese katana. Traditionally, the quality of Korean swords was very high; like the katana, they are generally of Fine quality.

Jo (TL3): See 70 under *Short Staff,* p. 30. Used with the Katana skill, treat it as a bokken, doing -1 damage.

Katana (TL3): The definitive Japanese sword. It is long and slightly curved, with a two-handed grip, and can be used one- or two-handed. When used two-handed, the weapon does +1 swinging damage and Parry is 2/3 skill. A scabbarded katana was used against unworthy enemies to subdue without killing. The katana on the weapon table is of Good quality; most katanas are of Fine quality or better.

Shinai (TL3): As safety rose in importance during sword drill, many schools abandoned the dangerous bokken in favor of a more lightweight, less damaging weapon. The *shinai,* built with bamboo strips bound together with cloth, proved to be ideal. Close in dimension and balance to the katana, it delivers (relatively) little actual damage. In a pinch, it can still strike effectively.

Tachi (TL3): A Japanese sword, nearly identical to the katana, designed for use from horseback.

Weapon	Type	Damage	Reach	Cost	Weight	Min ST	Special Notes
Bokken	cr	sw+1/+	1,2	$40	5	11	Wooden training sword.
	cr	thr+1	1				
Gum	cut	sw+1/+	1,2	$650	5	11	Usually of Fine quality;
	imp	thr+1	1				add +1 to listed damage.
Katana	cut	sw+1/+	1,2	$650	5	11	Usually of Fine quality;
	imp	thr+1	1				add+1 to listed damage.
scabbarde	cr	sw+1/+	1,2				Used to subdue.
Shinai	cr	sw-1/sw	1,2	$40	3	9	Bamboo training sword.
	cr	thr-1	1				
Tachi	cut	sw+1	1,2	$650	5	11	Used on horseback..
	imp	thr+1	2				

KNIFE (DX-4); p. B51

Badik (TL3): An Indonesian knife with a peculiar pistol-like handle. It comes in the usual sizes. Treat as a knife or dagger that cannot be thrown.

Balisong Knife (TL3): This Philippine knife is a distinctive weapon, characterized by a split handle which folds over the blade, serving as a sheath and halving the size of the weapon when not in use. Due to this, the balisong is at +1 to Holdout for a knife of the appropriate size. The weapon is opened by flipping one of the handles end-over-end while holding the other. The Fast-Draw (Balisong) skill covers this opening skill. Characters without this skill must take one turn to ready the knife after removing it from a pocket or other place of concealment. Modern versions have a good swivel system (giving +1 to Fast-Draw).

Hishi (TL3): A Japanese dagger, often carried by women. Treat as a dagger.

Katar (TL3): This exotic, Indian knife is gripped like a corkscrew. The handle is perpendicular to the blade. The knife has an odd triangular shape. Katars vary in length from shortsword-sized to as small as daggers. There is a -2 penalty for unfamiliarity; 20 hours of practice will reduce it to -1, and 45 hours will eliminate it. A katar cannot be thrown.

Kozuka (TL3): A Japanese small knife carried in the same scabbard as the katana; samurai use it to carry the severed head of an enemy. Treat as a small knife.

Kris (TL3): This is as much a national weapon in the Indonesian Archipelago as the katana is in Japan. There are many types of kris blades and handles, but they all share a wavy blade, almost like a twisting snake. The kris comes in all sizes -use the appropriate stats in the *Basic Set.* Blade quality varies; many kris blades are rather brittle and blunt. Most kris knives are of Good quality; Fine and Very Fine weapons are also available.

Pen-Knife (TL6): This ordinary-looking pen contains a stiletto. Treat it as a dagger in combat. $50, negligible weight.

Pisau (TL3): An Indonesian knife, meant to be carried in concealment. Treat as a small knife.

Punal (TL3): A Philippine knife; treat as a normal knife of any length.

Slashing Wheels (TL3): These Chinese weapons are metal circles with several cutting protrusions on the outer edge. One section of the circle has a leather- or cloth-covered hand-grip. These weapons are often used in pairs. They can be used with the Knife or Main-Gauche skill, but an unfamiliar user is at 4 until he spends a day practicing with them. Used defensively, slashing wheels provide PD 1 for parrying purposes only.

There are also combination knife-wheel weapons, which have two knife points and a half-wheel with three slashing points as a hand-guard. Combinations do the same damage as a dagger with the point, and cutting wheel damage with the guard.

Stiletto (TL4): See the entry under *Main-Gauche,* p. 29.

Tanto (TL3): A large, curved Japanese knife with a chisel-like point. It has recently become popular around the world. Treat as a large knife.

Trench Knife (TL6): A heavy combat knife with a knuckle guard. Can be used as a large knife or as brass knuckles, but cannot be thrown. $55, 1.5 lbs.

Weapon	Type	Damage	Reach	Cost	Weight	Min ST	Special Notes
Balisong Knife	cut	sw-3	C,1	$30	1/2	none	+1, to Holdout skill.
	imp	thr-1	1				Max. damage 1d+1.
Katar (small)	imp	thr+1	C	$40	1	none	Perpendicular grip.
	cut	sw-3	C,1				A knife-sized katar.
Knife-Wheel	cut	thr+1	C	$75	1.5	none	Usually used in pairs.
	imp	thr-1	C				Gives PD 1.
Slashing Wheel	cut	thr+1	C	$60	1	none	Usually used in pairs.
							Gives PD 1.

Archery Gear

Bow Case: Protective slip-cover used to prevent the bow from warping. Costs $25 and weighs 1 lb.

Bowstrings: These soft sinew strings fray easily and must be replaced often (an attack roll that misses by more than 5 can, at [he GM's discretion, represent a broken bowstring if it was not changed recently). Each string coats $5; weight is negligible. It takes 2 seconds and a ST roll for a man afoot to change bowstrings, with the replacement in hand. A person on horseback would take 4 seconds; a ST+2 roll and a DX roll are required.

Bracer: An archer's leather arm-bracer ($8, 0.3 lbs.) gives the off-hand arm (area 6) DR 1, but does not affect PD. It protects against snapping bowstrings, and subtracts its DR from any damage caused by a critical failure with a bow.

Sights (TL7): Bows can be fitted with sights which increase the Accuracy bonus by 1 (for ordinary sights) or 2 (for magnifying sights), Crossbows can use ordinary rifle sights.

Wind-Gauges, Stabilizers and Range-Finders (TL7): These are $20 to $100 each. Collectively, they improve Accuracy, but only in the hands of a skilled user. Any one of these devices will add +1 to Acc; all of them together add +2. As always, Acc can never exceed the user's skill. A user who is not accustomed to these devices will suffer -1 to skill for using a bow burdened with them.

Materials for Arrowheads

The material used to make the arrow up affects performance. The best material is: metal (see *li Doesn't Have to be Steel* p. 20) but other materials can be used.

Wood: Blunt arrows (see below) used for hunting only. Do crushing damage rather than impaling. Shatter, doing no more than 1 hit of damage vs. DR 2 or better. Cost $0.80/arrow.

Bone or Stone (Flint/Obsidian) Used for hunting and little else. Good vs. Light armor at close ranges. Shatter, doing no more than 1 hit of damage, vs. DR 3 or better. Cost $1.20/arrow.
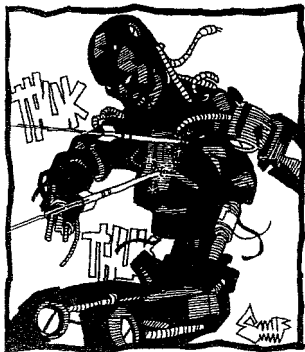
Archery Gear
(Continued)

Metal: Used for warfare, against heavily-armored foes. This is the arrow listed in the *Basic Set*. At TL7+, superior metallurgy allows the arrowhead to hold a keener edge, giving +1 to damage. Cost $2/arrow.

Special Arrowheads

The standard arrow (the one presented on p. B207) is the *broadhead,* a general-purpose head for hunting and war. It cuts large wound channels, and penetrates well in meat. Other types are possible. If choosing between different kinds of arrow in a quiver, it takes an extra turn to ready the bow. All of these arrows are metal, cost $2 and weigh 2 oz.

Armor-Piercing Arrow or **Bodkin** (TL3): An arrow with a narrow head, little bigger than the shaft. DR of armor is -2 against a bodkin point. Wounding damage done by the arrow - *after* DR is penetrated and damage is doubled for impaling - is also -2. Maximum damage for the bow is reduced by -4. *Example:* Ah archer fires a bodkin at plate mail (DR 6). He rolls 6 points of basic damage. Normally, this wouldn't penetrate DR; however, with -2 to DR, the armor is only DR 4 and 2 points get through. This is doubled to 4 points (impaling), and then the -2 damage is applied, resulting in 2 points of damage.

Blunt (TL1): For target practice, small-game and possibly to stun and take a prisoner. They are treated as normal arrows, except they do only *crushing* damage.

Bowel-Raker (TL3): A nasty, barbed arrow. The basic damage roll is unchanged, but damage becomes *cutting* instead of impaling. Accuracy is reduced by 1 and both 1/2D and Max ranges are reduced by STx5, due to the poor aerodynamics. Maximum damage is unchanged. The arrow does an additional 1d-3 damage when removed (minimum 1 point), due to the barbs.

KNIFE THROWING (DX-4); p. B51

Any of the knife types listed as being identical to a dagger, small knife or large knife under *Knife* (above) can be thrown unless noted. This includes the *hishi, kozuka, pisau, punal, stiletto* and *tanto*.

Paku (TL3): A short, sharpened stick, this weapon is thrown like a knife: it is usually carried concealed in the sleeve. They are either sharpened at both ends or only one, and are difficult to use. Treat as a knife of the appropriate size, but doing -1 damage.

Sonic Shuriken (TL10): See the description under *Shuriken,* p. 31.

KUSARI (DX-5 or Flail-2); p. CI134

All kusari weapons are blocked at -2 and parried at -4.

Chain-Staff (TL3): A ninja polearm, consisting of a staff with a kusari (below) attached to one end. This weapon needs both the Staff and Kusari skills to use effectively; roll against the lower of the two skills.

Kusari (TL3): This weighted chain is described in detail in the Kusari skill entry (p. CI134).

Kusari-gama (TL3): A chain with a sickle blade attached to one end. Real evidence that this weapon was ever used is sketchy; at the GM's option, its use can be restricted to cinematic ninja.

Manriki-gusari (TL3): Meaning "10,000 power," this is a combination of the basic nunchaku and kusari designs. A length of chain (shorter than that of the kusari but much longer than the nunchaku's) joins two metal weights. It has more striking power than the nunchaku and can also be used to entangle weapons.

Oh-gama (TL3): A huge version of the kusari-gama used by ninja: this two-handed scythe has a maximum-length kusari chain, a long slashing sickle blade and a thrusting point. This may be regarded as a Cinematic weapon - see the note under *Kusari-gama.*

Weapon	Type	Damage	Reach	Cost	Weight	Min ST	Special Notes
Kusari	cr	sw+2	1-4	$70	5	11	1 turn to ready per yard of attack.*
grapple		see p. Cl134	1-4				
Kusari-gama	cut	sw+2	1,2	$80	3	11	1 turn to ready after swing.*
Manriki-gusari	cr	sw+4	1,2	$60	3	11	1 turn to ready after each use.*
grapple		see p. CI134	1,2				
Oh-gama	cut	sw+4'	1-4	$130	8	12	1 turn to ready after swing.*

* Becomes *unready* if used to parry.
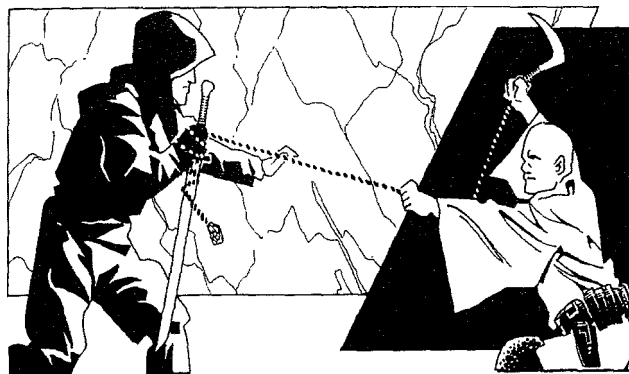
LANCE (DX-6 or Spear-3 for those with Riding 12+); p. B51

Xyston (TL1): An early Macedonian cavalry lance, this is a 12-foot spear. It is not couched, but is used to stab at unprotected portions of an enemy, such as his face or his horse. It often shatters in combat, so a second complete spearhead is on the butt and can be used if the shaft breaks. Treat the xyston as a lance, but use the *rider's* ST rather than the horse's to compute damage.

