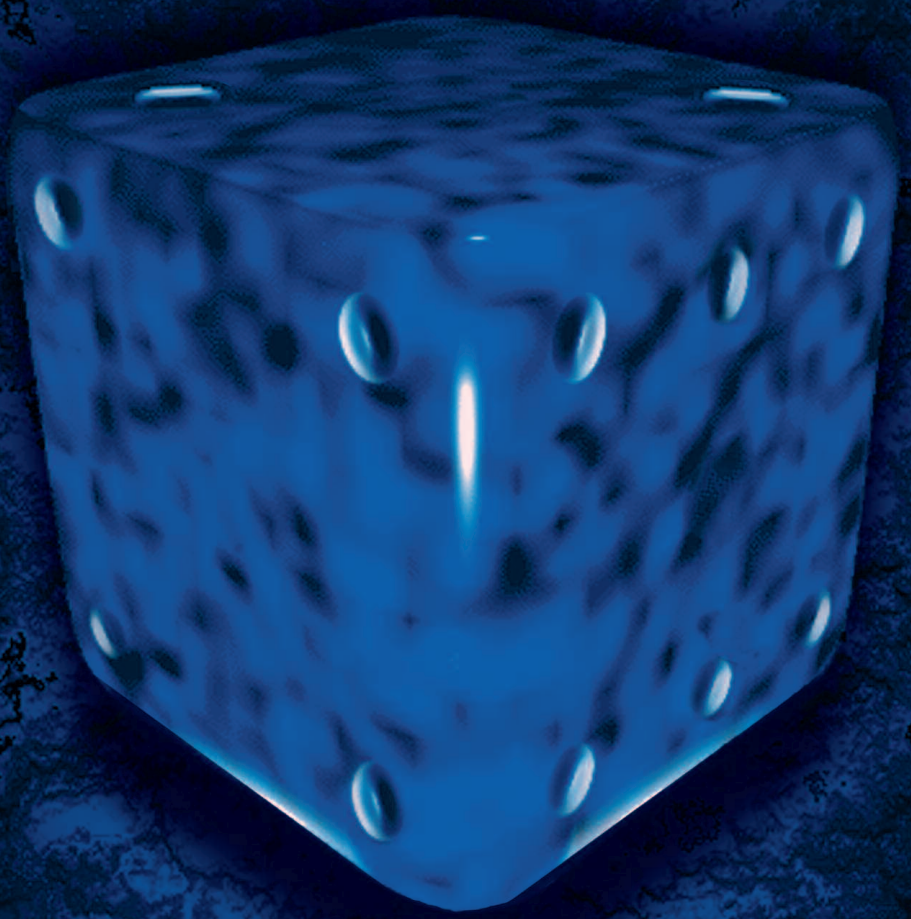
GURPS®

COMPENDIUM II

COMBAT AND CAMPAIGNS

A Digest of Advanced Rules for Combat and Injury, Hazards and Threats, Campaign Design and Equipment. A Rules Expansion for the Basic Set, Third Edition.



COMPILED BY SEAN PUNCH

STEVE JACKSON GAMES

GURPS COMPENDIUM II
STEVE JACKSON GAMES

GURPS®

COMPENDIUM II

CAMPAIGNS AND COMBAT

compiled by sean punch

Cover by Jeff Koke
Illustrated by Dan Smith
Additional Illustrations by C. Bradford Gorby

This book could not exist without the combined efforts of all those credited previously in other *GURPS* books, as well as the authors of numerous *Pyramid* and *Roleplayer* articles, virtually all of whom have – knowingly or otherwise – contributed to this book. The list is too long to include here, but you know who you are.

GURPS System Design by Steve Jackson
Scott Haring, Managing Editor
Page Layout, Typography, Interior and
Color Production by Jeff Koke and Bruce Popky
Production Assistance by Lillian Butler and S. John Ross
GURPS Errata Coordinator: Hunter Johnson
Print Buying by Monica Stephens
Art Direction by Bruce Popky
Matthew Grau, Sales Manager

Additional Original Material: Sean Barrett, Hunter Johnson, Walter Milliken and Brett Slocum

Playtesting and Useful Comments: The ***GURPS*** brain trust, including Tim Cain, James H. Cloos Jr., Jason R. Cubas, James R. Duncan, Jeff Gaines, Mikael Hansson, Jay Heyman, Hunter Johnson, Joseph L. Lockett, Elizabeth McCoy, Onno Meyer, Walter Milliken, Bill Oliver, Ismo Peltonen, David Pulver, Steffan O'Sullivan, S. John Ross, Juergen Rudolph, Bob Schroeck, Brett Slocum, Adam J. Thornton, Toni Vaisanen, the GURPSnet mailing list (for general discussion), Bill Letourneau, David Pulver, Phil Masters.

Other Invaluable Assistance: Lillian Butler, Hunter Johnson, Bill Letourneau, Elizabeth McCoy – Archangel of Scanning, Tracy Ratcliff and S. John Ross

ISBN 1-55634-327-2

2 3 4 5 6 7 8 9 10

STEVE JACKSON GAMES

CONTENTS

INTRODUCTION . . 4
About the Compiler 4
*About **GURPS*** 4

1. EQUIPMENT 5
Breakdowns and Maintenance 6
Slime, Sand and Equipment Failure 6
Strength 7
Ground Vehicle Breakdowns 7
Alien Devices, New Inventions, and Weird Gadgets 8
Alien Technology 8
Prices and Character Starting Wealth 8
Improvements at Higher Tech Levels 8
Advanced Technology 10
Weird Technology 11
Anachronistic Devices 11
Data Penetration (Computer Hacking) 11
Computers 12
Hardware 13
Power Cells 15
Software 16
Muscle-Powered Weapons 19
Use of Human Bodies 19
It Doesn't Have to be Steel 20
Options for Low-Tech Swords . . 22
Blade Quality and TL 24
Options for Ultra-Tech Swords . 25
Archery Gear 27
Firearms Accessories 31
Pre-Gunpowder Artillery 37
Ammunition for Firearms 37
Firearm Quality 39
Traps and Hazardous Barriers . 39
Armor 40
Equipment for Horses 41
Other Materials for Low-Tech Armor 42
Shields 43

2. COMBAT 47
How Combat Works 48
Detailed Combat Checklist 48
Understanding Sequences, Turns and Maneuvers 48
Hit Locations 52
Hit Location for Humanoids . . . 52
Hit Location for Animals 54
Cover Value of Some Common Materials 54
Dodging Explosions 54
Hit Location for Vehicles 55
Bullet Damage 55
Optional Realistic Combat Rules . . 56
All-Out Charge 56
All-Out Defense Option: Increased Defense 56
Animals in Combat 57
Bullet Knockback 58
Multiple Projectiles 58
Critical Hit/Miss Tables 59
Ranged combat – Special Situations 60
Blow-Through, Weapon Type and HT 62
Concentrated Defense: Protecting Your Vital Interests 62
Dodge and Drop 63
Knockback, Weapon Type and Weight 63
Explosives in Combat 64
Flinch, Buck Fever and Bullet Shyness 64
Firearms in Combat – Expanded Rules 66
Other Problems With Accurate Shooting 66
Reduced Hit Probability for Heavy Weapons 67
Aiming Successive Groups 67
Weapons without SS Numbers . . 67
Retreating Clarified 68
High-Skill Feinting 69
Grappling – Expanded Rules . . . 69
Invisibility and Darkness 70
Shield PD as Cover 70
Optional
Cinematic Combat Rules 71
Chambara Fighting 71
Multiple Actions for High Move 71
Initiative 71
Multiple Attacks 72
Multiple Attack Rules 72
Controlling Multiple Attacks . . . 72
Faster Combat 73
Flying Characters in Combat . . . 74
Only the Best Shall Win: An Optional Rule 74
Swashbuckling Maneuvers 74
Nonhuman Foes 75
Silly Combat Rules 76
Sweeping Counter Parry 79

3. OTHER COMBAT SYSTEMS 80
Ritualized Combat 81
Jousts and Competitions 81
The Fight's Over Already? Optional Rules for Pacing Combat 81
The One-Minute Jouster: Quick Tournament Rules 84
Duelling 85
The Gentleman's Code 85
Severity of Duels 85
The Particulars of the Duel 86
Weapons of the Duel 86
Showdowns and Shootouts 87
Showdowns 87
Draw! 87
Fire! 89
Very Basic Melee Combat: Really Simple Shortcuts for Really Quick Battles 89
Shootouts 90
Competition Fighting 92
Roleplaying Tournaments 92

ABSTRACT VEHICULAR COMBAT 94
Naval Combat System 94
Ships 94
Combat 94
Player Character Survival 98
Boarding 98
Space Combat System 100
Spacecraft 100
Combat Rounds 101

Detection and Engagement . . . 101
The Battle . . . 102
Ending the Round . . . 105
Player Character Survival . . . 105
Heroism and Caution . . . 106
Space Opera Combat System (SOCS) . . . 106
Ship Classes . . . 106
Craft Ratings . . . 107
Damage . . . 107
Inter-Ship Relationships . . . 108
Basic Combat . . . 108
Fighter Combat . . . 109
Cutter and Ship of Line Combat . . . 109
Advanced Combat . . . 110

4. MASS COMBAT . . . 112

Overview . . . 113
Mass Combat Turn Sequence . . . 113
The Armies . . . 113
Troop Strength . . . 114
Troop Type . . . 114
Troop Quality and Morale . . . 116
Building and Feeding an Army 116
The Battle . . . 117
Special Abilities . . . 117
Catastrophies . . . 117
Consequences to Player Characters . . . 118
Strategy Modifiers . . . 119
Resolving the Contest of Strategy . . . 121
Casualties . . . 122
Second Survival Roll . . . 122
Roleplaying Battle Scenes . . . 122
After the Battle . . . 122
Multiple Combatants . . . 123
Quick and Dirty Mass Combat . . . 123
Exceptional Powers in Battle . . . 123
Determining Exceptional Power Available . . . 123
Using Exceptional Powers on the Battlefield . . . 124
Examples . . . 125

5. HAZARDS AND HOSTILE ENVIRONMENTS . . 130

Acceleration . . . 131
Arctic Survival . . . 131
Acid . . . 132
Altitude . . . 132
Bends . . . 132
Arctic/Cold Weather Hazards . 133
Effects of Varying Gravity: Gunfire . . . 133
Effects of Varying Gravity: Climbing . . . 134
Collisions . . . 135
Effects of Varying Gravity: Falling . . . 135
Effects of Varying Gravity: Throwing . . . 135
Seasickness . . . 136
Space Sickness . . . 136
Different Atmospheres . . . 136
Poison . . . 137
Electricity . . . 138
Extreme Cold . . . 139
Extreme Heat . . . 140
Gravity . . . 140
Pressure . . . 144
Radiation . . . 145
Venom Types . . . 147
Vacuum . . . 149

6. INJURY, ILLNESS FATIGUE AND RECOVERY . . . 150

Optional Rules for Wounds and Healing . . . 151
Cinematic Effects of Injury . . . 151
More Optional Rules for Stun Points . . . 151
HT vs. Hit Points . . . 152
Radiation Treatment . . . 152
Ultra-Tech Medical Drugs . . . 153
I'm Not Dead Yet! An Optional Wound System . . . 154
Partial Injuries . . . 157
Medical Care – Medicine By TL . . . 158
Drinking and Intoxication . . . 162
Alcohol Rating . . . 162
Alcohol Content Table . . . 162
Addictive Drugs . . . 162
Tolerance . . . 163
Intoxication Table . . . 163
Special Modifiers . . . 165
Shyness & Cowardice . . . 165
Other Modifiers . . . 166
Determining Mood . . . 166
Sobering Up . . . 167
Hangovers . . . 167
Illness . . . 167
Herbs . . . 168
Use of Herbs . . . 168
Finding Herbs . . . 169
Preparing Herbs for Use . . . 169
Sample Herb Listing . . . 170
Try a Little Bit Harder: Expanded Rules for Extra Effort . . . 171
Running . . . 171
Jumping . . . 172
Lifting . . . 172
Throwing . . . 172
Generic Extra Effort . . . 172
Extra Effort in Active Defense 172
Sleep: Advanced Rules for Fatigue and Recovery . . . 173
Staying Up Late . . . 173
Getting Up Early . . . 174
Recovery . . . 174
Sleep-Related Advantages and Disadvantages . . . 174

7. CAMPAIGNING 175

Cinematic Roleplaying . . . 176
The Cinematic Formula . . . 176
Cinematic Playing Style . . . 176
Cinematic Campaigns . . . 177
Yoicks! And Away! . . . 177
High-Powered Campaigns . . . 178
What is a High-Powered Campaign? . . . 178
The Successful High-Powered Campaign . . . 178
Character Development . . . 179
High-Powered Characters in Action . . . 180
Alternate Planes of Existence . . . 180
Yes or No? . . . 180
One or Many? . . . 180
Types of Realities . . . 181
Relationships Between Multiple Planes . . . 182
Other Planes in ***GURPS*** . . . 183
Society . . . 184
Tech Levels . . . 184
Society and Government Types . . . 185
Society Control Ratings . . . 188
Cultural Familiarity – Advantages and Skills . . . 189

APPENDICES . . . 190

INDEX . . . 191

INTRODUCTION

About GURPS

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

Pyramid. Our bimonthly magazine includes new rules and articles for ***GURPS,*** as well as information on our other lines: ***Car Wars, Toon, Ogre Miniatures*** and more. It also covers top releases from other companies – ***Traveller, Call of Cthulhu, Shadowrun*** and many more.

New supplements and adventures. We're always working on new material, and we'll be happy to let you know what's available. A current catalog is available for an SASE.

Errata. Everyone makes mistakes, including us – but we do our best to fix our errors. Up-to-date errata sheets for all ***GURPS*** releases, including this book, are always available from SJ Games; be sure to include an SASE with your request.

Q&A. We do our best to answer any game question accompanied by an SASE.

Gamer input. We value your comments. We will consider them, not only for new products, but also when we update this book on later printings!

Illuminati Online. For those who have home computers, Illuminati Online supports SJ Games with discussion areas for many games, including ***GURPS***. Here's where we do a lot of our playtesting! It's up 24 hours per day at 512-448-8950, at up to 28.8K baud (28.8 users should dial directly to 512-448-8988) – or telnet to io.com. Give us a call! Visit us on the World Wide Web at http://www.io.com/sjgames/. We also have conferences on Compuserve, GEnie and America Online.

The GURPSnet. Most of the online discussion of ***GURPS*** takes place on an electronic mailing list. To join, send a message to Majordomo@io.com with "subscribe GURPSnet-L" in the body, or point your Web browser to http://www.io.com/~epopt/gurpsnet.html.

Page References

See ***Compendium I,*** p. 181, for a full list of abbreviations for all ***GURPS*** titles. Any page reference that begins with a B refers to ***GURPS Basic Set,*** *Third Edition Revised;* e.g., p. B144 refers to page 144 of the ***Basic Set.*** Those beginning with CI refer to ***Compendium I.***

GURPS Compendium II: Combat and Campaigns is our second *compendium.* It is a companion volume to ***Compendium I: Character Creation,*** and the two together are intended, in turn, as companions to the ***Basic Set.*** The three books combined encompass most of the rules of any consequence ever published for ***GURPS.***

For those of you who missed the introduction to ***GURPS Compendium I*** (why don't you have it yet?), it was originally our intention to publish a single book to cover all the advanced and optional rules that had appeared since 1986. However, over 14,000 pages of ***GURPS*** supplements and magazine articles – and some of our more vocal friends in the gaming world – forced us to reconsider. When we did, we realized that we needed two volumes. With the publication of this book, though, our long-standing promise to publish ***GURPS Compendium*** has *finally* been realized!

This book is a collection of rules and guidelines for equipment, combat, the hazards of adventuring and the challenges of campaign design. Just as in ***Compendium I,*** we have included material from ***GURPS*** supplements and *Pyramid* and *Roleplayer* articles, as well as a selection of popular "house rules" and a few essays and clarifications by various ***GURPS*** illuminati. The main purpose of this book is to serve as an "official" third volume to the ***Basic Set,*** *Third Edition Revised* (***Compendium I*** was the second volume). Things that appear in the two *compendia* will no longer be reprinted in worldbooks.

Unlike the first volume, ***Compendium II*** *does* include some genre-specific or world-specific material, including things such as the *Space Opera Combat System,* and rules and weapons for 16th- and 17th-century swashbuckling. The reason for this is twofold. First and foremost, people asked us for it. Second, a lot of this material was out of print (such as material from ***GURPS Japan*** and ***Swashbucklers,*** as well as back issues of *Roleplayer),* so this book gave us an opportunity to present some useful material that is no longer available in any other form. We hope you like it and find it useful!

Please note that many things in this book have been edited or altered from their original form: for clarity and brevity, to combine multiple sets of rules into a single rule that covers everything, or to correct errata. However, every effort has been made to retain the original intention and feel of the rules. In the case of discrepancies between this book and any earlier ruling, this book takes precedence.

– Sean M. Punch, July 1996

About the Compiler

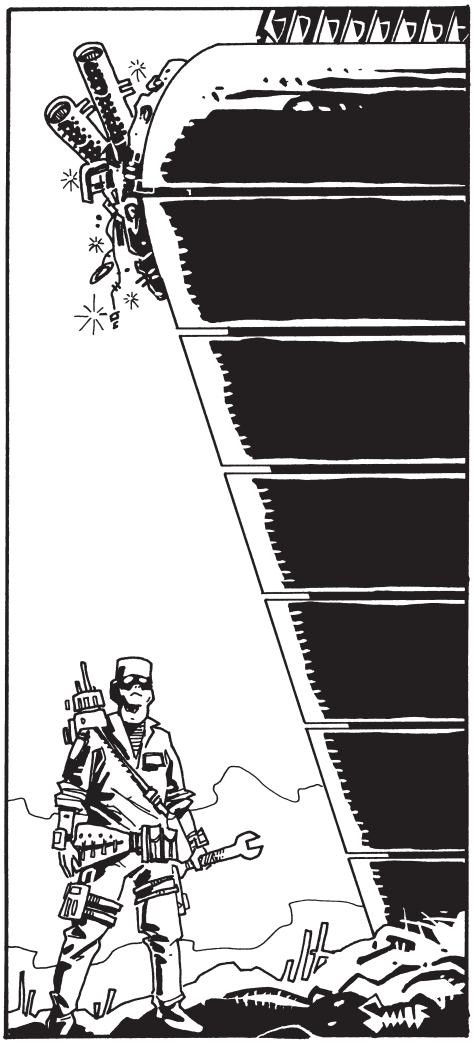
Sean Punch is the Line Editor and overall system "guru" for ***GURPS.*** Aside from editing, his job occasionally includes developing ***GURPS*** products. His past endeavours in this regard include co-authoring ***GURPS Fantasy Folk,*** *Second Edition* and developing a new edition of ***GURPS Martial Arts.*** He hopes to one day write a few ***GURPS*** books of his own, but first he needs to find the time.

Sean does *not* live in Austin, but "telecommutes" to SJ Games by Internet. Those who also use the Net may know him better as "Dr. Kromm." Before becoming an editor, he was a particle physicist, but he's better now. His present interests include tigers, military technology and being a cinemaphile. He has also been a fanatical gamer since 1979.

Sean and his wife, Bonnie (who is a nanny, and a gamer as well), presently live in Montréal, Canada with four cats and one parrot.

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.



Slime, Sand and Equipment Failure

During the course of an adventure, equipment often takes as much punishment as people. To reflect this in game terms, whenever mechanical equipment (guns, cameras, vehicles, etc.) is dropped in a swamp, exposed to a sandstorm, buried in volcanic ash or similarly abused, it has a chance of jamming or failing completely. Roll three dice for each piece of gear – a 6 or less indicates failure.

Equipment in an extreme environment (deserts, swamps, steaming jungle, etc.) should be rolled for once per day regardless of (and in addition to) rolls for mistreatment. The GM may wish to keep the rolls secret and let the malfunction be discovered during normal use. A +1 may be applied if the users are constantly cleaning and maintaining their gear, and a modifier of -1 to -3 may be used if the abuse is unusually brutal.

Repairing jammed or broken equipment requires a success roll of the GM's choosing (such as Photography to repair a movie camera, or Mechanic or Armoury of the appropriate specialization).

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, Electronics or Electronics Operation skill at 9 or better and a tool kit or workshop.

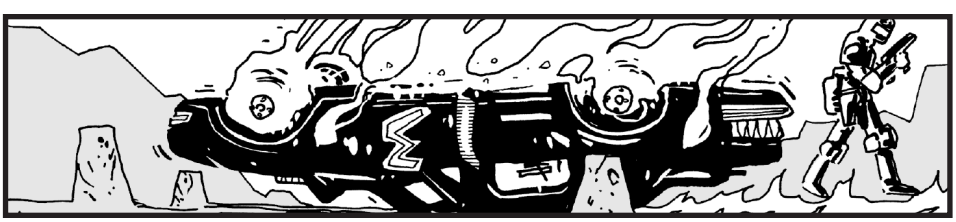
If a checkup is missed, roll against the skill of the character who made the *last* checkup (use the average skill, if multiple mechanics were involved). Apply a -4 modifier per additional checkup missed after the first.

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 1, 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 – You 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 misplaced, 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 someone stays conscious and gets you medical aid quickly!

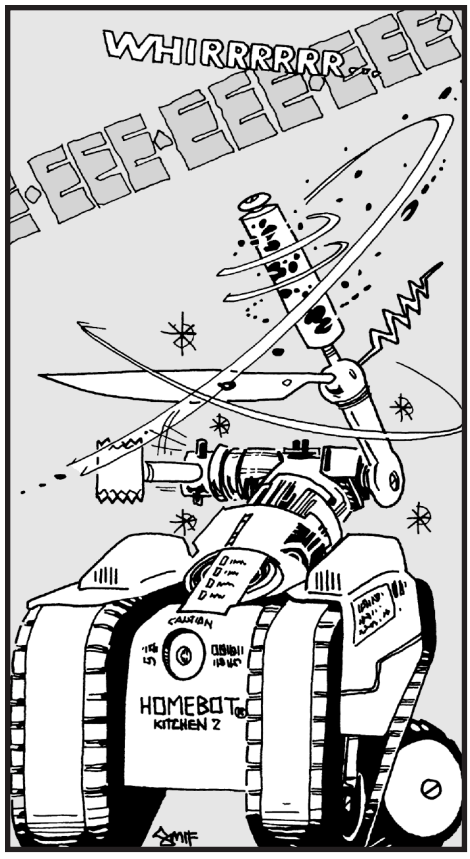
Making Repairs

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 × 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 × 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.



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 TL 5 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 malfunction 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.

Prices and Character Starting Wealth

The prices of equipment in ***GURPS*** are given in "dollars" ("$"), which are assumed to be a unit of currency suitable to the campaign – see pp. B16, B71. One "$" may be a silver piece, dollar, galactic credit, Fnordian cockle shell, etc. Whatever the units, the following values for starting wealth are assumed:

TL4- Earth, most fantasy settings: $1,000
TL5 Earth: $750
TL6 Earth: $750 at 1900-1930, $1,000 at 1931-1940 and $3,000 at 1941-1950
TL7 Earth: $5,000 at 1951-1960, $7,500 at 1961-1970, $10,000 at 1971-1980 and $15,000 after 1980
TL8+, cyberpunk settings: $10,000
TL8+, most other settings: $15,000

When a cost is listed for a piece of equipment, it is usually the cost paid at the TL where the device is first introduced; the exceptions are the equipment lists in the various worldbooks, which generally give the cost in that setting – which, for various world-specific reasons, may have nothing to do with TL or inflation (see below). Where costs are not listed, assume that price is generally reduced at higher TLs, as per *Improvements at Higher TLs,* below.

Inflation: At least on Earth, the value of a unit of currency tends to decrease with time, for a variety of reasons. To reflect this, the GM may also wish to apply an inflation multiplier to prices. This multiplier is equal to (starting wealth of campaign/starting wealth when device was first introduced).

Improvements at Higher TLs

The TL listed for equipment is generally the TL at which it was first introduced. *Any* technology from lower TLs might be available at higher TLs. Its price varies with the game world. Old devices might be junk; they might be rare and valuable antiques. The creator of the universe, or the GM, decides. In general:

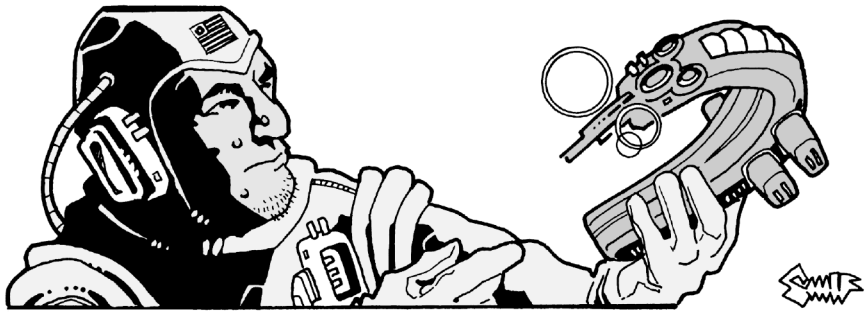
One TL after it first appears, any item of equipment, including drugs, computer programs and services like cloning or bionic operations, costs half as much. Two TLs after introduction, prices are 1/4 the original cost. There is no further reduction in price unless specified for a particular device.

For some equipment, there are additional modifications:

Continued on next page . . .

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 the device is indestructible, it vaporizes everything within 10 yards instead, and is later 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 general nature of all secondary device controls is deduced, and these functions can be used at a skill penalty of -4.

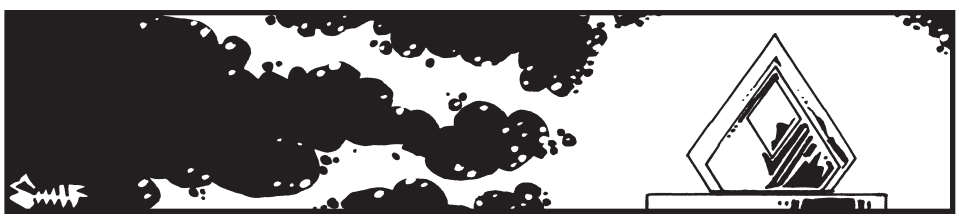
18 – The PC figures out how to operate the major controls and can use the main function of the device at no skill penalty.

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 first appears.

Example: A 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 TL 10 it does 12d+12 damage. In addition, its 1/2D and Max ranges improve by 10% to 330 and 880.

Improvement Limits: Unlike number 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 gain 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 1d-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 burns out in a shower of sparks and inflicts 1d burn 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 – 1d-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 1d 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 the 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. B159 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 lbs., would cost $40,000 and weigh 112.5 lbs. 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), or 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.

Continued on next page . . .

Data Penetration (Computer Hacking) (Continued)

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.

Continued on next page . . .

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 *two* 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.

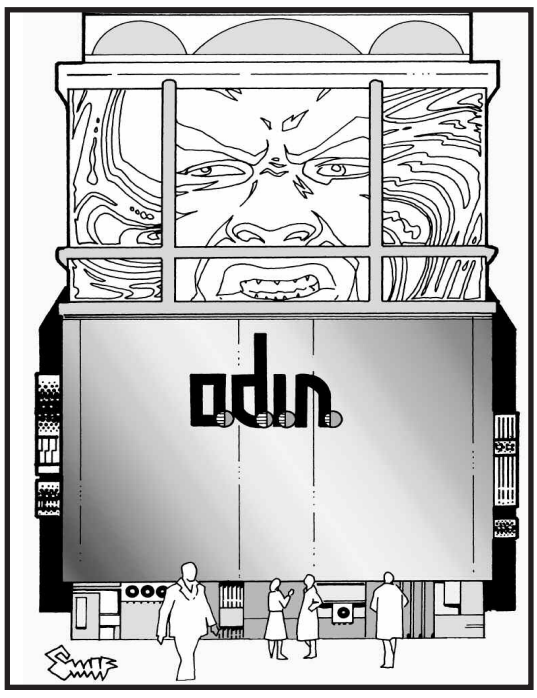
Complexity 2 computers can give simple spoken replies; Complexity 4+ systems can understand idiomatic conversation and reply in kind (within the machine's realm of expertise); users may give any instructions to computers they control (if they have the appropriate programs). The GM has the ultimate decision 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 × Complexity at TL8+, 10 gigs × 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 information 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.

Continued on next page . . .

Data Penetration (Computer Hacking) (Continued)

Intrusion & Security Programs

These specialized programs are used to 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 computer, 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 programming 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 "megacomputer" 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	×5	×2	-2**
Built at TL6	×2	×1.5	-2**
Built at TL7 or TL8	×1	×1	–
Built at TL9	×1/2	×1/2	–
Built at TL10+	×1/4	×1/4	–
Options			
Compact	×1/2	×2	–
Dedicated	×1/2	×1/5	–
Dumb	×1	×1/5*	-1
Genius	×1	×7*	+1
Hardened	×3	×5	–
High-Capacity	×1	×1.5	–
Neural-Net	×1	×2	–
Robot Brain	×1	×1	–
Sentient	×1	×3	–

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 small 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.

Continued on next page . . .

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 operate, 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.

Continued on next page . . .

terminal table

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.

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 protected memory (1,000 gigs) costs $10,000, weighs 500 lbs., 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 hundred sheets of paper or printing plastic weigh 1/2 pound and cost $1.

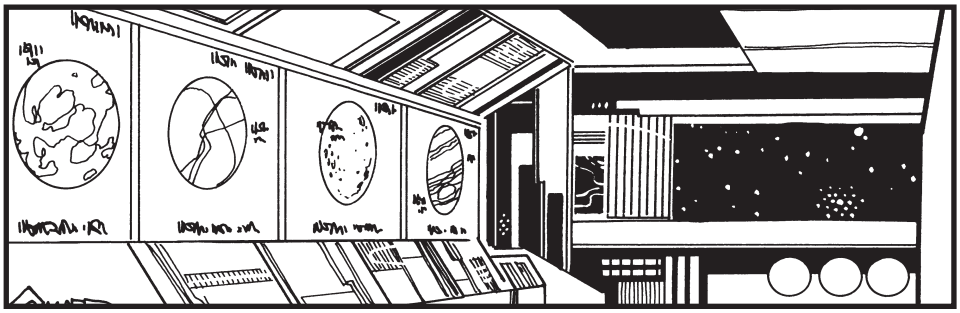
Text Scanner (TL7): This is a light-sensitive plate which can read a document or picture (10" x 15" or smaller) into a computer's memory, either as a graphic image or text. Cost is $40 and weight is two pounds at TL8.

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 purchased, 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, UltraTech*** 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 time 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 through a futuristic power grid. They are otherwise identical to normal power cells (p. 15).

Continued on next page . . .

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.

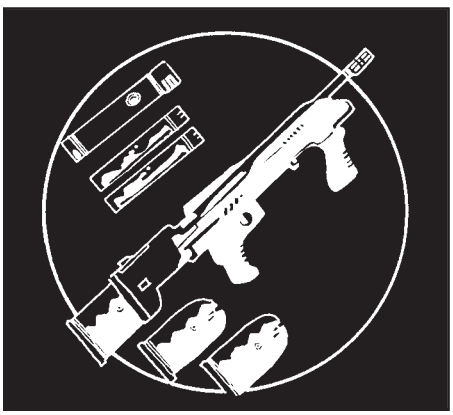
To design an energy bank, decide on the type and number of batteries or power cells that make it up, then add up the stored kWs of power, weight and cost as shown below.

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)×180
rB cell	8	0.05	$30	(TL-6)×90
C cell	8	0.5	$100	(TL-6)×1,800
rC cell	8	0.5	$100	(TL-6)×900
D cell	8	5	$500	(TL-6)×18,000
rD cell	8	5	$500	(TL-6)×9,000
E cell	8	20	$2,000	(TL-6)×180,000
rE cell	8	20	$2,000	(TL-6)×90,000

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

Continued on next page . . .



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.

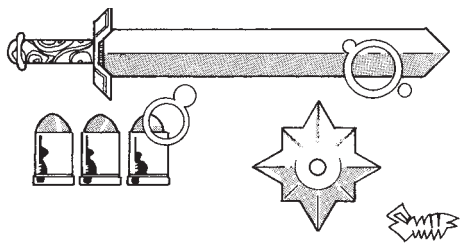
Interpreter: This program translates from any language to any other language, as long as appropriate databases are on line. Nonverbal languages can be handled if appropriate sensors and "speakers" are available; costs vary widely. Typical language skill is 14, although this depends on the database. Complexity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

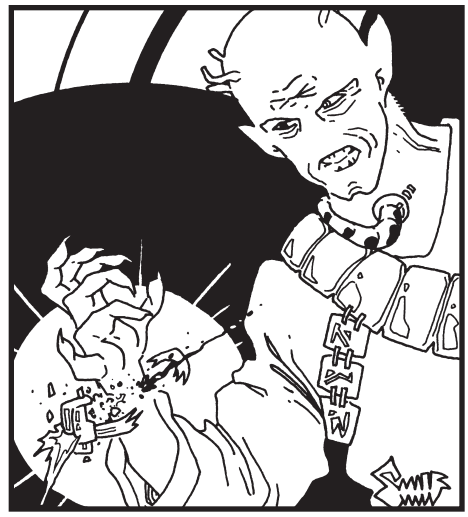
Kama (TL3): A long-handled, Japanese sickle. When the sickle-blade is attached to a chain, it creates the *kusari-gama* (see p. 28).

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

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

Tessen (Iron Fan) (TL3): A Japanese "combat fan" – a concealable weapon made of iron.

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.



Power Cells (Continued)

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.

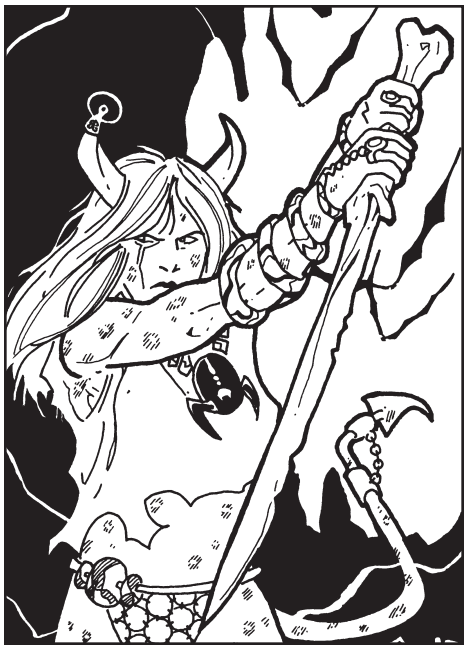
As well:

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.



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+.

Continued on next page . . .

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.*
Tessen	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 back 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.

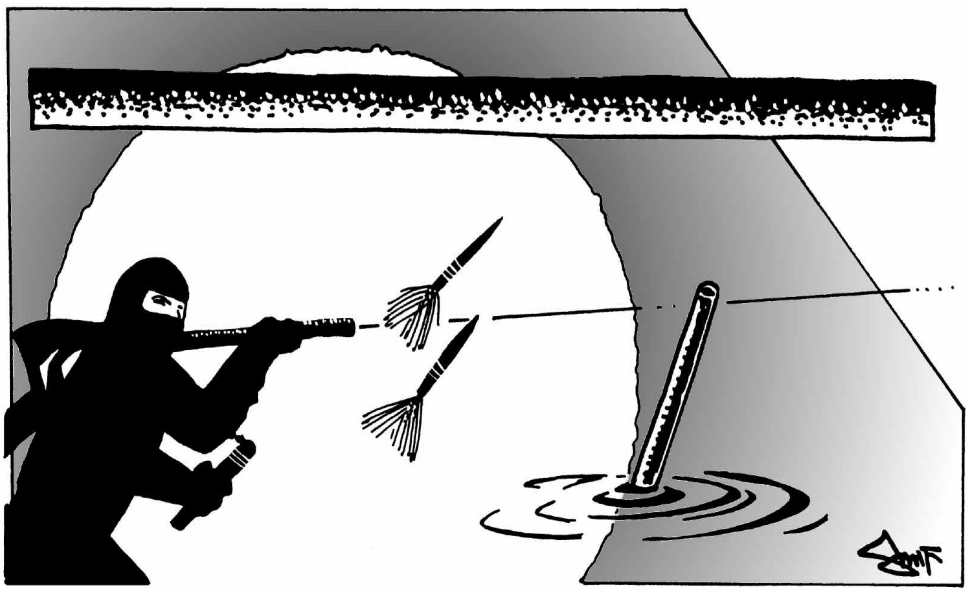
Tomahawk (TL1): See the entry under *Axe/Mace,* above. The tomahawk can also be thrown.

Weapon	*Type*	*Damage*	*Ranges*				*Cost*	*Weight*	*Min ST*
			SS	*Acc*	*1/2D*	*Max*			
Mace	cr	sw+3	12	1	ST/2	ST	$50	5	12
Small Mace	cr	sw+2	11	1	ST	ST×1.5	$35	3	11
Tomahawk (metal)	cut	sw+1	10	2	ST×1.5	ST×2.5	$45	2.5	8
Tomahawk (stone)	cr	sw+1	11	1	ST	ST×1.5	$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 ST*
			SS	*Acc*	*1/2D*	*Max*			
Fukiya	Special	See p. B49	10	1	–	ST/2	$30	1	none



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.

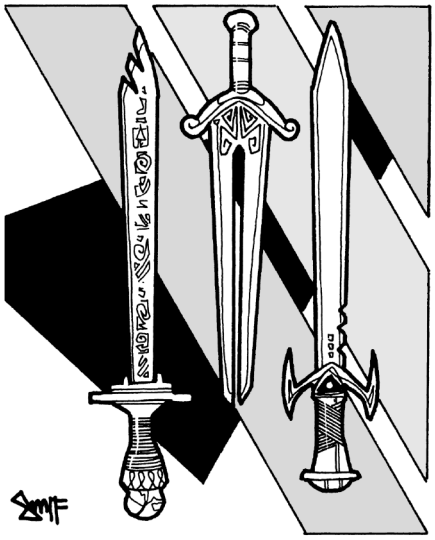
Pure silver weapons do full damage against creatures that are affected *only* by silver; coated or edged weapons do -1 damage per die. Either will do double damage to a were-creature. Against targets that can be damaged by normal weapons, silver weapons and silver-coated weapons do their regular damage.

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 than normal. They do no extra damage and have a 1-in-3 chance of breaking when used to 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 to parry a heavy weapon of superior metallurgy (iron or steel). In a bronze-using culture, iron weapons can only be had for *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 to 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.



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 pocketknife. 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; shortswords 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.

Continued on next page . . .

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 the 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 sort 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. 23)
	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+1	1	$500	2.75	10	Can also be used with Fencing skill.
	imp	thr+1	1, 2				

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	Damage	Ranges				Cost*	Weight	Min ST	Special Notes
			SS	Acc	1/2D	Max				
Chu-Ko-Nu	imp	thr+2	10	4	ST×15	ST×20	$500/$2	10	9	2 hands to fire.
Composite Crossbow	imp	thr+5	12	4	ST×25	ST×30	$950/$2	7	7	Max. dam. 3d+2. 2 hands to fire.
Pistol Crossbow	imp	thr+2	10	3	ST×15	ST×20	$150/$2	4	7	

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

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

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. B112).

Weapon	Type	Damage	Reach	Cost	Weight	Min ST	Special Notes
Combat Fan	cut	thr-2	C	$40	1	none	Max. damage 1d-1. 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				

Options for Low-Tech Swords (Continued)

Basket Hilt (TL4)

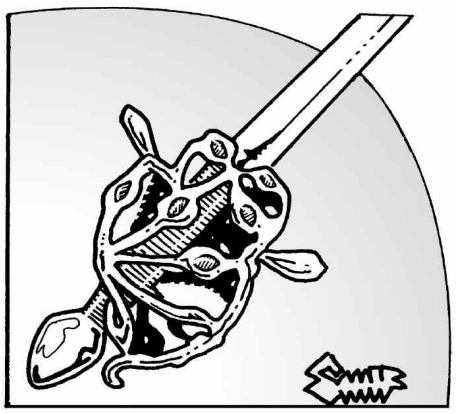
A basket hilt is a metal guard on the hilt of a sword, wrapping around the swordsman's hand. It is intended to protect the hand from blows, and can itself be used as a weapon. They can be used on any weapon, including two-handed weapons (note that very few Asian weapons used basket hilts).

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 hand, not when it is sheathed. DR only applies to the covered hand. A basket hilt costs the same, no matter what the quality of 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 hilt 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.

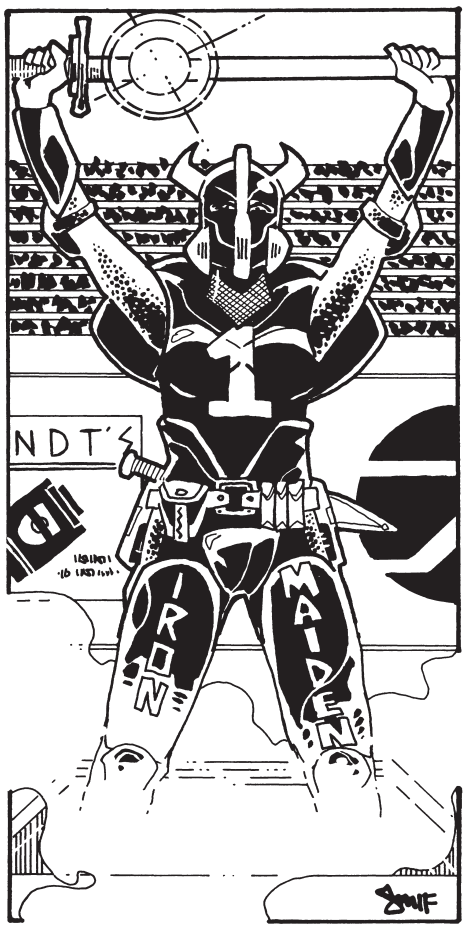


Blade Quality and TL

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 likewise 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 1-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 (TL3): 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*	*Min ST*	*Special Notes*
Grain Flail**	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).

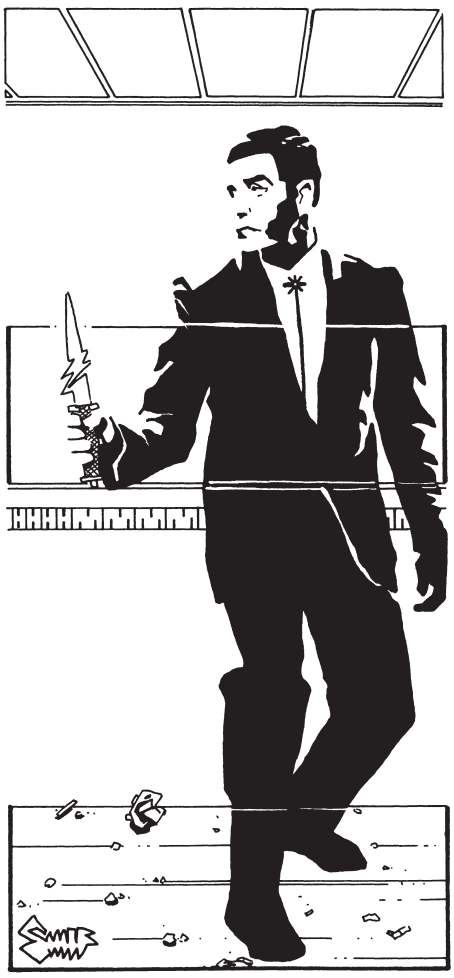
Weapon	*Type*	*Damage*	*Reach*	*Cost*	*Weight*	*Min ST*	*Special Notes*
Rope	cr	thr	C*	$1	2 oz.	none	Damage only if wrapped around neck.
Wire	cut	thr	C*	$5	1 oz.	none	See p. CI134.

*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	ST×1.5	$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 its 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 a 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 larger cutting weapons, including two-handed swords. Weapon quality modifiers are applied to the *final* cost. Monowire weapons cannot also be vibroblades.

Continued on next page . . .

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 armor (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 skill 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 *jo* 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/+2	1,2	$40	5	11	Wooden training sword.
	cr	thr+1	1				
Gum	cut	sw+1/+2	1,2	$650	5	11	Usually of Fine quality;
	imp	thr+1	1				add +1 to listed damage.
Katana	cut	sw+1/+2	1,2	$650	5	11	Usually of Fine quality;
	imp	thr+1	1				add +1 to listed damage.
scabbarded	cr	sw+1/+2	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 the GM's discretion, represent a broken bowstring if it was not changed recently). Each string costs $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 tip affects performance. The best material is metal (see *It 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.

Continued on next page . . .

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:* An 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 ST×5, 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.

Continued on next page . . .

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).

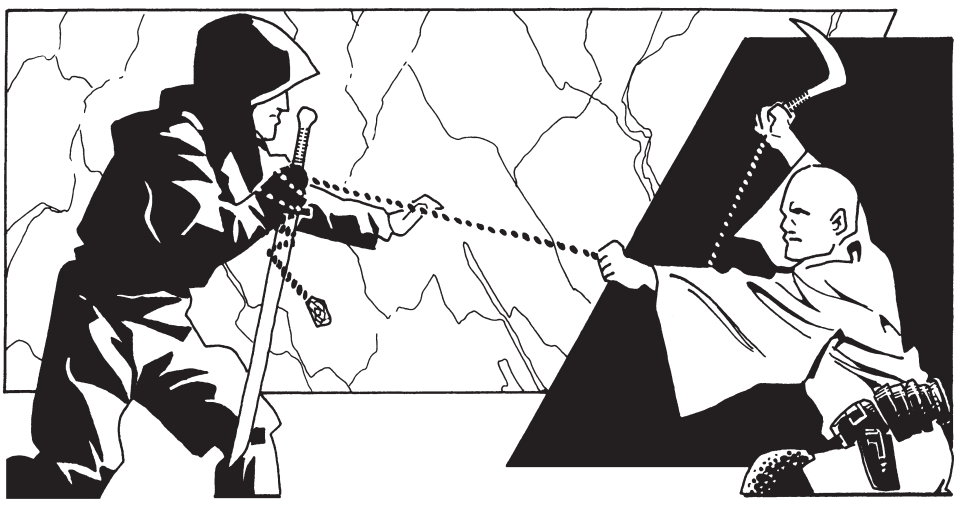
Kusari-gama (TL3): A chain with a sickle blade attached to one end. Real evidence that this weapon was ever used is sketchy; at the GM's option, its use can be restricted to cinematic ninja.

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. CI134	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*
MonowireWhip	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 stats 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)

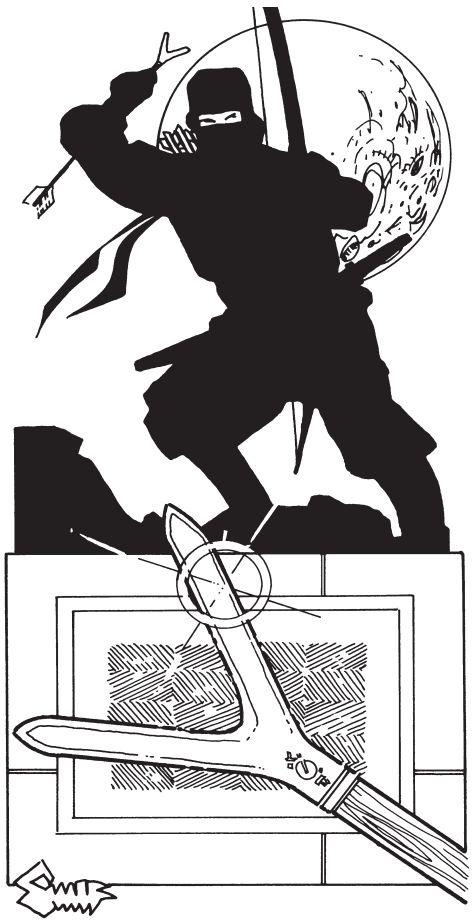
Flaming Arrow (TL1): Flaming arrows are made by wrapping oil- or fat-soaked cloth or grasses around the shaft just behind the arrowhead. They are -2 to skill. A flaming arrow does ordinary damage plus 1 point for the flame. The chance of the flame spreading depends on what the arrow strikes (see pp. B129-130).

Frog-Crotch (TL3): Used to demonstrate the precision of the archer's aim. Its head is a U-shaped cutting blade, suitable for slicing through rope. It can cut down a banner, the lacings on armor, etc. Ropes are *always* very hard targets – at least -6. 1/2D and Max ranges are reduced by ST×5. Maximum damage to a human target is 1d-3 *cutting.*

Humming Bulb or *Turnip-Head* (TL3): This arrowhead makes a humming noise as it flies, useful for signaling and for demoralizing enemies. Accuracy is reduced by 1 and both 1/2D and Max ranges are reduced by ST×5. Maximum damage is 1d-3 *crushing.*

Willow-Leaf (TL3): A double-edged arrow with a broad cutting head. It's only effect is to change the damage done by the bow from *impaling* to *cutting.* Otherwise, it functions normally.

Continued on next page . . .



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*	$150	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*	$100	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*	$120	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*	$100	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	$100	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 versa.

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 modern 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 (TL1): See the description under *Short Staff,* above.

Gladius (TL2): 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	

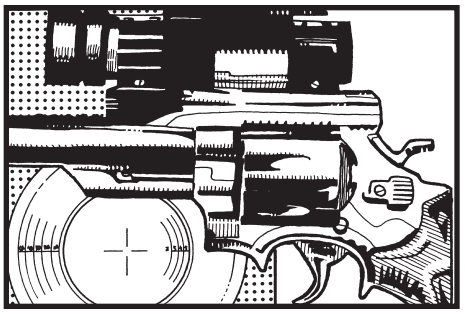
SHURIKEN (DX-6 or Throwing-2); p. CI135

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 time 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.

Night Sights

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.

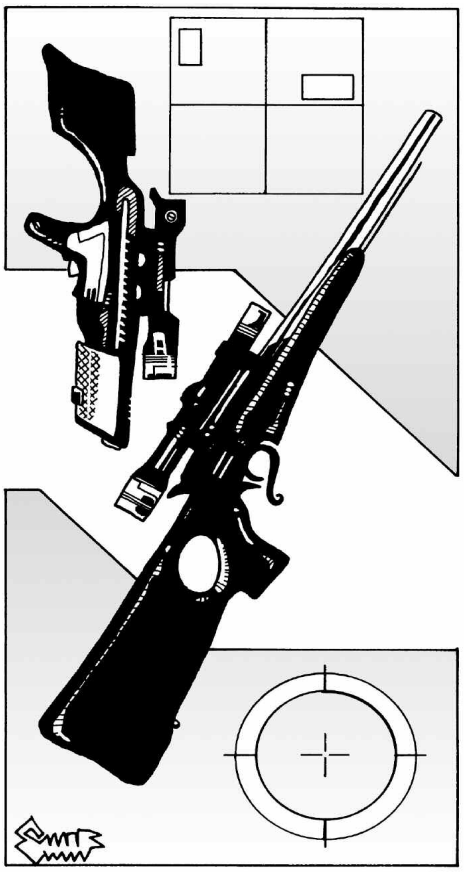
There are several ways to improve sight performance in reduced light. The simplest is to make the sights more visible. This can be as simple as tying a white handkerchief around the muzzle or as complex as battery-powered lights mounted in the front blade. Improved visibility sights cancel 1 to 3 points 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 for 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).

Continued on next page . . .



Firearms Accessories (Continued)

Scopes

Scopes are rated by *power of magnification.* A 4× scope increases the apparent size of the target by four, a 6× 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 6× magnification, be four feet long, weigh four pounds and cost $100. Variations are enormous; each scope was a custom job.

Continued on next page . . .

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 assassin's weapon (+5 to Holdout, even at TL10). $400, 0.5 lb.

Weapon	*Type*	*Damage*	*Ranges*				*Cost*	*Weight*	*Min ST*	*Special Notes*
			SS	*Acc*	*1/2D*	*Max*				
Shuriken or Piau	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***.

Butt-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 impaling (thrust+2 if used two-handed) 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 infantryman'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 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*	*Min ST*	*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 Fork	imp	thr+1	1	$80	5	10	Used 1-handed (up to 3 attacks).
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 30×, for target shooting and long-range hunting.

By TL7, a cheap 3× or 4× scope might cost only $80-$100 from a mail-order company, a 3-9× variable scope might cost $150; weight is typically less than a pound. Night-sight versions are available for $250 more.

Scopes are more fragile than the guns that mount them. Military rifles almost invariably and hunting rifles usually have an auxiliary set of iron sights in case the 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; it 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 2d day intervals.

14+ – The scope is so damaged that it will no longer work as a sight and cannot 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 fps; military rifles from 2,500 to 3,500; powder gases of over 4,500.) A silencer works by confining and slowing one or both of these 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 under circumstances where it is obvious the shot would be heard.

Continued on next page . . .

Firearms Accessories (Continued)

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 improvisation.

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.

Continued on p. 36 . . .

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). Darts 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, yari* 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 the damage needed to penetrate the shield, it has become embedded there. The *pilum* usually bent after penetrating the 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.

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

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

Weapon	*Type*	*Damage*	*Ranges*				*Cost*	*Weight*	*Min ST*	*Special Notes*
			SS	*Acc*	*1/2D*	*Max*				
Dart	imp	thr-1	9	3	ST×2	ST×3	$30	1	7	Usually launched from 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 1d 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*	*Reach*	*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-handed.
	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 above	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*	*Min ST*
			SS	*Acc*	*1/2D*	*Max*			
Boomerang	cr	sw+1	11	2	ST×6	ST×10	$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*	*Min ST*	*Special Notes*
Tonfa	cr	sw+1	1	$40	2	7	Parry is 2/3 Tonfa skill.
	cr	thr+1	C,1				

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

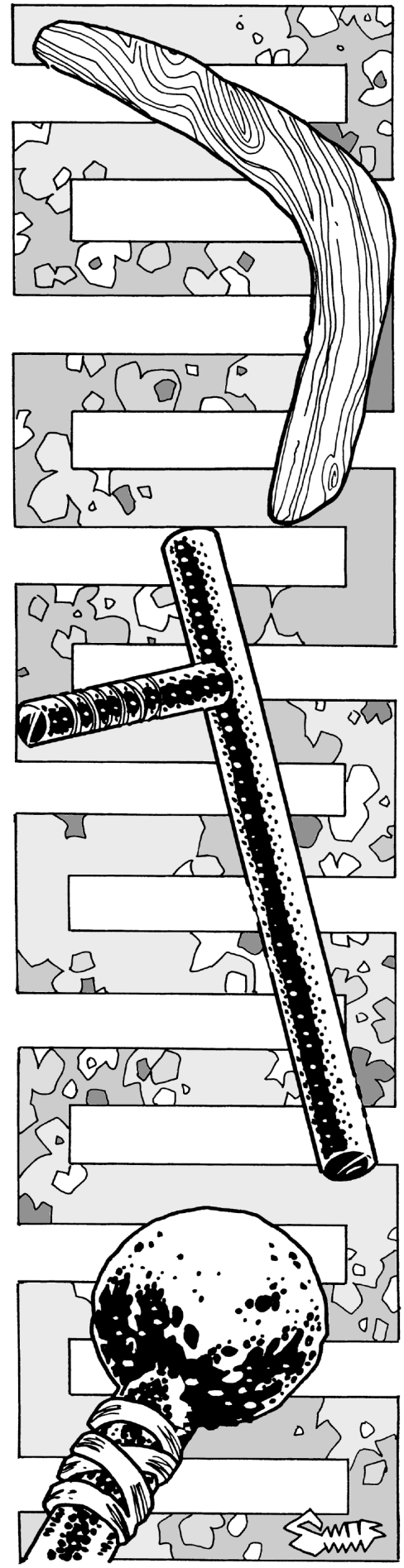
All of these weapons require two hands.

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	1,2	$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.

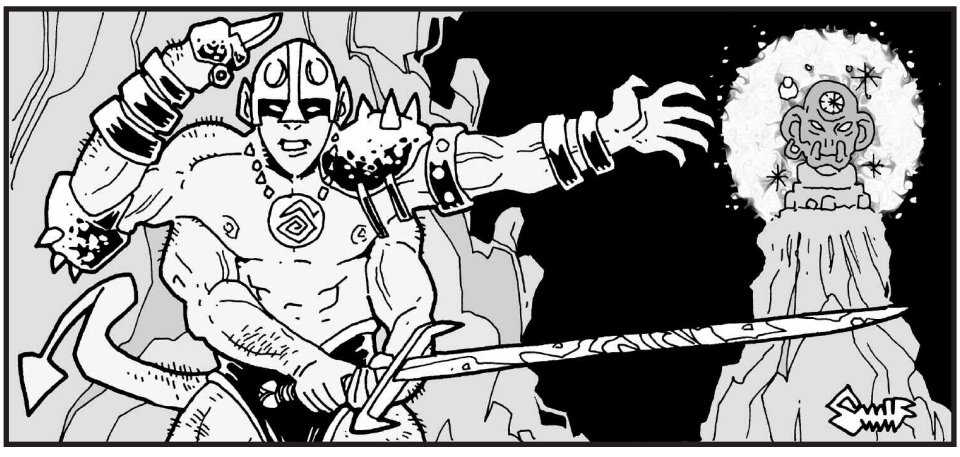
WHIP (No default); p. B52

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*	*Min. ST*	*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 stats: 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.

Ammunition for Firearms

Metallic Cartridge Ammunition Weight

Weight for metallic cartridges is in number of rounds to the pound of a complete cartridge (case, propellant, primer and bullet) of the most common type, rounded down to a whole number, unless otherwise noted. In reality there is some variation from different weights of bullet and propellant, but the variation is small. This *does not* allow for the "tare weight" of packing (boxes, cartons, cases, cans, bandoleers, etc.) or for the weight of belts, links, clips or magazines.

Empty Magazine Weight: Many reference sources give the actual weights of empty magazines, which can vary depending on capacity and materials. Lacking this information, these figures are usually close enough:

SMG and Rifle Magazines weigh 0.5 lb.

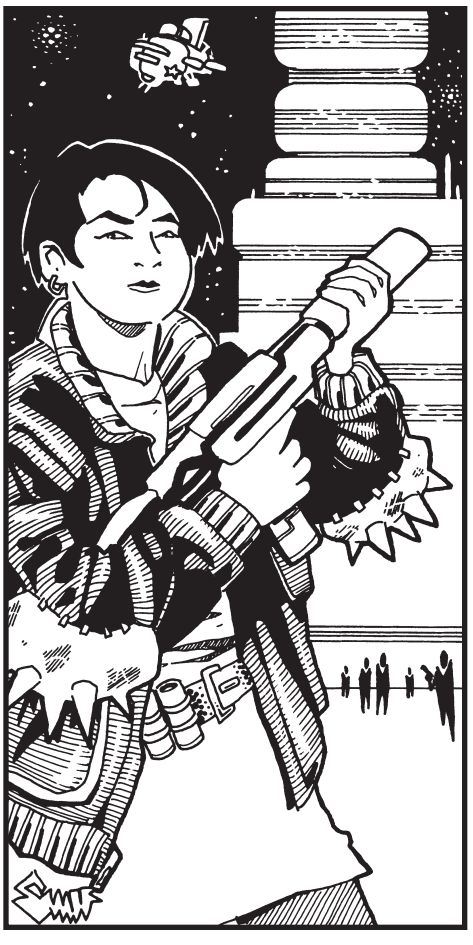
Handgun Magazines weigh 0.25 lb. (*Note:* Typical cost is $20.)

Clips (Mauser or Mannlicher) are 100 to the pound.

Machine Gun Belts are 1 pound per 250 rounds for rifle-calibers and 1 pound per 100 rounds for heavy machine guns.

Links for Disintegrating Belts are 200 per pound.

Continued on next page . . .



Ammunition for Firearms (Continued)

Metallic Cartridge Weight Table

Cartridge	*Rounds/lb.*
.32 ACP	.57
.380 ACP	.47
9×19mm Parabellum	.43
5.56×45mm	.38
.44 Henry	.23
.44-40 WCF	.21
.45 ACP	.21
.455 Webley	.20
7.62×51mm NATO	.18
.303 British	.18
7.62×54mmR	.17
7.92×57mm Mauser	.17
.30-06	.17
8mm Lebel	.16
.45-70	.10
.44-90	.9
.50-90	.9
.600 Nitro Express	.5
.50 BMG	.3
12.7×108mm Russian	.3

Shotgun Shells

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

Rifled Slugs

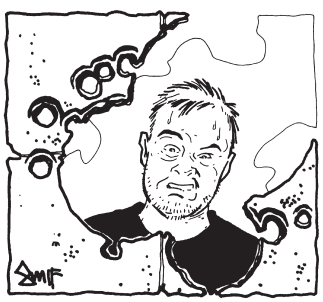
Rifled slugs are a TL6 development to increase the range and power of shotguns while retaining the option of shot loads.

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 – an inexplicable exception to the gauge system of measurement.)

Gyroc Rounds

Gyroc rounds typically weigh 3 lbs. per 20 shells.



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 × 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 the 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 × 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, and then the hit points, 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.

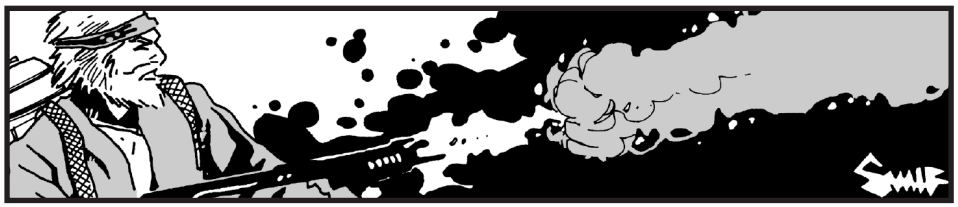
Firing a catapult requires a roll against Gunner (Catapult); this does not default to any higher-tech Gunner skill! A success indicates the missile was placed within 10 hexes of the intended target, with a critical success indicating a direct hit. A failure means the shot was way off, and a critical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

Damage is 6d × 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 1d-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.

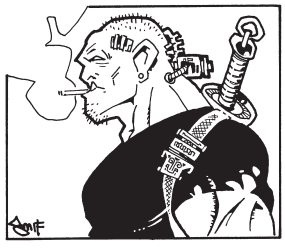
Greek Fire (TL3)

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 becomes "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 the *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.

Continued on next page . . .

Traps and Hazardous Barriers (Continued)

Concertina Wire

Concertina wire is coiled barbed wire. Its coil shape allows it to be compressed tightly for easy transport, or stretched out to defend an area against intruders. A single strand of concertina wire stretches up to 15 hexes and stands 3 to 4 feet tall, depending on how far the strand is extended. Concertina wire is free-standing, and can be easily curved to form an enclosure or defend an odd-shaped area. The strand is usually held in place by wiring it to tent stakes driven into the ground. A pair of heavy, quilted gloves with palms and fingers protected by steel rivets are required to deploy concertina wire. The gloves cost $50 and weigh 2 lbs. per pair.

It takes one man-minute per hex to deploy concertina wire. If protective gloves are not available, it takes five man-minutes per hex to deploy the wire, and each person working on the wire will take 1d-3 points of damage per strand deployed. To secure an area, concertina wire is usually deployed in a triple strand – two adjacent strands on the ground, and a third on top of them.

A single strand can be walked through safely, if minimal care is taken (make a successful unmodified DX roll), but it is difficult and dangerous to cross a triple strand. If anyone tries to crawl through the wire, the GM should roll 1d per strand being crossed, and require him to make that many rolls vs. DX-5 to get through (Double-Jointed characters roll vs. DX-2; the GM should apply additional penalties if the character is wearing bulky clothes or trying to hurry). Each roll represents 1 second of progress through the wire. If he fails by less than 3, he's caught in the wire for 1d seconds. If he fails the roll by 3 or more, he takes 1d-2 crushing. If he fails by 5 or more, he takes 1d-2 crushing, and is caught for 1d seconds. On a critical failure he's caught, and the damage taken is cutting. If he's trying to get through the wire silently, and he takes damage, he must make a Will roll or make some sort of audible sound, unless he has the High Pain Threshold advantage.

If the character has a lot of time, he can roll 1d per strand being crossed, and make each roll represent 1 *minute* of crossing time – in such cases, the rolls are against unmodified DX. The easiest way to cross concertina wire is to simply lay something on top of it – a log, a sheet of metal or thick plastic, a body – and climb over atop that object.

Continued on next page . . .

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-tight 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

Traps and Hazardous Barriers (Continued)

Due to its flexibility, concertina wire has no PD or DR, but it can be cut by any pair of professional-quality wire cutters, snapped by an application of ST 120 or more, or crushed by any object heavier than 1,000 lbs. Concertina wire provides no PD or DR against missile fire or area-effect weapons, but there is a -1 per strand to any to-hit roll for someone firing through concertina wire from more than 5 hexes away, due to the obscuring effect of the wire on vision.

A coil of concertina wire weighs 30 lbs. and costs $100.

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 uncomfortable 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, DR 4 (PD1, DR 2 vs. impaling weapons), weighs 70 lbs, costs $600.

Scale. A semi-flexible armor made from boiled leather and strips of metal or 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 the vitals are covered by plate, giving PD 4, DR 6 to those areas only. Costs $1,400, 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 (TL1): 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%. At TL 2, the protection of leather armor can be increased to PD 3, DR 3 for +30% to cost and weight.

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 (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.

Continued on next page . . .

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 1, 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 (TL1; Greek): A skirt of metal plates or hard leather strips 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 1, 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. 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). $60, 4 lbs.

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 1, 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. PD 4, 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.

Continued on next page . . .

Shields (Continued)

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.

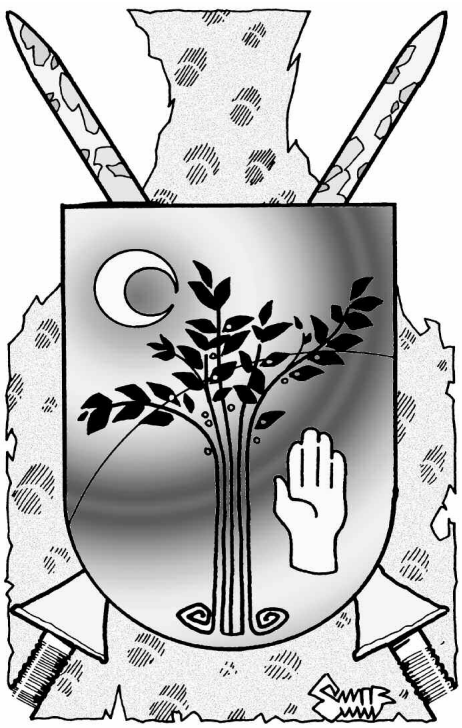
According to Spanish chroniclers, some shields were so strong that they protected the user from arrows. Crossbow bolts could pierce them, however. A chimalli provides PD 2; treat as a small shield.

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.

Continued on next page . . .



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 40, 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)

Saxon (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 fitted 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 it 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 specialized 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 or pointed shield-bosses to enhance a bash or rush. Like horned helmets, this is a myth.

Continued on next page . . .

Shields (Continued)

Advanced Blocking & Breakage Rules (Optional)

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 1d; 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, the attack hits the arm; DR protects normally. $105, 7 lbs.