MAIN-GAUCHE (DX-5); p. CI134

Parry is 2/3 skill.

Main-Gauche (TL4): Any knife or dagger can be used with the Main-Gauche skill, but a true main-gauche has a broad, rigid, triangular blade and an elaborate hand guard that almost completely conceals the fencer's hand, giving that hand PD 3 and DR 5 as if it were a basket hilt (see *Basket Hilts,* p. 23).

Slashing Wheels (TL3): These can be used with the Main-Gauche skill. See the description under *Knife,* above.

Stiletto (TL4): A long, slender dagger with a cross hilt, made for thrusting. Can also be thrown.

Weapon	Type	Damage	Reach	Cost	Weight	Min ST	Special Notes
Main-Gauche	imp	thr	C	$50	1.25	none	Max. thrust damage 1d+2.
	cut	sw-3	C,1				Max. swing damage 1d+1.
Stiletto	imp	thr-1	C	$20	0.3	none	Maximum damage 1d+1.

MONOWIRE WHIP (Whip-2); p. CI135

Monomolecular Whip (TL9): This is a *weighted* length of monowire attached to a short handle. It is used exactly like a whip (see p. B52). However, a control allows the wire to be extended from 1 to 7 yards, or retracted into its handle, altering its reach and the time required to ready after each swing. It takes 1 turn to extend or retract the monowire. This weapon is also dangerous; any "drop weapon" critical miss by the user indicates he has hit himself or a friend. Damage is as per a normal whip, but damage type is cutting, with +1d damage and an armor divisor of (10). If a monowire whip is used as a lasso or to snare a weapon, it will act as a monowire garrote (p. 25).

Weapon	Type	Damage	Reach	Cost	Weight	Min ST
Monowire	cut	sw-2+1d(10)	1-7	$900	0.5	none

NET (No default); p. B51

Iaculum (TL1): A Roman gladiator's net. Use the slats for a small net on p. B51.

POLEARM (DX-5); p. B51

All polearms require two hands.

Bill (TL3): An English polearm, the bill has a hooked blade, a spear point and a beak. A bill has an overall length of about 6 feet and weighs about 8 pounds; use the stats for the glaive on p. B206. The hook on the blade can be used to tug an opponent off balance, or off his horse. Use a Quick Contest between the weapon skill of the billman and his opponent's Dodge to see if the hook engages; a Contest of ST to see who pulls whom. The hook is a sharpened blade; it cuts as it is pulling. Damage is cutting damage as if it were a thrust (thrust + 3); the attack is a sort of thrust in reverse.

Dah-Dau (Horse-Cutter) (TL3): A Chinese polearm. This edged staff or halberd is very similar to the Japanese *naginata* (see below). Size and weight vary widely.
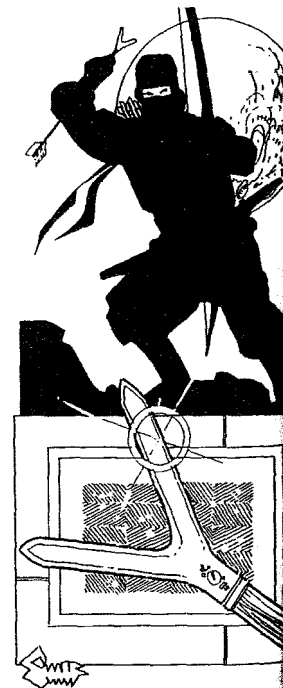
Archery Gear
(Continued)

Extra-Powerful Bows

These *composite* bows (see p. B207) require more than one man to string them. Such bows cost more, and have a higher minimum strength. Their Damage and Range (both 1/2D and Max) are also increased. *Maximum* damage remains unchanged.

Bow	Damage Bonus	Range Increase	Cost	Min. ST
Two-man	+1	+10%	$1,000	12
Three-man	+2	+25%	$1,300	14
Four-man	+3	+40%	$1,800	16
Five-man	+4	+60%	$2,500	18
Six-man	+5	+75%	$3,400	21
Seven-man	+6	+90%	$4,500	25

Compound Bows (TL7)

The bow, heavily modified by 20th century engineering, becomes the *compound bow*. This uses a system of pulleys and cables to make it more efficient at storing and transmitting energy A. compound bow has more range and requires less strength from the archer. Any of the bow types in the *Basic Set* can be made as a compound bow *except* the composite bow. The compound bow is -2 to the minimum ST required, +2 to effective ST for purposes of figuring 1/2D and Max range, and +1 to Damage. Cost is $150 for a short bow, $250 for a regular bow and $350 for a longbow. Compound crossbows cost $300.

Latajang (TL3): An Indonesian polearm, this consists of a staff with two crescent blades on its ends. It is very similar to the Chinese *Monk's Spade* (below).

Naginata (TL3): A long-shafted Japanese polearm with a heavy blade, often used by women. It can stab, cut or inflict blunt damage.

Yueh-Ya-Chaan (Monk's Spade) (TL3): An unusual Chinese polearm. This strange-looking weapon has a crescent-shaped blade on one end and a spade-like one on the other, probably a modified agricultural implement. It uses Polearm skill. Balance is different from halberd, naginata or other polearms, so those using the Monk's Spade for the first time will be at -2 for unfamiliarity, as per p. B43.

Weapon	Type	Damage	Reach	Cost	Weight	Min ST	Special Notes
Heavy Horse-Cutter	cut	sw+5	2,3*	$15	12	13	2 turns to ready after swing.
	imp	thr+3	1-3*				1 turn to ready after thrust.
Latajang	cut	sw+2	1,2*	$10	7	10	1 turn to ready after swing.
	cut	thr+1	1,2*				1 turn to ready after thrust.
Light Horse-Cutter	cut	sw+4	1,2*	$12	8	12	2 turns to ready after swing.
	imp	thr+2	1,2*				1 turn to ready after thrust.
Monk's Spade	cut	sw+1	1,2*	$10	6	10	Blade; 1 turn to ready after swing.
	cr	sw+1	1,2"				Shaft; 1 turn to ready after swing.
	cut	thr+2	1,2*				Spade; 1 turn to ready after thrust.
Naginata	cut	sw+3	1,2	$10	6	9	1 turn to ready after swing.
	imp	thr+3	2				

* Must be *readied* for one turn to change from long grip to short grip or vice.

SHORT STAFF (DX-5 or Staff-2); p. CI135

Dan Bong (TL1): Korean short sticks, generally used in pairs.

Escrima Stick (TL1): This weapon is a simple length of wood, used one-handed.

Jo (TL1): A short, Japanese staff that can be used one- or two-handed.

Tokushu Keibo (TL7): This is a modem martial arts weapon, a collapsible stainless steel baton that easily fits in a pocket when closed (+1 to Holdout). Weight 1 lb.; $20 for a manual model (takes 1 turn to ready or a Fast-Draw (Tokushu Keibo) roll to ready it on the same turn), $50 for a spring-action one (no rolls to ready it in the same turn). Treat as a baton for damage.

Tongkat (TL1): A long stick. Treat as a dan bong or escrima stick.

Weapon	Type	Damage	Reach	Cost	Weight	Min ST
Dan Bong	cr	sw	1	$10	1	7
	cr	thr	1			
Escrima Stick	cr	sw	1	$20	1	none
	cr	thr	1			
Jo	cr	sw+1	1	$10	2	none
	cr	thr+1	1			

SHORTSWORD (DX-5, Broadsword-2, or Force Sword-3); p. B52

Bolo (TL3): This heavy, Philippine short sword is very similar to the South American machete and the Indonesian parang (below); it is used both as an agricultural implement and a weapon.

Bronze-Age Swords (TL1): Bronze-Age warriors use a short, stabbing sword, leaf-shaped with no edge. Treat this weapon as a normal shortsword, but a swinging attack using it will do only crushing damage.

Butterfly Swords (TL3): Heavy, saber-like, Chinese chopping weapons, commonly used in pairs. Their weight lets them do slightly more cutting damage than a normal shortsword, but they are useless for thrusting.

Cutlass (TL4): A short, slightly-curved sword, used mainly in boarding actions during the Age of Sail.

Dan Sang Gum (TL3): Short, wide-bladed swords favored by Korean palace guards. They could be used singly or in pairs.

Escrima Stick (TL 1): See the description under *Short Staff,* above.

Gladius (TL1): A Roman stabbing shortsword, issued to all legionnaires. It is balanced and designed as a stabbing, not cutting, weapon. Effective skill is increased by 1 for thrusting attacks, and reduced by 1 for swings. Otherwise, treat it as a shortsword.

Katar (TL3): A shortsword-sized weapon; see the description under *Knife,* p. 27.

Ninja-to (TL3): The Japanese ninja's sword. This weapon is similar to the katana (see p. 26) but it has a shorter, straight blade. Some ninja-tos were built to be concealed inside staffs by removing the hilt-guard. The sword sheath usually has a built-in blowpipe. Treat as a shortsword.

Parang (TL3): This heavy, Indonesian chopping weapon is the equivalent of a machete.

Pedang (TL3): A short, Indonesian sword with thrusting point. Treat as a shortsword.

Sica (TL2): A weapon used by Roman gladiators, this was a heavy, chopping shortsword that did swing+1 cutting damage.

Tokushu Keibo (TL7): See the description under *Short Staff,* p. 30. Treat as a baton.

Tongkat (TL1): A term applied to any long stick. Treat as a baton.

Wakizashi (TL3): A Japanese shortsword; used in conjunction with the katana by the samurai class, and as a main weapon by most other social classes. Treat as a shortsword.

| Weapon	Type	Damage	Reach	Cost	Weight	Min ST	Special Notes
Butterfly Sword	cut	sw+1	1	$400	3	10	Used in pairs.
Cutlass	imp	thr	C,1	$300	2	7	
	cut	sw	C,1				
Dan Sang Gum	cut	sw+1	1	$400	3	10	Often used in pairs.
Escrima Stick	cr	sw	1	$20	1	none	
	cr	thr	1				
Katar (large)	imp	thr+1	1	$400	2	7	Perpendicular grip.
	cut	sw-1	1				A sword-sized katar.
Parang, Machete							
or Bolo	cut	sw+1	1	$400	3	10	
Sica	cut	sw+1	1	$400	3	10	

SHURIKEN (DX-6 or Throwing-2); p. CI135

Paku (TL3): See the description under *Knife Throwing,* p. 28. Treat as a knife of the appropriate size, but doing -1 damage.

Piau (TL3): A strange, bladed Indonesian weapon, it is thrown exactly like the Japanese shuriken (below), for the same effect.

Shuriken (TL3): These small star-shaped blades - used by ninja - come in different sizes, doing varying damage. The smallest ones are +5 to Holdout, but do very little damage; they are usually coated with poison. Shuriken do cutting damage.

Sonic Shuriken (TL10): This weapon appears to be a one-inch disk of plastic. When activated and thrown (one action, using Throwing, Shuriken or Knife Throwing skill), it sprouts six 3-inch "blades" of coherent sound. Damage is 1d+3 cutting. Due to its small power source, the sonic blades only last for a second, but this is enough rime for it to hit the target. This weapon can also be modified to
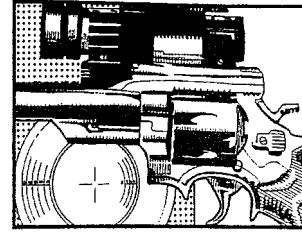
Firearms Accessories

Laser Sight

When turned on, this device projects a low-powered laser beam, placing a dot at the point where the weapon will hit. Attached to any pistol or rifle weapon, this item adds 2 to Acc and reduces the Snap Shot penalty to -1 at up to 50 yards and to -2 at 50 to 100 yards. Snap Shots are still at 4 at ranges over 100 yards. Weight is negligible, and it costs $200. Infrared (invisible without an infrared vision system) and high-visibility daylight versions are also available, for $100 more.