Hands and Feet

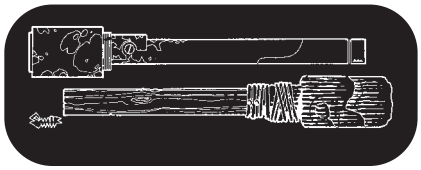
Fur Boots (TL0): These are not heavy soled footwear, but strips of hide wrapped around the feet and ankles and held on by leather thongs. The wrappings protect the feet (15-16) with DR 1, but they wear out *very* quickly. Boots weigh 2 lbs. Cost is negotiable – free, if the character traps the animal 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 the 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.



2 COMBAT

This chapter contains both clarifications and new rules for the advanced combat system. Most of the rules in this chapter should be regarded as *optional* – while they may be more realistic, or more *fun,* they will add additional complications to combat that not all GMs will wish to deal with. For rules that deal exclusively with weapons and armor, see Chapter 1. Rules for duelling and tournaments can be found in Chapter 3. Mass combat is in Chapter 4, and the advanced injury rules can be found in Chapter 6.

Understanding Sequences, Turns and Maneuvers

As stated on p. B95, characters take their *turns* in succession, following the combat *sequence.* A character's turn starts when he chooses a *maneuver* and ends when he chooses his next maneuver. For the sake of convenience, a turn is taken to be 1 second of real time. So what does that really mean?

Sequences

The *sequence* is nothing more than a list of all the characters involved in the combat, arranged in the order that they will act. When combat begins, the GM calls upon the players to take their turns (or determines what the NPCs do) in the order given by this list, reading from top to bottom. Once the last character on the list has acted, the GM moves back to the top of the list and starts over again. Thus, the sequence is cyclical, and each character gets exactly one turn on each run through the sequence.

The easy way to determine the sequence involves rolling dice for the privilege of going first (see *The Easy Way,* sidebar, p. B95). The more realistic method – and the one that is more commonly misunderstood – involves having the characters act in order of decreasing Move.

For the sake of the combat sequence, your Move is equal to your Basic Speed (p. B14), minus any movement penalty for your encumbrance level (p. B76), dropping all fractions. The Running skill (p. B48), or advantages such as Enhanced Move (p. CI54) and Super Running (p. CI68), do *not* affect your Move for this purpose; Increased Speed (p. CI26) *does.* The character with the highest Move goes first, then the character with the next-highest Move, and so on. If multiple characters have the same Move, they act in order of decreasing Basic Speed. If two characters have the same Move *and* Basic Speed, they each roll a die and the character that rolls highest acts first.

Example: Four characters have the following scores:

Dave	Move 5, Basic Speed 6.25
Bill	Move 5, Basic Speed 6.50
Al	Move 6, Basic Speed 6.75
Carl	Move 5, Basic Speed 6.25

Continued on next page . . .

How Combat Works

Detailed Combat Checklist

Here is a "flow chart" of all the steps necessary to resolve an attack in ***GURPS***, from the moment you swing the sword or pull the trigger until you know that you have missed, injured or killed your foe. It walks you through the advanced combat system and tries to take into account all of the possibilities. Every effort has been made to include page references to the detailed rules wherever possible. Note that because many maneuvers – especially close-combat maneuvers – use unique rules, these are *not* covered below; this chart is only for actual *attacks* made in melee or ranged combat. Once you have used this chart for a battle or two, you will find that you need to look at it less and less.

[1] Start with unmodified weapon skill and go to [2].

[2] Apply all environmental modifiers – for bad footing (p. B107), darkness (p. B92), etc. – and go to [3].

[3] Apply all personal modifiers – for attacking on the move (p. B117), with your off hand (p. B13) or while using an unfamiliar weapon (p. B43); attacking with an All-Out Attack or a Wild Swing (p. B105); attacking using a weapon in close combat (p. B111); and for your position (p. B203), shock from wounds (p. B126), etc. – and go to [4].

[4] If the attack is a Wild Swing or a randomly-targeted blow (p. B109), go on to [5]; otherwise, skip to [6].

[5] Roll for hit location (see p. 53 or p. B203).

[6] Apply all target modifiers – for cover (p. B118) and obstructing figures (p. B117), hit location (p. 53), relative elevation (p. B123), size (p. B201), striking into a close combat (p. B114), etc. – and go to [7].

[7] If the attack is a ranged attack, go to [8]; otherwise, go immediately to [14].

[8] Apply all special ranged combat modifiers, including the Speed/Range modifier (p. B201) modified for both elevation and erratic movement (p. B117), and any applicable Rcl penalties (p. B119), and go on to [9].

[9] If this attack is opportunity fire taken while watching more than 1 hex (p. B118) or if it is a pop-up attack (p. B116), apply the appropriate penalty and go immediately to [12]; otherwise, go to [10].

[10] Did you take at least 1 turn to aim (p. B116) or are you aiming successive groups from an automatic weapon (p. B121)? If so, go to [13]; otherwise, go on to [11].

[11] Is your modified skill greater than the SS number of your weapon (p. B115)? If so, skip to [14]; otherwise, continue on to [12].

[12] Apply a Snap Shot (p. B115) penalty of -4 (or less, for some ultra-tech weapons – see the individual weapon description for details) and go directly to [14].

[13] Apply the Acc bonus of your weapon (p. B115), including any bonuses for high-tech sights or scopes (p. 31, and an extra +1 per additional turn of aiming – or per additional group fired from an automatic weapon, if aiming successive groups – to a maximum additional +3. Add +1 more if you are *braced*. Now go on to [14].

[14] Roll against your modified skill to hit. This can be no greater than 9 if this attack is a Wild Swing or an attack against the wrong target (see pp. B114, B117 and B119). Note the result. If the skill roll succeeds, go immediately to [21] (note that a group from an automatic weapon can hit with more than one bullet – see p. B120); otherwise, continue on to [15].

[15] Did the attack *critically* miss (p. B110)? If so, go on to [16]; otherwise, go to [17].

[16] Roll on the appropriate *Critical Miss Table* (p. B202) and note the result. Apply any immediate effects. If you dropped, broke or disabled your weapon, go to [52]. If you hit yourself, you are now the target of your attack; go to [28] and assess the damage. Otherwise, go to [19].

[17] Did the attack miss by only 1? If so, proceed to [18]; if not, go to [19].

[18] If you were firing a group of three or more rounds from an automatic weapon (p. B120), a miss by 1 still hits with one round; go to [23]. If your target was a hit location that lists a "Miss by 1" result (p. 53), you have hit this new hit location instead; again, proceed to [23]. Otherwise, go to [19].

[19] Was the attack a missile weapon, or aimed into close combat? If so, proceed to [20]; if not, go to [52].

[20] Check to see if you have hit the wrong target. Start with the target nearest to you on a miss with a missile (p. B117), the first target *behind* your intended target on a missile attack that was *dodged* (p. B119), or with a random target if striking into a close combat (p. B114). Return to [1] and attack your new target. Your final modified skill cannot exceed 9.

[21] Did the attack *critically* hit (p. B109)? If so, go to [22]; otherwise, move on to [23].

[22] Roll on the appropriate *Critical Hit Table* (p. B202) and note the result (note that this applies to *one* round in a group if firing an automatic weapon). Apply any immediate effects, then go immediately to [28].

[23] The target rolls his active defense, modified for his position (p. B203), stunning (p. B127), the angle of the attack (-2 from the side, p. B108, or above, p. B124), relative elevation (p. B123), retreating (p. B109) and for any feints (p. B105) or wounds (p. B126) that took place since his last turn. If the target did an All-Out Attack, or was attacked by surprise, he gets only his PD. If the defense roll fails, go to [26]. Otherwise, go to [24].

[24] Did the target *critically* succeed on his active defense? If so, go immediately to [16]. Otherwise, go on to [25].

[25] Was the target's active defense a Dodge? If so, go to [19]; otherwise, go to [52].

Understanding Sequences, Turns and Maneuvers (Continued)

Since Al has the highest Move, he will act first. Dave, Bill and Carl are all Move 5, so the order in which they act will be determined by Speed. Bill is Speed 6.50, while Carl and Dave are only Speed 6.25, so Bill will act second. Since Carl and Dave have the same Move and Speed, they each roll a die. Carl gets a 5 and Dave gets a 2, so Carl will act third and Dave will act last. Thus, the sequence is:

1. Al — Move 6, Basic Speed 6.75
2. Bill — Move 5, Basic Speed 6.50
3. Carl — Move 5, Basic Speed 6.25 (rolled 5)
4. Dave — Move 5, Basic Speed 6.25 (rolled 2)

Note that no matter which method is used to determine the sequence, once it is determined, *it stays the same for the entire battle.* When using the easy way, or when using the realistic way and breaking a tie with dice, dice are rolled only once, at the beginning of the battle. Likewise, if Move has been used to determine the sequence, the sequence does not change, even if the Move of one or more characters changes during the combat as the result of injury, changes in encumbrance level or special powers (like magic).

Continued on next page . . .

Understanding Sequences, Turns and Maneuvers (Continued)

Turns

A character's *turn* is an interval of time that starts when the sequence indicates he can act and ends when it indicates he can act again. This means that the interval of time represented by a turn is a different interval for each character: a turn always takes one second, but it is not precisely the *same* second for any two combatants because each fighter starts his turn at a different place in the sequence. It is important to realize that there is no "overall" turn that applies to everyone on the whole battlefield, and that running through the entire combat sequence once does *not* constitute a "turn" of any kind.

Example: In the example above, Al's first turn begins when he takes his first maneuver. Bill's first turn begins just *after* Al's, when he takes *his* first maneuver, and so on for Carl and Dave. A turn has passed for Al only when he takes his *second* maneuver of the battle. If all four fighters have taken one maneuver, but no one has taken two, then a turn has not yet passed for anyone, even though all four fighters have acted.

If, during his turn, a character generates an effect that has a duration (e.g., a spell, a super power or even smoke from a grenade), then 1 full second of duration passes for each successive turn taken by the character who produced the effect, regardless of who else it may affect.

Example: On Al's first turn, he casts a spell that has a duration of five seconds. It affects both Bill and Carl. That spell will last until *Al's* sixth turn; the duration is not counted in terms of Bill's or Carl's turns.

Continued on next page . . .

[26] Did the target *critically* fail on his active defense? If so, go to [27]. If not, go to [28].

[27] If the target Dodged, he falls down. If he Blocked, his shield is now unready. If he Parried, he goes to the *Critical Miss Table* (p. B202). Go to [28].

[28] A HIT! Roll the basic damage for your weapon (p. B73). A bullet, or a cutting or impaling weapon, can never do less than 1 hit of damage. Natural attacks and crushing attacks *can* do 0 damage. Go to [29].

[29] Modify the damage result for extra damage – from an All-Out Attack (p. B105), the target's Vulnerability disads, etc. – and multiply it by any multiplier that was given on the *Critical Hit Table*, or any multiplier for a special ammunition type (p. 55) that applies *before* DR. Go to [30].

[30] If the attack is impaling, a bullet or any other attack that does not inflict *knockback* (p. B106), go to [33]; otherwise, continue on to [31].

[31] Apply 1 hex of *knockback* for every 8 points of damage you have rolled. If the target is knocked back at least 1 hex, go to [32]; otherwise, go on to [33].

[32] The target must roll versus DX or fall down. Continue on to [33].

[33] Apply any *armor divisors* – for armor-piercing bullets, shaped-charge rounds, monowire, etc. – to the target's DR at the hit location you have hit, using the DR that applies to the attack in question (e.g., Kevlar is less effective versus impaling attacks). Now go on to [34].

[34] Subtract the modified DR of step [33] from the damage rolled in step [29]; if the result is greater than 0, go immediately to [36]. If the result is exactly 0 (0 or less if you are attacking with a bullet), go immediately to [35]. In all other cases, go to [53].

[35] If your target is wearing flexible armor (like Kevlar), then for each 6 rolled on the damage dice, you inflict 1 hit of *blunt trauma* (p. B211). This is treated just like an ordinary crushing attack. If damage was inflicted, go immediately to [36]. If your target was the brain, head (including the nose or jaw) or vitals (including groin or kidneys), go immediately to [39]. Otherwise, go to [53].

[36] Multiply your damage by any *bonus damage* modifiers (p. B74) for your attack type – cutting or impaling weapons, special ammo types, etc. If the hit location you have hit specifies a damage multiplier for your attack type, use this *instead* (see p. 53). Go to [37].

[37] If the hit location that you have hit is subject to blow-through (see p. 53 and p. B109) from your weapon type, reduce the damage to the appropriate blow-through limit and proceed to [38].

[38] Subtract the final damage from the target's hit points. The target will have a *shock* (p. B126) penalty equal to this final damage on all DX-based and IQ-based skills next turn. Go to [39].

[39] Does the hit location in question have any special damage effects (see *Hit Locations,* p. 53)? If so, go to [40]; otherwise, go to [41].

[40] Follow any special rules for special damage effects such as *stunning*, *knockout*, *crippling* or *instant death*. See p. 53 for the effects of hitting certain hit locations; see pp. B126-127 for the definitions of these terms. If the foe suffers *instant death* as a result, go to [56]; otherwise, go to [41].

[41] Was the damage inflicted greater than the target's HT/2? If so, go to [42]; otherwise, go to [44].

[42] The target is *stunned* (p. B127). He must roll versus HT to recover on his turn. Go to [43].

[43] The target must roll versus HT or suffer *knockdown* (see p. B127). Go to [44].

[44] If the target has 4 or more hit points left, go to [54]. If he has 3 or fewer hits points left, go to [45].

[45] The target now has half his usual Move and Dodge scores (see p. B126). Go to [46].

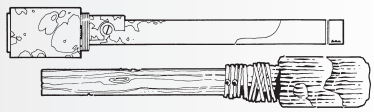
[46] If your attack caused your target's hit points to fall to 0 or less, go to [47]. Otherwise, go to [48].

[47] The target must roll versus HT (plus or minus any Strong or Weak Will) or fall unconscious, and must roll again each turn until healed to above 0 hit points. See p. B126 for details. Go to [48].

[48] If your attack reduced the target's hit points to -HT or less, go to [49]; otherwise, go to [55].

[49] The target must roll versus HT or die, once at -HT and once again for each further -5 hit points (see p. B126). He need only do this once, ever, at each threshold. If he fails *any* of these HT rolls, go to [56]; otherwise, go to [50].

[50] If your attack reduced the target's hit points to -5×HT (see p. B126), go to [56]. Otherwise, go to [51].



[51] The foe is critically injured. END.

[52] You have missed. END.

[53] The blow hits, but has no effect on the target. Unless you were attacking for the purpose of simply touching the foe (as a mage or psi may wish to) . . . END.

[54] The foe is slightly injured. END.

[55] The foe is severely injured. END.

[56] The foe is dead. END.

Understanding Sequences, Turns and Maneuvers (Continued)

Maneuvers

A *maneuver* is an action (see pp. B95-97 and 103-107 for examples) taken in combat. Each maneuver that you take marks the beginning of a turn and the end of your previous one. Some things that are *not* maneuvers include defense rolls, resistance rolls, free actions and actions that take "no time" (such as a Fast-Draw roll or activating a super power with the "Instantaneous" enhancement). Note that the term "maneuver" is also used for certain martial arts moves (p. CI162), but the terms are not interchangeable. Not all combat maneuvers can be learned and improved as part of a martial art (e.g., Concentrate, Wait), and not all martial arts moves can be taken as combat maneuvers (e.g., Aggressive Parry, Breakfall).

While active defenses are not maneuvers, defense rolls made against attackers who act after you do are affected by the maneuver you took on your turn, and will continue to be affected until you take a new maneuver on your next turn. This is especially important to realize when choosing the All-Out Attack maneuver: a character who makes an All-Out Attack gets no defenses until everyone else has acted once!

Example: On Bill's first turn, he chooses the All-Out Attack maneuver. This means that he will have no defenses at all during his first turn. For one full turn, he will be defenseless against Carl, Dave and Al!

For simplicity's sake, assume that all characters enter combat with all of their active defenses intact, even if they have not yet taken a maneuver.

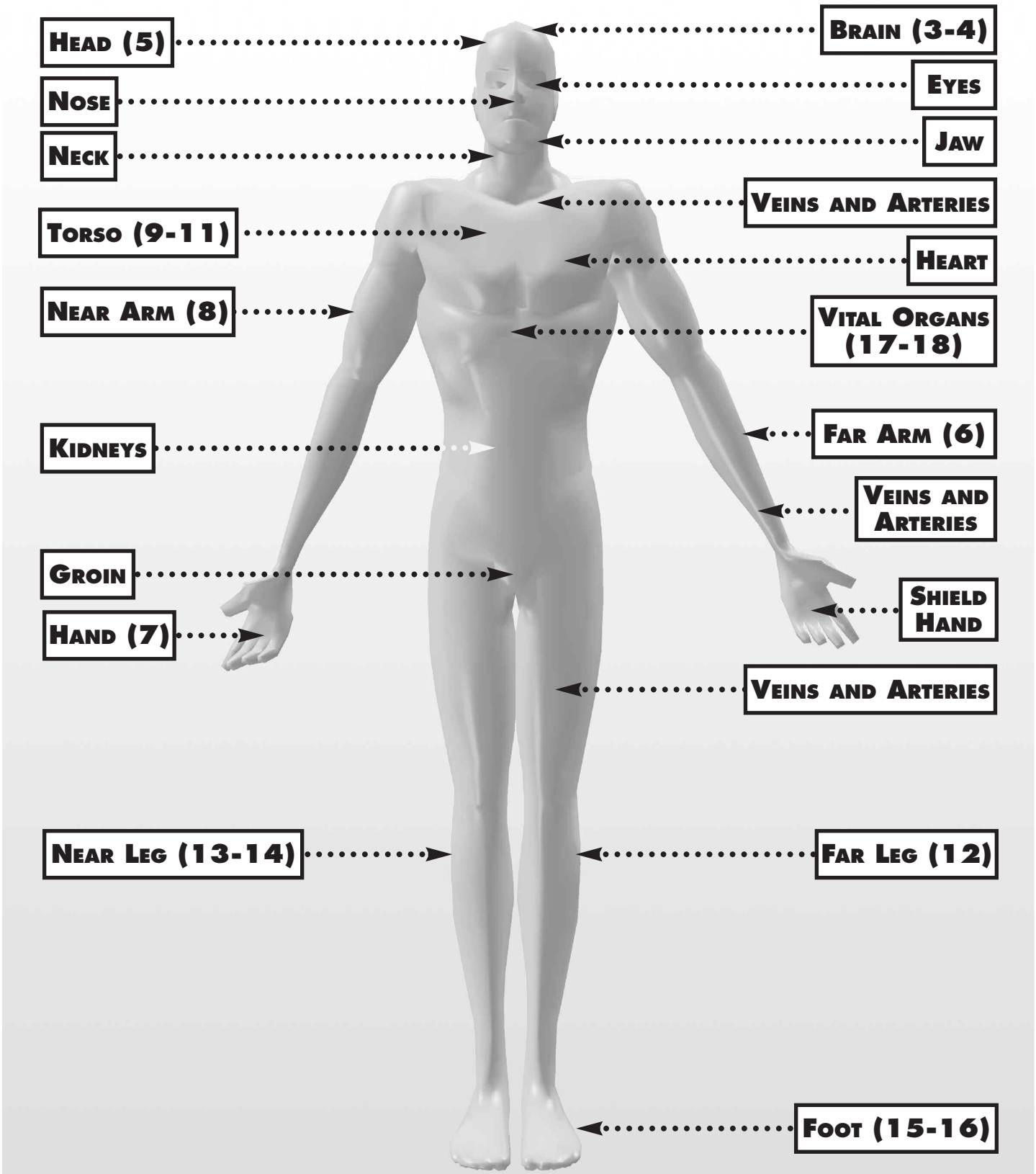
Example: Bill uses his All-Out Attack to attack Dave, and even though Dave has not had a turn yet, he can defend normally against Bill.

Step and Wait: The Step and Wait maneuver deserves special treatment here. The act of choosing a maneuver defines the beginning of a turn: when a character's turn comes around during the sequence, he *must* choose a maneuver. Step and Wait is just like any other maneuver in this respect, and by choosing it, you are not delaying your *turn* until later – only your attack.

Hit Locations

This section presents more detailed hit location rules for humans and humanoids, as well as rules for animals and vehicles.

Hit Location for Humanoids



BRAIN (3-4)
Modifier: -7
Miss By 1 Hits: TORSO
Multipliers: Bullet (×4), Crush (×4), Cut (×4), Imp (×4)
Blow-Through: –
Special Effects: Skull provides DR 2. Critical hits use *Critical Head Blow Table*. Any blow that does exactly 0 (or more) damage requires a HT roll to avoid *knockout*. Victim *stunned* on hits over HT/3. Victim *knocked out* automatically on hits over HT/2.

EYES (–)
Modifier: -9 (-10 through helm's eyeslits – only with missile or thrusting attacks)
Miss By 1 Hits: HEAD
Multipliers (except on BRAIN hit): Bullet (x1), Crush (×1), Cut (×1.5), Imp (×2)
Blow-Through (except on BRAIN hit): Bullet (HT×3), Energy (HT×6), Imp (HT×3)
Special Effects: Critical hits use *Critical Head Blow Table*. More than 2 hits of damage blinds the eye. An impaling or missile hit (if the missile is less than 1 inch across) gives and automatic BRAIN hit; skull's DR does not protect.

HEAD or FACE (5)
Modifier: -5
Miss By 1 Hits: TORSO
Multipliers: Bullet (×1), Crush (×1), Cut (×1.5), Imp (x2)
Blow-Through: Bullet (HT×3), Energy (HT×6), Imp (HT×3)
Special Effects: No DR from helmets without full-face protection. Critical hits use *Critical Head Blow Table*. Any blow that does exactly 0 (or more) damage requires a HT roll to avoid *knockout*.

NOSE (–)
Modifier: -6
Miss By 1 Hits: HEAD
Multipliers: Bullet (×1), Crush (×1), Cut (×1.5), Imp (×2)
Blow-Through: Bullet (HT×3), Energy (HT×6), Imp (HT×3)
Special Effects: No DR from helmets without full-face protection. Critical hits use *Critical Head Blow Table*. Any blow that does exactly 0 (or more) damage requires a HT roll to avoid *knockout*. Roll against HT-1 (at +5 for High Pain Threshold or at -1 per point of damage for Low Pain Threshold) or be *stunned*.

JAW (–)
Modifier: -6
Miss By 1 Hits: HEAD
Multipliers: Bullet (×1), Crush (×1), Cut (×1.5), Imp (×2)
Blow-Through: Bullet (HT×3), Energy (HT×6), Imp (HT×3)
Special Effects: No DR from helmets without full-face protection. Critical hits use *Critical Head Blow Table*. Any thrust/crushing blow that does exactly 0 (or more) damage requires a HT roll to avoid *knockout*. Roll against HT-2 or HT minus damage (whichever is *lower*) or be *stunned*.

NECK (–)
Modifier: -5
Miss By 1 Hits: TORSO
Multipliers: Bullet (×2), Crush (×1.5), Cut (×2), Imp (×2)
Blow-Through: Bullet (HT×3), Energy (HT×6), Imp (HT×3)
Special Effects: Use the PD and DR of the TORSO (unless a heavy helm is worn, in which case its PD and DR should be used instead). Victim is *stunned* on damage over HT/3. Any crushing blow that does over HT/3 damage requires a HT roll to avoid a crushed throat; if the throat is crushed, the victim must make a HT roll every turn, taking 1 hit of damage if he fails, until he dies or receives medical attention. Any cutting blow that does over HT damage requires a HT roll to avoid decapitation (i.e., *instant death*).

VEINS and ARTERIES (–) (Cutting attacks only.)
Modifier: -4 (radial or femoral artery, in the arm and leg respectively), -7 (jugular vein or carotid artery, in the neck)
Miss By 1 Hits: ARM (radial), LEG (femoral) or NECK (jugular or carotid)
Multipliers: Cut (×2) for radial or femoral artery; Cut (×3) for jugular vein or carotid artery
Blow-Through: Cut (HT×3)
Special Effects: Surrounding bone gives +1 PD. On a critical hit, the artery or vein is torn open. This automatically inflicts 1 hit per 2 turns (radial or femoral artery) or per turn (jugular vein or carotid artery), until the victim dies or receives medical attention.

TORSO (9-11)
Modifier: 0
Miss By 1 Hits: –
Multipliers: Bullet (×1), Crush (×1), Cut (×1.5), Imp (×2)
Blow-Through: Bullet (HT), Energy (HT×2), Imp (HT)
Special Effects: –

NEAR (WEAPON) ARM (8)
Modifier: -2
Miss By 1 Hits: –
Multipliers: Bullet (×1), Crush (×1), Cut (×1.5), Imp (×1)
Blow-Through: Any (HT/2)
Special Effects: Damage over HT/2 cripples arm; this *stuns* the target. Excess damage is lost.

FAR (SHIELD) ARM (6)
Modifier: -2 (-4 if a shield is carried)
Miss By 1 Hits: –
Multipliers: Bullet (×1), Crush (×1), Cut (×1.5), Imp (×1)
Blow-Through: Any (HT/2)
Special Effects: Damage over HT/2 cripples arm; this *stuns* the target. Excess damage is lost.

HAND (7) (Roll for left or right.)
Modifier: -4
Miss By 1 Hits: –
Multipliers: Bullet (×1), Crush (×1), Cut (×1.5), Imp (×1)
Blow-Through: Any (HT/3)
Special Effects: Damage over HT/3 cripples hand; this *stuns* the target, and anything in that hand is dropped. Excess damage is lost.

SHIELD HAND (–) (Only if a shield is carried; otherwise, see HAND.)
Modifier: -8
Miss By 1 Hits: –
Multipliers: Bullet (×1), Crush (×1), Cut (×1.5), Imp (×1)
Blow-Through: Any (HT/3)
Special Effects: Damage over HT/3 cripples hand; this *stuns* the target. Excess damage is lost.

VITAL ORGANS (17-18) (Missile and thrusting attacks only.)
Modifier: -3
Miss By 1 Hits: TORSO
Multipliers: Bullet (×3), Crush (×1), Cut (×1), Imp (×3)
Blow-Through: Bullet (HT×3), Energy (HT×6), Imp (HT×3)
Special Effects: Any crushing blow that does exactly 0 (or more) damage requires a HT roll to avoid *knockout*. Impaling or bullet attacks have a 1 in 6 chance of hitting the HEART instead.

HEART (–) (Missile and thrusting attacks only.)
Modifier: -4
Miss By 1 Hits: TORSO
Multipliers: Bullet (×3), Crush (×1), Cut (×1), Imp (×3)
Blow-Through: Bullet (HT×3), Energy (HT×6), Imp (HT×3)
Special Effects: On any bullet or impaling hit that does damage equal to or greater than HT×3, an additional HT roll is required to avoid *instant death*.

KIDNEYS (–) (Only from behind. Missile and thrusting attacks only.)
Modifier: -4
Miss By 1 Hits: TORSO
Multipliers: Bullet (×3), Crush (×1.5), Cut (×1), Imp (×3)
Blow-Through: Bullet (HT×3), Energy (HT×6), Imp (HT×3)
Special Effects: Any crushing blow that does exactly 0 (or more) damage requires a HT roll to avoid *knockout*.

GROIN (–) (Missile and thrusting attacks only.)
Modifier: -3
Miss By 1 Hits (roll 1d): TORSO (1-2), NEAR LEG (3-4) or FAR LEG (5-6)
Multipliers: Bullet (×1), Crush (×1), Cut (×1.5), Imp (×2)
Blow-Through: Bullet (HT), Energy (HT×2), Imp (HT)
Special Effects (human males only): Use the PD and DR of the armor on area 11 (lower torso). On a hit, make a HT roll at -1 for every point of damage or be *stunned*. Make a second (unmodified) HT roll to avoid *knockout*. High Pain Threshold gives +5 to these rolls; Low Pain Threshold *doubles* the penalties.

FAR LEG (12)
Modifier: -2
Miss By 1 Hits: –
Multipliers: Bullet (×1), Crush (×1), Cut (×1.5), Imp (×1)
Blow-Through: Any (HT/2)
Special Effects: Damage over HT/2 cripples leg; this *stuns* the target, and a two-legged target falls down. Excess damage is lost.

NEAR LEG (13-14)
Modifier: -2
Miss By 1 Hits: –
Multipliers: Bullet (×1), Crush (×1), Cut (×1.5), Imp (×1)
Blow-Through: Any (HT/2)
Special Effects: Damage over HT/2 cripples leg; this *stuns* the target, and a two-legged target falls down. Excess damage is lost.

FOOT (15-16) (Roll for left or right.)
Modifier: -4
Miss By 1 Hits: –
Multipliers: Bullet (×1), Crush (×1), Cut (×1.5), Imp (×1)
Blow-Through: Any (HT/3)
Special Effects: Damage over HT/3 cripples foot; this *stuns* the target, and a two-legged target falls down. Excess damage is lost.

Cover Value of Some Common Materials

To determine the DR of fortifications, multiply the *cover value* on the table below by the *square* of the cover's thickness in inches and round *up.* If the damage, modified by weapon type for penetration, is half or less of the DR, it glances off hard materials, or is buried in soft materials, and does no damage to the fortification.

Cover Table

Material	*PD*	*Cover Value*
Loose Dirt	0	1/7
Hard-Packed Dirt	0	1/4
Moist Sand	0	1/4
Gravel	1	1/3
Soft Wood	0	1/3
Hard Wood	1	1/2
Brick	2	3/4
Stone	2	1

Example: A foot-thick (12-inch) barrier of sandbags ("moist sand") provides 12 × 12 × 1/4 = DR 36. It has PD 0.

Dodging Explosions

If a person is caught within the radius of an explosion or similar area-effect attack, he is normally hit automatically. However, the GM may allow a Dodge and Retreat (with the usual +3 bonus, but ignoring PD). Success means that person can dodge, leap, drop, dive or roll up to 1/5 Move (minimum 1 hex) away from the explosion. While this is often not enough to escape an explosion's radius, it may be enough to throw oneself into a trench or behind cover, which can absorb the blast!

Hit Location for Animals

While it would be impossible to generate a hit location table for every type of animal which might be encountered, some general guidelines can be offered:

For animals that stand on *two* legs, use the *Hit Location for Humanoids* rules on p. 53, with modifiers for the creature's size (e.g., an additional -1 for a dog-sized creature, or +3 for *Tyrannosaurus rex).* Make whatever modifications seem necessary for the specific situation.

For instance, treat the tail of a kangaroo, or any other two-legged creature that uses its tail for balance, as a third leg. On a roll of 12-14, the legs *or* tail are hit; roll a die to determine which (1-2, left leg; 3-4, right leg; 5-6, tail). If the tail is crippled, the animal will have difficulty keeping its balance – DX and Move are reduced by 1/3, and a kangaroo will no longer be able to lean back on its tail to kick with both feet.

When using the random locations for *quadrupeds,* roll 2 dice. Subtract 2 from the die roll if attacking from the front, add 2 if attacking from the back, and then consult the *Body Parts for Quadrupeds* table, below. The hit penalties on this table already take size modifiers into account.

If an animal does not seem to fit either the table for humans or the table for quadrupeds, the GM should be able to work out appropriate hit penalties using some combination of these tables.

body parts for quadrupeds

Random Location	*Body Part*	*Hoofed Animals*	*Massive Herbivores*	*Med./Lg. Carnivores*	*Small Animals*
2-4	Foreleg*	-1 for large, -2 for small	-1	-3	-4
–	Forefoot or Forepaw	-4	-3	-5	-6
5	Head	-4	-2	-5	-6
–	Nose or Trunk	#	-8	-10	-12
6	Neck	-5	-4	-7	-8
7-9	Body	0	+1	-1	-2
–	Vitals	-3	-2	-4	-5
10-12	Hind Leg*	-1 for large -2 for small	-1	-3	-4
–	Hind Foot or Hind Paw	-4	-3	-5	-6

No special effect.

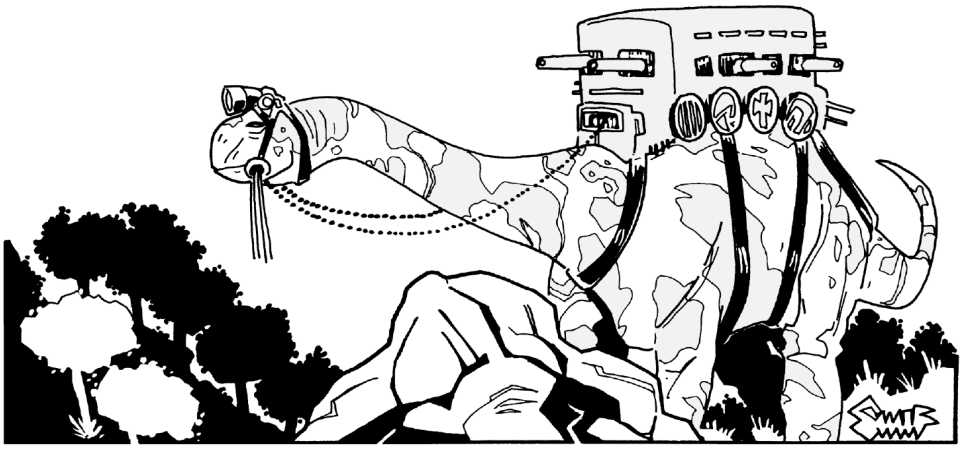
* On a natural 2 or 12, foot or paw is hit. In any case, roll for left or right.

In general, use the same rules for hit location and injury *effects* as for humans, with these exceptions:

Head/Brain: The skull provides a natural DR of 2 in addition to the creature's normal DR. Most horned beasts (e.g., bulls, rams) have thicker skulls, providing a natural DR of 3 and making them harder to stun. These herbivores are *stunned* on total hits over 1/2 their hit points, and are *knocked out* on total hits over 3/4 their hit points. They also get a +2 to their HT rolls to avoid being *knocked out* by a head blow.

Nose: Very tender in many carnivores, especially canines. Any hit to the nose stuns the animal. Damage over 2 points is lost. The GM may (if desired) make a reaction roll to see if the animal flees or is enraged.