NightSights

Night sights cancel part or all of the penalties (-1 to -10} for combat in the dark. Unless the night sight is also a scope (see below), or projects a beam to facilitate aiming (like a laser sight, above), it can only cancel darkness penalties, not give a bonus.
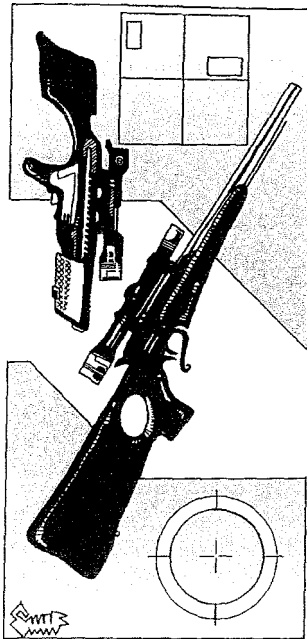
There are several ways to improve sight performance in reduced light. The simplest is to make the sights more visible. This can be as simple as tying a white handkerchief around the muzzle or as complex as battery-powered lights mounted in the front blade. Improved visibility sights cancel 1 to 3 points of darkness penalties if at least one turn is taken to aim, but have no effect in normal light.

A level up from this are systems to illuminate the target. A flashlight attached to the gun works ($30 and 1/4 lb for a specially designed pistol light, double that for a light useful at rifle ranges), but it rather obviously gives away the firer's position. Infra red light (double cost, add 50% to weight) works like white light, but is only visible to someone with IR viewer capability ($2,000 and 2 lbs. at TL7). Either system eliminates the penalty far darkness

TL7 IR systems have better definition at greater ranges and more sensitivity, relative to those of TL6; in any contest of Vision between IR gear of the two tech levels, TL7 gets a +2 bonus.

Passive sensor systems don't give away the firer's position. These include light intensification and thermal-imaging systems. They also decrease the penalty for firing in reduced light. Both can be combined with scopes (see below). Such systems can reduce darkness penalties by up to 10 (which would eliminate the -10 penalty for total darkness entirely).

deliver a dose of venom if it penetrates the target's armor. The power source of this weapon is very easy to conceal, making it a favored assassins weapon (+5 to Holdout, even at TL10). $400, 0.5 Ib.

Weapon Type	Type	Damage	SS	Acc	Rang 1/2D	Max	Cost	Weight	Min ST	Special Notes
Shuriken or Piau cut	cut	thr-1	8	1	ST-5	ST	$3	1/10	none	Usually in a set of nine. Max. damage 1d+2.

SPEAR (DX-5 or Staff-2); p. B52

Belly Spear (TL2): This is a rather unpleasant Celtic spear. It has a spiral head with barbs pointing backward. A belly spear can become stuck, much like a pick, requiring a ST roll before it can be used again (see p. B96). When a belly spear comes free, it does half the damage it did going in.

Boar-Spear (TL3): Used in warfare and for hunting dangerous game, this had a broad blade with a cross-bar to stop the enraged animal from climbing up the spear shaft to get at its attacker. In combat, it will stop the blade from going in too deeply, and make it easier to recover for another stroke. Treat as a spear, except that it is unthrowable.

Boarding Pike (TL4): A hooked spear used in Age-of-Sail boarding actions. Not made for throwing. Treat as a spear from the *Basic Set.*

Bun-Spike (TL1): This is a pointed metal shoe, attached to the butt of the spear. to make it easy to stick in the ground and to provide a second point if the shaft breaks. If the shoe is used as a weapon, the spear does -1 damage. This is a standard feature on Classical Greek spears; it can be added to other types of spears for $20.

Chiang (TL3): A Chinese spear; treat as a spear.

Fuxina (TL2): This was a trident used by Roman gladiators. Damage is thrust+1 (thrust+2 if used two-handed) impaling for *each* stabbing point. On an ordinary hit against the body, only one point hits; if the roll is made by 1, two points hit, and if it is made by 2+, all three points hit. DR protects separately. (Against a limb, only one point would hit. Against the head, one point is effective on an ordinary attack, two on a success by 2 or more.) Because the *fuxina* is very tip-heavy, the user is always at a -2 skill penalty. Treat as a spear otherwise.

Hasta (TL2): A heavy iron spear used by the early Roman legions. Treat as a spear.

Kamax (TL1): Without stirrups, cavalrymen cannot seat themselves, couch a lance and use their horse's momentum to punch through enemy armor. Instead. Classical cavalry use a long spear called a kamax. It is very similar to the infantry-man's spear, but is somewhat longer. The horseman grips the kamax near the butt and uses it to stab down at infantry on the ground. The kamax does normal two-handed spear damage (thrust+3 impaling) but has a 2-hex reach when used from horseback against targets on the ground.

Kontos (TL3): A heavy, two-handed Arab spear that is used like a long spear (see below). Since the user cannot parry, and cannot carry a shield, he must rely upon those in front of him to keep the foe away! It cannot be thrown.

Long Spear (TL3): An extremely long one- or two-handed spear. It is used at longer reaches only, usually in tight formations, to resist charging enemies. It cannot parry, and is instead anchored against the ground one-handed while a shield is used for defense. It is not normally thrown.

Pike (TL3): This is a *very* long spear, 12 to 20 feet long (4- to 6-hex reach), and is almost impossibly awkward in individual combat. In a well-drilled formation it is a terrifying weapon, especially if supported by other arms; the pikes are extended in front of the formation to impale the enemy. A pike weighs 3 pounds for every hex

Firearms Accessories

(Continued)

Scopes

Scopes are rated by *power of magnification.* A 4x scope increases the apparent size of the target by four, a 6x scope by six. High-powered scopes make it easier to see the target. The narrower field of view, however, makes it harder to acquire the target in the first place. The magnification makes the target apparently bigger, but it also makes the apparent wobble of the sight picture larger. Aim can actually be harder, especially from an unbraced position. In *GURPS,* each doubling of magnification gives +1 Acc when aiming; halve this if the shooter is not also braced. A scope does not affect unaimed shots, since the character can always choose to simply ignore it.

Scopes can be either fixed-power or variable power. Fixed power scopes have only one power of magnification; variables can have a range of powers but are limited to a three-fold increase in power (e.g., one to three, three to nine. six to eighteen). Variables cost more and are somewhat more fragile.

An early-TL5 scope might have 6x magnification, be four feet long, weigh four pounds and cost $100. Variations are enormous; each scope was a custom job.

of reach. The pike is awkward. It takes 1 turn to change the hex that the point of the pike is in. Anyone closer to the pikeman than 1 hex from the point can be attacked only with a crushing blow at swing damage. The pike must be used with two hands. Anyone carrying a pike is at -3 to DX; GMs should be prepared to penalize him even further in forests, buildings or other tight quarters.

Pilum (TL2): A Roman javelin, with an iron head. Treat as a javelin; see also the entry under *Spear Throwing*, below.

Rochin (TL3): A short, Japanese spear, used one-handed for stabbing.

Southern-Tiger Fork (TL3): A trident-like Chinese spear with three wide-set stabbing points. If the Spear and Jitte/Sai skills are both known at skill 13+, it can be used to disarm. Each point can damage separately. On an ordinary hit against the body, only one point hits; if the roll is made by 1, two points hit, and if it is made by 2+, all three points hit. Roll the damage listed on the table for *each* point; DR protects separately against each attack. (Against a limb. only one point would hit. Against the head, one point is effective on an ordinary attack, two on a success by 2 or more.) Because this spear is very tip-heavy, the user is always at a -2 skill penalty.

Yari (TL3): A Japanese spear, used mainly for thrusting, not throwing; treat as a spear.

Yarinage (TL3): A Japanese javelin; treat as a javelin.

Weapon	Type	Damage	Reach	Cost	Weight	MinST	Special Notes
Belly Spear	imp	thr+2	1*	$100	4	9	Used 1-handed. Throwable. Half damage when pulled out.
	imp	thr+3	1,2*				Same spear used 2-handed. Half damage when pulled out.
Kontos	imp	thr+4	2,3*	$90	6	12	Used 2-handed; can't parry.
Long Spear	imp	thr+2	2,3*	$60	5	10	Used 1-handed; can't parry. Barely throwable; -2 to skill.
	imp	thr+3	2,3*				Same spear used 2-handed.
Pike	imp	thr+3	4-6**	$180	3/yd.	12	Used 2-handed; can't parry. See above for other restrictions.
Rochin	imp	thr+1	1	$30	2	7	One-handed stabbing spear.
Southern-Tiger	imp	thr+1	1	$80	5	10	Used 1-handed (up to 3 attacks).
Fork or Fuxina							All attacks are at -2 DX.
	imp	thr+2	1,2*				Used 2-handed (up to 3 attacks). All attacks are at -2 DX.

* Must be *readied* for one turn to change from long to short grip or vice versa.

** Takes 1 full turn to move point to a new hex.

Firearms Accessories
(Continued)

Typical late-TL5 scopes were three to four feet long and weighed three to four pounds. Magnification was up to 30x, for target. shooting and long-range hunting

By TL7, a cheap 3x or 4x scope might cost only $80-$100 from a mail-order company, a 3-9x variable scope might cost $150; weight is typically less than a pound. Night-sight versions are available for $200 more.

Scopes are more fragile than the gun, that mount them. Military rifles almost invariably and hunting rifles usually have an auxiliary set of iron sights in case of scope stops working. Anytime a scoped weapon is mistreated (dropped, clubbed trampled, struck) in such a way that the scope could reasonably be expected to be damaged, roll 3d:

3-5 - The scope is undamaged.

6-8 - The scope takes minor damage, can be repaired by an armourer in 1d hours Until it is repaired it is at only 1/2 effectiveness as a sight.

9-13 - The scope takes significant damage; it must be replaced or repaired. Repair takes three successful Armoury rolls at day intervals.

14+ - The scope is so damaged that will no longer work as a sight and can't be repaired.

These are the figures for TL7. For TL6 roll at +1; for TL5 at +2 and for TL4 and below at +4. More primitive equipment in this case, is easier to fix!

Silencers

In most games involving firearms, one of the most commonly used accessories is the silencer, sometimes called a sound suppressor.

A silencer is a device to muffle and disguise the sound of a gunshot. No system completely *silences* a gun. The noise is actually the sonic boom of the supersonic gases and (when applicable) the projectile. (The speed of sound is about 1,100 feet per second at sea level, 9mm pistol ammunition has a muzzle velocity of 1,200 f.p.s., military rifles from 2,500 to 3,500; powder gases of over 4,500.) A silencer would be confining and slowing one or both of them, before they reach the exterior atmosphere

Normally, a Hearing roll is required to hear a gunshot, modified as follows: +6 in the same room; +4 In the next room; +2 several rooms away, or in the next block outdoors; no modifier at two blocks away; -2 a quarter-mile away; -4 a half-mile away.

However, the GM need not roll dice in circumstances where it is obvious that gunshot would be heard.

Silencers give an additional penalty to any roll to hear the weapon, from -8 for the *best* commercial silencer, to -5 for a good improvised silencer (see below), to -1 for a hasty improvization.

The GM should add further Hearing penalties for background noise (-1 for conversation, up to -5 for a machine shop), or distraction (a man in the middle of a knife-fight is less likely to notice stray sounds). A further penalty of -2 may be exacted from those who do not have Guns skill; being unfamiliar with firearms, they are less likely to identify a gunshot if they hear it.

Weapon Choice: Silencers are more effective on certain types of gun. They are most effective with sealed breeches, such as bolt-actions or dropping blocks. Those used on semi-automatics quiet the shot fairly effectively, but frequently release some high-velocity gas from the breech and always have the noise of the action working.

Revolvers of conventional design are impossible to silence. The gap between barrel and cylinder leaks high-velocity gas. It is possible to construct a revolver so tightly fitted that it can be silenced, at least for a few shots, but this is more an exercise in perverted ingenuity than in practical weapons design.

SPEAR THROWER (DX-4 or Spear Throwing-4); p. B52

Atlatl (TL1): An Aztec spear thrower, used to hurl darts (see below). A few propelled two darts at once (give each one a -2 to hit). Dans were made of oak, with wooden, obsidian, copper or bone points and feather butts. Some were barbed and some had two or more prongs. Treat as a spear thrower.

SPEAR THROWING (DX-4 or Spear Thrower-4); p. B52

Some of the spears listed under Spear (above) can be thrown, including the *belly spear, chiang* and *yarinage.* If a spear cannot be thrown, this is noted in the description. In general, treat these as either hurled spears or javelins, as per the description.

Belly Spear (TL2): See above, under *Spear.* When removed from the wound, this weapon does additional damage (see p. 33).

Chiang (TL3): See the entry under *Spear,* above. Treat as a thrown spear.

Dart (TL1): A short, weighted spear, designed to be hurled or launched from an atlatl (see above). Cannot be used as a hand weapon.

Long Spear (TL3): See above, under *Spear.* This spear is barely throwable: -2 to skill.

Pilum (TL2): An iron-headed javelin carried by Roman legionnaires. The *pilum* had a long metal shaft embedded in a wooden one. When thrown, the relatively soft metal shaft bent on impact; if it had missed, the enemy could not throw it back. If it hit an enemy shield, the point was designed to penetrate and foul the shield, making it useless.

In game terms, use the *Damage to Shields* rules in p. B120. If the javelin inflicts half me damage needed to penetrate the shield, it has become embedded there. The *pilum* usually bent after penetrating me shield; attempts to remove it take three turns and a ST roll. The shield was now trailing several feet of wood, and would become more of a hindrance than a help. Reduce the DX of the wearer by 2, and his effective Block by 3; this is cumulative if multiple *pila* hit the shield. Most enemies would discard their shield.

Yarinage (TL3): See the entry under *Spear,* above. Treat as a hurled javelin.

Weapon	Type	Damage	Ranges				Cost	Weight	MinST	Special Notes
			SS	Acc	1/2D	Max				
Dart	imp	thr-1	9	3	STx2	STx3	$30	1	7	Usually launched a spear thrower,
Long Spear	imp	thr+2	15	1	ST/2	ST	$60	5	12	All attacks at -2.

STAFF (DX-5 or Spear-2); p. B52

All of these weapons require two hands. Parry is 2/3 Staff skill.

Any of the 2-hex spears described under *Spear* (above) - but *not* the longer spears or 1-hex stabbing spears - can also be used with Staff skill, poking with the blunt end for thr+2 crushing or striking with the shaft for sw+2 crushing. Treat the spear exactly as if it were a staff when it is used this way.

Bo (TL1): A man-tall bamboo staff; treat as a staff.

Bong (TL1): A Korean quarterstaff. Treat as a staff.

Chain-Staff (TL3): See the description under *Kusari,* p. 28.

Dah-Dau (Horse-Cutter) (TL3): See the description under *Polearm,* p. 29. This polearm can also be used with Staff skill.

Muchan (TL1): An Indian weapon; a two-foot-long straight stick, wielded as a staff. It parries well, but does not strike as hard as a full-length staff.

Naginata (TL3): This polearm can also be used with Staff skill. See the description under *Polearm, p. 29.*

Sodegarami (TL3): A Japanese barbed staff, used to grapple hair or clothing. It can be used as a standard staff, or to grapple. A grapple is treated as a Quick Contest of Staff skill vs. the target's DX. This does no damage unless the victim tries to escape (see below). A successful grapple can be broken by winning a Quick Contest of ST vs. the wielder's skill. However, anyone who tries to escape must *also* roll vs. DX; on a failure, the barbs tear his skin for Id damage, whether he escapes or not. DR protects normally.

Tetsubo (TL3): An iron bar, used as a staff.

Toya (TL1): An Indonesian staff, usually made of bamboo. Treat as a staff.

Weapon	Type	Damage	Reac	Cost	Weight	Min ST	Special Notes
Light							
Horse-Cutter	cr	sw+2	1,2	$120	8	12	Staff technique, with shaft.
	cr	thr+2	1,2				Staff technique, with blunt end.
Muchan	cr	sw	1	$10	1	7	Baton-sized, but used two-
	cr	thr	1				Parry is still 2/3 skill.
Naginata	cr	sw+2	1,2	$100	6	9	Staff technique, with shaft.
	cr	thr+2	1,2				Staff technique, with blunt end.
Sodegarami	Special	See	1,2	$100	4	6	Used to grapple.
	cr	sw+2	1,2				
	cr	thr+2	1,2				
Tetsubo	cr	sw+4	1,2	$100	10	13	Staff technique.
	cr	thr+2	1,2				

THROWING STICK (DX-4); p. CI136

Boomerang (TL1): A carefully-shaped stick, designed for taking down game, but occasionally used in warfare. This kind of boomerang does *not* return when thrown.

Weapon	Type	Damage			Ranges		Cost	Weight	MinST
			SS	Acc	1/2D	Max			
Boomerang	cr	sw+l	11	2	STx6	STx10	$10	1	7

TONFA (DX-6 or Shortsword-3); p. CI136

Tonfa (TL3): A Japanese club with a handle set at right angles, commonly used by police forces at TL7. Fast-Draw (Tonfa) can be learned to quickly ready a tonfa from a belt loop. A user who knows the Karate skill as well may hold a tonfa alongside the arm with one end projecting past the fist and use it for punching. Treat this as a Karate punch, but with an extra +2 damage.

| Weapon	Type	Damage	Reach	Cost	Weight	MinST	Special Notes
Tonfa	cr	sw+l	1	$40	2	7	Parry is 2/3 Tonfa
	cr	thr+1	C,1				

TWO-HANDED AXE/MACE (DX-5); p. B52

All of these weapons require two hands.

Gada (TL3): A heavy wooden mace with a round head, from India. It can be swung or used to thrust with.

Scythe (TL1): An agricultural implement used as a makeshift weapon.

Weapon	Type	Damage	Reach	Cost	Weight	Min ST	Special Notes
Gada	cr	sw+3	1.2	$60	9	13	1 turn to ready after swing.
	cr	thr+2	1				1 turn to ready after thrust.
Scythe	cut	sw+2	1	$15	5	12	1 turn to ready. *
	imp	sw	1				-2 to hit when impaling.

* Becomes *unready* if used to parry.
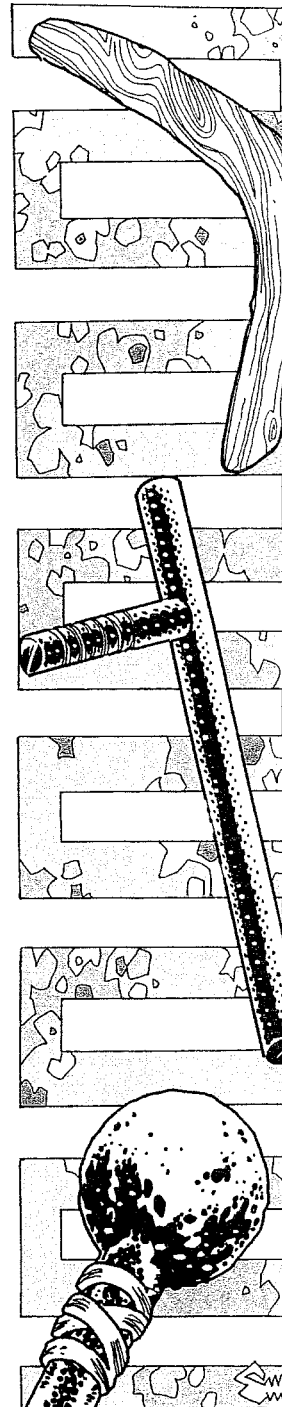
Firearms Accessories
(Continued)

Silencers are big, awkward and wear out quickly; the more powerful the round they silence, the bigger they are. The U.S. Navy silencer, used on S & W 9mm pistols, with special, subsonic ammunition, is one of the smallest. It is a bit less than six inches long and less than two inches in diameter, It is good for about 30 shots with subsonic ammunition, or about six with standard ammunition, before it stops silencing. The British silencer for 9mm Sterling submachine guns works much longer, sometimes for several hundred shots. It slows standard ammunition to subsonic speeds and silences the gases. It is about 14 inches long, nearly three in diameter and surrounds and extends a special barrel with 72 holes drilled in it to bleed off gas. If the gun is fired at full auto, the silencer stops working after three to five shots.

In game terms, rifles, submachine guns and any pistol except a revolver can be silenced at TL6+. Shotguns and black powder guns can be silenced, but such silencers are usually improvised, one-shot affairs, such as a large plastic bottle taped over the muzzle. Silencers decrease the range of a weapon by 1/3, and reduce the base damage by 1/4, rounding down.

Subsonic Ammo: If special subsonic ammunition is being used in conjunction with a silencer, the range drops to half normal, and the base damage is reduced by 1/3.

Acquiring a Silencer: The first commercially available silencer was the Maxim, c. 1902. It was effective within the usual silencer limits, and was widely used for things like indoor target shooting. (In most of the world, silencers were legal accessories until the gangster and subversive hysteria of the 1930s; in the U.S. they were still legal to anyone who could pay the $200 federal tax, although some states had laws against them.) Military and espionage agencies, of course, have easy access to silencers. Any machinist with the proper tools can make a silencer in four hours.

Improvised silencers are common, and can be effective within limits. Two of the best are the classic pillow held tightly between gun and target, and the one-liter plastic bottle packed with styrofoam peanuts (one shot per bottle). Such an improvisation will give a -1 to a Hearing roll to detect the shot.

TWO-HANDED SWORD (DX-5 or Force Sword-3); p. B52

All of these weapons require two hands.

Claymore (TL3): The Scottish version of the two-handed sword, with a distinctive V-shaped guard with lobed ends. Treat as a thrusting bastard sword or thrusting greatsword, depending on size.

Macauitl (TL1): An Aztec sword. See the description under *Broadsword,* p. 21. This two-handed version is three to five long.

Naginata (TL3): This polearm can also be used with Two-Handed Sword skill. See the description under *Polearm,* p. 29.

Nodachi (TL3): A long, slightly-curved Japanese greatsword with a long grip and a blunt tip, usually worn over the shoulder in a back sheath.

Tetsubo (TL3): See entry under *Staff,* p. 34.

| Weapon	Type	Damage	Reach	Cost	Weight	Min. ST	Special Notes
Macauitl	cut	sw+2	1,2	$650	5	12	Usually blunt.
							1 turn to ready after swing.
	imp	thr	1,2	$700	5	12	Stats for a sword with a point.
Naginata	cut	sw+3	2	$100	6	9	Sword technique;
							1 turn to ready after swing.
	imp	thr+3	2				Sword technique;
							no time to ready.
Nodachi	cut	sw+4	1,2	$800	7	12	Worn in a back sheath.
	cr	thr+2	2				Blunt tip.
Tetsubo	cr	sw+4	1,2	$100	10	13	Sword technique;
							1 turn to ready after swing.
	cr	thr+2	2				Sword technique;
							no time to ready.

WHIP (No default); p. B52

Chain-Whip (TL3): A whip made up of metal links. It cannot entangle like a normal whip, but has no maximum damage restriction either. Parry is still 1/3 skill. A chain-whip may be 1 to 4 yards long, and takes 1 turn to ready per yard of length.

Urumi (TL3): This Indian sword has a long flexible blade, and is used to flail enemies.

Weapon	Type	Damage	Reach	Cost	Weight	MinST	Special Notes
Chain-Whip	cr	sw+1	1-4	$50/yd	3/yd	12	See p. B52; cannot entangle*
Urumi	cr	sw-1	1-3	$400	4	8	Max. damage 1d+2; see p. B52.*

* Becomes *unready* if used to parry.
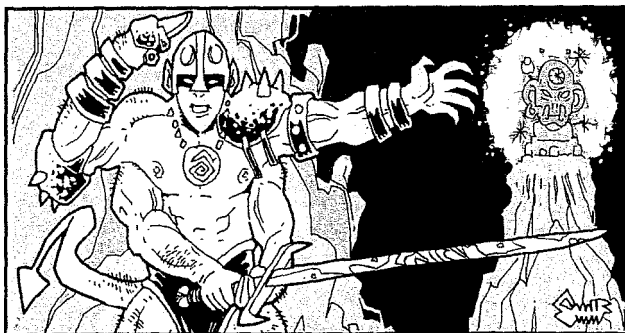
PRE-GUNPOWDER ARTILLERY

Note: Much more detailed rules for mechanical artillery appear in GURPS Vehicles, Second Edition.