Trunk: Damage over 1/4 of hit points will cripple a trunk. Anything less enrages the animal; any further attacks which it makes will be All-Out Attacks.



Leg, foot or paw: Crippling damage does not necessarily cause a four-legged animal to fall. If the animal makes a successful roll against DX-3, it retains its footing. It may not attack with a wounded foreleg, nor may it attack with the other foreleg unless it can easily rear onto its hind legs, like a bear. It attacks at DX-3 and does only half damage. With a wounded hind leg, the animal attacks at DX-3, but does normal damage. Speed in either case is reduced by 3.

Hooves give an animal's feet a natural DR of 1.

Hit Location for Vehicles

An attacker can choose what part of a vehicle he wishes to attack, or the hit location may be chosen randomly. (It is suggested that random hit location be used for indirect fire, for any fire beyond 1/2D range, and – at the GM's option – for automatic fire.) In either case, use the table below. If a rolled location does not exist or could not be hit, treat the result as a body hit. If a result covers multiple locations (e.g., 5 is rolled but the vehicle has several small turrets or superstructures), roll randomly among them to determine which one was actually hit.

The terms used on the table below are compatible with those in ***GURPS Vehicles.*** If you are unsure whether a vehicle has one of the features below, then it probably *doesn't.*

hit location for vehicles table

Random Location	*Hit Location*	*Hit Penalty*
3-5	A small turret, small gasbag or small superstructure.	-5
6, 8	An arm, pod or external mount.	-2
9, 11	The body.	0
7, 10	A large turret, large gasbag or large superstructure.	-1
12-14	A wing, GEV skirt, SEV wall, leg, track, halftrack or skitrack.	-2
15-16	A mast, skid, wheel or rotor.	-4
17-18	A vital area.	-6

Note that the penalties are in addition to the vehicle's Size Modifier. Thus, a large turret on a vehicle with a +3 Size Modifier is actually at +2 to hit.

A small turret, superstructure or gasbag is one whose volume is under one-fifth the vehicle's total volume; a large one has a volume of at least one-fifth the total vehicle volume.

Bullet Damage

Firearms damage is written as "dice plus adds" (see *Basic Weapon Damage,* p. B73) and expressed as "hits" or "points of damage." Bullets always do at least 1 point of basic damage; e.g., a roll of 2 for a bullet that does 1d-4 basic damage is 1 hit. Bullets do two things, *penetrate* and *wound.*

Penetration: This is a measure of how far the bullet will go into a given material. For ***GURPS***, it is determined by a comparison of points of damage (as modified by *Bullet Type*) to Damage Resistance (also modified by *Bullet Bype*). Subtract the DR from the damage at the time of impact; the points left are how much damage the bullet can still do on the far side of whatever it hit. Penetration applies equally to living or non-living things. Since a bullet makes a small hole, the hit points of an inanimate object (see p. B125) can be disregarded. The resistance to penetration of a given material varies approximately with the square of the thickness. Two inches is four times as hard to penetrate as one inch; three inches is nine times as hard to penetrate as one inch (see sidebar, p. 54).

Wounding: This is determined by a comparison of points of damage (as modified for *Bullet Type, Bullet Size* and *Hit Location*) to hit points. If the target is wounded enough, it is killed. Subtract the points of damage (as modified) from the target's Hit Points. This may be a negative number (see p. B126).

Bullet Type

There are three bullet types: *expanding, solid* and *armor-piercing.*

Expanding Bullets: These are constructed (soft point, hollow point, pre-fragmented, etc.) so that they massively deform and make a larger wound cavity in living tissue. Remaining points of damage, after DR is subtracted, are multiplied by 1.5. Because of this expansion, they are not as good at penetrating deeply. Expanding bullets double the DR of anything they hit that already has DR. They give a DR of 1, before any wounding damage is assessed, to most things they hit that are not protected by DR, such as the human torso and limbs. GMs determine what things, such as soap bubbles and single sheets of typing paper, don't get a DR of 1.

Damage multiplication depends on actually getting expansion; at handgun and submachine gun velocities this is problematic. There is only a 50% chance that a pistol or submachine gun expanding bullet will get the multiplier. Roll 1d: on 1-3, the bullet expands. An expanding bullet that does not expand is treated as a solid bullet (see below).

Continued on next page . . .

Bullet Damage (Continued)

Expanding bullets give -1 to the Malf of any semi-automatic fire and -2 to the Malf of any full-automatic fire.

Expanding bullets pay for their larger wound channel with decreased penetration, sometimes so much less that they cannot reach vital organs even with a hit to the body. On a shot to the vitals, if the remaining damage, *after* subtracting the DR of armor or cover, but *before* multiplying damage for bullet type, is less than the target's HT/4 from in front or HT/2 from the side, it is counted as a hit to the torso rather than a hit to the vitals.

Solid Bullets: Solid bullets give no modifier to either penetration or wounding. DR is subtracted from points of damage to determine penetration; points of damage are subtracted from Hit Points to determine wounding effect. For simplified gaming, the GM can rule that all bullets are treated as solids.

Armor-Piercing Bullets: Armor-piercing bullets are specifically designed to penetrate. They are made of dense, hard materials that are very difficult to deform. They halve the DR of anything they hit, but damage that penetrates DR is also halved.

Bullet Size

There are four classes of bullet *size*. Bullet-size modifiers affect only wounding; they have no effect on penetration.

Less than .34 caliber at low velocities (pistol and black powder) – This does not affect high-velocity weapons, such as most center-fire rifles; it does affect .22 Rimfire rifles. *Halve* the remaining damage after DR is subtracted. This attempts to duplicate the behavior of things like .32 ACP, .25 ACP and .22 Rimfire ammunition, which are much more likely to wound than kill anything larger than a rat.

.34 to less than .40 pistol, and rifle or shotgun less than .40 – This is the default; there is no size modifier for bullet damage.

.40 to .60 – Wounding damage, after DR is subtracted, is multiplied by 1.5.

Greater than .60 – Wounding damage, after DR is subtracted, is multiplied by 2.

Hit Location

Hit location effects are noted next to the Hit Location diagram on p. 52. Hits to the torso and extremities have no modifier. Hits to the vital organs of the torso do triple damage. Hits to the brain do quadruple damage.

Continued on next page . . .

On a "vital area" hit, a vital area of the vehicle's body (e.g., the power system) is hit. Treat this as a body hit, but damage that exceeds the vehicle's DR is multiplied by 1.5.

The detailed damage system for vehicles can be found in ***GURPS Vehicles;*** it is far too large and specialized to be included here! As a rule of thumb, if an area reaches 0 HP (for a location whose HP are known), or if the attack could *believably* disable the area hit (for a location whose HP are unknown), then assess damage effects using common sense. A disabled helicopter rotor or airplane wing will render the craft unflyable, and it will eventually crash; a disabled robotic arm cannot be used to grab things; a disabled turret cannot rotate or fire its weapons. Damage to the body simply comes off of body ("general") hit points, and the vehicle is disabled at 0 hit points.

Optional Realistic Combat Rules

The following rules are "realistic," in the sense that using them is not likely to result in outlandish results; they are also purely *optional.*

All-Out Charge

This is a full run at the foe, with no thought to defense. It can be extremely dangerous to the attacker, even for a skilled fighter, so it should be used with caution.

You may use any ready hand weapon (not a missile or thrown weapon). You must move first and then attack – not vice versa. You may move up to your full Move towards your foe, as long as all movement is *forward*. If you cross *any* bad footing along the way, roll versus DX. If you succeed, you have the usual -2 penalty on your attack roll; on a critical success, you take no penalty. If you fail, you are at -4 to attack, and on a critical failure, you trip and fall, taking 1d-2 damage to one foot (choose randomly)! You may not change facing at the end of your move. You have four choices for your attack:

(a) Make a single attack at -1 to skill.
(b) Make a single attack at -5 skill, doing +2 damage if you hit.
(c) Make a single attack at -5 skill, followed by a Slam (p. B112) versus the same foe.*
(d) Make a feint at -5 to skill, followed by a Slam versus the same foe. If your feint was successful, the defense penalty is applied to your opponent's DX roll to avoid the Slam.*

*If you choose options (c) or (d), then you must have enough Move left to enter the foe's hex.

However, if you choose this maneuver, you may make *no active defenses at all* until your next turn. This maneuver is best reserved for chasing down foes who are fleeing the battlefield after a defeat.

All-Out Defense Option: Increased Defense

There are certain situations where choosing the All-Out Defense maneuver does not help a combatant, but should. For instance, in situations where the only possible defense is to Dodge, you can't Dodge the same attack twice, so an All-Out

Defense is useless. Yet there should be *some* benefit to being mentally and physically prepared to defend yourself against an attack.

To reflect this, the All-Out Defense maneuver can be expanded to include a second option:

A character choosing the All-Out Defense maneuver may take a ***single*** *defense at +2 against each attack.*

This is in keeping with the All-Out Attack modifier of +4, since most defenses are made at 1/2 skill. This may be done *instead of* taking the usual All-Out Defense option in the ***Basic Set,*** which is still available, of course.

Animals in Combat

Some special rules are required to cover combat between humans and animals. These rules expand upon those on pp. B140-145; rules for riding beasts in combat can be found on pp. B135-137.

Close Combat

Attack: Because their weapons are inherent and designed to work at close quarters, animals do not suffer the -2 penalty to hit in close combat that humans do.

Unlike humans, animals may *All-Out Attack* in close combat (this is an exception to p. B113). They may choose either to make two attacks against their foes, make a single attack at +4 to their skill, or a single attack at +2 damage. See also *Cornered or Berserk Predators,* below.

When an unarmed human attacks an animal in close combat, martial-arts *strikes* will work, but *throws* will not.

Defense: Against an animal (or anything else) that attacks in close combat (most carnivores, for example), the only active defense is *Dodge. Exception:* if someone has the Boxing, Brawling, Judo or Karate skill, allowing him to parry bare-handed, he can use the *Parry* defense.

A combatant *may* choose to retreat from an animal that is attacking in close combat, provided it is not grappling him. Add +3 to his defense as he retreats from the hex. If the animal has hold of the fighter with its claws or teeth, he cannot escape from the hex by retreating.

Damage

The *Damage* listing for an animal represents the total damage done by that animal in a single turn. The only exception to this is an All-Out Attack with the two-attack option, in which case two attack rolls are made. Biting and clawing are summed up in one figure; do not figure them as separate damages each turn.

Note that the type of damage done by most carnivores is considered to be *cutting* rather than *impaling*. However, certain animals do impaling damage, notably those animals with teeth or horns large enough to puncture the torso deeply.

Cornered or Berserk Predators: Cornered, wounded or berserk predators are extremely vicious and dangerous, and can claw enemies with more force than normal. This is an All-Out Attack; the animal cannot dodge on that turn. This attack does thrust/cutting damage based on the animal's ST. A lion with ST 30 will do 3d cutting damage instead of the customary 2d-2 (see sidebar, p. B143).

This is dangerous for the animal as well. If the target is wearing metal armor, the animal needs to roll against its HT minus the DR of the armor. A failed HT roll results in the animal tearing a claw off or bruising its paw, which inflicts 1d-3 damage for every 2d of damage it does; the animal's DR protects it, and the target takes normal damage. A berserk beast can tear a fully armored man to shreds in a few seconds, even if the animal injures itself in the process.

Bullet Damage (Continued)

Applying Bullet Damage Modifiers in Play

Bullet damage modifiers are cumulative. The sequence of application is:

(1) Roll for bullet damage.
(2) Apply bullet type modifier to DR; round *up* to the next whole number.
(3) Subtract modified DR from points of damage.
(4) Apply Bullet-Type modifier to remaining damage; round *down.*
(5) Apply Bullet-Size modifier to remaining damage; round down.
(6) Apply hit location modifier; round up.
(7) Subtract modified points of damage from hit points.

Flexible Armor and Blunt Trauma

Flexible armor, such as Kevlar or mail, flexes with the blow and allows some damage to get through. Firearms literature calls this "blunt trauma." In ***GURPS,*** it is crushing damage. Any 6 which is rolled on a bullet attack which does *not* penetrate flexible armor does 1 point of crushing damage to the one wearing the armor.

Blow-Through

Bullets have a lot more energy than can usually be translated directly into killing or "stopping power." Some energy may be literally "lost down range" if the bullet goes on through. More is "lost" because it doesn't take the target out of action. Waste heat, stretching of tissue below its elastic limit, transitory wave effect and other non-lethal actions use up a lot of the bullet's energy without necessarily "stopping" the victim from breathing, or even moving and fighting. In game terms, damage is limited by the "blow-through" rule (see p. B109).

Any one bullet can do a maximum of HT/3 to hands and feet, HT/2 to arms and legs, HT to torso or HT×3 to head or vitals. There is no limit to the amount of damage a single bullet can do on a hit to the brain (except that the most it can do is kill instantly; it can't actually disintegrate the target).

Passive Defense Limitation

Passive defense (PD) is added to the defense roll. This works well, as written, for hand weapons – but bullets have great momentum and a small cross-section of strike compared to hand weapons, especially as velocity increases. For each 3 dice of damage that a bullet does, it eliminates 1 point of PD from the target's armor. It can *never* give a negative PD; the target always has a chance to try dodging.

Bullet Knockback

Bullets don't push people around very well. Pushing is mostly a matter of momentum; while bullets have a lot of kinetic energy, they have comparatively little momentum. A man shot in the chest with an elephant gun is as likely to fall toward the shot as away from it; even a rifle shot stopped by armor is unlikely to knock the subject over. Bullets that wound do very little knockback; they rip and tear flesh rather than pushing it.

For ***GURPS,*** bullets that wound do no knockback. A bullet that does not penetrate DR moves the foe 1 hex directly away along the line of the shot if the unmodified damage rolled is more than 3×ST of the target.

Multiple Projectiles

At a range of 1 yard or less, any number of small bullets do the same damage as one bore-size bullet, as long as the weight of the shot is the same. Because the shot has not had time to disperse, all of the load hits, or misses, just as a single bullet would; roll only once to hit.

At greater than 1-yard range, the projectiles begin to disperse. They are distributed randomly around a point called the *center of impact.* The shooter aims the *center of impact.*

Most multiple-projectile loads come in one of four categories:

Multi-bullet: Two or more bullets of bore size.

Buck-and-ball: A single bore-size bullet and two or more smaller bullets.

Shot: A large number (half a dozen to several hundred) of less than bore-size bullets.

Flechettes: From two to hundreds of small metal darts.

Any gun that will fire one projectile can fire more than one, if suitable ammunition is made for it.

Multi-Bullet Loads

Multiple bullets increase the chance of a hit with *something* by throwing more bullets at the target. Each small bullet does less damage than one large one.

For game purposes, up to four bullets can be loaded for any weapon. A separate roll to hit is made for each bullet. The first roll is at an additional -1, the second at -2, and so on. Roll separately for damage for each hit. Damage for each hit is the basic damage for the gun divided by the number of bullets in the load; damage is rounded down.

Continued on next page . . .

Hit Location

See *Hit Location for Animals,* p. 54.

Knockback and Slam

The knockback and slam rules included in the ***GURPS Basic Set*** are intended primarily for human fighters. Modifications must be made when dealing with very large creatures.

Knockback: Creatures with ST 4-16 use the same rules as humans (p. B106) – 8 points of cutting or crushing damage produces 1 hex of knockback. For stronger animals, the amount of damage necessary for each hex of knockback is equal to ST/2 (rounding up). Thus, a bear with ST 33 is knocked back 1 hex if it takes 17 hits of damage in a single blow. A ST 10 human taking the same amount of damage would be knocked back 2 hexes.

Slam: Slams (p. B112-113) are still handled as Quick Contests of DX, followed by Quick Contests of ST to determine knockdown and knockback. Roll the Contest of DX normally. The Contest of ST may be modified, depending on the ST of the foes. First, assess the normal ST modifiers (+2 for charging, -2 if the foe has a medium or large shield, etc.). Then, if these *adjusted* ST scores fall outside the 6-20 range, use the *Contests of ST for Very Weak or Very Strong Creatures* rules on p. CI13. The adjusted ST of the weaker character is set to 10 and the adjusted ST of the stronger character is multiplied by (10/adjusted ST of weaker character), rounding down. The Contest is rolled using these modified scores.

If the stronger foe's ST (before any adjustments) is greater than or equal to three times that of the weaker foe, the stronger foe *automatically* wins the Contest, and overruns his opponent (see p. B100). The stronger foe still makes a roll, but falls only on a natural 18.

Knockback from Slam Attacks. If one fighter is knocked down, he may also be knocked back; roll a *second* Quick Contest of ST, as per p. B106, using the final, modified ST scores of the two foes. If the fallen fighter wins or ties, he is not knocked back. If he loses, he is knocked back 1 hex for every 2 points by which he lost, to a maximum distance equal to the distance his foe traveled to make the slam; no character may knock his foe back more hexes than he moved on his turn.

Flying Tackles: A number of carnivores – cats, especially – attack by leaping onto their prey, knocking it down. Most animals can easily leap 2-3 yards, while the leopard can leap 6 or more. Treat this attack as a "flying tackle" (p. B113), with the animal getting a DX roll to land on its feet. The victim rolls as for a slam, but at an extra -2 to ST.

Head Butts: Animals with horns will attack using a special form of slam: the *head butt.* Knockdown and knockback are determined as for a normal slam. In addition, the victim of the head butt will take damage from the horns; the amount will depend on the *weight* of the head-butting creature. The basic damage will be equivalent to the animal's *trampling* damage, modified up or down by 1-3 points, depending on how long and sharp the horns are and whether the animal tosses its head as it butts. If the horn is especially sharp, it will do *impaling* rather than *crushing* damage.

This damage is doubled if the creature is moving 10 hexes/turn or more; halved if it is moving 3 hexes/turn or less.

Any head-butting animal must make a roll against HT (at +5, if it is traveling 3 hexes/turn or less) when it butts with its head. If this roll is failed, the animal is stunned. The head-butter will take no actual damage from the slam, unless it is butting heads with another animal or with a massive object (tree or car). In that case, it will take damage only if it loses the Quick Contest of ST by 10 or more points. Damage taken is equal to half the damage normally done by the animal it is butting heads with, or to half the damage it normally does itself if it butted a fixed object like a car.

Parrying Animal Attacks

Animals such as bears which attack with a 1-hex (or more) reach can be blocked or parried. If a character successfully parries an animal, there is a chance that his weapon will break. Treat the weight of an animal's forelimb as equal to 1/5 its ST, rounded down (e.g., a bear with ST 32 has a forepaw weight of 6 lbs.). If the paw weighs three or more times the weight of the parrying weapon, the weapon has a 1/3 chance of breaking. Thus, this bear has a 1/3 chance of breaking any weapon that weighs 2 lbs. or less.

If the character rolls a critical success while parrying, there is a chance that he has injured the animal; roll 1d-3 and apply that much damage to the forelimb.

Critical Hit/Miss Tables

The following tables apply to situations not covered by the tables on p. B202.

Animal Critical Miss Table

For animal critical misses, the GM may either use the *Critical Miss Table* on p. B202 – treating any "weapon breaks," "weapon drop" or "weapon turns in hand" result as 1d-3 damage to the creature – or use the table below.

animal critical miss table

3 – If the defender has an impaling weapon, the animal is impaled on the weapon, which does its maximum damage, and the weapon is stuck – a Quick Contest of ST is required to pull the weapon free. Otherwise, treat as #4 below.
4 – The animal falls badly and is stunned for at least 1 turn. On the turn after its next, the animal may begin rolling vs. HT to recover.
5 – The animal falls clumsily, hurting itself: it takes 1d-3 crushing damage, defends at -3 until its next turn and cannot attack again until it regains its feet.
6 – The animal breaks a claw, hoof or tooth, if appropriate; basic damage is reduced by 1 for all subsequent attacks. If otherwise, the animal takes 1d-3 crushing damage to the limb with which it was striking.
7, 8 – The animal loses balance completely and falls down. It defends at -3 until its next turn, and cannot attack again until it regains its feet.
9-11 – The animal is slightly off balance; defends at -2 until its next turn.
12, 13 – As #7, above.
14 – The animal pulls a muscle: -3 to attack and defense rolls, requires three days to recover.
15 – As #6 above, but basic damage is reduced by 2.
16 – As #5, above, but takes 1d-2 crushing damage.
17 – As #4, above, but also takes 1d-3 crushing damage.
18 – The animal fails so miserably in its attack that it loses its nerve. Any animal with an IQ of 3 or more will turn and flee on its next turn, if escape is possible. If backed into a corner, it will assume a surrender position (throat bared, belly exposed, etc.). For animals of IQ 2 or less, treat as #17.

For animals that cannot fall down (snakes, etc.): Treat all results of falling down as taking 1d-3 damage, instead.

For fliers: Treat results 7, 8, 12 and 13 not as falling down, but as being put into an adverse flying position with the same effective results.

For swimmers: Treat all results of falling down as being put into an awkward position, with the same effective results. Any results of damage due to falling should be read as stun instead.

Unarmed Critical Miss Tables

Unarmed combat has its own unique hazards. When an unarmed fighter critically fails at an attack, parry or other maneuver, use these tables instead of the usual Critical Miss Table on p. B202.

Multiple Projectiles (Continued)

Buck-and-Ball

Buck-and-ball is a cheap way to increase both the power and the hit probability of a smoothbore weapon. Buck-and-ball damage is that of one full-size bullet for the bore size and two buckshot hits, each doing 1d damage. At 5 yards or less roll once to hit: a hit is with all the balls and a miss is a complete miss. At more than 5 yards, roll twice to hit: once at modified skill, for the full-caliber ball, and once at an additional -2, for the buckshot. Maximum range for the buckshot is 150; 1/2D is 25. Maximum range for the full-bore bullet is 100 yards less than normal, and 1/2D is 10 yards less than normal.

Shot

Shot comes in many sizes. For ***GURPS,*** all shot can be assigned to one of three categories:

Buckshot has 1/4-inch to slightly over 1/3-inch pellets. It is used for combat and big game.

Birdshot has 1/10-inch to less than 1/4-inch pellets. It is used for birds and small game.

Smallshot has less than 1/10-inch pellets. It is used for target shooting, pest control and non-lethal riot loads.

A load of shot begins to spread as soon as it leaves the muzzle. No two pellets have quite the same initial energy, mass or ballistic coefficient. This increases the likelihood that something will hit the target, but decreases the amount of energy that will be delivered. The amount of damage depends on how much of the shot hits the target and the retained energy of each pellet at that time. Retained energy decreases faster with shot than with single bullets. Smaller projectiles lose energy to atmospheric resistance faster than larger ones.

Shot loads give +1 to the base skill of the firer, but the maximum Acc bonus is 5 (with a smoothbore) and may be less, depending on the weapon. 1/2D for buckshot is 25 yards; Max is 150 yards. Birdshot and smallshot have both 1/2D and 1/4D. 1/2D for birdshot is 5 yards; 1/4D is 10 yards; Max is 50 yards. 1/2D for smallshot is 3 yards; 1/4D is 6 yards; Max is 20 yards. Most materials get a +1 to DR at 1/4D range and greater. (The GM is the authority on what materials – soap bubbles, glass Christmas tree ornaments, single sheets of typing paper – do not get this bonus. Human flesh does, except for the eyes.)

Continued on next page . . .

Multiple Projectiles (Continued)

Damage from Shot Loads: Any smoothbore gun can fire shot loads. Use the gun's basic damage as for a single bullet, but roll each die separately for penetration against DR. Bonuses and penalties are applied to any damage that gets through the armor.

Example: A smoothbore with damage 2d-1 hits a man in leather armor (DR2) with a load of shot. Each damage die is rolled separately, giving two 1-die attacks. The first roll is a 3. One point of this damage gets through to tissue. The second roll is a 4; 2 points penetrate the armor. Now the -1 to damage (because the gun did 2d-1 basic damage) is applied. Total damage is only 2 points.

Ranged Combat – Special Situations

The following rules cover the use of missile weapons in situations where the normal rules for Snap Shot, Accuracy, 1/2D Range and Max break down, or must be modified.

Indirect Fire

"Indirect fire" means that the gunner is firing projectiles in a ballistic arc. The target may be behind an obstacle – for instance, on the other side of a building or hill – provided the weapon has the range to shoot over it. The second advantage of indirect fire is that it increases range to 2.5 times the weapon's maximum range. Indirect fire can be performed by any projectile weapon, but not beams.

Indirect fire is aimed at a specific *area* (which may be a patch of ground or water). A person, vehicle or structure that is in that area at the time the fire arrives will be affected by it. If the gunner can't see the target, an observer must relay firing coordinates to the gunner. This takes 2d+5 seconds and requires a communicator (if nearby, shouting will do). Blind fire is possible, but at -15!

Once the gunner has firing coordinates or can observe the target for himself, he can fire. Only range modifiers apply; since the attack is aimed at an area, the size and speed modifiers are not important, nor is cover, concealment, smoke, or darkness a factor (except in preventing the gunner or observer from spotting the target hex). Indirect fire is always treated as beyond 1/2D range, regardless of the actual range. Thus, there is *no* Accuracy bonus. If relying on an observer to see the target, there is a -5 to hit, reduced by the amount by which the observer makes a Forward Observer skill roll, or increased by the amount by which it fails.

Minimum Range: Indirect fire may not be performed at closer than one-tenth the indirect fire range (25% of normal maximum range); at closer ranges, use direct fire instead.

Continued on next page . . .

unarmed critical miss table – striking and parrying

3 – You trip and knock yourself out! If kicking, you slip and fall on your head; otherwise, you fall face-first into your foe's fist, knee or forehead. Roll vs. HT every 30 minutes to recover.

4 – You connect using the wrong part of your body! You immediately take enough damage to cripple the body part that you were striking with (HT/3 for a hand or foot, HT/2 for an arm or leg). DR has no effect on this damage. On a Head Butt, see #3 above.

5 – You hit a solid object (wall or floor) instead of your opponent. Take normal punch or kick damage to the body part you were striking with; DR protects normally.

6 – As #5 above, but for half damage only.

7 – You stumble forward. Advance 1 hex past your opponent and end the turn facing away from him. Your foe is now behind you!

8 – You fall down. It will take you 2 turns to get up (1 if a successful Acrobatics roll is made immediately).

9-11 – You lose your balance. You can do nothing else until your next turn. All your active defenses are at -2 until your next turn.

12 – You trip. Make a DX roll to avoid falling down. This roll is at -4 if kicking, or at *twice* the usual DX penalty for any maneuver that requires a DX roll to avoid mishap even on a normal failure (e.g., Flying Jump Kick).

13 – You let your guard down. All your active defenses are at -2 for the next turn, and any successful Feint made against you during this turn counts *double*! This *will* be obvious to your foe.

14 – You stumble forward. See #7 above.

15 – You pull a muscle. Take 1d-3 damage to your arm (if punching or attacking with the arm), leg (if kicking) or neck (on a Head Butt). You are off balance and at -1 to all attacks and defenses for the next turn. You are at -3 to any action involving that arm or leg (or to *any* action, if you injure your neck) until this damage heals. This penalty is reduced to -1 if you have the High Pain Threshold advantage.

16 – You strained your shoulder! If parrying or punching, that arm is "crippled" for the rest of the encounter. You cannot use that arm to attack or defend for 30 minutes. All subsequent punches and parries with the other arm will be at -1. If kicking, you fall down hard instead, taking 1d-1 damage. DR protects normally.

17 – You connect using the wrong part of your body. See #4 above.

18 – You trip and knock yourself out. See #3 above.

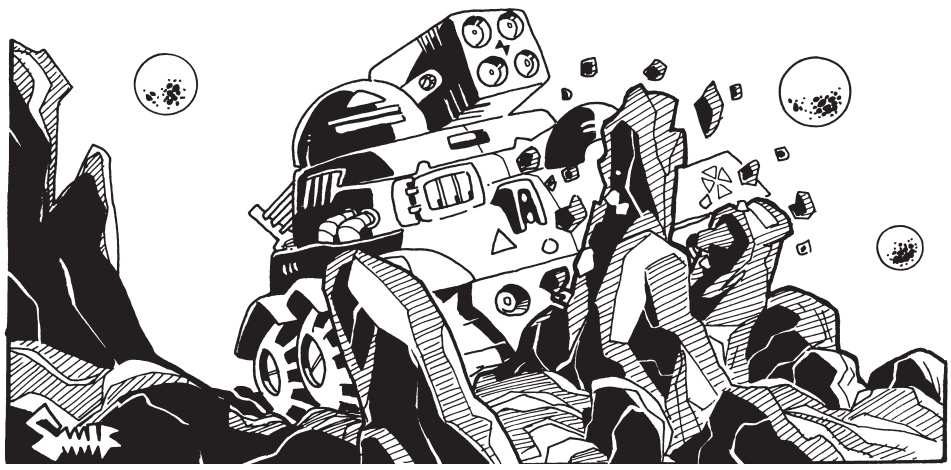
unarmed critical miss table – grappling, locks and throws

3 – You knock yourself out! You smash your forehead against your opponent's, or catch a knee in the solar plexus. Roll vs. HT every 30 minutes to recover.
4 – You throw your back out (1d-3 damage) and are at -6 DX and -4 IQ from the pain until someone resets your back with a First Aid-2 roll. These penalties are halved if you have the High Pain Threshold advantage.
5 – You fall down *hard,* taking 1d-1 damage. DR protects normally.
6 – As #5 above, but for 1d-3 damage only.
7 – You stumble forward. Advance 1 hex past your opponent and end the turn facing away from him. Your foe is now behind you! Alternatively, if you were attempting an Arm or Finger Lock or a Judo Throw and if your opponent's fighting style includes that maneuver, he has the option of immediately inflicting that maneuver upon *you* if he can make an unmodified Judo or Wrestling roll!
8 – You fall down. It will take you 2 turns to get up (1 if a successful Acrobatics roll is made immediately).
9, 10, 11 – You lose your balance. You can do nothing else until your next turn. All your active defenses are at -2 until your next turn.
12 – You trip. Make a DX roll to avoid falling down.
13 – You let your guard down. All your active defenses are at -2 for the next turn. You are also at -2 to DX in any Quick Contest made in Close Combat, and any successful Feint against you counts *double*! This *will* be obvious to your foe.
14 – You stumble forward. See #7 above.
15 – You pull a muscle. Take 1d-3 damage to your back (Torso). You are off balance and at -1 to all attack and defense maneuvers for the next turn. You are at -3 to any action until this damage heals. This penalty is reduced to -1 if you have the High Pain Threshold advantage.
16 – You fall down *hard.* See #5 above.
17 – You throw your back out. See #4 above.
18 – You knock yourself out. See #3 above.

Vehicle Critical Hit Table

The following table is *greatly* simplified from the rules in ***GURPS Vehicles.*** It is intended to allow a GM without that book to quickly assess the qualitative effects of a critical hit on a "generic" vehicle. Only the vehicle's DR, HP, general performance characteristics and significant items of equipment need be known to use this table. If ***Vehicles*** is being used, use the rules given there instead.

All damage is applied to the vehicle's hit points (called "body hit points" in ***Vehicles***). A vehicle with 0 hit points will no longer function.



Ranged Combat – Special Situations (Continued)

Effects of a Hit: If a hit is achieved, it means the round came in over the target hex. If there is a building, vehicle or person in the hex, the round will hit it, striking from above. Explosive damage from indirect fire is normal, but kinetic-type damage (e.g., crushing damage of bullets, impaling damage of needles) is halved, as if the attack had been made at or beyond the 1/2D range.

Correcting Fire: Once the first shot is fired, fire can be corrected, provided the fall of shot and any movement of the target is observed. Unless the target can be seen, this requires a spotter and takes 2d+5 seconds. To correct fire, roll again, but at a +4 bonus for the second shot and a +8 for the third and any further shots at the same target.

Missile Fire in Space

Use these rules when a ranged weapon is fired in space:

Beam Weapons: The ranges given for most beam weapons assume atmospheric interference with the beam. In vacuum, the 1/2D and Max ranges are affected as follows:

X-ray or gamma-ray laser: ×100

Rainbow or ultraviolet laser: ×50

Laser, disruptor, flamer, fusion gun, neutral particle beam or antiparticle beam (pulsar): ×10

Charged particle beam (blaster): ×0.01

Screamer or stunner: ×0 (does not function)

All other beam types: ×1

Flamethrowers are useless in space.

Projectiles (including guns, rockets and muscle-powered missiles): Max and 1/2D range are ignored – the projectiles will keep on going, and neither Acc nor damage are reduced past 1/2D range.

Missile Fire Underwater

When firing ranged weapons underwater rather than in atmosphere, use the following rules:

Beam Weapons: The range of disintegrators is not affected. Likewise, the range of stunners and screamers fired underwater is unimpaired. Lasers have 1/10 range; all other beam weapons have 1/100 range.

Flamethrowers are useless underwater.

Guns (including ultra-tech Gauss guns and gyrocs) fired underwater have 1/20 range – if fired from water into air or vice versa, count each hex underwater as 20 hexes of range.

Muscle-Powered Weapons will not function underwater. An arrow, spear, et cetera, fired from air *into* water counts each hex underwater as 20 hexes of range.

Blow-Through, Weapon Type and HT

Not every kind of attack is handled identically for "blow through" purposes (see p. B109). The hit location rules on p. 53 address the issue of blow-through and specific body parts; the following rules summarize the relationship between attack form and blow-through for a general torso wound.

Crushing hand weapons, cutting attacks and attacks from weapons that inflict more than 15d damage never blow through. All other attack forms have a "blow-through multiple" (BTM), which is the multiple of the target's hit points that can be inflicted as damage before the attack blows through and comes out the other side. If more than one BTM would apply (e.g., a laser is both a beam and impaling), use the *higher* BTM.

Armor-Piercing Bullets (see p. 56) have a BTM of 0.5.