These rules cover TL1-3 artillery. For the sake of convenience, siege towers, rams and various incendiaries are also included here.

Pre-gunpowder artillery was of three basic types: tension, torsion and counterweight. Tension artillery is simply a bigger crossbow; the usual projectile is a spear-sized "dart" or "javelin." Torsion artillery uses the elasticity of a skein of woven rope for power, and counterweight artillery uses a falling weight: both usually throw stones.

The terminology used to describe these weapons is very confusing: the word "catapult" has been used to describe everything from a giant crossbow to the traditional trebuchet, and the word "ballista" can refer to either catapults or bow-type weapons. For convenience, the term "ballista" will be used for tension-powered javelin-throwers, "catapult" for torsion-powered stone-throwers, and "trebuchet" for counterweight-powered stone-throwers.

All of these weapons are crew-served. They take considerable time to emplace and are not accurate enough to shoot at individual human targets; consider them just among the random hazards of war.

Most of these weapons are TL2 or 3, and are used mainly in sieges. Siege machinery was transported as metal and rope. Work crews at the site found timber and put the machines together - the most important siege weapons were manpower and time. Some of these weapons were also used in naval combat, and the Chinese and Romans did occasionally use light artillery on the battlefield.

Unless otherwise specified, the following rules apply to all siege engines:

Each weapon requires a crew of six men to operate it. RoFs given are for heaviest possible shot; if lighter projectiles are used, RoFs can be improved by up to 50%. Aiming bonuses are per shot at a given point. The first round is at +0, the second at +1, and so forth until the bonus equals the Acc value.

All shots must roll a grenade scatter: roll 2 dice; add +1 to the scatter for each number the to-hit roll was missed by, or -1 for each number the to-hit roll was made by. The sum indicates the percent of total range the weapon is off.

Catapults and trebuchets do half damage to walls and other vertical objects unless they are close enough to manage a flat trajectory.

Arcuballista (TL3)

Artillerists string this huge crossbow with up to 10 bolts at once. It can hit multiple targets as distant as 1,000 yards, each bolt inflicting 3d impaling damage. This siege weapon requires only one operator, but cannot be moved while assembled. Anyone can fire it, but ST 9 is required to use the rewinding windlass. It uses the Gunner skill. $1,000, 100 lbs.

Arcuballistas have the following slats: Acc 2, 1/2D 300, Max 1000, RoF 10 -it fires 10 bolts at once, then takes 20 turns to reload.

Ballistas (TL3)

These are giant crossbows of diverse sizes. They are relatively useless against castle walls.

Small ballistas, or "scorpions," are heavy crossbows that can be carried by one man, although they usually requires a crew of two. A scorpion does 4d impaling damage.

Metallic Cartridge Weight Table

Cartridge	Rounds/lb.
.32 ACP	57
.380 ACP	47
9x19mm Parabellum	43
5.56x45mm	38
.44 Henry	23
.44-40 WCF	21
.45 ACP	21
.455 Webley	20
7.62x51mm NATO	18
.303 British	18
7.62x54mmR	17
7.92x57mm Mauser	17
.30-06	17
8mm Lebel	16
.45-70	10
.44-90	9
.50-90	9
.600 Nitro Express	5
.50 BMG	3
12.7x108mm Russian	3

Shotgun Shells

Shotgun shells are typically $10 and 3 lbs. for a box of 25 shells.

Rifled Slugs

Rifled slugs are a TL6 development to increase the range and power of shotguns while retaining the option of shot loads.

Rifled slugs have three times the 1/2D and five times the Max range of a load of buckshot from the same shotgun. If fired from a shotgun equipped with rifle sights, they have +2 to Accuracy; otherwise they don't affect the weapon's accuracy.

These are very big solid bullets (see *Bullet Size* p. 56); roll the usual number of dice for the shotgun, but apply the *total* damage to DR, not each die separately. A 10 gauge is about .77 caliber, a 12 gauge about .73 and a 20 gauge about .61 caliber. They all get double wounding damage if they penetrate armor. (The exception is the .410 shotgun, which is actually .410 caliber - a inexplicable exception to the gauge system of measurement.)

Note Gyroc Rounds are 3 lbs. for 20 rounds.
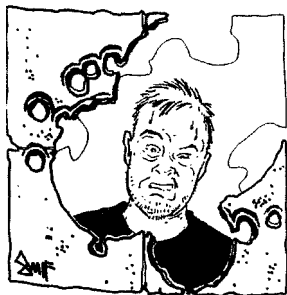
Medium ballistas are sometimes carried on horseback and set up on the battlefield for long-distance fire, but for the most part are used in fortifications, sieges and on ships. When used on the battlefield, they are usually fired on massed groups of men. Damage is 6d impaling.

Large ballistas fire huge, iron-tipped javelins, and are only built during sieges. They do from 8d to 5d x 2 impaling damage.

All ballistas have the following stats: Acc 5, 1/2D 400, Max 500, RoF 1/120. A ballista bolt can weigh from 1 lb. (for a large quarrel.) to 10 lbs. (for a huge javelin).

Battering Rams (TL1)

A ram is a wooden beam used to knock down walls and gates. The simplest ones are trimmed tree trunks and are used against gates. Others rest on a sling, have a huge iron head, and require up to 200 men to swing. A simple wooden ram does thrust damage equivalent to one-quarter (he ST of the men wielding it (1/2 ST if the ram has an iron head; wooden rams cannot be used against stone walls without a metal head). The sling ram uses 2/3 the ST of the men using it (e.g., a 200-man sling ram does 6d x 22 crushing damage every time it strikes).

Other sorts of rams include the *pick* and the *screw* (or *drill).* These are iron tools used to scrape away at the mortar and stones in castle walls. The pick has a narrow point to concentrate its force, and the screw has a square or (rarely) spiral-cut head which is twisted during use, to give a primitive hammer-drill effect. Picks and drills wear away at the DR, of the wall at the spot they are attacking. This occurs at the rate of 1 point per 10 minutes. Destroying all the DR and hits results in the loosening or shattering of a block, which can then be removed. Both the pick and screw are TL2 innovations.

Most rams were covered by a "sow" - a wheeled shed covered in uncured hides to protect the crew from boiling oil and other missiles dropped from the ramparts.

Catapults (TL2)

These weapons usually fire rocks weighing from 10 to 600 pounds. They are crewed by *at least* six men; crews of 20 or more are not unusual. It requires a combined ST of 100 to crank the arm down, taking 5 minutes. Time is increased by 5 seconds for each ST point less; the minimum ST to crank it down *at all* is 30.

Firing a catapult requires a roll against Gunner (Catapult); this does not default to any higher-tech Gunner skill! A success indicates the missile was placed within 10 hexes of the intended target, with a critical success indicating a direct hit. A failure means the shot was way off, and a critical failure can mean anything from hitting friendly troops to a misfire, causing the missile to drop on the gunner!

Damage is 6d x 9 for a 10-pound stone. For every 14 pounds over 10 (maximum 600), add 1 to the multiplier. Other ammo includes javelins (a dozen javelins can be fired to scatter over the target area), which cause 3d impaling damage each; flaming projectiles, which do Id-3 fire damage (which may ignite a flammable target) *plus* the damage of the missile itself; and barrels of Greek fire, which set fire to a 7-hex radius, and splash all targets in that radius for 1d+1 burning damage on the turn they burst.

Use the following stats for most catapults: Acc 1, 1/2D 300, Max 500, RoF 1/300. Most catapults fire 10 lb. to 50 lb. stones, with trebuchets (see below) being used for heavier missiles.

Flamethrower (TL3)

The flamethrower (also called a *fire-siphon)* uses a double piston to spray oil or "Greek fire" (see below) from a reservoir. It first appeared in the tenth century AD, and was common both in China and the Arab lands. Flamethrowers weigh too

much to maneuver on battlefields, but they are often mounted on ships. On land, they are used to defend castles, and are especially useful in narrow passages.

Flamethrowers ignite paper, cloth or wood, and sear armored targets. Halve the DR of a victim's armor. One can use these devices as area attack weapons, as described on p. B121. They are fired with the Fire-Siphon skill (p. CI134). The target of a flamethrower attack takes 1d damage every turn, or 2d+1 for Greek fire, while he is being hit. He then takes regular burning damage (1d-1 per turn, even for Greek fire) until the flame is put out; this usually requires magic, or rolling in thick sand or cloth. Otherwise, oil will burn for 15 seconds and Greek fire for 1 minute.

A flamethrower costs $1,000 and weighs 200 pounds plus cost and weight of the oil. The oil is $25 per gallon; Greek fire costs three times as much. A large flamethrower shoots 20 gallons (150 lbs.) per second. Some have huge reservoirs. Acc 7, 1/2D 15, Max 30.

Greek Fire (TL3)

The discovery that some liquids burn, and the idea of somehow throwing them at enemies, pre-dates recorded history. However, the trick was rarely worth much; such oils tend to spread and burn out easily, and are usually fairly simple to extinguish or wash off. "Greek fire" is a special, deadlier idea - a mixture of flammable compounds that carries as a jet, burns hot, floats on water, sticks to targets and is hard to put out (requiring sand); in short, a precursor of modern napalm.

In land battles (mostly in sieges), its main use was its surprise effect; good troops could be taught counter-measures, and fire weapons had limited range and accuracy. It was mostly used at sea, where a good tactician could use a few ships equipped with flamethrowers (see above) to play havoc with whole enemy fleets: fire was always the sailor's greatest fear in the days of wooden ships.

Greek fire costs $75/gallon. $3,000 worth will fill a *small* flamethrower reservoir. $1,200 buys enough to fill a large catapult projectile (e.g., a barrel) which will burst to cover a 7-hex radius in flame.

Siege Towers (TL2)

These rolling towers are usually built taller than the walls they confront. At a distance, they allow archers a protected nest from which to snipe at the defenders deep inside the castle. Closer up, they provide a means of scaling a wall that is far more efficient and defensible than the simple ladder.

Trebuchets (TL3)

A trebuchet is a catapult which uses a counterweight to swing a lever. If a really large siege engine is desired, big trebuchets are easier to build than big catapults. A *gigantic* trebuchet might have a ten-ton counterweight and throw a 1,000-lb. missile!

A *small* trebuchet requires a crew of ten. It cannot fire at targets closer than 200 yards. A stone from such a trebuchet does 10d crushing damage. It costs $800, weighs 1,000 lbs., and has Acc 1, 1/2D 1,000, Max 1,500 and RoF 1/240.

A large trebuchet has Acc 3, 1/2D 200, Max 600 and RoF 1/600. It fires huge stones (typically 100 to 600 lbs.), using the damage rules for catapults (see above).

Firearm Quality

At TL5+, firearms can be precision built or hand-crafted at great cost for special purposes and discriminating users. A gun may be *Fine* for 5 times its listed cost or *Very Fine* for 30 times list cost. The gun must be defined as being *Fine (Decorated), (Reliable)* or *(Accurate)*. A gun may also be *Very Fine (Decorated)* or *(Accurate),* but not *Very Fine (Reliable).* A gun may be both decorated *and* reliable, or decorated *and* accurate, but not both accurate and reliable. All cost multipliers are cumulative!

Decorated guns have a higher resale or pawn value, as much as 90% of the new cost (compared to 10%-50% for most guns). *Accurate* guns have +1 Accuracy, or +2 if *Very Fine. Reliable* guns have Malf. number increased by 1. Malf 16 become "Crit.", "Crit." becomes "Ver." and "Ver." becomes "Ver. (Crit.)" (see *Malfunctions* p. 68).

Traps and Hazardous Barriers

Caltrops

Caltrops (or "caltraps") are barbed tetrahedral spikes, designed so that they will always land with one point facing up. Small caltrops ("tetsubishi") are strewn across an area by ninja, to deter pursuit by humans; they are worthless against horses. Larger ones are used to cripple horses on the medieval battlefield, but are easily avoided by humans.