Impaling attacks and *Solid Bullets* (see p. 56) have a BTM of 1.

Shot has a BTM of 1, but each die is treated as a separate attack for blow-through purposes, in much the same way that DR is applied separately against each die (see p. 60).

Expanding Bullets (see p. 55) that expand have a BTM of 1.5; otherwise, their BTM is 1.

Beam Weapons, Electricity and *Fire Attacks* (including flamethrowers and Fireball spells), have a BTM of 2.

Hit points – and not the HT attribute – should be used to calculate blow-through. This is because hit points are a measure of bulk, and in general, more energy will be deposited in a larger individual. Note also that the issue of DR penetration, as well as any damage multipliers for weapon type, are always considered before blow-through; blow-through only limits the final damage that will affect the character.

Example 1: A character with 10 hit points and DR 2 is hit by a laser for 14 hits of basic damage. After subtracting DR 2, 12 points are left, doubled to 24 since the laser is impaling. However, since a laser is a beam weapon (BTM 2), it blows-through after inflicting only 2×10=20 points of damage.

Example 2: The same character is hit by a shotgun blast. The weapon does 4d damage, and the dice come up 4, 5, 5 and 6! After DR, this is 2, 3, 3 and 4. However, this is not treated as a single 12-point attack. Instead, each die is compared to his 10 hit points. Since shot has a BTM of 1, and none of the attacks inflicts over 10 points of damage, the blast does its full 12 hits!

vehicle critical hit table

3 – Triple damage; also, if there is a computer in the vehicle and any damage penetrated DR, it is destroyed!

4 – Double normal damage. Also, if the hit struck the body of a boat, plane or helicopter, and did damage in excess of 5% of the vehicle's hit points (minimum 1 hit) after DR, the rudder system is damaged and the vehicle may no longer maneuver.

5 – Bypasses 90% of armor DR (i.e., divide armor's DR by 10) and does normal damage. Also, whether any damage penetrated the vehicle or not, a sensor (if any) is disabled.

6 – Normal damage; also, the vehicle's largest engine, if any, is badly damaged, halving the vehicle's top speed and acceleration (if this result occurs a second time, the engine stops working). If the vehicle has only batteries or power cells, treat as #14, below.

7 – Normal damage; also, if the attack penetrated DR, or if the vehicle is made of wood, fire breaks out! This does 2d damage every 10 seconds, ignoring DR.

8 – Normal damage; also, if the vehicle has weapons, one is struck in the barrel and disabled.

9-11 – Window hit: if the vehicle has windows or a transparent canopy, one shot goes in through them, ignoring all but window DR (DR 1 for normal windows).

12 – Normal damage. Also, any one item of miscellaneous equipment is disabled, GM's option.

13 – Bypasses 90% of DR (i.e., divide armor's DR by 10) and does normal damage.

14 – If the vehicle has a battery or power cell, half of its storage capacity (along with half the stored power) is lost. If the vehicle has no batteries or power cells, treat as #6, above.

15 – Normal damage; also, if any damage penetrated armor and there is a communication or ECM system in the vehicle, one such system is disabled.

16 – Double normal damage. Also, if the vehicle has a fuel tank, it develops a leak: 1d% of the total fuel capacity leaks out immediately, plus (unless the tank is self-sealing) 1d% every minute. As well, gasoline will catch fire on a roll of 11 or less on 3d (9 for diesel, 13 for exotic jet and rocket fuels), and will explode – disabling the vehicle – on a roll equal to *half* that (e.g., 5 or less for gasoline).

17 – Triple normal damage.

18 – Double normal damage; if the vehicle is carrying explosive ammunition and any damage penetrated, the ammo explodes, doing damage equal to 1d shots of that ammo.

Concentrated Defense: Protecting Your Vital Interests

These rules are adapted from an article (by Charles Wheatley) that originally appeared in ***Roleplayer 27.***

In real combat, a fighter can protect one part of his body at the expense of others. For example, when fencing with a foil, a leg and arm are forward to protect the torso, which is the only valid target. When the whole body is fair game, as with the epee, the fencer must move the leg back to prevent it from being hit, making the torso an easier target. The following optional rule simulates the concentration of defense.

Optional Rule: Concentrated Defense

Before an attack is initiated, the defender may decide to more heavily defend a certain portion of his body. The defender should write down the area of the body where he wishes to concentrate his defense. He gains a +1 bonus to the defense of this one area for every -1 penalty he takes for *all other* areas, up to a maximum bonus of +5 or a minimum effective defense of 4 after the penalty. For simplicity, the parts of the body can be divided into four areas:

1) Head (includes the brain, eyes, jaw, nose and throat)
2) Torso (includes the vitals and groin)
3) Arms (includes both hands and arms)
4) Legs (includes both feet and legs)

A defense of the *vitals only* may be attempted for a +2 bonus for each -1 penalty to all other body parts, up to a maximum +6 – e.g., if the defender takes a full +6 bonus to guard the vitals, his defense of the rest of his body will be at -3.

A skilled opponent will notice a concentrated defense. For an attacker to realize that his opponent is favoring a certain body location, he rolls vs. 2/3 his highest weapon skill, *plus* the bonus the defender is attempting to gain. Roll once before each attack. Success means the attacker can predict where the concentrated defense will be, and a critical failure means that he misinterprets the defense.

Example: Jean-Luc wants to keep his sword arm safe, so he concentrates his defense to give himself a +2 bonus to defend against attacks to his right arm or hand. He now has a -2 to defend against attacks to any other body part. His attacker, Frederick, rolls to see if he notices that Jean-Luc is favoring a certain body part. His Fencing skill is 15, so he rolls against a 10 plus the +2 bonus Jean-Luc is attempting, or a 12. He rolls a 14, indicating failure, and attacks Jean-Luc's sword arm. The defender rolls vs. a 12 to parry (his normal parry is 10, plus the concentrated defense bonus) and rolls an 11. He parries.

Dodge and Drop

When under fire, hit the dirt! This sensible maneuver is taught in basic training courses in armed forces the world over. In ***GURPS,*** this can be handled using the following optional rule:

A character may drop to the ground while dodging, earning a +3 bonus to his Dodge roll.

This is similar to a retreat – except that a Dodge and Drop *may* be used against a ranged attack. (You may not retreat from a ranged attack.) Like a retreat, it applies to *all* of your defenses against *one foe* that turn (including all Dodge rolls against gunfire). It has the disadvantage of having the character end up on the ground, however – it takes him 2 turns to get back to his feet.

Any cover that the character drops behind does not count against the initial shot that inspired the Dodge and Drop, but *is* effective against subsequent shots at that character.

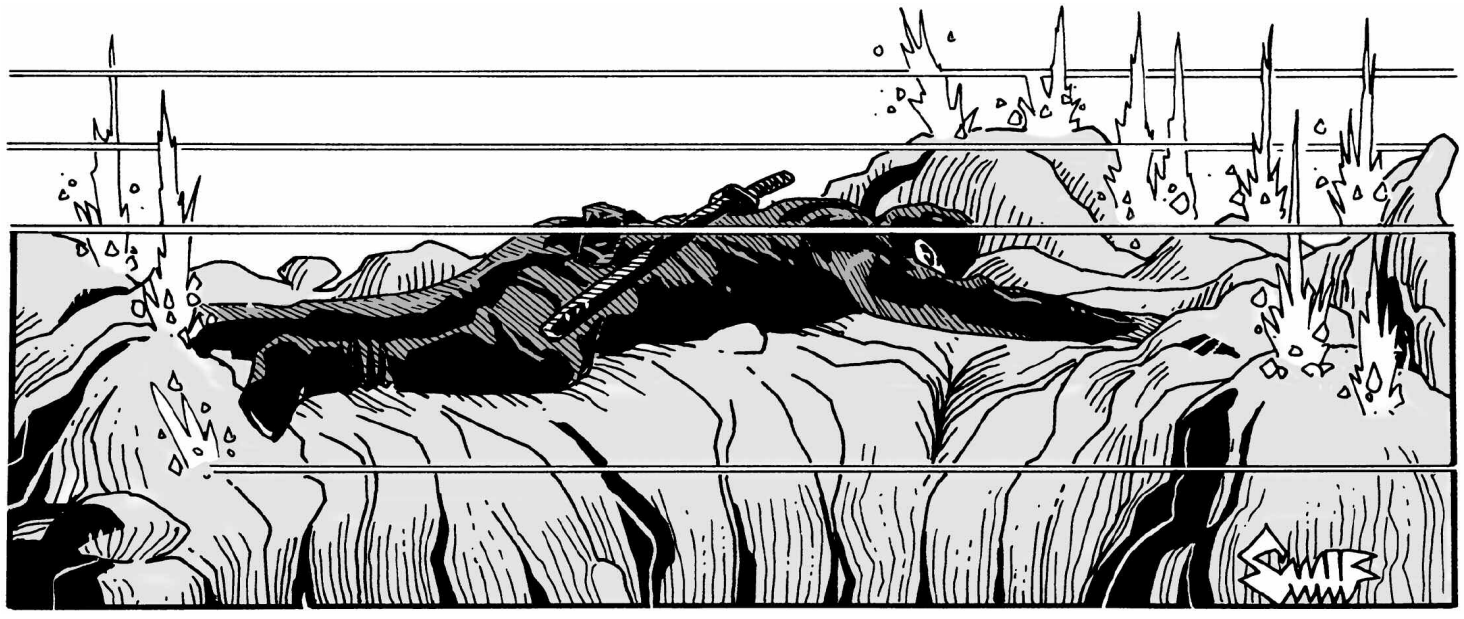
Knockback, Weapon Type and Weight

As per the sidebar on p. B106, every 8 hits of basic *cutting* or *crushing* damage causes 1 yard of *knockback.* For *bullets,* the damage needed is much larger: it takes 3×ST points of basic damage to cause 1 yard of knockback (see p. 58). However, both figures assume a ST 10, adult, male human weighing 150 lbs. For more realism, the following rule can be used:

Cutting and *crushing* attacks cause knockback in yards equal to 20 × (basic damage/target's weight in pounds), rounded down.

Bullets cause knockback in yards equal to 5 × (basic damage/target's weight in pounds), rounded down.

Note: The multiplier in front of (basic damage/target's weight in pounds) is called the *knockback multiplier* (KM), and is a measure of how efficient the attack is at causing knockback – the higher the KM, the greater the knockback. An impaling attack, for instance, has a KM of 0. The GM is free to invent new and exotic attack forms that have other KM values, or even assign a higher KM to weapons that do a lot of knockback in cinematic settings (shotguns come readily to mind . . .)!



Flinch, Buck Fever and Bullet Shyness

The rules for firearms in ***GURPS*** assume that the shooter has the appropriate weapon skill (not just a default) and is calm, relaxed, in good physical shape and under no particular stress. Combat seldom offers any of these conditions. Even the stress of an important match, a trophy buck or a critical audience can seriously degrade the ability to hit a target. The variety of possible conditions, especially since they change for the same person under varying kinds of stress, is too great for a hard and fast rule. It is up to the GM to determine what the penalty is for each shooter under any given conditions. The GM applies this penalty *after* the player rolls for his character's shot – if a gunman knew exactly what he was doing to foul up his shots, he would stop doing it!

Flinch

Flinching is responding to the kick of the gun before it is fired. In ***GURPS,*** it is a recoil penalty applied to the *first* shot, or *added to* the normal recoil penalty of the first group of shots in automatic fire. It is most common for inexperienced shooters, but even veterans can pick up a flinch. GMs decide if the shooter is flinching, and to what degree.

Example 1: A hoplophobe (see p. B36), totally unfamiliar with weapons, is attacked by a berserk biker. He flinches to the extent that he closes his eyes, jerks the trigger and moves the muzzle 2 feet. The GM decides that this means no aim or Acc bonus, twice Rcl penalty on the first shot (cumulative with each successive shot) *and* a -4 Snap Shot penalty – all this applied to default skill . . . if he first makes a Will roll at -2 to allow him to touch the nasty thing at all.

Example 2: An experienced hunter, used to shooting a .223 (Rcl -1), has to fire a .600 Nitro Express (Rcl -6). He knows that the recoil is much greater. The GM decides that a reasonable flinch penalty for a shooter going from varmint rifle to elephant gun is full Rcl on the first shot, and double Rcl for a second shot in the same second. He requires a Will roll (see p. B93) to control the flinch. On a success, he subtracts the number by which the Will roll was made from the Rcl penalty and applies this to the first shot as a flinch penalty. On a critical success, there is no Rcl penalty on the first shot, and normal penalty for a second shot (see *Recoil,* p. 67). The Will roll can't give him a bonus, though; it can only reduce the flinch penalty to 0.

The flinch penalty is only used to determine if a shot is a hit; it has no effect on Malf, nor will it change an ordinary failure to a critical failure.

Continued on next page . . .

Explosives in Combat

Explosives are frequently used in high-tech combat. The following rules govern damage from explosives. Where they differ from those in ***High-Tech*** and the ***Basic Set,*** these rules take precedence.

Relative Explosive Force

The concussive power of explosives is measured in relation to the explosive force of TNT (trinitrotoluene). TNT has an arbitrary explosive force of 1, and does 6d×2 damage per pound. Most common chemical explosives have *Relative Explosive Force* (REF) values between 0.3 and 2. For instance, black powder (REF 0.5) does half the damage that TNT does, so a pound of black powder does 6d damage. Explosion damage should be based on a multiple of 6d where possible; this gives an appropriate spread of probable damage.

The following figures are a ballpark guide to REF:

REF table

Explosive	*REF*	*Explosive*	*REF*
Serpentine Powder (pre-1600)	0.3	Amatol	1.2
Ammonium Nitrate	0.4	Gasoline	1.2
Corned Powder (pre-1850)	0.4	Tetryl	1.3
Black Powder (post-1850)	0.5	Composition B	1.4
Diesel fuel/nitrate fertilizer mix	0.5	C3	1.4
Dynamite (80%)	0.8	C4	1.4
PETN (det cord)	1.0	Liquid hydrogen/liquid oxygen	1.5
TNT	1.0	Nitroglycerine	1.5

Concussion Damage

Concussion damage is the damage done by the shock wave and expanding gases of the explosion. It is *crushing* damage. It is applied to the entire body, not to a specific part. The blow-through rule (see p. B109) does not apply.

Radius of Concussion Damage: Concussion damage works using the rules on p. B121: An explosion affects everything in a 2-yard radius at full damage, and damage is quartered every *additional* 2 yards from the centre of the explosion. As stated in ***High-Tech,*** this applies only to small explosions. Damage is quartered every *4* yards from the explosion if damage is 6d×20 or more, every *8* yards if 6d×200 or more, every *16* yards if 6d×2,000 or more, and so on – each tenfold increase in force doubling the increment.

Explosions in Other Environments: The above rules are for Earth-normal air pressure. In thicker or thinner atmospheres, the blast effect will be enhanced or reduced proportionally. Underwater, concussion range increments are *tripled* (e.g., an explosion smaller than 6d×20 does full damage in a *6*-yard radius, etc.). In a vacuum, with no medium to carry the shock wave, concussion damage is limited to that actually caused by the expanding gases: for explosions smaller than 6d×20, concussion damage is divided by *8* for each 2 yards from the explosion.

Defense Against Concussion Damage: PD has no effect on concussion damage and there is no active defense against it. A character who knows an explosion is about to occur may dive for cover – see *Dodging Explosions,* in the sidebar (p. 54).

DR and Concussion Damage: Body armor does not protect *at all* against concussion damage unless it covers the entire body with no openings. Toughness and natural DR protect normally. The DR of non-living targets (like structures, vehicles or robots) and the DR of any character in sealed or pressurized body armor is *squared* against concussion damage.

Stun From Explosions: A sufficiently powerful explosive can kill or stun living beings inside sealed body armor, vehicles and structures even if DR is not penetrated. Divide the explosion's concussion damage (before DR) by the structure's or vehicle's hit points and round down. The result is the points of crushing damage suffered by the occupants. Also, if any damage was inflicted, a HT roll is required to avoid being physically stunned, at -1 per point of damage taken.

Contact Damage: If an explosive goes off in *direct* contact with flesh (that is, the target doesn't have *any* armor), concussion damage is doubled. A person covering an explosion can take all the damage up to 20×HT, thus heroically saving the rest of the party. An explosion *inside* a living body does five times damage!

Fragmentation Damage

Fragmentation damage is described on pp. B121-122. Fragments do *cutting* damage in an expanding sphere around the center of the explosion. "Blow-through" does not apply. The dice of fragmentation damage depend on what is available to form the fragments. Explosions on ordinary soil produce 1d-4 fragmentation damage; on rocks or timber 1d-2; in a scrap yard 1d.

For weapons, fragmentation damage is generally listed in square brackets following concussion damage, and is always cutting; e.g., 6d [2d] is 6d of concussion and 2d fragmentation. As a rule of thumb, damage is 2d for hand grenades and 20-34 mm rounds, 4d for 35-59 mm rounds, 6d for 60-94mm rounds, 10d for 95-160 mm rounds and from 12d to as much as the GM thinks suitable for larger rounds (the explosion from a 16-inch shell can pick up a telephone pole and toss it like a javelin)!

Radius of Fragmentation Damage: Explosions project fragments to a distance of 5 yards times the dice of explosive damage, to a maximum of 250 yards. Fragmentation damage is random; anything within this radius may be hit. The farther from the explosion, the lower the chance of being hit, because the fragments must fill a greater volume.

Fragmentation Damage vs. Large Targets: Large objects may be hit with multiple fragments. An object will be attacked once for each +1 Size Modifier (see p. B201) over 0. Thus, for an object with a Size Modifier of +4 (a linear measurement of 10 yards), *four* fragment attacks are made against it – roll individually for each attack.

Chance of a Fragment Hit: A hit is automatic in the hex of the explosion. In every hex adjacent to the explosion, a hit occurs on a roll of 17 or less. One hex farther away, the roll is 16 or less, and so on. When this roll reaches 3, it stays at 3 to the limit of fragment range (see above).

In any hex outside the hex of explosion, the cover and concealment modifiers on p. B118 apply to this roll, if the explosion is at ground level. Cover from air bursts must be overhead cover. Varying positions does not provide protection; lying prone under an air burst doesn't decrease the amount of body exposed to the rain of fragments!

If using the hit location chart, roll randomly for the location of each attack that hits.

Defense Against Fragmentation Damage: PD has no effect on fragmentation damage and there is no active defense against it. A character who knows an explosion is about to occur may dive for cover – see *Dodging Explosions,* in the sidebar.

DR and Fragmentation Damage: DR protects normally against fragmentation damage, as does the DR of any cover between the explosion and the victim.

Contact Damage: If an explosive goes off in *direct* contact with flesh, fragmentation damage is doubled.

Flinch, Buck Fever and Bullet Shyness (Continued)

Buck Fever

"Buck fever" is the colloquial name for the sharp decrease in accuracy that mental stress can induce. It is most common for inexperienced shooters, but can affect anyone.

The GM must determine if the stress on a character is such that a Will roll is required to resist buck fever. Modifiers to the Will roll should be based on how important success or failure is to the character: -1 to win or lose an important match, -3 for the only likely shot at a trophy elk, -5 to finish a hostage-taker before he can kill (-10 or more if the hostage is the firer's beloved child!). Advantages and disadvantages (Overconfidence, for example) should also be taken into account; Combat Reflexes gives +2 to the roll. If the Will roll is a success, the shot is taken as normal. If failed, the shooter can still fire, but the shot is, at best, at the same penalty that was assessed to the Will roll.

The GM assesses the buck-fever penalty, but he does not have to announce it simply as, "You get a -5 to Guns." This is a good time to tell the character what is happening and let him roleplay his decision.

Example:

Player: "I'm taking aim with my rifle at the IRA terrorist."

GM: "You have trouble focusing; somehow the sights and the target won't align, sweat stings your eyes and the faces of the hostages keep sweeping across your vision. The rifle quivers in your hands. Somehow, the old, familiar feel from hours on the range is gone; your trigger finger seems to be on someone else's hand."

Player: "Is this a subtle indication that my skill is being negatively affected by stress?"

Continued on next page . . .

Shaped-Charge Weapons

These are specially-shaped explosive charges built to penetrate armor. They inflict concussion damage like any other explosive, but no fragmentation damage. However, on a direct hit, the target's DR protects at only one-tenth its normal value; i.e., it has a (10) armor divisor. This is a big difference from armor DR being squared vs. concussion damage!

However, a shaped-charge warhead fired at a soft target may not detonate. Roll 3d vs. armor DR+3. (In the case of nonrigid armor, use only half its DR.) If the roll fails, the weapon doesn't go off. Instead, it inflicts one-sixth its normal damage as crushing damage, and has no armor divisor.

Damage from shaped-charge rounds counts as flame damage for setting fires.

Flinch, Buck Fever and Bullet Shyness (Continued)

Bullet Shyness

Very few people want to get shot. Hence, the sight or sound of bullets in the immediate vicinity should make aiming and firing much more difficult. (One reason snipers have such a good kill-to-shot ratio is that they usually get to shoot first.) GMs should reduce the accuracy of NPCs whose positions are being swept with fire, even if none are being hit. PCs should be restrained from overexposure by the traditional system: "Stick it up – lose it!" Modifiers to any to-hit roll for a firer who is being shot at might go from -1 for an occasional stray round to -10 for a concentrated blast of auto-fire which is whipping dust and splinters like a hurricane.

Other Problems With Accurate Shooting

Anything that disturbs a shooter's ability to hold steady while aiming can degrade accuracy. Physical exercise (a hard chase, a run up a staircase, a scuffle with a suspect) should take away some accuracy. The amount should depend on the amount of exercise as compared to the HT of the shooter (endurance is more important than strength for this). Illness, especially fever and shakes, also make shooting harder. Distraction at the moment of aim can be disastrous. Anything that hurts vision – dripping sweat, blowing sand, badly-fitted goggles (especially gas masks, -3 at least!) – hurts accuracy.

Firearms in Combat – Expanded Rules

Automatic Weapons

The Cone of Fire and the Beaten Zone: As the bullets of a burst travel toward the target, they are dispersed around the line between the gun and the target. The pattern of dispersal is called the *cone of fire.* The bullets strike the ground in an oval pattern, with the long axis parallel to the gun-target line; this oval is called the *beaten zone.* The goal of automatic weapons fire is to maximize the possibility of hits by centering the cone of fire or the beaten zone on the target.

"Grazing fire" is such that the center of the cone of fire is never above half the height of a standing man. Grazing fire and beaten zones can be used as barricades of fire even when no target is visible. The burst is fired, and any man-sized target on the line of fire, or in the beaten zone, is attacked by all the rounds of the burst at an effective skill of 6. This rule should also be used whenever characters fire unaimed bursts of automatic fire in the general direction of a foe.

Very High RoF: Some automatic weapons have RoF so high that figuring hits and damage in four-round groups takes too long. This is especially true of aircraft and anti-aircraft weapons. It is both difficult and unrealistic to use four-round groups in such a case. Instead, use groups of 20 for any weapon with an RoF of 20 or more. The recoil penalties given in weapon tables assume that all such weapons will be fired in groups of 20 rounds.

Determine the number of hits using the table below:

Roll Made By:	***-3***	***-2***	***-1***	***0-1***	***2-4***	***5+***
Number of Hits:	0	1	5	10	15	20

Thus if the roll needed to hit is 14, and a 12 is rolled, 15 rounds hit the target. If the RoF does not divide evenly by 20, either ignore the excess or calculate fire for it in groups of 4 (see p. B120).

If the target gets a PD or Dodge roll, this can also be simplified. Rather than rolling defense against each shot, make one roll that applies to all shots in the entire 20-shot group.

Walking the Burst: A burst is a stream of bullets, like the stream of water from a garden hose. The stream of bullets can be moved, which is very useful in combat. This is called *walking the burst* onto the target. This first requires *acquiring the burst,* either by seeing the bullet impacts or by observing the tracer flight. Bullet impacts can only be observed in the light; tracer can only be observed in the dark. It might be possible to observe both, e.g., by firing tracer from the dark at a man illuminated by a searchlight.

Make a Vision roll to acquire the burst. In the dark, there is a +1 for using a tracer mix of at least one in five. There is a +2 for using all tracer in the dark. Firing tracer gives away the firer's position, of course.

Any burst of more than four rounds can be walked. On the fifth (or any subsequent) round of a single acquired burst, the firer can roll to hit on the same target. The group is at +1 plus the Accuracy bonus of the weapon; that is, the visually acquired burst gives the same effect as having aimed for 1 second. (Each subsequent group is at an additional +1, to a maximum of +3, as long as fire is continuous, at the same target, and visually observable by the firer.)

After each four rounds of any one burst, the firer can roll again to try and hit that target better, at the skill increase for walking the burst.

Each successive four-round group does have the recoil penalty for automatic fire – the gun's regular recoil penalty, increased by itself for each group fired.

Recoil

Guns recoil because of the Newtonian laws of motion. Technically, recoil is a consequence of conservation of momentum; the mass × velocity of the ejecta (bullets, powder gases, anything that goes out the muzzle) going in one direction must equal the mass × velocity of the gun going in the opposite direction.

Felt recoil or *kick* is more significant for gaming (at least in a 1-G field for more-or-less human firers). Felt recoil is a matter not only of the momentum of the gun but of it's controllability. Controllability is affected by stock and grip design, action type, compensators and the size, strength and position of the firer. This is simulated by the *Rcl* number, expressed as a negative, in the stats for each weapon in the weapon tables.

This number makes some assumptions about the variables affecting felt recoil; that this is the weapon as normally sold or issued, and that it is being fired from a steady position, with *both* hands holding the gun, by a human within the usual norms for size and strength (the 8 to 14 ST range in ***GURPS***). The GM can choose to increase Rcl for different conditions. These penalties are cumulative:

(1) Double Rcl for any weapon fired one-handed.
(2) Multiply Rcl by 1.5 for any long-arm with the butt-stock removed or folded during firing. Folding the stock also reduces SS by 2 and Acc by 3.
(3) Double Rcl for any strained, unbalanced or peculiar firing position.
(4) Double Rcl for each point of ST below the minimum ST listed for the weapon.
(5) Double Rcl for a base skill with the weapon of less than 12.

Non-Automatic Weapons Recoil: The Rcl penalty is applied to the *second* and subsequent shots from the same gun, unless there is a minimum 1-second pause between shots to reestablish shooting position. If the ST of the firer is less than the minimum for the weapon, apply the Rcl penalty unless there is a *2*-second pause.

Light Automatic Weapons Recoil: For automatic fire, the Rcl penalty applies even to the *first* group of up to four shots of a burst (each shot moves the weapon some), and each subsequent group of up to four rounds causes the Rcl penalty to increase by itself; e.g., if three successive groups are fired from a weapon with Rcl -1, they are at -1, -2 and -3 to skill.

Heavy Automatic Weapons Recoil: Heavy automatic weapons are designed to be fired from a mount, such as a tripod or pintle. The Rcl listed is for the gun fired from a correct mount, with the mount solidly placed and the gunner in a proper position. Firing such a gun when it is not solidly mounted can be really difficult! As a guide, *quadruple* Rcl penalties for any weapon that requires the Gunner skill if it is not properly mounted; *double* Rcl for weapons that use the Guns skill if they are not at least sitting firmly on their bipods. Multiply Rcl by *8* for such monster cartridges as the .50 BMG and 14.5mm Russian.

Reduced Hit Probability for Heavy Weapons

The previous sidebars cover several subjective rules for reduced weapon accuracy, reflecting the fact that most soldiers do not aim and fire well when under stress. The same is true for the crews of heavy weapons (vehicle weapons, howitzers, etc.).

To routinely reduce the lethality of heavy weapons from "textbook" to "realistic" levels the GM may want to use this rule:

Unless a NPC is firing at someone in an ambush-type situation (e.g., an airplane sneaks up on another from behind) or has Combat Reflexes, add only half the Accuracy bonus when aiming.

This also reflects the advantage that ace pilots used to make them aces: the best way to shoot accurately is to sneak up on someone and let him have it before the bullets start flying!

Optionally, this rule can also be applied to PCs. On the other hand, letting all PCs remain "cool" in a combat situation does allow them to perform more heroically – it's up to the GM.

Aiming Successive Groups

The *Aiming Successive Groups* rule (p. B121) allows automatic weapons to be used like a garden hose, aiming as they fire to get the full Accuracy bonus; details are also given under *Walking the Burst,* p. 66.

While this is a legitimate tactic in some situations, GMs may find that the interests of play balance are better served by reducing this bonus to *half* of Accuracy, rounding down, when firing under less-than-ideal circumstances. If the *Reduced Hit Probability* optional rule (above) comes into play, this bonus should be further reduced, to one-quarter the Accuracy bonus. Professional soldiers are usually taught that automatic fire is far less accurate than single aimed shots; this rule makes it so.

Reserve the full Accuracy bonus for actual aimed fire, or for automatic fire on the firing range.

Weapons Without SS Numbers

Weapons with "no" as their SS number are too large to be used to make snap shots – all shots must be aimed. They also take longer to aim than other weapons.

A weapon that is aimed for 1 turn receives only half its Accuracy bonus (round down). A weapon aimed for 2 turns receives its full Accuracy bonus. After aiming for 2 turns, the usual +1 per turn of aiming (to a maximum of +3) is added.

A weapon capable of autofire that lacks a SS number may not benefit from the *Aiming Successive Groups* rule (see above).

Retreating Clarified

The *Retreat* option on p. B109 is often misunderstood. The following two rules are intended to help clarify things:

Foes with Multiple Attacks: It is important to realize that one retreats from a particular *foe;* the retreat is not part of a particular *defense roll.* If you retreat from a foe who can make multiple attacks (e.g., via super powers, martial arts abilities or an All-Out Attack), the +3 bonus applies to *all* Active Defense rolls you make against him that turn. You may only retreat from *one* foe each turn, but this may affect *any number* of defense rolls made against his attacks.

Retreat and Movement: The backward step taken when retreating does not count against your character's Move score on the following turn. The justification is that your character is being driven back by the force of an attack, not just stepping. However, there are those who feel that this is unrealistic. As an *optional* rule, a character who retreats has his Move and Step each reduced by 1 on the following turn. Since most characters have a Step of 1, this means that they may not take the "Step" portion of a "Step and . . ." maneuver; a character with a Step of 2 could only Step 1 hex, etc.

Malfunctions

Any gun can fail to work because of a mechanical malfunction or operator error. Operator errors are covered by the critical miss rules. A critical miss on a firing attempt happens only on a natural roll of 17 or 18, or on a roll 10 higher than adjusted skill. A *malfunction* is a mechanical failure of the weapon or ammunition. A simple malfunction, unlike a critical failure, does not endanger the user.

All weapons have a *malfunction number,* or "Malf." This is always specified in the appropriate weapon table. For instance, a matchlock has a Malf of 14. This means that any roll of 14 or more, *unless* it is a critical failure, will be a malfunction; for a shooter of average skill, a roll of 14, 15 or 16 is a malfunction, while a 17 or 18 is a critical miss. Malfunction is based on the number rolled, with modifiers for weapon reliability and conditions. It is not affected by modifiers for target size, speed and range, accuracy, aiming, bracing or sights.

The better the weapon, the higher the malfunction number; most weapons of TL6+ have a malfunction number of *Crit.,* because they are reliable enough that, treated properly, they almost always fire when the trigger is pulled. *Crit.* means that the weapon malfunctions only on a critical miss, when the roll on the Critical Miss Table indicates a malfunction.

A critical failure with any weapon can turn out to be a malfunction, though! All "dud," "jam" and "weapon breaks" results on the *Firearm Critical Miss Table* (p. B202) should be treated as malfunctions. The GM rolls; the player does not know whether his weapon's problem is one that can be fixed or not until he tries *Immediate Action* (see below).

Exception: TL8+ weapons may be rated as *Ver.* or *Ver. (Crit.). Ver.* means that the weapon requires a verification roll – another roll against skill. Any failure is the malfunction from the table; any success is simply a miss. *Ver. (Crit.)* means that the verification roll must be another critical miss for the weapon to malfunction. Any other result is simply a miss.

For early weapons, including all black powder weapons, the only likely malfunction is a simple misfire . . . the gun does not go off. When automatic weapons are invented, a second common malfunction appears: *stoppage.* The weapon fires one or more shots, then stops. Usually a stoppage is a jam – the next round in sequence for a repeating weapon cannot reach the firing chamber. For single-shots, a stoppage means that the gun cannot be reloaded without repair.

The following factors affect Malf:

Skill: Malfunctions are far likelier for an untrained shooter. Any shooter with a skill of 10 or less has his weapon's Malf number decreased by 1. (Remember, a decrease in Malf number makes a malfunction *more* likely.)

Environment: Malfunction rates are also affected by the conditions surrounding the weapon and ammunition, as determined by the GM. As a rule of thumb, lower Malf by 1 in any circumstances where the *Slime, Sand and Equipment Failure* rules (p. 6) would apply.

Mistreated Weapons: Abuse will make any weapon less reliable. The GM determines the penalty, if any, for using the gun snatched from the mud, or found abandoned for 40 years in a closet, or rolled on by a collapsing horse. This may be a lowered Malf, a decrease in Acc, or some other penalty. Rolls against Guns, Gunner or Armoury can attempt to detect and correct the mechanical flaws of a weapon.

Immediate Action

For every kind of gun, some failures are more likely than others, and there is a standard "try this first" procedure that can be applied, as soon as it fails, which will give the best chance of correcting the problem and returning the gun to service. This is called *Immediate Action.* All malfunctions, as distinct from critical misses, are subject to Immediate Action.

Immediate Action is represented by a roll against Black Powder Weapons, Guns, Beam Weapons (for ultra-tech devices), Gunner or Armoury, as applicable. The player announces that his character is trying Immediate Action. The roll is made by the GM, in secret.