Anyone crossing a field of small caltrops must make a Vision roll to spot and avoid them. This is at -1 for every yard per second he is moving, and at an extra -4 if he did not expect them. If the Vision roll is missed, the victim steps on one caltrop for every 3 points by which he missed (minimum 1). Damage is thrust-3 impaling, based on they *victim's* ST. This damage is to the foot; the DR of footwear protects normally. The barbs are nasty: a Will roll is required to avoid crying out (if that matters), and a DX roll is required to remove the caltrop from his foot (or he will be forced to hop on one foot at Move 1) Small caltrops are ten to the pound and cost $0.25 apiece. They are typically strewn one per yard.

Large caltrops are easily avoided by a man on foot (make one Vision roll; on a critical failure, he steps on one). On horseback, use the rules above, except that the roll is against the lower of the rider's Vision or Riding skill. Damage is thrust-3, based on the *horse's* ST; horseshoe and hoof DR will protect normally. For the result of damage to one's mount, see p. B137. Large caltrops are 0.5 lb. each and cost $1.50 apiece. They are typically strewn one per 3 yards.

ARMOR

The following section expands the list on pp. B210-211. See the *Other Materials for Low-Tech Armor* sidebar (p. 42) as well. Be sure to consult both this section *and* the. *Basic Set* when equipping your character!

Hit Location: The armor types listed below are broken down by hit location; see p. 53 for the meaning of hit location numbers. Note that full suits of armor and armor that covers the arms or legs as well as the torso is listed under *Torso.*

TL: Armor is arranged by TL under each hit location, and by alphabetical order within each TL. Where possible, the origin of the armor (e.g., "Greek," "Japanese") is given with the TL. The prices assume typical starting wealth at that TL (see p. 8). Be sure to look at the TL before equipping your character! Higher-TL versions of many of the armor types on p. B210 appear below, with considerably different statistics. Note that in fantasy campaigns (and even in some historical campaigns), it is quite common to mix TL0-4 armor. Since starting wealth does not change at those Tech Levels, this can be done without modifying the costs below,

Head

Bronze Helmets (TL1; Greek): A variety of helmet styles are used throughout the period. The most common is the "Corinthian" helmet, essentially a bronze pot-helm with wide cheek-pieces to protect the face. This variety of helmet can be pushed back on the head when danger is not imminent, for greater comfort and wider vision. Covers areas 3-5 with PD 3, DR 3. $160, weighs 7.5 pounds.

Some helmets are more standard pot-helms. These have the same PD and DR, cost half as much, and weigh 5.5 pounds, but only cover areas 3-4.

Device/Emblem (TL1): A personal device, symbol of rank, or military order's emblem can be added to helmets (not coifs) of leather or steel to show the wearer's status. Depending upon detail and craftsmanship, these add a minimum of $20 to the cost and nothing to the weight. A decorative plume can be added to helmets (not coifs) of reinforced leather or steel to make the wearer easily recognizable in battle. It adds $10 to the cost and 1 lb. to the weight.

Bronze Helmet (TL2: Roman): A pot-helm with PD 3, DR 3, protecting areas 3-4. $80, 5.5 lbs.

Gladiator's Helmet (TL2; Roman): This was the most common helmet worn by heavily-armed gladiators. It was a heavy bronze helm with a net of bronze wire

protecting the face. The helmet provides PD 3, DR 4 over the head (areas 3-4) and PD 1, DR 3 (1 vs. impaling) over area 5. $150, 6 lbs.

Legionnaire's Helmet (TL2; Roman): This was a pot-helm with face guards. The helmet had PD 3, DR 4 for areas 3-4, and PD 2, DR 3 for area 5. Thrusting attacks can ignore this protection at a -7 penalty to hit. $150, 6 lbs. It could also be made out of leather: PD 2, DR 2 for areas 3-4, PD 1, DR 1 for area 5. $25, 1 lb.

Face Mask (TL3): A heavy wire or steel face mask, used in many cultures to protect one's facial features or to conceal one's identity. It protects area 5 with PD 3, DR 4. $100, 15 lbs.

Lobsterback (TL3): A series of overlapping, leather-backed metal strips connected to the back of any helmet (not coifs) to protect the neck. It provides +1 PD (up to a maximum of PD 4) and +1 DR from back and flank attacks. It adds 50% to the cost and 1 lb. to the weight.

Ninja Hat (TL3; Japanese): An ordinary hat with hidden steel bars. Protects area 3-4 with PD 1, DR 3. $50, 2 lbs.

Reinforced Coif (TL3; Arab): An open-faced chainmail cap made of high-quality mail. Gives PD 2, DR 2, even against impaling attacks. Protects area 3-4, and area 5 from the side or back. If concealed beneath a turban, it is not obvious to a casual glance. $500, 3 lbs.

Viking Helmet (TL3; Norse): This is a metal cap made from a set of iron ribs with the spaces between filled with thinner sheet-iron. It includes a nasal, spectacle eye-guards, cheek-guards, an aventail (throat-guard) and possibly a crown-spike. These improvements give a Viking helmet PD 4, DR 4 over areas 3-5. $200, 7 lbs.

Steel Skullcap (TL5): The most common concealed head defense. It has PD 2 and DR 4, but protects only the top of the head (3-4). $5, 3 lbs.

Casque Adrian (TL6; French): The French military issue helmet from 1916 until after WWII, and used later than that by police and reservists. PD 2, DR 3, 4 lbs., $20. Covers 3-4 and the back of 5.

Cuirassier's Dress Helmet (TL6): Every major European government before WWI had at least one regiment of heavy cavalry - big men on big horses, trained to charge with the sword. Coverage is 3-4 and the back of 5, from the line of the ears rearward. PD 3, DR 4, 5 lbs., $50. They were stainless steel or nickel-plated, and polished to mirror finish (+4 to any Vision roll to see one), so a cloth cover was provided for field use. Available after 1880.

Pickelhaube (TL6; German): The Germans went to war in 1914 with the *Pickelhaube,* a stiff, shiny leather cap with a short spike on top (PD 1, DR 1, covers 3-4 ,2 lbs.), $10).

Stahlhelm (TL6; German): By 1916. the Germans had replaced the *Pickelhaube* with the first "coalscuttle" helmet, or *Stahlhelm.* Covers areas 3-4 and the back of 5. PD 4, DR 4, 5 lbs., $20.

Steel Skullcap (TL6): These could still be found at TL6, with improved steel. The French army issued these in 1915. and they were relatively common on the civilian market. Coverage 3-4. PD 2, DR 3. 2 lbs., $20 for all of TL6.

Combat Infantry Helmet (TL8): Normally worn with Combat Infantry Dress (see p. 44), this is a full-face, full protection helmet. Two filter units are built into the cheek pieces, and when swung down and locked into place on the attachment points of the torso armor, the visor provides a complete air-light seal for operations in a contaminated atmosphere. The helmet has PD 4, DR 18, except for the visor (covering the face, location 5 from the front) which has only PD 2, DR 10. At each TL above 8, add 10 to the DR. Weight is eight pounds and cost is $240.

Torso (including full suits)

Fur Cloak or Poncho (TL0): These items are light furs which cover the torso. The cloak has PD 1 and DR 1 from *behind only,* as the wearer can't fight with it wrapped around him. A poncho provides the same protection, but covers areas

Equipment for Horses

Riding Gear

Basic Furniture. Bit and bridle - the minimum required - would weigh 2 lbs. and cost $20. An ordinary riding saddle would cost $100 and weigh 10 lbs. Riding without a saddle is possible, but uncomfort-able for both horse and rider over any length of time.

War Saddle. A high-backed saddle for battle. Cost $300 or more, weight 25 lbs. Gives +1 to Riding skill whenever the rider rolls to stay in the saddle.

Spurs. An emblem of knighthood in some lands. Real spurs would be $20, 1 lb. Dress spurs would be $100 or more for silver, much more for gold, and might weigh more.

Horse Armor (Barding)

Horses (and other mounts) can be armored. Horse armor, or *barding,* covers animal hit locations 5-9 (see p. 54) on a horse, protecting the head, neck and vitals from all angles, and the body from in front. Barding is available in the following forms:

Leather. Made of boiled leather and quilted cloth. It has PD 2, DR 2, weighs 30 pounds and costs $380.

Light Mail. Made of flexible chainmail and quilted cloth. It has PD 3, DR4 (PD 1, DR 2 vs. impaling weapons), weighs 60 lbs. costs $600.

Scale. A semi-flexible armor made from boiled leather and strips of metal mail. It has PD 3, DR 4. weighs 90 lbs. and costs $1,000.

Heavy Mail. Treat as light mail, except that areas 5-6 (the head and neck) and vitals are covered by plate, giving PD 4 and DR 6 to those areas only. Costs $1,400 and weighs 90 lbs.

Other Materials for Low-Tech Armor

Cuirbouilli (TL1): This is boiled leather; treat as heavy leather (PD 2, DR 2).

Reinforced Leather (TL 1): Leather armor may be reinforced with strips of metal, bone, or horn. This increases DR to 3; PD remains 2. Increase both cost and weight by 20%.

Brigandine (TL3): This is armor made of metal plates sewn between sheets of leather; treat it as scale (PD 3, DR 4).

Jazeraint (TL3): This is a type of scale armor, treat it as scale (PD 3, DR 4).

Lamellar (TL3) or *splint* (TL3) mail - small, rectangular pieces of metal or horn, laced together - is rather more flexible than scale but about as heavy and protective. Treat it as scale mail (PD 3, DR 4).

"Armor of Proof" (TL4): Plate armor and metal helmets can be purchased as "pistol-proof". This is 2.5 times normal price, 1.25 times normal weight and +2 DR. "Musket-proof" armor would be triple cost 1.5 times weight and +4 DR.

Chainmail (TL4); Later-era chainmail is extremely strong yet light and flexible, and can be sewn into clothing or covered with leather to hide its true nature. For any item, made of TL4+ mail, reduce the weight by 20% and double the cost. PD remains the same, but DR goes up by one against all attacks.

9-11 and 17-18. Either weighs about 3 lbs. Cost is negotiable - free, if the character traps the animal himself.

Fur Coat (TL0): A coat is made from heavy fur, and covers areas 6, 8, 9-10 and 17-18. It has a PD and DR of 1 and weighs 6 lbs. It may have a hood attached, protecting areas 3-5 (back only). Cost is negotiable - free, if the maker traps the animal himself.

Fur Loincloth (TL0): This is simply a soft pelt which covers the groin, and is held in place by a leather thong around the waist It offers a DR of 1 to shots to the belly and groin - area 11 (on the diagram on p. B211). The weight is negligible. Cost is negotiable - free, if the character traps the animal himself.

Fur Tunic (TL0): A tunic is a sleeveless garment made from light furs or leather. It has a DR of I, no PD, covers areas 9-10, possibly 11 and 17-18. It weighs 2 lbs. Cost is negotiable - free, if the character traps the animal himself.

Bronze Corselet (TL 1; Greek): A skirt of metal plates or hard leather snips protects the groin. Wide armholes give the arms complete freedom of movement. Some corselets are sculpted to give a naturalistic appearance, mimicking the contours of the chest and belly. Such armor covers locations 9-11 and 17-18 with PD 4, DR 5. $ 1,300, weighs 40 pounds.

Cane Breastplate (TL1; American Indian): A decorated chest-protector made from lengths of cane or wood laced together with thongs. PD 2, DR 2, protects areas 9-11, 17-18 from the front only. $50,4 lbs.

Dendra Panoply (TL1; Greek): Wealthy Bronze-Age warriors use this style of armor in battle. The armor is made of heavy bronze plates, covering the torso (front and back) and upper arms. A kind of half-turret rises to protect the neck and lower face. The armor covers locations 5, 9-11 and 17-18 with PD 4, DR 6. $3,000, weighs 50 pounds.

Ichcauipilli (TL1; Aztec): Protects the torso with a cotton quilt that measures two fingers thick. Many styles of this armor exist: some are tied at the back, some at the front, some worn as a pullover that reaches to mid-thigh. Protects areas 9-11, 17-18 with PD I, DR 1, $100, 3 lbs.

Tlauiztli or *War Suit* (TL1; Aztec): Covers all limbs as well as the torso, and is worn over cotton armor (see *ichcauipilli,* above). Commoner knights wear suits made of animal skins. $200,2 lbs. Noble knights don feather-covered suits decorated to look like animal skins. The slick feathers give +1 PD, but multiply cost by 10!