An Immediate Action roll is at -1 for any weapon that is not commonly used by the firer, -2 for an unfamiliar weapon of a familiar type, -5 for an unfamiliar type of weapon, -6 plus the difference in TL for a weapon from another TL and -10 for some completely off-the-wall weapon totally unlike anything the shooter has ever seen.

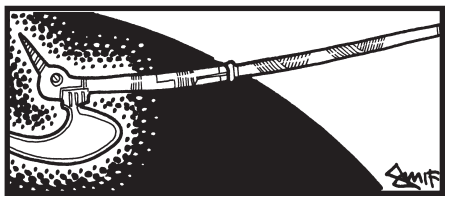
When a weapon malfunctions, the weapon-user does *not* have to take Immediate Action, but the alternative is a weapon that cannot be fired. The time required for Immediate Action is different for each weapon. It is usually variable (e.g., 2d seconds), though it may be fixed for some weapons. For most weapons, a critical success means that the weapon is restored to service *immediately.*

On anything but a critical success, the GM rolls to determine how long the attempt will take. He does not tell the player this. At the end of this time, a successful Immediate Action roll restores the weapon to service. A failed roll leaves the weapon in non-firing condition; another attempt can be made, in just the same way. A critical failure puts the weapon out of action until repaired by an armourer at the appropriate TL.

The character can abandon Immediate Action at any time; the player announces at the beginning of his turn whether he is continuing Immediate Action or not. If he continues, the GM tells him whether or not the gun can be fired that turn. If Immediate Action is abandoned, it can be started again later; the restart requires another roll for time.

Immediate Action For Revolvers and Multi-Barrels: If a revolver malfunctions, the user can always hope the problem was with the ammunition and pull the trigger again, rather than taking Immediate Action to fix the gun. Similarly, the user of a multi-barrel gun can try to fire another barrel.

If the malfunction was the result of a critical failure, the GM already knows what is wrong with the gun, and can play it accordingly. Otherwise, the GM should immediately roll against the weapon's Malf number, *minus 2.* For weapons with no Malf number, roll against a 15. A "failed" roll indicates a true malfunction; the next bullet or barrel won't work either. A successful roll means the next shot can be fired normally.



High-Skill Feinting

In ***GURPS,*** a DX 13 fighter with 8 points in a P/A weapon skill and a DX 16 fighter with only 1 point in the same skill both have skill 15, and are equally good at feinting and defending.

In reality, however, a well-trained fighter can usually feint a less well-trained fighter, unless there is an *extreme* difference in "natural agility" (i.e., DX). While it is true that "skill 15 is skill 15" for the purpose of hitting the spot you want, feinting represents more than this – it also represents having seen and tried many types of feints in practice and actual combat. This is a function of the number of hours you have practiced and the number of fighters you have faced.

Grappling – Expanded Rules

These rules clarify and expand upon the *Grapple* rules on p. B111, and also apply to the various special holds presented in ***GURPS Martial Arts.***

DX Penalty

When an attacker successfully grapples his foe's upper body (hit locations 3-10) with *both* hands, the defender has -4 DX on all actions that involve the arms *except* for DX-based rolls to break free. An arm that is actually grappled cannot be used at all until the victim breaks free. Lower-body actions – kicking, knee strikes and the like – are not affected.

When an attacker successfully grapples his foe's lower body (hit locations 11-16) with *both* hands, the defender has -4 DX on all actions that involve the legs (except for DX-based rolls to break free). A leg that is actually grappled cannot be used at all until the victim breaks free. Upper-body actions – punching, grappling, etc. – are not affected.

One-handed grapples do not affect DX, but prevent the use of the body part grabbed until the defender breaks free.

Hit Location

Hit locations are *not* used when grappling; grappling is always a Quick Contest of the attacker's DX+3 versus the defender's DX, and the part being grabbed is merely a special effect. It is much easier to grab someone than to hit a specific body part with a weapon! For instance, to choke or strangle, simply state that you are grappling with both hands and trying for the neck. To cover someone's eyes, ears or mouth with your hands after you have grappled him by the head, you must win a separate Quick Contest of DX every *turn.* If you have already grappled someone and wish to change locations, a new Quick Contest must be carried out.

Continued on page 71 . . .

By this logic, since each point in a weapon skill represents 200 hours of training, it follows that the fighter who has the most *points* in his weapon skill should get a bonus to feint. To reflect this, use the following optional rule:

If a character's weapon skill is higher than his DX, add the difference to his skill when feinting or being feinted. (There is no need to subtract anything if a character's skill is *lower* than his DX, however – there is little difference in skills at such beginning levels.)

For example, since his skill is 2 higher than his DX, the DX 13 fighter mentioned above would add +2 to his skill when feinting or being feinted, for an effective skill of 17, but would still attack and defend using his true skill of 15. The DX 16 fighter would use his skill of 15 for all purposes.

Invisibility and Darkness

In a combat situation where some fighters can't see their foes, there will be certain effects on attack and defense abilities:

Attacker cannot see anything (e.g., the attacker is blind or in total darkness): Attacker must make a Hearing-2 roll (or use some other method) to discover his foe's location. If the Hearing roll is failed, he may swing at a randomly chosen hex. His attack roll will be at -10 (-6 if he is accustomed to being blind), and cannot be aimed at any particular body part.

Attacker cannot see his foe, but can see his other surroundings (e.g., his foe is invisible): As above, except the attack penalty is only -6.

Attacker cannot see his foe, but knows his location for sure (e.g., his foe is in a lone smoke-filled hex): As above, but no Hearing roll is required and the attack penalty is only -4.

Defender cannot see attacker (e.g., his foe is invisible): If the defender is aware he is being attacked and makes a Hearing-2 roll, he defends at -4. Otherwise he gets no active defense at all! If the attacker is in a hex of smoke or unnatural darkness, but the defender is not, he defends normally since he can see the weapon coming.

Example: Mordecai is invisible, and fighting a bandit in daylight. The bandit must make a Hearing-2 roll to locate Mordecai before each attack – if he succeeds he attacks at -6. Mordecai attacks normally and defends normally. Any defense roll the bandit makes against an attack by Mordecai is at -4, and if he misses his Hearing -2 roll he gets no active defense at all.

Note also that an unseen fighter can safely try things (stand on a table, lie down, etc.) that a normal fighter could never do. He may also just wait in a corner until his foe is exhausted!

Shield PD as Cover

In ***GURPS,*** the PD of a shield adds to a fighter's defense roll. However, high defenses can create some very long battles, since the battle becomes a die-rolling contest to see who can roll a critical success or failure first. This isn't always desirable. The following optional rule changes the way shield PD works, and can speed up combat somewhat.

Instead of considering a shield as an extension of a combatant's armor (adding to his PD), a shield can be thought of as providing *cover* for the defender. Against ranged attacks, cover *subtracts* from the attacker's skill rather than adding to the defender's PD. This rule can be adapted to shields, even for melee combat, as follows:

The PD of a shield is subtracted from an attacker's to-hit roll instead of adding to the shield-user's defense roll.

By subtracting shield PD from the foe's to-hit roll, defenses are lowered enough that a skilled fighter can win a quicker victory, yet shields still provide useful protection against less-skilled foes.

Optional Cinematic Combat Rules

The rules that follow are suited exclusively to cinematic campaigns. GMs running down-to-earth campaigns should disallow most or all of them. Alternatively, the GM can choose the ones he prefers, customizing his campaign to achieve a balance between heroics and realism. Be sure to tell your players beforehand which rules apply to your campaign!

Chambara Fighting

Chambara is the Japanese name for a (not highly authentic) movie or TV show featuring heroic, highly skilled martial artists, usually ronin and ninja. This word is also sometimes applied to martial arts movies in general, particularly those where the main characters have superhuman abilities.

Chambara fighting style is fast and furious, with characters jumping through the air over enemy blows. This is the ideal cinematic style for a ***GURPS Martial Arts*** campaign. Only fighters with combat skills at 15 or better and the Trained by a Master advantage (p. CI31) may use these Chambara "bonuses."

A Chambara fighter using bare hands or a ready, balanced weapon may make one additional attack and parry per turn for every 3 points of weapon or Karate skill over 12. This will give a fighter two attacks at skill level 15, three at level 18, and so on. The Chambara fighter can skip one attack in order to change facing – that is, each facing change (to any facing) "costs" one attack.

A Chambara fighter's Wild Swing (see p. B105) is at a -5 hit penalty, but is not limited to a maximum attack roll of 9.

Chambara Defenses

A Chambara fighter with the Combat Reflexes advantage can sense a surprise attack from behind. Even if the fighter does not change facing, the attack still counts as coming from the side, not the rear, just as in a "runaround" attack (see p. B108) – it is only -2 to the defender's active defense.

The typical Chambara defense is to dodge by jumping. A DX (or Jumping or Acrobatics) roll is required. If the roll is successful, the fighter has *double* his normal Dodge defense against that attack. If the roll fails, he gets only the normal Dodge defense. On a critical failure, he *falls.* Each attempt to dodge by jumping means the fighter may make one less attack on his next turn.

A Chambara fighter may also evade in close combat, passing through a foe's hex, by Jumping. This tactic also requires a successful DX (or Jumping or Acrobatics) roll *and* costs 4 Move points (virtually ruling it out for average people with heavy encumbrance). If the roll fails, the attempt to evade failed. If the roll succeeds, the jumper is at +5 on the Contest of DX to evade (p. B113).

GMs should require the Trained by a Master advantage as a prerequisite for these rules. Chambara combat is best suited to adventures with enormous numbers of NPC spear-carriers whose only function is to be carved up by the hero.

Grappling – Expanded Rules (Continued)

Retreating

A character may, optionally, be permitted to retreat from a grapple, as per p. B109. In this case, the attacker steps into close combat and rolls a Quick Contest of his DX+3 vs. the defender's DX+3 (not DX). If he wins, the grapple proceeds as usual; if he loses or ties, the defender may immediately step back out of close combat. This counts as his one retreat for the turn.

Wrestling for Weapons

Wrestling for a weapon is *dangerous!* If a weapon or weapon arm is grabbed (see p. B111), *neither* fighter may use the weapon until he gains control of it. In the case of a cutting or impaling weapon, or a firearm, the GM should roll 3d each turn to see if anyone was injured in the struggle. On a 3-4, the person who initiated the grab is hurt; on a 17-18, the person who was grabbed is hurt. A cutting or impaling weapon does 1d-1 damage or regular damage based upon the stronger character's ST, whichever is *less;* a firearm does its usual damage. Roll hit location randomlyl; a knife *can* slip and stab someone in the foot!

Initiative

"Initiative" is a term used to express the concept of "who goes next." In most cases, initiative should be determined by the Move value, as per the sidebar on p. B95.

To determine the turn sequence of attackers with multiple attacks, use the following rule. The first attack uses the character's Move value; the second uses Move-1, the third Move-2, and so on.

Example: The Skull has three attacks and Move 7; he faces a thug with one attack and Move 6. The Skull attacks first; his second attack has the same Move as his opponent's (in that case, let the character with the highest Basic Speed go first); his third attack will come after his enemy's turn.

If one fighter has an opponent pinned, or in an arm or leg hold, the immobilized fighter takes his turn normally if he is slower than his foe. If he is faster than his foe, he does *not* go first; he goes immediately after the foe who has immobilized him.

Controlling Multiple Attacks

The optional Multiple Attack rules (see main text) lead to problems in some campaigns. Some players contrive to have their characters stretch the already unrealistic limits of those rules to their breaking point. Adventurers with half a dozen attacks per second or more become commonplace, and then are given some advantages (such as Full Coordination, p. CI56, or Altered Time Rate, p. CI49) to allegedly give them 12+ attacks per second! Outlined below are some ways for GMs to prevent abuses.

A Second's Still a Second

No matter *how* extraordinary a person's reaction times are, there are limits to how much he can accomplish in one second. GMs should feel free to disallow any complex maneuver used with other attacks. Most of the multiple attacks should be straightforward kicks and punches. A Jump Kick should count as two attacks, for instance. An attack which actually causes the attacker to *fall down* (e.g., a Drop Kick, or any kick on a failed DX roll after a miss) should immediately *end* the attacker's turn, regardless of how many attacks the attacker has left.

Super Martial Artists

The Altered Time Rate advantage (p. CI49) allows someone to "live" seconds for each real second that passes; additional levels increase this time accordingly. Some players have then gleefully designed a Chambara-style martial artist (p. 71) and given him that advantage, doubling or tripling his already numerous attacks. This is an abuse; the Chambara fighting rules already assume the fighter is moving faster than is humanly possible.

Each level of Altered Time Rate should increase the number of attacks by *one*. So a character with Karate-21 (normally giving him four attacks per second) and 2 levels of Altered Time Rate (which would give him 3 seconds of subjective time per turn) would not have 12 attacks per second, but only six attacks per second.

The real advantage of Altered Time Rate is that it allows actions other than extra attacks to be made. The combatant above could opt to simply take his usual four attacks, for example, and use his two extra seconds of subjective time to ready two weapons, or to concentrate on some power for 2 seconds.

Circumstances

No matter how many attacks a person has, some situations will prevent him from using them. If the skirmisher is dodging the full RoF of a submachine gun, he should probably be limited in the number of actions he can take – he has been literally dodging bullets for a full second!

Multiple Actions for High Move

This optional rule lets very fast characters take more actions, as well as moving faster.

For every *full* 6 points of Move, you can take one maneuver per turn, minimum of one. This does *not* speed up concentration! If a skill requires a turn of concentration, that means one *full* turn. This will allow someone with a Move of 12 to Step and Ready, then Step and Attack in the same turn. One additional parry and block are added per maneuver after the first.

Enhanced Move, Super Running, Super Flight and Super Swimming do *not* count toward Move when determining this number! Only count basic Move, modified by encumbrance.

Increased Step for High Move

In ordinary combat, the *Step* portion of a *Step and (anything)* maneuver is a 1-hex move. This reduces the effectiveness of high speed, as a character can only take a small portion of his Move without losing his active defenses.

This is perfectly acceptable for characters with low Moves, but someone with Move 15 should be able to cover more ground while drawing a pistol than someone with Move 5.

To reflect this, for every 4 *full* points of Move, Step is increased by 1, with a minimum value of 1. A character with Move 0 to 7 will have a Step of 1; Move 8 to 11 has a Step of 2, Move 12 to 15 has a Step of 3, and so on. This will allow someone with Step 3 to move 3 hexes and still ready a weapon using the *Step and Ready* maneuver.

Multiple-hex Steps may be broken up in a turn (e.g., a person with Step 2 could move 1 hex, fire a weapon, then move 1 more hex.) A character who has multiple actions may distribute his Step between those actions in any way he wishes.

Multiple Attacks

Fiction is full of warriors who can fight two, three, or more opponents at the same time, moving with unnatural speed (helped in the movies by obliging stunt men who wait in place to be hit by the protagonist). Even in real life, trained fighters have demonstrated incredible reaction time that would probably allow them to attack more than once in a second. To simulate this, three sets of optional rules can be used:

Cinematic Combat: As described on p. B183, this rule allows double the usual number of blocks and parries per round.

Skill Bonuses: For every *full* 8 points of skill, the character gets one attack and one parry. In other words, a fighter gets one *extra* attack and parry at level 16, two at level 24, and so on. This allows only expert and better characters to have this huge advantage in combat.

Chambara Rules: As described on p. 71, these rules allow a fighter to make one extra attack and parry for every *3* points of skill over level 12, but they are limited to those with the Trained by a Master (or Weapon Master) advantage.

All of the Above: These three rules can also be used together, to allow for an interesting mix of character types, and to add variety to a PC party.

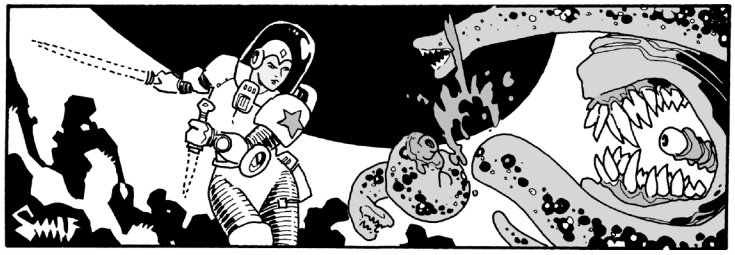
For instance, the Cinematic Combat rules of p. B183 would apply to any character with low combat skill levels. Highly trained characters (skill 16+) would use the second rule, and fighters who are Trained By A Master would use the Chambara fighting style.

If the *Multiple Actions for High Move* rule (above) is also being used, then that rule applies to *all* characters, and the number of extra attacks and parries determined by skill and by Move are added together.

Multiple Attack Rules

Skill bonuses, the Chambara rules and multiple actions for high Move will easily lead to fighters who can attack and parry two, three or even more times in a round. Although this represents cinematic "reality," players may unbalance the game by abusing those rules, and combat may become the center of the game. Also, a number of questions will arise about the application of those rules under special circumstances. Here are some guidelines for multiple attacks; the GM should use some or all of them to control game balance.

All-Out Attacks



If a character with multiple attacks makes an *All-Out Attack*, he loses all his active defenses, but can still dodge once (he cannot use the Chambara jumping dodge on p. 71, however). By using the *All-Out Attack*, he can add one extra strike for every *two* attacks he normally has, rounding *down.* Alternatively, he can choose *any one* of the bonuses applicable to an *All-Out Attack* (+4 to hit, +2 damage, etc. – see p. B105) and apply it to *all* of his normal attacks, still at the cost of all his active defenses. This makes *All-Out Attacks* rather inefficient and undesirable, as well they should be. Even in the movies, very few trained fighters are berserkers who will use such maneuvers.

Feinting

A character can feint and attack on the same round, by sacrificing one attack for the feint. He still keeps his parry. The feint will help the *next* attack, as per p. B96, but not any subsequent blows.

Missile Weapons

Characters with multiple attacks may reduce the ready time of a missile weapon by 1 second for each attack spent, effectively trading those extra attacks for Ready maneuvers.

For instance, a bow takes 2 seconds to ready (p. B96). An archer with three attacks can ready and shoot an arrow in 1 turn; one with four attacks can ready and shoot an arrow, then draw another arrow just in time for the next turn. As well, when using these cinematic rules, Fast-Draw (Arrow) rolls will allow the archer to fire once for *every* attack he has! The Fast-Draw roll must be made for every arrow shot, at a cumulative -1 for every arrow fired after the first one. None of these shots will be aimed; if the archer's modified skill is less than the bow's Snap Shot number, each shot will be at an additional -4 (see p. B115).

GMs may impose some special requirements for multiple attacks with ranged weapons, such as the Zen Archery skill (p. CI145), the Trained by a Master or Weapon Master advantages, or all of the above.

Thrown Weapons

If a fighter has several attacks, any or all of them may involve thrown knives, shuriken, etc., with the following conditions. The attacker must have all the weapons to be thrown in his hand; if not, he must have them in an easy to reach pocket/sheath, making a Fast-Draw-3 roll for each weapon drawn after the first one in a turn. As with missile weapons, the GM may limit this maneuver by requiring the Throwing Art skill (p. CI145), the Weapon Master advantage, or both.

Faster Combat

In a cinematic or "four-color" campaign, some characters will have such high Dodges that it is almost impossible to hit them, no matter what the attacker's skill level. This has the advantage of simulating cinematic combat very well – heroes rarely get hit by gunfire, fragments or flying shuriken. Unfortunately, this can also slow combat down to a crawl, as only critical successes or failures will make a difference in the fight.

There are several mechanisms that can be used to speed up combat. All of these are optional rules.

Critical Success

Normally, a 3 or 4 is always a critical success, a 5 when modified skill is 15, and a 6 if modified skill is 16+. To make critical success more likely, a 7 is a critical success for a modified skill of 20, an 8 for 25, a 9 at 30 and a 10 at skill level 35. The progression stops here, giving the fighter a 50% chance of achieving a critical success each time he attacks!

The results are combined with the rules on p. B86 and summarized in this handy table:

Extended Critical Table

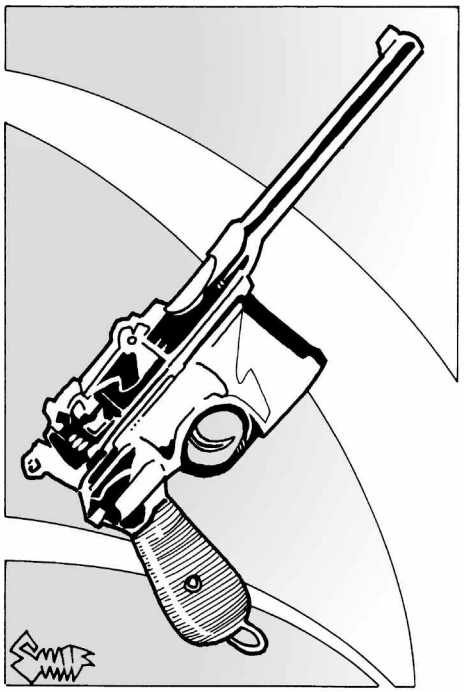
Modified Skill Level	*Critical Success*	*Critical Failure*
2 or less	NR*	NR*
3	3	13-18
4	3-4	14-18
5	3-4	15-18
6	3-4	16-18
7-14	3-4	17-18
15	3-5	17-18
16-19	3-6	18
20-24	3-7	18
25-29	3-8	18
30-34	3-9	18
35 or more	3-10	18

* *NR:* No roll. If modified skill level is 2 or less, no roll is allowed at all, unless this is a *defense roll* – see pp. B86, B98. A defense roll of 3 or 4 always succeeds; a defense of 2 critically fails on a 12, a defense of 1 on an 11.

Quick Contests

For fighters with Dodges of 13+, it is recommended that combat be resolved with a Quick Contest of Skills between the attacker's weapon or unarmed combat skill level versus Dodge. This will keep combat from bogging down into an interminable series of dodged attacks.

The character should be allowed to use his Parry and Block defense normally, as these can be used only a few times per turn.



Only the Best Shall Win: An Optional Rule

When two highly-skilled fighters mix it up, fights can last almost endlessly because attacks on both sides are easily defended against. One way to deal with this problem is to increase the chance for critical hits (see above). Another system is presented here. *Note:* this optional rule will give high-skilled characters an enormous advantage over inferior foes.

When an attack is rolled, keep track of how much the modified skill roll succeeded by; for every *2* points the attack succeeded by (rounded down), the defender is at -1 to *any* Active Defense against that attack (not just Dodge, as in the case of the Quick Contest optional rule presented above).

Example: Master Lung has Karate-24, and he is fighting the Skull (Karate-18, Kicking-18). Master Lung chops at the Skull's neck (Karate-5 roll), and rolls a 12, making his modified skill roll by 7. The Skull's normal Parry is 13, but he is at -3 (7 divided by 2, rounded down) for a total of 10. He rolls an 8 and defends. The Skull's counterattack is a kick to the body; he rolls a 9, beating his Kicking maneuver by 9. Master Lung's super-high Parry of 16 is at -4; he rolls a 13 and is hit!

This rule will tend to make characters aim at easy targets in combat with skilled opponents, since they will want to inflict the maximum penalty possible on their enemies' defenses. A huge difference in skill will usually spell doom for the lesser character (it usually does anyway, but with this method it happens more quickly).

Parrying and All-Out Defense

For every attack he has, a combatant can parry once. The number of blocks and dodges he has remains the same. If he chooses the All-Out Defense maneuver, the number of parries he has doubles, and he can defend twice against the same attack. However, a fighter cannot use the All-Out Defense with one of his attacks and still attack normally with the others. By using this maneuver, he loses *all* his attacks for that turn.

Readying

Weapons that become unready after attacking or parrying (such as axes, nunchakus, etc.) can be readied on the same turn by spending one attack and one parry. For instance, a fighter with three attacks could attack with an axe once, ready it, and strike with it a second time on the same turn. If he used the unbalanced weapon to parry as well, it would cost him another attack and parry to ready it. In that case, he could attack and parry only once, but his weapon would be ready for the next turn.

Opponents with Multiple Attacks

The Multiple Attack options were designed mainly to allow PCs to chop through large numbers of cannon-fodder flunkies. When opponents with multiple attacks face each other, a player may make nine or ten attack and defense rolls in a single turn. The GM should use the rules for Initiative (see sidebar, p. 71) to determine the turn sequence. The fighter with the highest Move attacks first, regardless of the number of attacks. Note that a pinned fighter cannot move before the opponent who is pinning him.

Flying Characters in Combat

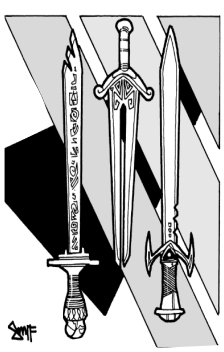
The full rules for combat while flying can be found on p. B139; the rules for dropping objects from a great height can be found on p. B131. Where the rules below differ from those in the ***Basic Set,*** these rules take precedence:

Attacks

Weapon use is difficult in flight. If a flying being tries to attack with a weapon, he is at an extra -4 to hit. *Double* this penalty if the character's Flight skill is lower than his DX. This penalty does not apply to *natural* attacks (clawing, biting, etc.) made by members of flying races. Note that the speed of a flying being relative to his target counts into the range/speed total for a ranged weapon attack.

When flying characters use hand weapons against foes on the ground, use the modifications for relative height (p. B123). Weapon reach becomes very important! Do not worry about the relative height of two battling flyers, however.

Flyers often have very high Move scores; realistically, they should probably be able to cover more ground on the *Step* portion of any *Step and . . .* maneuver. To reflect this, use the *Increased Step for High Move* rule on p. 72 for any flyer whose Move is 8 or more.



Defenses

Flying characters use Basic Speed (not flying Move) to calculate Dodge, just like everyone else. However, since they have an extra dimension to move in, they get a flat +2 to Dodge while flying (regardless of the exact nature of the flight). When taking the retreat option on an active defense, a flyer may retreat up to 3 yards, and may retreat *upward* if that would move the character away from the attacker. On the other hand, flying characters also have a -2 to Parry and Block. *Double* this penalty if the character's Flight skill is lower than his DX.

Swashbuckling Maneuvers

Swashbucklers are famous for flashy maneuvers with ordinary objects. Chandeliers come to mind immediately, as well as clever ploys with tables, chairs, curtains, banisters and rugs.

Chandeliers and Other Things to Swing On

Every tavern and castle dining hall has at least one chandelier, of course. Many chandeliers can be lowered by a rope for ease in lighting and snuffing. Others require long-handled "matches" and snuffers, and are hung by chains.

The GM should allow a character an IQ roll to determine whether or not a chandelier will hold him – most heroes automatically check such things out at the first sign of trouble, or even as they enter a room! GMs may assign a likelihood of breaking (1-in-6, 50%, etc.), and roll when the character grabs it.

There are two common types of taverns at TL4-5. The ordinary type has a low ceiling (7 to 9 feet high); the type preferred by Hollywood is a two-story building with the common room extending all the way up to the roof, and balconies all around, leading to the second-story private chambers. The only gaming differences will be in how low the chandelier hangs, plus any balcony action.

In the low-ceilinged taverns, a chandelier hangs down to just over 6 feet above the floor. Such a chandelier can be easily reached while standing on the floor, 1 or 2 hexes away. In fact, it is a distinct hazard to someone fighting on top of a table! These chandeliers won't be very large, but there will be several if the room is good-sized. In a really low-ceilinged room (7 feet), only 1-hex swings are possible.

In a Hollywood-style room, they might hang that low, but are more likely to come down to around 8 feet above the floor, best reached from a table-top. Such rooms often contain large chandeliers, sometimes up to 3 hexes in diameter. Treat any part of the chandelier as being the whole for swinging purposes. If a chandelier is 8 feet above the floor, a character can jump onto it from an adjacent floor hex. One 7-feet high can be reached from up to 2 floor hexes away. Anything higher *must* be reached from a table or raised place. The farthest a character can jump and grab the chandelier without a Jumping roll is 2 horizontal hexes. The GM may allow characters at farther distances to attempt a Jumping roll to reach the chandelier, and then an Acrobatics roll to grab it. The Acrobatics roll in that case is at -2 for each hex over 2 that the character jumps.

The distance away from the chandelier anyone may land is equal to the distance jumped to reach the chandelier +2 – he *must* go at least as far as he jumped to reach the chandelier. The distance he can kick an enemy is equal to the distance he jumped to reach the chandelier +1. He may not grab a chandelier if someone is in the hex beneath the part he wishes to grab, or between him and that hex.

Nonhuman Foes

The following are some optional rules for combat with nonhuman (or metahuman) enemies.

Vital Points

When fighting humanoid aliens, vital points are targeted at -1 or more, depending on how different the alien's internal structure is. This modifier also affects skills such as Pressure Points (p. CI144) and Pressure Secrets (p. CI144). Completely alien creatures cannot be hit in vital points unless the character is familiar with their anatomy.

Multiple Arms

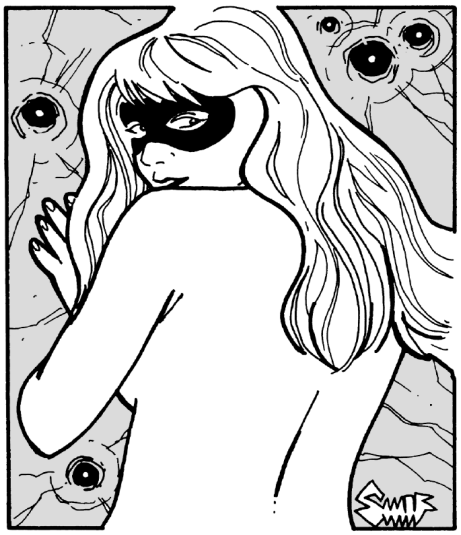
For every arm above two, multilimbed characters get a +2 to all attempts to grapple or pin, or to break free from a grapple or pin. A six-armed alien with Judo-15 would have an effective skill of 23 to grapple (a total of 26 with the +3 bonus) and pin! When attempting an Arm Lock, each additional arm adds +1 to the Judo roll, both to immobilize and to inflict damage.

Superhuman Strength

A fighter with Judo can throw an opponent after a parry, no matter how strong it is (see p. B51), since the martial artist is using the attacker's own strength. However, if a Judo practitioner engages an extremely strong foe using close combat maneuvers that normally require a Quick Contest of ST or DX (see pp. B111-112), he will have more difficulties.

More than strength, *weight* is the determining factor here. A very strong nonhuman creature or superhuman that is no heavier than a human can be affected as easily as a normal. If the creature's weight is within human ranges, use its DX instead. If the creature's weight is greater than 300 lbs. but less than 500 lbs., give it a +1 bonus in the Quick Contest for every 10 points of Strength above the human average (+1 for ST 20, +2 for 30, etc.). *Double* this bonus if weight is greater than 500 lbs. but less than 800 lbs. If the creature weighs more than 800 lbs., use its full Strength.

For a close combat maneuver that does not normally require a Quick Contest, such as a Judo Throw initiated with a grapple as opposed to a parry, read the bonus above as a penalty instead, and apply this penalty to the attacker's Judo skill.



Silly Combat Rules

The following rules are not just cinematic – they're downright *silly.* They can also be a lot of fun in a cinematic campaign. All of these rules are optional; some will unbalance a serious campaign, so use them at your own risk!

Bulletproof Nudity: PCs can increase PD by undressing. A ragged t-shirt or skintight bodysuit is PD 3, stripped to the waist or skimpy swimwear is PD 5, total nudity is PD 7. Add +1 for female PCs.

Cinematic Explosions: In reality, an anti-tank rocket can blow an unarmored hero into next week. In cinematic combat, the explosive damage (p. B121) from grenades, shells, rockets and the like fired at lightly-armored characters does no direct damage. Instead, it only disarrays clothing, blackens faces, and (most importantly) counts for knockback. For every hex a person is knocked back by an explosion, he should take 1 hit of crushing damage.

Cinematic Knockback: In reality, guns do not cause much knockback at all. In cinematic combat, however, a person with a shotgun or heavy pistol can sometimes knock over and stun a heavily-armored foe, even if his shot didn't penetrate DR. Instead of using the realistic rules for knockback from bullets (p. 58), assess the usual 1 hex of knockback per 8 hits of basic damage, as stated on p. B106. Besides rolling to see if he falls down, a character who suffers knockback must make an IQ roll or be mentally stunned for one turn. The roll is at -2 per hex he was knocked back.

Exploding Eyeballs: In a space campaign, the facts of decompression are ignored in favor of graphic gore. At the smallest pin-prick, NPCs burst into messy clouds of tomato paste. PCs, of course, are tougher, and survive long enough to patch the leak or don spacesuits.

Continued on page 78 . . .

No real swing is possible by jumping onto a chandelier from directly beneath it, but it would be easier to climb that way.

Chandelier swinging is done at Acrobatics (or DX-6). Only one roll is needed both to swing and land, but a DX-2 or Brawling-2 roll is also needed to kick a character. The player announces his intent ("I will grab the chandelier and swing to this hex") and makes his roll. If the Acrobatics roll is missed, the swing is puny and doesn't go as far as the player intended, unless there was a Jumping roll required to reach the chandelier. In that case, failure on the Acrobatics roll means the character missed the chandelier altogether! Critical failure results in either missing the chandelier completely and falling down, or possibly swinging into a disastrous situation – the GM should be creative!

Anyone may swing on an easily-reached chandelier from 1 hex away to an empty hex directly opposite without a skill roll.

Ship's rigging: A sailing ship is designed so that swinging from one part of a ship to another (or from one ship to another) is fairly easy. However, loose lines are never allowed simply to hang free. All loose lines are belayed (secured) in some fashion, and must be freed before they can be swung on. In an impending boarding action, this is done at the last possible minute. Standing too long with a rope in hand makes one a good musket target.

To free a rope from a belaying pin is a simple matter, requiring 2 seconds. A successful Seamanship roll will release it in 1 second – critical failure snarls the rope, meaning it takes 3 seconds to free!