Wooden Armor (TL1; American Indian): An ornamented corselet made of wooden slats over an elkskin undershirt. Protects areas 9-11, 17-18 with PD 2, DR 3. $120, 10 lbs.

Bronze Cuirass (TL2; Roman): A bronze corselet with PD 4, DR 4 for the front. The back of the armor was usually leather (PD 2, DR 2). Protects areas 9-11, 17 and 18. $550,23 lbs.

Segmented Armor (TL2; Roman): This type of metal armor *(lorica segmentata)* consisted of metal plates linked together around the body to permit articulation. Segmented armor provided excellent protection against cutting and crushing attacks, but piercing thrusts could punch between the plates more easily. Segmented Armor covers the torso and thus protects areas 9-11 and 17-18. PD 3 (2 vs. impaling), DR 5 (3 vs. impaling). $650,35 lbs.

At certain times, the armor was made of leather instead of metal, with PD 2, DR 3 (2 vs. impaling); reduce weight to 11.5 lbs. and cost to $ 130.

Studded Leather Skirts (TL2; Roman): Attached to either a chain mail suit or *segmented armor* (above) to protect the upper legs. The skirt consisted of several strips of leather backed with metal pieces, covering area 11. Against cutting attacks, it provided adequate protection, but impaling attacks could penetrate more easily. It provided PD 2 (1 vs. impaling), DR 3 (1 vs. impaling).

Armored Shirt (TL3; Arab): A high-quality mail shirt, designed to protect against an assassin's blade. Gives PD 2, DR 3, even against impaling attacks. Covers areas 9-11,17-18. Can be worn under ordinary clothes. $2,000, 12 lbs.

Do (TL3; Japanese): The basic Japanese corselet (called *do)* was made of laminated strips of leather, bamboo and leather, or metal. Some suits were also made of mail links, each individually lacquered. It tended to be lighter, for its strength, than equivalent European armor.

An all-leather *do* protects with PD 2, DR 2. $60, 9 lbs. A full set of leather armor, including face mask. sleeves and leggings, might cost $140 and weigh 20 lbs.

Bamboo-reinforced leather gives PD 2, DR 3. $100, 11 lbs. A full set of this armor might cost $220 and weigh 25 lbs.

A steel *do,* worn by the richest samurai, is PD 3, DR 4. $100, 15 lbs. A full set of steel armor might weigh 35 lbs. and cost $375.

Ninja Armor (TL3; Japanese): Ninja armor consists of metal rods or scales sewn into normal clothing. It protects areas 9-11, 17-18 with PD 1 and DR 3. It looks normal, but weighs 20 lbs. Cost is $100.

Straw Overcoat (TL3; Japanese): An overcoat of woven straw. It's heavy (10 lbs.) and gives only PD 0, DR 1, but it's also cheap ($1).

Buff Coat (TL4): A long leather coat, favored by musketeers and pikemen, that covers the arms. torso and legs. It gives PD 2, DR 2 to areas 6, 8, 9-14 and 17-18, and is usually worn under a breastplate (adding +2 DR.) $210, 16 lbs.

Breastplate (TL5): A common choice, concealed under the coat. PD 4, DR 10, weight 12 lbs. Protects only the torso (9-11, 17-18), and only from in front. Many military officers wore one of these, right through the American Civil War. They stopped many a sniper's bullet, and even an occasional blast of canister. $180 in 1862.

Kendo Armor (TL5; Japanese): As traditional Japanese armor became obsolete and martial swordsmanship *(kenjutsu)* gave way to artistic and philosophical fencing *(kendo),* new requirements had to be fulfilled. One of them was to avoid injuring the students. Nakanishi Chuta devised this trunk and face protector (called *do*). The kendo suit has PD 2, DR 3 against blunt attacks, and PD I, DR 2 against cutting and impaling attacks. Cost is $700 at late TL7, weight is 10 lbs.

Mail Vest (TL5): This is worn without padding. It has PD 3 and DR 3, weighs 8 lbs., and protects both front and back (9-10,17-18). It has PD 0 and DR 1 against impaling attacks. These vests were rare in the U.S.; they were made in China and Persia. Tong enforcers in San Francisco's Chinatown would wear them; they could be hidden completely under 19th-century clothing. They cost $10 when available.

Bulletproof Vest (TL6): Actually bullet-resistant would be a better name; no wearable armor will stop every bullet at TL6. It consists of small steel plates riveted between layers of fabric. It is normally worn under clothing; detecting it is a contest of Vision against Holdout-1, Covers 9-10, 17-18 front and back, PD 4, DR 6, 25 lbs, $100.

Cuirass (TL6): The body armor of a heavy cavalryman. Covers 9-10, 17-18 front and back. PD 4, DR 7, 30 lbs., $200. Like the cavalry helmet (see p. 41), this was polished (traditionally, cuirassiers used them as mirrors). They had a cloth cover for field duty.

Sniper's Armor (TL6): WWI provoked a lot of thought about armor. One development was armor for a sniper firing from a fixed position. Comfort and lightness could be sacrificed for protection. A typical set includes a heavily reinforced helmet, face-mask and breastplate. It covers 3-5, 9-11 and 17-18. PD4. DR 20, 70 lbs., $300. It covers only the front and is so stiff and awkward that Move is halved while wearing it. All sense rolls are at -3.

Armored Overcoat (TL7): Protection for everything but the head, hands and feet disguised as a heavy winter overcoat. PD 1, DR 12, 22 lbs., $500; Bulky and awkward: it reduces Move by 1 and is -2 to any Acrobatics, Climbing or similar skill roll. Available after 1970.

Other Materials for Low-Tech Armor (Continued)

Fine-Mesh Mail (TL4): Fine-mesh mail is the favorite armor of rapier masters, The vests are finely enough made that they can be concealed under normal clothing. Fine-mesh mail offers effective protection against a rapier thrust: apply PD3, DR3 against cutting and impaling attacks, unless the impaling attack comes from a blade less than one inch wide, in which case protection is PD0, DR1. Since the mail is so fine and flexible, protection against crushing attacks is only PD1, DR1. Fine-mesh mail costs three times as much as normal chainmail (see p. B210) and weighs the same.

Armorplast (TL8): Versions of plate (not mail) made of high-impact plastic are available. This is much lighter, although not quite as damage resistant, as durasteel (below). Armorplast armor halves the weight of armor components, and increases DR by 8. Cost is the same.

Durasteel (TL8): Versions of medieval plate or mail are available, and increase DR by 12. Cost and weight remain the same.

Biphase Carbide *(BPC)* (TL9): Versions of medieval plate or mail are available; it doubles the cost, halves weight and increases DR by 24.

Quality and Metal Armor

To simulate the quality of the best armor types available, GMs may allow warriors to pay 25% extra to obtain metallic armor (chain, scale or plate) that is 10% lighter.

Shields

A short list of shields used by various cultures throughout history:

Buffalo Hide Shield (TL1; American Indian): The Sioux and other Plains Indians use shields of thickened buffalo hide. All war shields are thought to grant magical protection. Medicine men construct and decorate them according to a ritual revealed in a vision. A hoop of light wood large enough to cover the chest and reinforced with four sticks provides the framework- Boiling and drying the hide thickens and hardens it. A Sioux shield provides PD 2; treat as a small shield.

Comanche shields are of layered hide stuffed with feathers, hair, or paper. (Pioneers are amazed at the Comanche interest in books.) Nearly any angled blade or missile must penetrate so many levels of material it will never reach the warrior. Even bullets from smoothbore weapons aren't likely to penetrate. A Comanche shield provides PD, 3, like a medium shield, but it has DR 6 and Damage 10/40 if the optional shield-damage rules on p. B120 are being used.

Chimalli (TL1; Aztec): A circular shield, 20 to 30 inches in diameter, made out of wood and covered with one or two layers of tanned deer hide. Some had a feather fringe that hung down 8 inches, protecting the user's thighs. This adds $100 and 1 lb., but gives the legs an extra +1 PD. Dress versions displayed feathers, turquoise, tortoise-shell or metal ornaments in designs that varied according to a person's status and rank.

According to Spanish chroniclers, some shields were so strong that they protected the user from arrows. Crossbow bolts could pierce them, however. A chimalli provides PD 2; treat as a small shield.

Duelling Shield (TL4; European): The duelling shields used by fencers could actually be as large as a *GURPS* medium shield. Use the attributes for bucklers and shields on p. B76, except that all sizes from "Buckler" to "Medium Shield" can be built for use with the Buckler skill.

Heater (TL3; Norman): By the 13th century the "heater" shape had developed in Europe - the classic coat-of-arms shield shape, with a straight top and a rounded or pointed bottom. Later cavalry shields included a notch on the top left side, to serve as a lance-rest. A heater provides PD -3; treat as a medium shield.

Kite (TL3; Norman): A longer shield, designed to cover more of the body, broad at the top and narrower at the bottom. It provides PD 4; treat as a large shield.
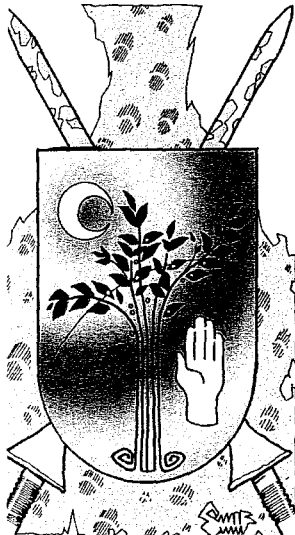
Heavy Plate (TL7): A complete suit of medieval-styled armor: greathelm, heavy corselet, limbs and sollerets - made of the best TL7 materials. It has air-cushion padding and comes with an under-suit that helps wick away moisture from the skin. Greathelm, PD 4, DR 20, 8 lbs. Heavy Corselet PD 4, DR 20, 22 lbs. Arms PD 4, DR 10, 10 lbs. Legs PD 4, DR 12, 15 lbs. Sollerets PD 4, DR 6, 5 lbs. The whole outfit costs $25,000 and takes one full year to make.

Inserts (TL7): These are panels of resin-bonded Kevlar, ceramic, metal or a combination of materials. They are designed to reinforce other armor, or to be worn alone, as the wearer chooses. They give great flexibility to the choice of armor. They are usually designed to fit in pockets, but can be equipped with straps. Separate inserts usually are made to protect area 17-18, area 9-10 and area 11, and for front and back. Inserts can add from 5 to 50 to DR. Cost is $10 per point of DR for 17-18 plates or 11 plates; $30 per point of DR for plates that cover 9-10 *and* 17-18. Weight is 1/2 lb. per point of DR.

Modern Martial-Arts Armor (TL7); This is constructed of foam and fiberglass. The best-known type is used by Tae Kwon Do practitioners. It provides PD 1, DR 3 against crushing attacks and PD 1, DR 2 against cutting and impaling attacks. Cost is $100 for a full suit, weight is 10 lbs.

Combat Infantry Dress (CID) (TL8): This consists of a chemically-coated, contamination-proof jacket and pants worn as an external garment; the suit comes with pockets, attachment points and harnesses for holding weapons or gadgets. The wearer's chest and abdomen are protected by durasteel plates inserted in a compound fiber mesh which provide PD 4, DR 40 over areas 9-11 and 17-18. Armorplast plates and compound fibers protect areas 6-8 with PD 2, DR 12. Similar pants are available to protect locations 12-14 with PD 2, DR 12; armored boots cover area 15-16, providing PD 3, DR 15.

A jacket with gloves weighs 25 pounds and costs $300; the gloves on their own weigh two pounds and cost $30. CID pants weigh ten pounds and cost $140. The boots weigh five pounds and cost $70. A complete suit, excluding the helmet, weighs 40 pounds and costs $510. At each TL above 8, add 10 to the DR of each component. If the entire suit is worn with the Combat Infantry Helmet (see p. 41), it is totally sealed against contaminated atmospheres.

Monocrys (TL8): This armor is worn by civilians seeking discreet protection. It is similar to Kevlar but is woven from a two-phase, single-crystal metallic fiber. Monocrys provides full protection against crushing and cutting attacks. It is less effective against impaling attacks such as needles or lasers, which penetrate the weave; protection against such attacks is always PD 1, DR 2. Against crushing and cutting attacks, DR depends on thickness; however, because monocrys is flexible, any 6 rolled for damage indicates one hit that affects the wearer through the armor (see *Flexible Armor and Blunt Trauma,* p. 57).