Distances swung on a ship can be fairly large – up to 20 yards, although most swings will be under 10. No Acrobatics roll is required for simply standing and swinging on a rope that is secured forward overhead. However, to land in a particular hex requires an Acrobatics roll, at -1 per hex over 10 hexes traveled. If that roll is missed, roll randomly to determine which side of the target hex is the miss direction. The distance off-target is the amount the roll was missed by, up to a maximum of the distance between the starting hex and target hex. Use this procedure to determine random swings, rolling against DX-6 if the character does not have Acrobatics. To kick someone still requires a DX-2 or Brawling-2 roll. Damage from a kick while swinging is swing+1.

Carpet Yanking

A carpet may be yanked while a character is standing on it. To yank a carpet, a character must be crouching or kneeling, or standing at a lower elevation (in an orchestra pit, for example). Since crouching can be done as a free action at the beginning of any turn (p. B103), a character may crouch and yank a carpet in a front hex in one action. He can yank up to 25× his ST in pounds. An average carpet weighs about 2 lbs. per square yard. Thus, if there is a heavy table (80 lbs.) and a large man (200 lbs.) on a small carpet, a ST 12 character could yank it without a ST roll. Lesser ST characters would need to use the *extra effort* rules on p. B89. In general, assume that any character can yank a carpet with a single foe on it, but it takes at least a ST 13 character to yank a carpet with two men on it without a ST roll.

A character on a yanked carpet must make a DX-3 roll to keep on his feet – otherwise, he falls down! He moves 1 hex closer to the yanker, whether he keeps his footing or not, as do all furniture, bodies, chests, etc.

Shoving and Throwing Furniture

Tables are shoved into heroes in every swashbuckling movie, and stools are tossed about like confetti. Use the *Throwing* rules on p. B90 for how far a heavy object can be *shoved.* Anything that weighs over 6×ST requires two hands to shove. A ST 13 character can shove a large table (80 lbs.) 2 yards without a ST roll. Weaker characters can move it only 1 yard. Use the *Extra Effort* rules on p. B89 to determine ST rolls.

A good-sized table weighs 80 lbs. at TL4-5 and stands just over 2-feet high – treat it as 2 feet. Stools weigh 10 lbs. each and are a foot high; benches are 18 inches high and weigh 50 lbs. Barrels are usually a yard high (some are larger, casks are smaller) and weigh 40 lbs. empty; they are *very* heavy when full.

A character who has a table shoved into him may retreat if he saw the shove and is able to retreat. He may also try an Acrobatics roll at -4 to jump to the top of the table, landing in a crouching position. On a critical success, he can go *over* a 1-yard wide table, if he prefers, and land standing! An Acrobatics roll at -4 will put him safely *under* the table, lying down, if he so desires. If he fails his Acrobatics roll or doesn't retreat for some reason, he must make a DX roll to avoid falling and a HT roll to avoid being stunned. Critical failure on either roll does 1 point of damage.

To actually flip a table over takes both hands and a ST-2 roll. The table lands in the adjacent hexes. A character who sees a table being flipped at him may retreat. Otherwise, he takes 1d crushing damage.

Curtains and Wall Hangings

Wall hangings are *heavy* (20 to 60 lbs.), and most curtains at TL4-5 are too. They are designed to keep drafts out, and some weight is needed for that. They tend to be securely fixed at the top, although the movie variety come down easily.

To pull a curtain or wall hanging down with one hand requires a roll against ST-2. To get it to fall in the adjacent hex then requires a roll against DX-2 – otherwise it falls straight down (not on anyone, unless he was hiding behind it). To accomplish the same thing with two hands requires two rolls, at ST+2 and DX+2, respectively. With successful rolls, the tapestry or curtain can be made to fall on any hex it is adjacent to.

A character who sees it coming may retreat. If unable to retreat, or if his back was turned, he is then enveloped in the curtain. To get out requires 3 turns, during which the character can see nothing outside the curtain. A tapestry or curtain provides PD 1 and DR 1, though!

Jumping Through Windows

Of course swashbucklers will want to jump through windows! The GM can allow this with an Acrobatics roll, and may also require a Jumping roll if the window is more than 4 feet off the ground or floor. The character must have at least 1 movement point left after making contact with the window. Making the Acrobatics roll by 5 or more means that the character ends up in the hex directly on the other side of the window, on his feet and unhurt – nicely done! Making the roll by less than 5 means he takes 1d-3 cutting damage, but ends up on his feet as above. A person will usually protect his face as he jumps through a window, so no damage is taken there. Use the DR of the least armored part of the rest of the body to figure damage taken.

If the Acrobatics roll is failed, the jumper takes 1d-3 cutting damage *and* he falls down in the 2 hexes directly on the other side of the window. Critical failure means something disastrous – he ends up as for regular failure *and* drops his sword and is stunned, he ends up draped across the windowsill (taking 1d-1 cutting damage) or he misses the window entirely and takes damage as if he were thrown against the wall (p. B90), falls down, is stunned, etc. The GM should choose whichever option is most embarrassing for the character at the time!

Going through a window ends a character's turn – no further movement or action is possible.

Incidently, TL4 glass is somewhat more opaque than modern glass. Treat this as -3 to any Vision rolls for casual observation through a window. Intense peering through such glass *will* reveal whatever there is to see at no penalty, but it will take three times as long to see anything as through TL6+ glass. Many places deliberately have *very* opaque glass – nothing but silhouettes can be seen through such windows.

Silly Combat Rules (Continued)

Firecrackers and Hand-held Nukes: Grenades come in two varieties; one is available only to friendly forces and one to opposing forces. Opposing-force grenades make noise and smoke, but do only sartorial damage (which improves the defense of PCs; see *Bulletproof Nudity,* above). Friendly-force grenades are devastating but selective; they will destroy a main battle tank but never damage the thrower, even if he drops one on his toe. Friendly-force grenades become opposing-force grenades if used by opposing forces and vice versa.

Gun Control Law: The enemy will rarely use guns. When they possess them at all, they will threaten the PCs with them and will never defend against attacks meant to knock firearms away. Most of the time, the bad guys will only use melee weapons.

Hollywood Automatic Weapons: Opposing forces never get to use the *Aiming Successive Groups* rule (p. B121) and all burst fire counts as a snap shot, never getting an Accuracy bonus.

Imperial Stormtrooper Marksmanship Academy: If the Gun Control Law (above) is broken, the bad guys never hit with the first shot or burst of automatic fire. This always lands close enough to the PC that he is aware that he is under fire, but never does damage.

Infinite Ammunition: PCs always have spare ammunition or power cells; if they shoot up all they are carrying, they immediately find more. They are not required to wear web gear, or even stick spare magazines in their pockets; when they need it, it's there. Their weapons only run dry during a pause in the action or they are allowed to reload off camera. Related to this is infinite functionality; their weapons never misfire, fail to feed or stop working.

Larger Than Life: The optional Stun rules (p. 151) apply to the PCs (and select NPCs) but not to most normal mortals (including cannon-fodder attackers). In effect, this gives the heroes 60 or more hit points against their enemies' 10 or so – sounds like old roleplaying times, doesn't it?

Martial Artists Anonymous: Every NPC the characters encounter – from the local greengrocer to the shoeshine boy – will have Karate and Judo at 16+, and will be itching to use them, both for and against the PCs. Any attack will be heralded by loud kiais. Every few minutes the party will hear shouting and loud thumps, as of falling bodies; if they investigate, they will find a routine domestic disturbance being settled by kicks and chops.

Martial Arts Etiquette: If a PC uses Karate or Judo, his opponents will always face him one-on-one. Unengaged NPCs can dance around the fight uttering shrill cries of encouragement, but none will engage until his predecessor has been disposed of.

Banisters

Sliding down a banister is a *fast* way to get down stairs. Assume a person can travel at a speed of 5 (15 feet per second)! Since travel on stairs is ordinarily at half speed, this is quite speedy. Someone may travel more slowly than that, squeezing with his legs as a brake. Unfortunately, banister sliding is not easy to do . . .

Each second that a traveler slides down a banister, he must make a DX-6 or Acrobatics-6 roll. A failed roll means he is no longer sliding. A miss by up to 4 merely means he ends his move on the steps, on his feet. The more he misses the roll by, the less distance he travels before slipping off the railing. Missing by more than 4 results in falling down the stairs. Treat it as regular falling damage, p. B131 – Acrobatics does *not* reduce damage by 5 yards in this case. Critical failure means he falls on the *wrong* side of the banister!

The person sliding may attempt to attack any one opponent that he passes on his descent. This is treated as a Wild Swing, p. B105. Anyone who chooses the Wait maneuver may attack him as he goes by (but cannon-fodder NPCs wouldn't think to Wait, of course). Roll for damage normally in each case, but add 1 to any damage done if moving 4 or 5 hexes per second.

Warning: If there is a finial on the banister and the adventurer does nothing to remove it first, the character takes 2d damage to a very sensitive part of his anatomy!

Balconies and Other Climbable Objects

Most climbing modifiers can be figured out by referring to p. B89. The GM may allow generous bonuses to a Climbing roll, or reduced time, if the character makes a successful Acrobatics roll. Likewise, jumping from balconies to chandeliers is easily possible for most swashbucklers – allow a good Acrobatics roll to swing the PC to any reasonable spot.

Let a character get a handhold on a high balcony or other object with a Jumping roll – see p. B88 for distances. Allow him a ST roll to pull himself up quickly, and an Acrobatics roll to vault over the railing in 1 second instead of climbing over it in 2 or 3. Failure at any of these rolls merely means the PC needs to take an extra second or two to accomplish the task – only critical failure means disaster. In general, allow swashbuckling PCs to climb faster than the times given if they make good rolls.

Throwing Items in the Face

What is there to throw? Drinks are popular, as are hats and candelabra. It takes an action to ready such an item ("I ready the beer," needs to be clarified – to drink or to throw?). Grabbing an item from a table doesn't require a DX roll, unless the character is also trying to Fast-Draw a weapon or perform a similar action in the same turn.

Tossing a beer in the face is treated as tossing anything else. A DX-3 or Throwing roll is needed to hit, with any modifiers for an unaimed shot, the off hand, etc., and a -5 to target the face. Treat the SS number (see p. B115) for such improvised weapons as 10. Acc is 1, Max is 3 and 1/2D does not apply. Heavier items are covered on p. B90. Thrown items may be dodged or blocked; a cloak can be used to block in this case. Such small items can be parried at -2, except for liquids or *very* tiny objects.

If a non-harmful substance hits someone in the face, a Will roll is required to avoid flinching. A failed roll means a flinch. The victim is -2 to any further defenses that turn, and -2 to any DX roll or sense roll the next turn. Critical failure means the eyes are hit. The defender is blinded for 1d seconds (the GM rolls secretly). A successful roll means the individual doesn't flinch – no game effect, unless he has Bad Temper.

The GM may rule that an Alcoholic character may be distracted from the battle (make an IQ roll), should he be doused with spirits . . .

Fast-Talk During Battle

During a fight, a swashbuckler may attempt to Fast-Talk his opponent into letting down his guard in some way – especially useful against many enemies at once. Although talking counts as a free action, to be convincing, the Fast-Talker really has to look as if he is seeing a rabid, frothing dog charging down at the group as he shouts, "Look out, mad dog!" This means he is at -2 to any physical action and defense until his next turn – this can be a risky maneuver. Roll a Quick Contest between the character's Fast-Talk or Acting and each of the opponents' IQ. The GM may allow a bonus to a deceitful PC's skill if the player comes up with a truly plausible diversion.

If the Fast-Talker *wins* the Quick Contest, the losing character is considered mentally stunned (see p. B127) for 1 turn only – he may make no action and his defense is at -4. He has turned his head, checked his shoelaces, or whatever. Critical failure by the duped party or critical success by the liar is treated like *total surprise* – see p. B122. The deceiver may then make any legal action that turn, but any DX-based maneuver is at -2.

If the other character ties or wins the Quick Contest, he gets his normal action on his turn – he's not taking his eyes off his man, even if there *is* a mad dog charging down on him!

Sweeping Counter Parry

The sweeping counter parry is for situations where a highly-skilled fighter needs to brush aside a large number of minor foes in order to pursue goals more worthy of his mettle. It is risky, but then being a swashbuckler isn't the world's safest occupation, anyway.

The basic idea of the sweeping counter parry is to make multiple foes' weapons unready on their own turn. This allows you a free action, such as turning in place and moving rapidly away. They can either step and ready their weapons, or they can sprint after you with unready weapons. The former allows you a good head start. The latter allows you to swivel back towards them with sword in hand and grin on face, ready to punish your foolish, unready enemy . . .

To perform the sweeping counter parry, the character must take the All-Out Defense maneuver on his turn. However, the usual All-Out Defense rules are not followed. Instead, the fighter announces his intention to sweep all of his foes' blades out of line (making them unready). This may be done against a single individual, of course, but is more useful when facing two or more foes.

This is handled as a number of simultaneous Quick Contests of Skill. Each foe makes a skill roll, and the All-Out Defending combatant makes a single skill roll. This roll is not against his parry, but against his full weapon skill. However, it is at -2 for each foe beyond the first. That is, if he is facing three swordsmen, he rolls at weapon skill-4.

The parrying fighter rolls only once. (He's only making one maneuver: an all-encompassing sweep of his blade that is attempting to catch *all* of the foes' blades and throw them severely out of line – at least 90º.) His roll is compared one after the other to each of his foes' rolls. If he wins a Quick Contest, that foe's weapon is unready. If he ties, he takes no damage from his opponent's attack, but the foe's weapon is still ready. If he loses a Quick Contest he takes normal damage from that attack, and the weapon that hit him is still ready.

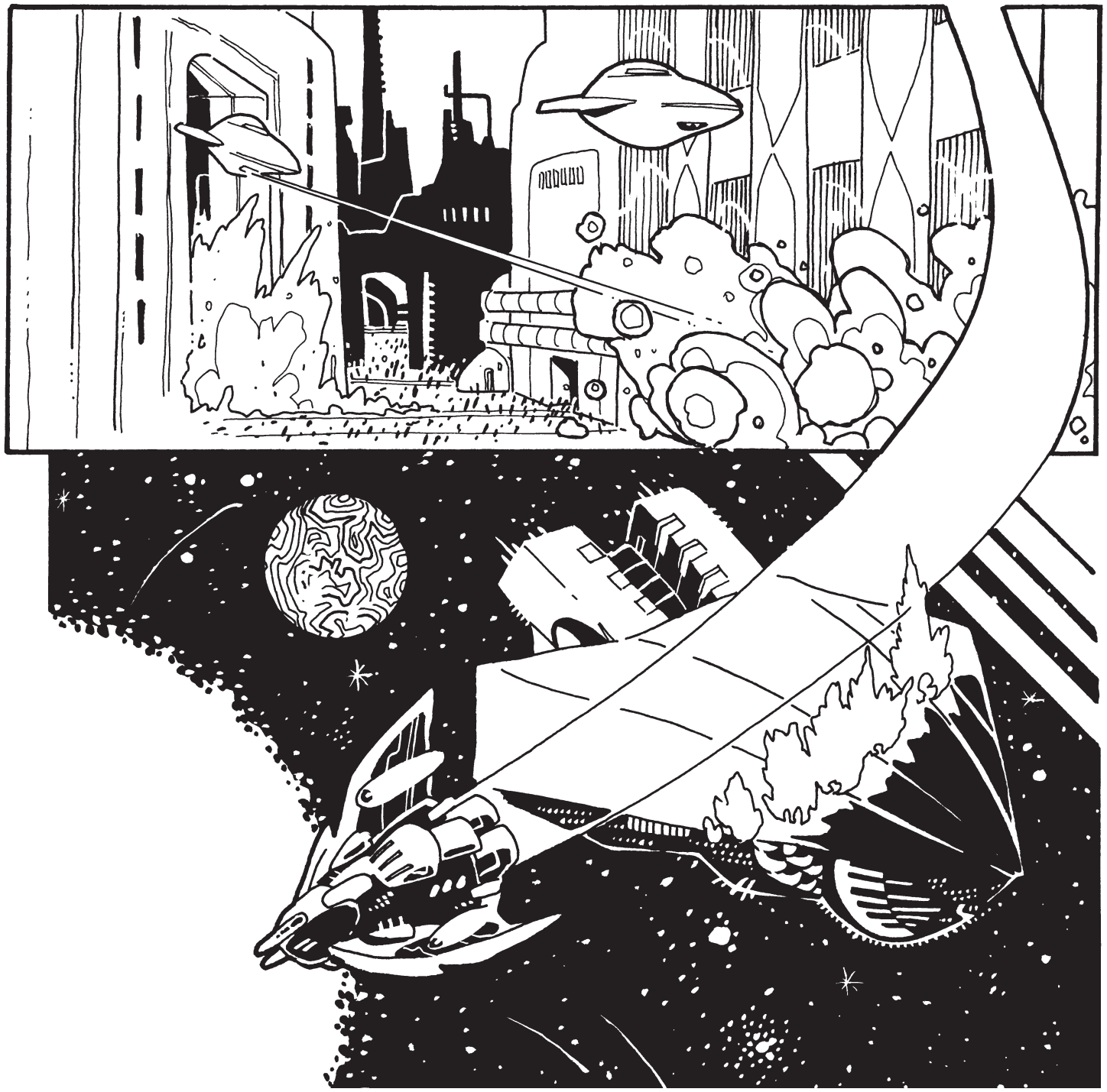
Any critical failure means a dropped weapon. A critical success by an attacker is handled normally. A critical success by the defender means that *all* of the foes' weapons are automatically unready *and* they are mentally stunned for 1 turn by the brilliance of the maneuver!

The sweeping counter parry is a cinematic maneuver suitable for swashbuckling games. Even if the GM allows such a maneuver, it may be wise to limit it to fencing weapons.

3 OTHER COMBAT SYSTEMS

The first part of this chapter covers formalized and ritualized combat, such as jousts, competitions, tournaments, duels and showdowns. The sidebars include two *systems* of simplifying and pacing combat so that it more closely fits with "reality" – cinematic or otherwise. Rules for cinematic combat in the advanced combat system can be found in Chapter 2.

The second part of this chapter covers abstract combat systems for naval vessels and for spacecraft. Mass combat is covered in Chapter 4 – see p. 112.



Ritualized Combat

These rules can be used *instead of* or *in addition to* the combat systems presented in the ***Basic Set.*** They cover genre-specific combat conventions: jousting at TL3-4, duelling at TL4-5, showdowns with firearms at TL5+, and modern-day sporting competitions.

Jousts and Competitions

These guidelines are concerned principally with non-lethal hand-to-hand combat as it might have occurred in the Middle Ages (or in the typical TL3 fantasy campaign). The same principles will apply to all nonlethal competitions, however, including modern martial-arts bouts.

Blunt Weapons

Blunt weapons have the same size, weight and balance as their sharp or lethal counterparts, but they are not as dangerous. Sharp edges are blunted and wrapped in leather; crushing surfaces are padded. Blunt weapons always do crushing damage, regardless of the damage type of the weapons on which they're modelled.

Furthermore, they are designed to sting rather than really injure, and so they do half the damage appropriate for the weapon. Roll the proper damage for the weapon, divide it by 2 (rounding down), and then subtract the DR value of the armor. The result, if any, is the number of hits actually inflicted on the victim.

Conducting Non-Lethal Tourney Combat

In a non-lethal combat, the opponents wear their normal armor but are armed with blunt weapons. Each player, during non-lethal combat, should use a scratch sheet with two column headings, labelled "Perceived Damage" and "Real Damage."

While combat is going on, resolve attacks exactly as if each blow were a genuine one with a genuine weapon. Put all hits taken in the "Perceived Damage" column and note any additional effects (such as a crippled limb) there. This damage is what *would have been* inflicted on the character, if the combat had been fought with real weapons.

Then, for the "Real Damage" column, follow the procedure outlined for blunt weapons, above: take the amount of damage that the weapon did, and halve it, subtract DR, and apply any remaining hits to the character as crushing damage. This damage should be recorded in the "Real Damage" column, and is actual damage that the character has taken.

Example: Sir Careth and Sir Actys are battling away on the tourney field with blunt broadswords. Both are ST 13, and do 2 dice with an ordinary swing. Both are wearing plate armor, which has DR 6. Sir Actys swings and Sir Careth fails to parry or block. Actys rolls 10 points of damage.

In the "Perceived Damage" column, subtract Careth's DR 6 armor; 4 points of damage get through. Since a broadsword is a cutting weapon, that damage is multiplied by 1.5, so Careth has taken a total of 6 hits – theoretically. Put 6 hits on the "Perceived Damage" column.

However, this was a blunt weapon. For the "Real Damage" column, take the 10 points of damage. Halve it. The result is 5 hits – not enough to penetrate Careth's DR 6 plate. Thus, no hits should be counted in his "Real Damage" column.

The Fight's Over Already? Optional Rules for Pacing Combat

This article (by Chris McCubbin) originally appeared in a slightly different form in ***Roleplayer 29.***

The ***GURPS*** convention of one exchange of blows each second is extremely accurate under normal conditions. However, in a real combat, the action is not as continuous as in most ***GURPS*** combats. Normally, there are a few seconds of furious action, followed by a lull of several seconds, during which the combatants catch their breath or maneuver for position, followed by another furious exchange of blows, and so on.

Most of the time, these lulls in combat can be safely ignored. But sometimes it's important to know *exactly* how long a given combat lasts, particularly when reinforcements are on the way.

The following optional rules are designed for those who might wish to pace their combats a bit more realistically.

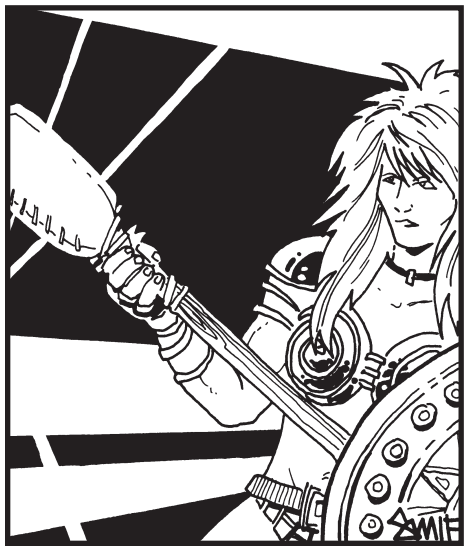
Exchanges and Lulls

The optional combat pacing rules divide combat up into two alternating modes, called "exchanges" and "lulls." During exchanges, the combatants are going full out, throwing blows at maximum speed. During lulls, combat stops and the combatants basically wait around for the next exchange.

When combat starts, the GM should roll 2d in secret. This is the length, in seconds, of the first exchange. After that many turns, he rolls 1d. This is the length of the first lull. The lengths of all exchanges and lulls after the first are rolled on 1d.

Only the GM should know how long the dice dictate a lull or exchange will last.

Continued on next page . . .



The Fight's Over Already? Optional Rules for Pacing Combat (Continued)

Multiple Combatants

If there's more than one combatant on each side, the GM should break up the fight into a number of one-on-one battles, and roll the duration of exchanges and lulls separately for each fight. If two or more combatants are ganging up on a single opponent, there are no lulls.

Example: If seven Jets ambushed five Sharks on the playground, the GM would allow the attackers to pick their opponents, and divide the fight up into three one-on-one fights (with lulls rolled normally), and two two-on-one fights (with no lulls). Alternately, there could be four one-on-one fights (with lulls) and one three-on-one fight (without).

Circling for Position

During a lull, the combatants are considered to be circling for position – prowling warily around each other, looking for an opening and testing defenses. If both combatants are circling for position, then at the end of the lull they should roll a Quick Contest of weapon (or unarmed combat) skill. The winner of the contest receives a +1 which he can apply to any combat roll (attack, defense or damage) during the first round of the next exchange. This bonus must be taken before the dice are rolled. There is no bonus if the contest is a tie.

Note that if the combatant with the bonus chooses to save his +1 for a damage roll, but fails to land a blow, the bonus is lost. Likewise, if he saves the bonus for a defense roll, and his opponent falls or misses his attack, the bonus is lost.

If one combatant wins the contest of skill by 10 or more points, he gets the +1 bonus, and his opponent *may not attack or All-Out Defend* during the first second of the new exchange.

Continued on page 84 . . .

Honor and Calling Wounds

Theoretically, the opponents in a non-lethal combat are supposed to react to the "Perceived Damage" column as if it were actually happening to them. In other words, these fighters are trained to recognize the force of a blow and interpret it as if the weapon were lethal. This means that honorable characters react to the damage they're supposed to be taking.

If, in the "Perceived Damage" column, a character's limb is crippled, he fights without it. (If it's an arm, he fights with one weapon, no shield. If it's a leg, he fights from a kneeling position.) If, in this column, his HT drops below 0, he interprets the last blow as sufficient to render him unconscious: He falls over and acknowledges defeat. Acknowledging blows in this manner is called "calling your wounds."

A fighter can always choose to ignore his "Perceived Damage" column and go by the real damage he has taken – this is referred to as "not calling your wounds." This is dishonorable, and in tournament situations, referees try to keep an eye out for such behavior.

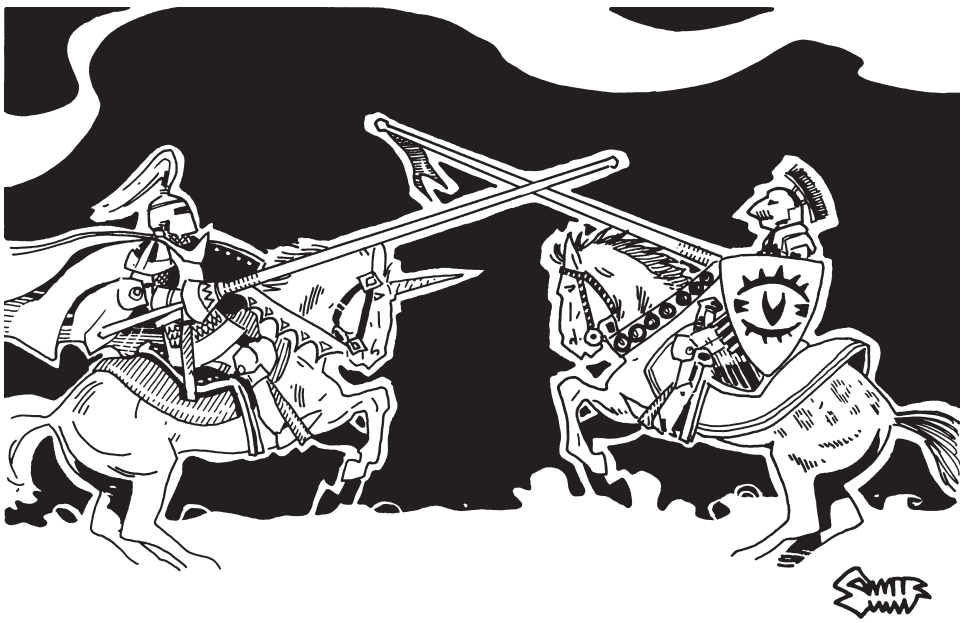
On the other hand, a fighter engaged in non-lethal combat can win favor with the audience by hamming it up – enacting violent death throes, for example, when he's taken a "mortal wound."

Jousting

A joust – a formal combat between two mounted knights – uses the basic mounted-combat rules on pp. B135-137. In a formal joust situation, there is absolutely no need to play out every step the horses take. They make one pass, and the riders make one attack each. If nobody is unhorsed, a minute goes by and both riders will be ready for another pass. These guidelines are for conducting non lethal jousts, not for resolving lethal attacks made with a lance.

In a joust, the contestants usually start 50 to 100 yards apart, to allow the horses room to get to full speed. When the lancers come into range of one another's lances – usually at 3 hexes distance – they roll to hit each other. Because lances hit almost simultaneously, both fighters roll to hit the instant their opponent comes into range, regardless of whose turn it is.

If both lances are the same length, they hit simultaneously. Each lancer rolls to hit and to block, if necessary, before damage for either attack is assessed. If, however, one lance is longer than the other, then the attack of the rider with the longer



lance is completely resolved before the other lancer rolls to hit. Thus, the rider with the shorter lance may take damage, be stunned or even be unhorsed before attempting his attack.

Unhorsing Your Opponent: Whenever a rider is struck by a lance, he must make a Riding roll to keep his seat upon his mount. This roll is at -2 for every full 8 points of damage delivered by the lance blow (*before* subtracting armor). If the rider fails this roll, he loses his balance and falls from his saddle, taking 2d-4 damage. If the rider was stunned by the damage from the lance, then the Riding roll is made at an additional -4.

A character who blocks a successful lance blow may still be unhorsed by the impact, even though he takes no damage from the attack. If the Block roll is less than or equal to the character's PD, then the blow glances off the shield or armor, and stands no chance of unhorsing the target. If, however, the Block roll was *greater* than the character's PD – which is to say that the character actively blocked the blow – then the blow was caught squarely upon the shield. In such a case, the character takes no damage from the attack, but still must make the Riding roll described above, or be unhorsed.

Tournament Rules

Several different styles of tournament fighting are seen in literary and cinematic sources. In the basic joust, combat is agreed to be just to the "first fall." This is the most cinematic of formats. It is possible – if two knights are using lances of the same length – for both to be unhorsed simultaneously. If this happens, the combatants may continue their combat on foot with their preferred weapons.

This hand-to-hand combat after the joust is the distinguishing characteristic of the second major combat style. The format of these one-on-one combats parallels the usual course of the more deadly battles between knights-errant in the field. In many ways, the one-on-one is similar to the modern concept of the duel, and is the usual format used for challenges of honor and trial by combat. In a non-lethal tourney, it is normally pursued until one party yields to the other.

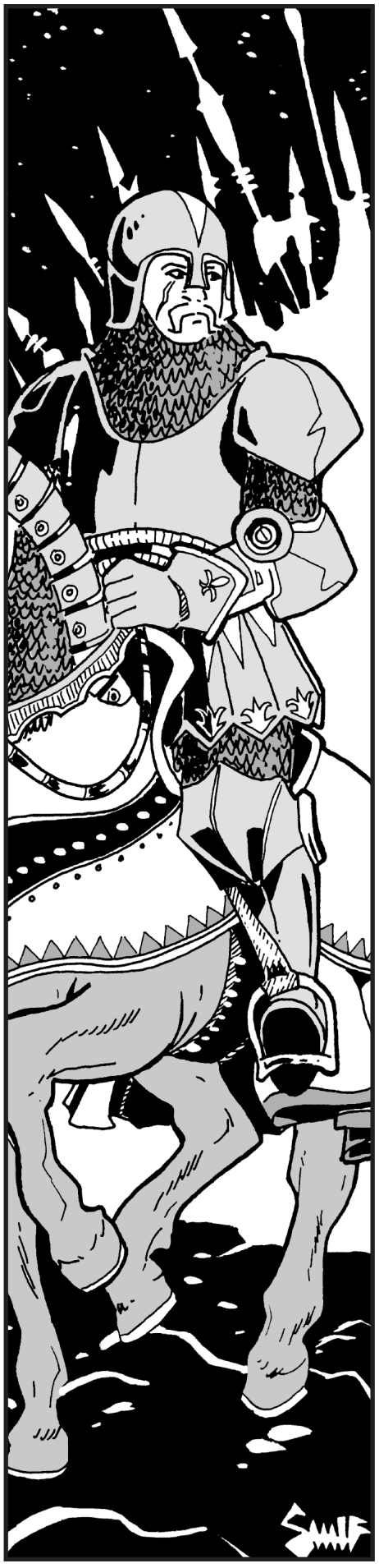
Certain rules of conduct apply to this particular variant. An unhorsed knight may also choose to continue to attack his adversary with a melee weapon, but this may be considered unchivalrous in some quarters. It is definitely unchivalrous for a mounted knight to attack an opponent who is on foot. This gross violation of honor would be dealt with severely. In many tournaments, striking at a foe's *horse* was the act of a scoundrel, usually punishable by death.

The third style of tournament combat is the melee, where knights stage pitched battles, with up to several dozen participants on each side. In theory, the same rules of conduct as for a one-on-one applied to these melees. Historically, knights enjoyed melee combat and took it very seriously as a way to gain reputation. Many contestants were badly wounded or killed; the Church frowned upon tourneys for this reason.

Jousting Lances

Obviously, jousting would quickly wipe out chivalry if it were conducted with real lances! In the interest of safety, tournament jousting is done with blunted wooden lances, specially designed to break if they strike very hard. These blunted lances do thrust+3 *crushing* – not impaling – damage, and break if they hit for more than 15 points of damage. If the damage rolled for a successful hit with a jousting lance is greater than 15, the lance snaps, doing 15 points of damage to the rider.

In some tourneys, the object is not to unhorse your opponent, but to break a set number of lances – usually three – on his shield. In such contests, the lances are usually weakened even further, breaking on 10 or fewer points of damage.



The Fight's Over Already? Optional Rules for Pacing Combat (Continued)

Pressing and Stalling

If the dice indicate it's time for a lull, a combatant may attempt to *press* his opponent if he doesn't want the battle to pause. If one of the combatants is trying to press, the players should roll a Quick Contest of Wills. If the person trying to press wins the contest, the lull never happens. Instead, the opponents immediately start another exchange, with a duration rolled normally by the GM. If the pressing opponent loses the contest, or if it's a tie, the lull occurs normally. If the press attempt is successful, both opponents immediately lose 1 point of Fatigue. If both combatants wish to press the battle, success is automatic, but both still lose the point of fatigue.

An opponent can also attempt to *stall* for time, breaking off the exchange early and forcing a premature lull. If a combatant declares he's trying to stall, then during the next second he can defend normally, but he cannot attack or All-Out Defend. At the end of the turn the combatants roll a Quick Contest of Wills. If the opponent trying to stall wins the contest, the GM immediately rolls a lull, which begins on the next round. If he loses or ties, combat continues normally. If both combatants try to stall on the same turn, the lull occurs automatically; no Will rolls are necessary.