Light monocrys is PD 2, DR 8. $400, 3 lbs. for a vest; $1,000, 7 lbs. for a full suit. Medium monocrys is PD 2, DR 16. $600,5 lbs. for a vest; $1,500.12 lbs. for a full suit. Heavy monocrys is PD 2, DR 24. $800, 7 lbs. for a vest: $2,000, 16 lbs. for a full suit.

Infantry Combat Armor (ICA) (TL9): ICA is a full-body suit of articulated metal and ceramic-plate armor. With the helmet visor closed and the helmet's integral NBC filter locked into place, it is totally sealed and airtight, protecting against contamination (see *Combat Infantry Dress,* above). A rigid biphase carbide/ceramic corselet protects locations 9-11 and 17-18 with PD 6, DR 65. Articulated plates of BPC over compound-fiber mesh cover locations 6, 8 and 12-16, giving DR 6, PD 50. Armored gauntlets protect area 7 with PD 5, DR 25. The helmet protects the head with PD 6, DR 50 except for the visor which is PD 4, DR 35 (location 5 from the front). Increase DR by 15 at all locations for each TL over 9. $2,550, 60 lbs., including helmet.

Reflex Armor (TL10): Also called 'flex armor, reflex armor is a full-body suit resembling a jumpsuit, but made of electrically-active bioplastic. It is normally flexible, but incorporates sensors woven into its fabric to detect incoming projectiles or blows. The armor then goes rigid for an instant, becoming harder than steel just before the impact.

Reflex armor detects an incoming melee weapon, thrown weapon or low-tech projectile attack automatically. Bullets, rockets and sonic beams are detected on a roll of 14 or less, and hypervelocity Gauss needles only on a 12 or less. If it detects an attack, the armor protects with PD 5, DR 30. The armor's proximity sensors are not fast enough to detect laser, blaster or other beam weapon attacks, but the tough, energy-resistant bioplastic gives some protection (PD 2, DR 15) against beams or any projectiles it fails to detect in time.

A suit of 'flex armor covers the entire body except for the head and hands. The armor's sensors are powered by a built-in B cell for three months of continuous use. $4,000,10 lbs.

Cybersuit (TL11): The cybersuit resembles a skin-tight vacc suit with a small backpack. It functions as a fully-sealed vacc suit, absorbing sunlight and recycling waste and exhaled carbon dioxide, giving it an extended air and water supply. The backpack also includes a D cell, good for a day of operation without sunlight, and a week's supply of concentrated rations.

The suit consists of a multi-layered, three-dimensional molecular weave of diamond-based fibers and microscopic computer-controlled electric motors. Guided by pressure sensors lining the interior of the suit, the fabric of the suit acts like artificial muscle, duplicating the wearer's every movement, instantly and without resistance, as if the suit were not there at all. Pressure sensors covering the suit's surface feel the shape of whatever the user touches and transmit it through the suit. As a result, DX is not reduced if wearing a cybersuit, and its weight does not count as encumbrance for the wearer. The suit's muscles are normally programmed to match the user's normal ST, but the user can set it to amplify ST instead, increasing ST to a maximum of 20.

Every cybersuit incorporates sensors which warn the wearer if a laser sight is being used against him (giving a +1 to Dodge) and a "chameleon surface" that automatically changes color, pattern and infrared signature to blend in with its surroundings, giving a -3 on any roll to spot the suit visually or by infrared. A cybersuit protects the wearer with PD 5, DR 80. DR increases by 20 per TL over 11. $20,000, 35 lbs.

Energy Cloth (TL11): This light and easily-concealed armor is a black, single-crystal ballistic fiber similar to monocrys (see p. 44), but far stronger. Energy cloth has a PD of 4; it protects with DR 50 versus all attacks; any crushing attack does 1 point of damage for each "6" rolled, regardless of DR (a drawback of flexible armor). It also incorporates a "thermal-superconducting layer" which halves the damage of lasers and their ilk, before the cloth's DR is subtracted.

Energy cloth comes in vests covering the torso and in full suits protecting the entire body, including a pull-over hood for the head. Either type is light enough to be worn under normal clothing without being noticed. A vest weighs two pounds, a full suit four. Cost is $2,800 for a vest, or $5,600 for a full suit.

Arms and Legs

Fur Leggings (TL0): Soft pelts covering the legs are kept on by leather thongs wound over them and around the legs. The PD and DR of leggings are 1, covering areas 12-14 and weighing 2 lbs. Cost is negotiable - free, if the character traps the animal himself.

Armbands **and** *Wristlets* (TL1; Aztec): Decorative accessories, made of bark, wood or soft metal, with little protective value (PD 1, DR 1). Armbands cost $30

Shields
(Continued)

Sawn (Round) Shield (TL3; Saxon): The Saxon shield was circular and about 3 feet across. It was made of light wooden boards nailed to an iron handle. The user gripped this handle in the center, and his knuckles were protected by an iron boss. The shield might be faced with hide or fit-ted with a metal rim, but the emphasis was on lightness, so that it could move quickly to deflect an incoming blow or missile. It was designed to be used as a mailed fist after the wood had been hacked away from the iron shield-boss. Treat this as brass knuckles (see *Weapons For Close Combat*, p. B112). A Saxon shield provides PD 3; treat as a medium shield,

Scutum (TL2; Rome): The large shield of the legions was either square or oval in shape, and was made of multiple layers of wood and leather. It was used by the legions throughout most of their history. The scutum provides PD 4; treat as a large shield.

Timbe (TL3; Okinawa): A small shield, usually made out of a tortoise shell, sometimes used by martial arts practitioners. The timbe provides PD 2; treat as a small shield.

Viking (Round) Shield (TL3; Norse): The Viking shield was circular, and at least 3 feet across. It was made of light wooden boards nailed to an iron handle. The user gripped this handle in the center, and his knuckles were protected by an iron boss. A good shield might be faced with hide or fitted with a metal rim, but the emphasis was on lightness, so that it could move quickly to deflect an incoming blow or missile. A Viking-trained warrior has +1 on his Block defense, but -1 on any Parry with a one-handed weapon.

Shields were disposable, and not expected to survive a battle. Treat a Viking shield as a large shield (PD 4) for defense purposes, but it is light: 12 lbs. $45. Use the shield-damage rule (sidebar, p. B120), but an ordinary Viking shield's own DR is only 2, and it's easy to penetrate. Any blow of more than 5 hits will go through the shield; after takes 40 hits, it is worthless. After the wood of the shield had been hacked away from the iron shield-boss, it was possible to use the boss as a kind of mailed fist. By the 16th century, German duellists had developed this into a special-ized duelling weapon which they call the Hutt ("hat").

Even though the shield was disposable it was usually brightly painted. The Vikings did not have any "heraldry" as such, but a warrior might adopt a personal symbol. There is no truth in the rumor, that they were sometimes fitted with horns and pointed shield bosses to enhance a basher rush. Like horned helmets, this is a myth.

Shields
(Continued)

The shield was a blocking weapon. Combatants tried to avoid parrying with the sword, since this would spoil the edge and might even risk the blade breaking. It was safest to take the force of a blow on the flat of the shield, trying to turn the blow away with a sweeping motion of the shield-arm. A riskier tactic was to take a blow on the shield-rim, if the shield had a metal rim; this might blunt or break the opponent's sword, but on the other hand it could allow him to split the shield and perhaps injure the shield-arm. If the opponent's sword jammed in your shield, you could try to jerk it out of his hand with a quick twist of the shield; if you were lucky, the blade might even break.

To take a sword-blow on your shield-rim, you must roll a critical success while using a Block active defense with the shield. Then roll for damage as if the attack had hit; the result is the amount of damage suffered by *both the shield and the sword.* Even if this is normally enough to penetrate the shield (see p. B120) you are not harmed; your critical success means that you have caught the blow expertly and are in no danger. Note that this may only be done if your shield has a rim; if not, the shield is penetrated as normal.

Any time a blow from a *cutting* or *impaling* weapon penetrates a shield, the weapon has a chance of jamming and being twisted out of its user's hands. Roll a Quick Contest of Skills, the defender's Shield against the attacker's weapon skill. If the defender wins, the attacker must make a weapon skill roll or lose his grip on the weapon.

Shields suffered in combat, and it is recommended that you use the optional shield damage rule (p. B120) as standard.
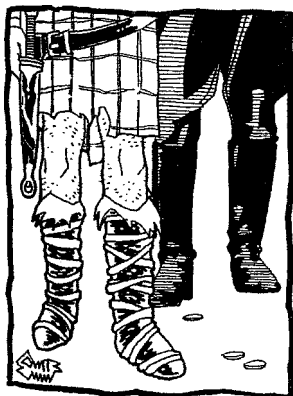
each, wristlets cost $30 per pair; both have negligible weight. A blow to the arm hits wristlets only on a 1 on 1d, or armbands on a 1-3. If both are worn. the roll is 1-4. They can be deliberately avoided by taking an extra -2 to hit.

Bronze Greaves (TL1; Greek): Protection for the lower leg. These are plates of bronze, with soft cloth beneath to prevent chafing. They cover the leg from knee to ankle (areas 12-14) but leave the upper leg uncovered. On any hit to the leg, roll 1d and ignore the armor on a 1-2. Greek greaves are two-plated or wrap fully around the leg, so they also protect against attacks from behind. PD 3, DR 3. $300, weighs 17 pounds (per pair).

Cotton Arm Coverings (TL1; Aztec): A pair of light, padded cotton sleeves. PD 0, DR 1. $50, 1 lb. Feather-covered versions are available that give +1 PD, but multiply cost by 10!

Cotton Leg Coverings (TL1; Aztec): A pair of light, padded cotton pants. PD 0, DR 1. $50, 1 lb. Feather-covered versions are available that give +1 PD, but multiply cost by 10!

Bronze Greaves (TL2; Roman): These leg protectors covered the leg from knee to ankle (areas 12-14), with PD 3, DR 3. When a leg hit is determined, roll Id; on a 1-2, the attack hits the unprotected area of the leg. The protection is from the front only; attacks from behind are unimpeded by armor. $270. 17 lbs.

Galerus (TL2; Roman): A leather and bronze armband that protects the arm from wrist to shoulder, usually worn by gladiators. It sometimes also includes a gauntlet (buy this separately). It provides PD 3, DR 4 to the arm; PD helps only against attacks on the arm. If parrying with that arm, add PD 2 to the parry, but if the defense roll is made by less than 2, [he attack hits the arm; DR protects normally. $105.7 lbs.

Hands and Feet

Fur Boots (TL0): These are not heavy soled footwear, but strips of hide wrapped around the feet and ankles and held on by leather thongs. The wrappings protect the feel (15-16) with DR I, but they wear out *very* quickly. Boots weigh 2 lbs. Cost is negotiable - free, if the character traps the animal himself.

Fur Mittens (TL0): These loose wrappings are not likely to be worn if a weapon is being used, since they will cause a -2 penalty to all weapon skill rolls. They do provide a DR of 1, however, covering area 7. The weight is negligible. Cost is negotiable - free, if the character traps the animal himself.

Mail-Palmed Glove (TL4): A mail-palmed was used to prevent damage from parrying a rapier or a knife with that hand. Each glove costs $50, and weighs 1/2 lb. A weapon wielded while wearing such a glove is used at -2 to skill. It gives PD 3, DR 3 against cutting and impaling attacks, unless the impaling attack comes from a blade less than one inch wide, in which case protection is PD 0, DR 1. The flexible mail gives only PD 1, DR 1 against crushing attacks.

Boxing Gloves (TL5): This Western invention both protects the hands and reduces the damage done with punches. These gloves provide PD 1, DR 2 (hands only), and halve damage done by a punch (if the Stun damage rules are being used. GMs may rule that me gloves do full Stun damage). When parrying, the PD of the gloves adds to the defender's roll. Cost is $60 for a pair.

Sap Gloves (TL7): A cross between armor and weapon - a pair of heavy leather gloves with lead stitched into the knuckles. PD 2, DR 4, 1 lb. (for the pair), $50. They cover area 7 and count as brass knuckles in close combat. They give a -1 to any delicate work such as lockpicking. It takes 1 second to put on or take off each glove. Available any time at TL7.