A combatant cannot attempt to press if his opponent successfully stalls. A combatant may also substitute a Tactics roll for his Will roll when pressing or stalling.

Continued on next page . . .

The One-Minute Jouster: Quick Tournament Rules

This article (by Chris McCubbin; conceived by Chris McCubbin, Todd A. Woods, Andy Blum, Tim McGoughy and Steven T. Zieger) originally appeared in a slightly different form in ***Roleplayer 24.***

Playing out tournament jousts round-by-round can be monotonous – two heavily armored, highly-trained warriors can clash for a long time without accomplishing anything more significant than a lot of broken lances. In a tournament setting, where most or all of the PCs might have to fight multiple bouts over several days, combat can bog down the adventure mightily.

The system presented below is a much quicker method of resolving non-lethal, tournament jousts. While it is much less detailed and more abstract than the complete joust routine, it does give a reasonable outcome of the joust, showing who won and how much real damage each fighter took.

This method is intended for use with non-lethal, tournament jousts with blunted lances ***only!*** For lethal combat, normal ***GURPS*** combat should be used.

To begin, each competitor in the joust should average his Lance, Shield and Riding skills to come up with a single Jousting combat value. The Joust is then resolved as a series of Quick Contests, with each opponent rolling against his Jousting combat value. In each contest, the loser takes the amount of damage he lost by. This is *real* damage. It is not modified by DR and attack type – that's already been figured in, under the assumption that both competitors will be similarly armed and armored. If for some reason one competitor has an edge or disadvantage (magic weapons or armor, say, or no armor) which is liable to seriously change the odds of the combat, use normal combat. On a tie, neither competitor takes damage.

Damage taken does not modify the next roll in any way, but if a competitor falls below 0 HT, he must make the appropriate HT roll(s) before each new contest; if he fails a HT roll, he is unable to continue the joust, and his opponent is declared the winner.

The contests will normally continue until one or both characters are unhorsed. A knight is considered to be unhorsed when he either rolls above his Jousting combat value, or loses a Quick Contest by 5 or more. Note that it is entirely possible for both knights to unhorse each other, by both failing their Jousting rolls on the same round. A jouster is always unhorsed on a critical failure (or any roll of 17 or 18), and can never be unhorsed or take damage on a critical success. If a knight fails his Jousting roll, he takes a final 1d of damage, in addition to any damage he may take from losing the contest. If the unhorsed fighter decides to continue to attack on foot, the combat may be continued using normal ***GURPS*** combat rules.

Example

Sir Ariosto is facing Sir Gorespear on the first day of the grand tournament. Neither knight has fought previously in the tournament, so both are unwounded.

Sir Ariosto has a Lance skill of 15, A Riding skill of 13, and Shield skill of 15, rounding off to a Jousting combat value of 14. Sir Gorespear has a Lance skill of 13, a Riding skill of 15, and a Shield skill of 12, rounding off to 13.

In the first contest, Gorespear rolls an 8 and Ariosto rolls a 13. Gorespear almost unhorses his opponent, but not quite. Ariosto takes 4 points of damage.

In the next contest, Ariosto rolls an 8 and Gorespear Rolls a 9. Gorespear takes 2 points of damage.

In the third contest, Gorespear rolls a 10 and Ariosto rolls an 11 – a tie. Neither knight takes damage.

In the fourth round Ariosto rolls a 10 and Gorespear critically fails with a 17.

Gorespear both fails his Jousting roll and loses the contest by 5 or more, either one of which would be enough to unhorse him. He also takes 8 points of damage, plus an additional 1d damage for failing his Jousting roll. Gorespear rolls a 5, for a total of 15 points of damage sustained in the joust. A resounding defeat – unless he can get some magical healing, Gorespear is probably out of the tournament.

DUELLING

Note: The following guidelines focus on duelling on 17th-century Earth. However, the basic principles can be applied in almost any era.

The duel has long been a favorite way to resolve conflict; it persists even in the modern era. Two high school kids squaring off after school is as much a duel as D'Artagnan fighting Rochefort. The Duelling Code may be different; the essence is the same. The Duelling Code has always been a matter of custom, not law. Indeed, duelling is usually illegal – it was certainly so in swashbuckling times.

The Gentleman's Code

A duel, as distinct from an *affray of arms* (a brawl with weapons), is a formal matter. The duelling party is made up of *principals, seconds, friends* and, whenever possible, a *surgeon*. The principals are the men with the quarrel. The seconds are representatives of the principals; they are charged by each to guarantee that the affair is conducted with honor and propriety. Friends are just that; they accompany the principals to ensure fair dealing. Gentlemen duel to *first blood, serious wound* or *death.* The severity of the result depends on the severity of the difference.

Severity of Duels

Most duels are to first blood. The duel ends when either principal is wounded. The honor of the victor has been vindicated; the courage of the loser has been publicly demonstrated; all are satisfied. Modern epee fencing rules are derived from this practice.

Sometimes first blood is not enough. A gross insult or a strong personal dislike demands a more severe chastisement. The fight continues until one opponent is pierced through the torso (most fencing wounds are on the arm or leg). In ***GURPS*** *Basic Combat*, damage of HT/2 is a serious wound. If the *Parts of the Body Table* (p. B203) is used, any wound to the brain, head, body or vitals is serious. Again, the victor is vindicated; the loser proves his courage.

A duel to the death is a serious matter. Since duelling is illegal, the survivor risks a trial for murder – so do the seconds, friends and even the surgeon! A duel *à l'outrance* (to the extreme) is the climax of a long enmity, is forced by the necessity to silence someone, or is in response to a mortal insult. The fighting continues until one principal is dead or physically unable to continue.

The Fight's Over Already? Optional Rules for Pacing Combat (Continued)

Maneuvers During Lulls

During a lull, opponents may not Attack, All-Out Attack, All-Out Defend, Aim or Wait.

During a lull, either opponent may Move, Change Position, Ready or Reload, but if he does, his opponent has the option of *immediately* beginning another exchange, regardless of how long the lull has gone on. If an exchange starts after a maneuver, the attacker does not receive any bonus from circling for position.

If one combatant is taking the Concentrate maneuver, his opponent must win a Quick Contest of IQ in order to perceive that his foe is concentrating. If the opponent wins the contest and notices that his enemy is concentrating, he may immediately initiate another exchange, as above.

Either combatant may use the Feint maneuver to attempt to end the lull and provoke another exchange. The feint is rolled normally. If the attempt succeeds, a new exchange begins on the next turn (with the attacker gaining normal bonuses from his successful feint). If it fails, the defender has the option of beginning a new exchange, *starting on the same turn* as the feint attempt, or he may allow the lull to proceed normally.

Interruptions

If a third combatant enters the fight during a lull, the lull immediately ends, and there will be no more lulls until the odds are again one-on-one. If the loner in a two-on-one battle removes one of his foes, there is an immediate lull while the combatants who are left adjust to the new situation.

If a character is fighting two opponents, and an ally comes to his aid, the fight immediately becomes two one-on-one battles, with lulls and exchanges rolled normally for each.

On a successful Vision roll, a combatant who sees a new enemy coming to the aid of his foe may initiate combat on the round *before* the second opponent arrives, giving him one extra round of even odds.

If a combatant is wounded, for any reason, during a lull, his opponent may begin a new exchange on the next round. There is no bonus for circling for position, but the wounded character takes normal penalties for shock.

Continued on next page . . .

The Fight's Over Already? Optional Rules for Pacing Combat (Continued)

Ranged Combat and Snipers

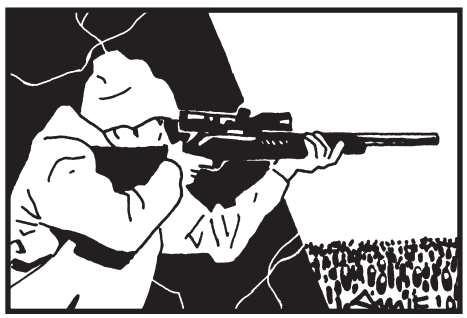
Lulls only occur during ranged combat if all combatants are under cover or concealment. When a lull ends, two combatants are considered to be simultaneously exposed enough to exchange shots at one another. The duration of exchanges is not rolled randomly in ranged combat; instead the exchange continues until one or both of the combatants returns to full cover.

An unengaged character with a ready missile weapon may attempt "sniper fire" to aid an ally engaged in a melee. Before firing into a hand-to-hand battle, however, the shooter must roll 1d. On a 1-3, he has a clear shot, and may fire normally at his chosen target. However, on a 4-6 his ally is in the way, and he does not have a clear shot. If he does not have a clear shot, but chooses to fire anyway, his shot is at -5. Furthermore, if he fails his modified skill roll by more than 5, his missile strikes his *ally* (the ally may defend normally).

Example: Jak wishes to fire an arrow at the zombie attacking his friend Jil. Jak has a Bow skill of 15, and -2 for range, for a modified skill of 13. His bow is readied. He rolls 1d and gets a 5 – he does not have a clear shot. If he decides to shoot anyway, he must roll an 8 or less to hit. If he rolls between 9 and 13, his arrow will miss, and if he rolls 14 or higher, his arrow will hit Jil.

The chances for a clear shot are modified by 1 for each additional combatant in the fight. Whether the modifier is positive or negative depends on whether the extra combatants are on the firer's side or not. The more potential targets available, the better the chance for a clear shot. For example, if the firer's ally is being attacked by two foes, he will have a clear shot on a roll of 1-4 on 1d, but if three of his friends are attacking a single enemy, he will have a clear shot only on a roll of 1. No matter what the odds, however, chances for a clear shot are never worse than 1 in 6 or better than 5 in 6.

Continued on page 88 . . .



The Particulars of the Duel

The Challenge

The challenge itself is usually just words – the glove in the face is both earlier (armored gauntlets) and later (dress gloves). The challenger is usually pretty prosaic. Not many people have great command of language while fuming mad. A poetic, "Sir, if your courage is equal to your impudence, I will meet you at your earliest convenience with sword in hand," is found more often in books (and games!) than life. Courtesy is always valued; it is not always achieved.

Arranging the Details

After the initial insult, the seconds meet (if the principals have the patience to abide by the niceties). The seconds often try to avoid bloodshed by working out a mutually acceptable compromise. This is usually an apology, so delicately phrased that both parties can claim to be vindicated. Many duellists (although not the French) considered that to be the prime function of a second. Some commentators on the Duelling Code, therefore, prohibit infidels and Irishmen as seconds. Infidels are prohibited because their eagerness to see Christian blood will not let them work out a compromise. Irishmen, as all know, love fighting so much that none would ever agree to stopping a fight before it started!

Time and Place

It is up to the seconds to arrange the time and place. Duels can be fought at any time. Immediately after the insult is common. Dawn or dusk is the usual prearranged time.

Duels are socially acceptable, but illegal. The setting is most likely to be an out-of-the-way place where clashing weapons won't bring the gendarmerie. In Paris, the Convent of the Carmelites has large gardens with many trees and shrubs. The grounds of the Luxembourg Palace and of the Pre-aux-Clercs also have large, sheltered gardens. All are popular for meetings of honor. In the 18th century, when Paris is more populated, the Bois de Boulogne is a popular duelling place. Cemeteries, pastures, race-courses and untenanted houses are all useful for a little private business between gentlemen.

Once the duellists are at the chosen site, it is not possible to withdraw with honor. There must be at least one wound, or one exchange of shots. After that, either party can apologize without loss of face.

Weapons of the Duel

The choice of weapons falls to the challenger (the offended party) on the Continent and to the challenged in English-speaking countries. It is possible to abuse either system, if one puts one's mind to it. Both parties must use the same weapon; the one with the choice of weapons can force an unfamiliar one on his opponent. Alhough the sword is usual, any weapon is allowed. It is common practice to announce the length of your sword at the time of the challenge. If pistols are chosen, they should be a matched pair. Providing properly prepared pistols is a responsibility of the seconds.

The Duel with Swords

When the parties are ready to duel, they face each other, points touching. In ***GURPS*** *Advanced Combat,* that means duellists with 1-hex reach weapons will have 2 empty hexes between them. Rapier fighters will have 4 hexes, and so on. One of the seconds gives the signal to start, and the duel commences. A Quick Contest of Weapon Skills, with Combat Reflexes granting a +1, should determine who has the first action. In case of a tie, the highest Speed goes first. Roll a die to break any ties of Speed.

At the time of the *The Three Musketeers,* seconds and friends usually joined in the fight. This was simply a custom of the times, and doesn't seem to be related to the nature of the insult at all. They would fight alongside their principal if there was any sign that the opposing principal's friends wanted to join the fight. One side would not outnumber the other in a true duel, however. If not fighting, friends watched out for ambush and the approach of the city guard, either of which was a fairly common occurrence.

Pistol Duelling

Pistols are not a popular duelling weapon with swashbucklers. They are used more in England and English America than in Europe. The French, especially, disdain them, at least until the late 19th century. Distance between opponents is from 7 yards (rare) to 20 yards (also rare). The most common range is about 12 yards. A duel is a test of courage, not a test of marksmanship.

The antagonists stand facing each other. Pistols are in hand, but not readied. On a signal from one of the seconds, they both ready their weapons and fire. Deciding which duellist gets the first action can be resolved by a Quick Contest of DX, with Combat Reflexes granting a +1. In a tie, they fire simultaneously. A cool duellist might take a second or more to aim. A very cool duellist might allow his opponent to fire first – a rushed shot may very well miss. Even if it hits, there is the chance that the wound will be slight enough not to interfere with a carefully aimed return. The duelling cliché of pacing-off, back to back, is a later American practice. Feel free to use it, though, if duelling's just not the same without it!

Showdowns and Shootouts

These rules are mainly concerned with 19th-century Earth gunfights and duelling practices, but can be used in any setting where handguns are used to settle disputes. Note that the rules below introduce many complications and details that are not dealt with in the ***Basic Set,*** and these will slow combat if used routinely. The GM may choose to disregard these rules *except* in showdown situations.

Showdowns

The showdown at high noon is far more common in fiction than in real life. Differences of opinion are more likely to be settled with fists or wild shots. But when two shootists square off, the Fast-Draw skill takes on special meaning.

Draw!

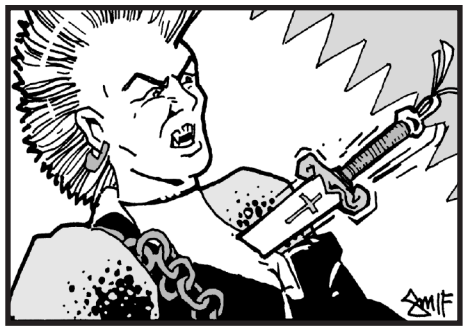
When two gunslingers Fast-Draw at the same time, use a Quick Contest (p. B87) to determine who shoots first. Weapon type, holster type and weapon location modify the skill rolls – see below. A tie means simultaneous shots.

A failed Fast-Draw roll means that the weapon is readied normally – nothing else may be done that turn. Critical failure results in a dropped or prematurely discharged weapon.

Fast-drawing a gun and firing immediately is a Snap Shot (p. B115). Unless the effective weapon skill is greater than the SS number, the shot is at -4.

Holster Type

Holster type affects the Fast-Draw skill. The most common are detailed below. Greasing a holster or pocket adds +1 to Fast-Draw but -1 to Guns skill (grease gets on the grip). The GM may apply modifiers for innovative ways of wearing any



The Fight's Over Already? Optional Rules for Pacing Combat (Continued)

Example

Ivan and Rodney are two 150-point swordsmen. One day in the woods they're ambushed by three Minotaurs. Rodney and one of the Minotaurs pair off, while Ivan has to defend himself against the other two.

The GM rolls the duration of Rodney's first exchange on 2d – a 5. Ivan's first exchange will last until he falls or he loses one of his opponents. Ivan begins to All-Out Defend.

Five rounds later Rodney's opponent is severely wounded, but still fighting. Ivan is slightly wounded, and still All-Out Defending. The GM declares a lull in Rodney's fight, but Rodney, wishing to rush to the aid of his friend, decides to press the fight. He easily wins his Will roll against the stupid Minotaur, and the GM rolls for another exchange on 1d (it comes out to 4 seconds). Rodney and his opponent both take 1 point of Fatigue. Two rounds later, Rodney finishes off his foe and rushes to join Ivan.

Rodney attacks one of Ivan's opponents. The GM rolls 1d for an exchange for Rodney (5), and 1d for a lull for Ivan (6). Five rounds later the GM rolls a lull for Rodney (4).

Ivan is wounded, and wants Rodney's help again. When his lull ends, he sees Rodney is also at a lull in his fight, and tries to stall. He succeeds, and the GM rolls another lull for Ivan (5 seconds).

Rodney finishes off his opponent on round 3 of Ivan's lull, and rushes to his friend's aid. The Minotaur, surprisingly, makes his Vision roll, and restarts the combat the round before Rodney arrives. He manages to hit Ivan before Rodney arrives, knocking him unconscious. Rodney and the Minotaur pair off, and the GM rolls their first exchange on 2d. It comes to 6 seconds, but Rodney's having a good day, and only needs 3. He finishes off the Minotaur and helps his injured friend back to safety.

weapon. Shoulder holsters are not good for fast-draws, but are useful for back-up weapons.

Flap Holster: The military uses a flap holster, which protects the gun well but is slow on the draw. It's usually worn high and opposite the weapon hand. -2 to Fast-Draw.

Hollywood Fast-Draw Rig: Worn on a low-slung belt and tied to the thigh with a leather strap. The Hollywood rig is not historical – movie directors developed it – but it works. +2 to Fast-Draw.

The Mexican or Kansas Loop Holster: The Mexican and Kansas loop holsters became popular in the mid-1870s. They are made from a single piece of durable leather. +1 to Fast-Draw.

Pocket: Guns may be pocketed or tucked into trousers or belts. Drawing from a pocket gives a -4 to Fast-Draw, unless the pocket is leather-lined. Drawing from the waistband or belt is at -1.

Slim Jim Holster: The Slim Jim, a piece of leather molded around the gun and sewn up the rear, became popular after the Civil War. It's similar to modern police holsters. The Slim Jim is most often worn high, on either side. No modifier.

Swivel Rig: This holster, open at the bottom and attached to the belt with a pin, allows firing from the hip without drawing. +4 to Fast-Draw, but -2 to Guns skill.

Wrist Spring Holster: This is only for small pistols or knives. The weapon is spring-loaded up the sleeve: +4 to Fast-Draw, but a 14 or higher is a critical failure.

Weapon Type

Characters must specify weapon type *and model* when learning the Fast-Draw skill. Fast-Drawing another model of the same type of weapon is at -2.

The weapon's length, weight and design also modify the Fast-Draw skill. For each Snap Shot (p. B115) point below 11, apply +1 to Fast-Draw. For each SS point above 11, apply -1. (This may be calculated as Fast-Draw + 11 - SS.) The GM may allow modifiers for custom-made weapons with unusual barrel lengths or filed-down sights.

Weapon Location

Characters must also specify weapon location when learning Fast-Draw. Drawing from an unfamiliar location is at -2.

The first modifier in the table applies to standing shooters, the second to sitting or riding. Side of Body refers to weapon location with respect to drawing hand.

Location	*Side of Body*	*Modifier*
High, on the belt (1)	opposite	+2/+1
High, on the belt (2)	same	no modifier
Low, on the hip (3)	same	+1/-2
In a boot	either	-5/-2
In a shoulder holster	either	-1/-1
In a sleeve (4)	either	no modifier
In the collar, back of the neck	either	-1/-1
In trousers, small of the back	either	-2/-3

Obviously, not all weapons can be worn in all positions. Use common sense.

Notes:

1. In this location, an opponent in a front hex may grab the character's gun first by winning the Fast-Draw Quick Contest by 5 or more points.

2. Swivel rigs *must* be worn this way.

3. A holster or scabbard is required to wear a weapon here. This is the *only* way to wear a Hollywood rig.

4. A wrist spring rig *must* be worn this way.

Special Situations

Various other factors affect Fast-Draw. Allowing an opponent to draw first gives -6. Fast-Drawing from a prone position is at -4. Not facing the target requires a Change of Facing and Fast-Draw at -6. Having a hand already on the weapon adds +4. For every point of unhealed damage on the weapon arm, Fast-Draw is at -2.

Double Fast-Draw

A gunslinger wearing two hip-holstered pistols can try to Fast-Draw them both at the same time. There is a -4 to each Fast-Draw roll, and a -4 to each Guns roll to hit the target. With two *different* targets, the penalty is -8 for each Guns roll. Finally, there's the -4 penalty for the off hand, unless the character is ambidextrous (or has Off-Hand Weapon Training; see p. CI170)!

One-Sided Fast-Draws

To outdraw someone with a ready weapon, an attacker must win a Quick Contest of Fast-Draw-10 vs. the opponent's weapon skill. A shootist who is already *aiming* gets +5! The winner shoots first. A tie results in simultaneous shots.

Fire!

Multiple Shots

This order-of-fire within a turn applies *only in Showdown situations.*

When opponents' weapons fire multiple shots each turn, break the turn into quarters and use the following chart to decide which shots take effect first. Everyone fires in the first quarter; the winner of the Fast-Draw Quick Contest goes first.

Weapon can fire . . .	***Shot fired in quarter . . .***			
	#1	***#2***	***#3***	***#4***
One shot per turn	x	–	–	–
Two shots per turn	x	–	x	–
Three shots per turn	x	x	–	x

For example, if you fire twice per turn, and your foe fires three times, your second shot comes after his second shot and before his third. Remember the Recoil penalties for multiple shots.

Careful Shots

A shootist with cool nerves may aim after he draws. This can win the fight if the foe shoots wildly – if not . . .

Results of Injury

In a fast-draw showdown, injuries take effect immediately, rather than at the start of the next turn. A wound that causes stunning or unconsciousness, or cripples the weapon arm or hand, prevents any return fire. A wound that knocks the character down forces him to shoot from the ground: -4 to hit! A normal wound penalizes any return fire by the amount of damage done. *Double* the penalty if the wound is to the weapon arm. These effects occur *before* the loser gets to shoot, but *after* each gunman fires, if shots are simultaneous. The effects last at least through the next turn.

Very Basic Melee Combat: Really Simple Shortcuts for Really Quick Battles

This article (by Steffan O'Sullivan) originally appeared in a slightly different form in ***Roleplayer 23.***

The following combat system is for those who either don't like complicated combat rules or are pressed for time.

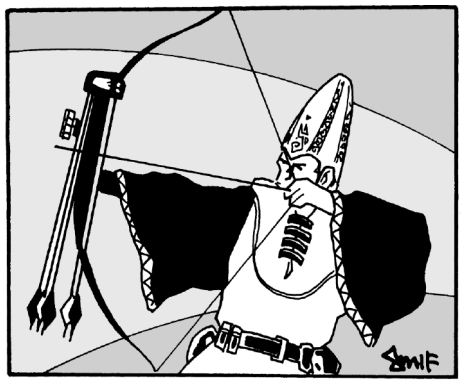
Attack, Defense, Damage

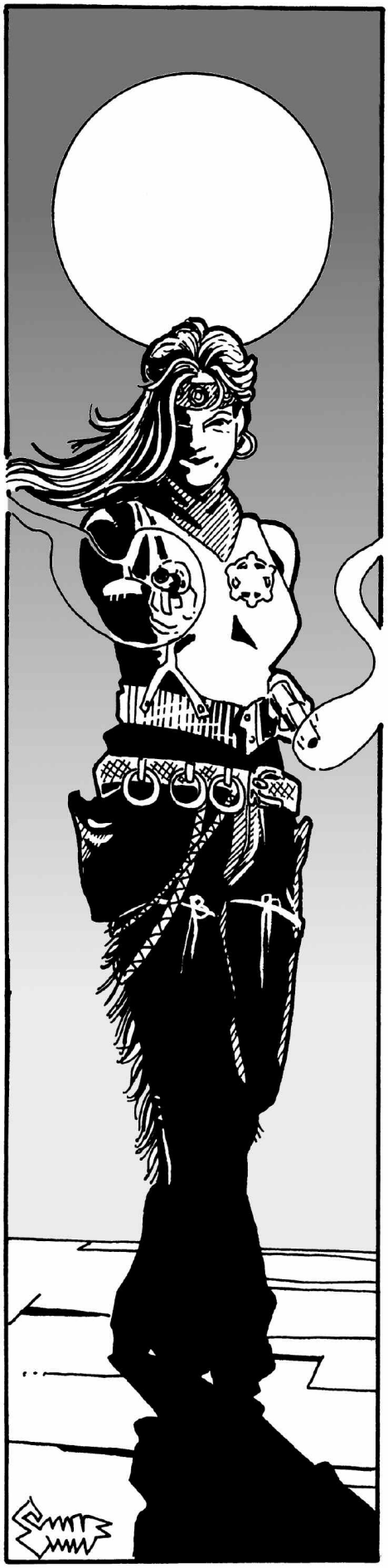
Attack, defense and damage rolls are combined into one roll. Each fighter rolls versus Weapon (or other Combat) skill, and the result is treated as a Quick Contest of Skills. If one fighter has a greater PD, add the *difference* in PD to his skill. (E.g., if one fighter has PD 3 and the other PD 2, the first combatant adds 1 to his Weapon skill.) If both fighters miss their rolls, they both missed their attacks. If one makes the roll, and the other misses, the one who missed is hit. If both make the rolls, the one who makes it by the least is hit, while the other is not – ties result in no damage.

Basic damage is determined by the same roll: if someone is hit, he takes basic damage equal to the amount his foe made the roll by, up to maximum damage for his weapon. Basic damage is reduced by DR as per the regular rules, and increased for impaling or cutting as per the regular rules.

Example: PC Raoul is facing NPC Edmond. Raoul's skill with his weapon is 15 and he has PD 2. Edmond's skill is 13, but he has PD 3: he rolls as if his skill were 14. Raoul rolls a 12 – he makes it by three. Edmond rolls a 10 – he makes it by four. Raoul takes 1 point of basic damage – but his armor stops it. In the next round, Edmond rolls a 15 – a miss. Raoul rolls a 6, however, making his roll by 9! Edmond takes 9 points of basic damage, unless Raoul is using a rapier (for example), which has a maximum damage of 7. Note that even though Raoul beat Edmond by 10 (he made his roll by 9, Edmond missed his by 1), basic damage is only equal to the amount that Raoul actually made his own roll by.

Continued on page 91 . . .





SHOOTOUTS

Realistically, gunfights involve a lot of waiting as opponents try to out-guess and out-maneuver one another. The gunfight at the O.K. Corral lasted about 30 seconds, with adversaries close enough to forego aiming. More typical gunfights take from 15 to 20 minutes – up to 1,200 turns.

GMs should encourage "opportunity" actions (see sidebars, pp. B118-119) and should not skimp on Long Actions. Skipping over a number of turns while fighters continue what they're doing can greatly speed shootouts.

Players should familiarize themselves with the Ranged Weapons section of the Advanced Combat rules (pp. B114-121). The following tables are vital: Size and Speed/Range Table, p. B201; Ranged Attack Modifiers, p. B201; Firearm Critical Miss Table, p. B202; Parts of the Body, p. B203. The Advanced Combat rules allow a variety of special actions, such as Pop-Up Attacks (p. B116) and Opportunity Fire (p. B118). They also detail adverse combat conditions: Hit Penalties (p. B98) and Cover and Concealment modifiers (p. B118) essential for classic Western shootouts. The use of miniatures for Advanced Combat is highly recommended.

Order of Events in Shootouts

Characters may act in order of descending Move scores, or play may move clockwise around the table (see *Turn Sequence,* p. B95). If the GM has no pre-set turn sequence for the NPCs, he may move one after each player, until all have acted.

Maneuvers

The maneuvers commonly used during classic shootouts include Aim, Long Action (reloading weapons, etc.), Move and Attack with a ranged weapon. Close Combat is also possible.

The confusion in a shootout renders the split-second timing of the Fast-Draw skill less important than for showdowns. In a gunfight with multiple opponents, the Fast-Draw skill works normally, allowing the shootist to ready a weapon in essentially no time. Turn sequence is calculated normally, rather than by a Quick Contest of the Fast-Draw skill, and injuries take effect at the beginning of the next turn.

Gunfire

Apply the following modifiers to any attempt to shoot:

Adverse Combat Conditions: See the sidebar on p. B98.

Aiming: Aiming for at least 1 turn eliminates the Snap Shot and recoil penalties and brings the weapon's Accuracy bonus into play. See p. B116.

Attacker's Situation: Firing from above or below the target, or while moving, modifies effective skill. Firing through an occupied hex may result in hitting the wrong target. Pop-Up Attacks and Opportunity Fire also bear special penalties. See pp. B116-118.

Cover and Concealment: Use the list on p. B118 to determine cover modifiers. For situations especially appropriate to Western shootouts, see below.

Recoil Penalties: Any subsequent shot fired without waiting at least 1 turn has a recoil penalty. These penalties increase with each shot, until the gun remains unfired for one turn.

Snap Shot Penalties: If the character fires without aiming, compare the adjusted skill (including all other modifiers) to the weapon's SS number. If the shooter's adjusted skill is less than the weapon's SS number, the "to hit" roll is at an additional -4.

Target Size: Man-sized targets have no size modifier. Horses head- or tail-on have no modifier; a side view gives +1 to hit. Use the *Linear Measurement* and *Size* columns of the *Size and Speed/Range Table* (p. B201) for larger or smaller targets.

Target Speed and Range: Consult the *Size and Speed/Range Table* to determine modifiers based on the target's speed and range. Remember the weapon's 1/2D and Max range stats as well (see p. B115).

Cover and Concealment

Horses as Cover: Hiding behind a horse's shoulder leaves only the head exposed. The hindquarters expose head and shoulders. Any other part of the horse exposes the legs. Firing around the horse counts as a Pop-Up Attack.

Roll on the NPC Reaction Table (p. B205) to determine the horse's reaction to this treatment. The character may attempt an Animal Handling roll if no other action is taken. Success adds +1 to the horse's reaction; critical success adds +2. Critical failure spooks the horse. Very Good or Excellent indicates the horse stays where it is, or moves at the character's instruction. On a reaction of Bad, the horse tries to leave. On a reaction of Very Bad, the horse panics.

Using a moving horse as cover requires either an Equestrian Acrobatics roll, or both an Animal Handling and DX roll. Failure results in loss of cover. Critical failure results in an accident.

Smoke: Black powder makes plenty of white smoke. With each shot, the GM may assess a cumulative -1 penalty to the next shot, due to impaired vision – until wind, time or the gunman's movement disperses the smoke. Reduce the penalty by 1 for each turn without gunfire. Fighters may time their movements to take advantage of the "smoke screen."

Dust: Thundering hooves and flying bullets kick up a lot of dust – sometimes enough to allow a hard-pressed gang to escape. GMs may apply negative modifiers (-1 to -9) to vision based on the dust in the air.

Tricks

Players will come up with all sorts of dirty tricks, from the old "Watch out behind you!" to a hat in the face. The GM decides what, if any, effects a trick has. Keep in mind that tricks can backfire against experienced gunmen. See sidebar, p. B123.

Aiming at Muzzle Flashes: This is a special situation for Opportunity Fire. The gunman waits until he sees the muzzle flash of an opponent's gun, then fires at that spot. Penalties are as for Opportunity Fire (remember Speed and Range modifiers, as well), with an additional -5 to -9 to skill. Aiming at specific body parts is not allowed.

Armor: Gunfighters may try concealed armor made from scratch (like Clint Eastwood in *A Fistful of Dollars*). The GM must assign the PD and DR, but he shouldn't reveal them to the players until the armor is tested.

Attack from Above: Ambush from above is a good surprise tactic. See p. B124.

Shooting Through Walls and Floors: Penalties are as for *Shooting Blind* (see sidebar, p. B115). Any solid object between the gun and the target provides some measure of DR. Refer to the table on p. B125 for DRs of wooden slabs and brick or stone walls. See also the sidebar on p. 54.

Surprise Attacks and Initiative: When the PCs surprise a group of adversaries, or vice versa, the surprised party may not be able to react immediately. See pp. B122-123.

Very Basic Melee Combat: Really Simple Shortcuts for Really Quick Battles (Continued)

Multiple Combatants

It is possible to let all the PCs roll simultaneously, if desired, and combine the NPCs' rolls into one. In this case, it is assumed that all NPCs have equal skills. The GM simply rolls once for *all* NPCs, and announces how well the roll was made. This is the result for *each* of the PC's opponents – the players then simultaneously roll and the results are applied as above.

If the GM is rolling once for multiple NPCs, very high and very low results should be thrown out. Such rolls might indeed occur for some of the foes, but it is highly unlikely that ten fighters at once would all score critical hits or failures! In general, treat any roll below 7 as a 7, and any roll above 16 as a 16 when rolling for numerous characters. If a character is facing two or more fighters, he has two choices:

A) He can All-Out Defend. In this case, he rolls as above, but does no damage. His roll is compared to each of the enemies' rolls, and he only takes damage from those that beat him.

B) He can attack one foe, and do his best to defend against them all. Only one roll is made for such a hero: read the roll as usual against the chosen foe. Read the same roll against two-thirds skill (round down) for each additional fighter – he cannot inflict damage on them if he wins, however.

Critical Hits and Misses

For simplicity, treat a critical miss as a dropped weapon. Treat a critical hit as maximum damage.

Unarmed Fighters

If an unarmed fighter is facing an armed foe, he can roll versus a martial art skill or DX to attempt to grapple in close combat. He does no damage if he wins, but his opponent must take a turn to break free.

An unarmed person can also pick up a weapon. He rolls versus DX, and takes damage if he loses the Contest. He gets the weapon in 1 round whether he takes damage or not.

Otherwise, an unarmed fighter can simply retreat: roll a Quick Contest of DX versus the armed fighter's Weapon skill. Take damage if you lose, successfully evade if you win.

Continued on next page . . .

Very Basic Melee Combat: Really Simple Shortcuts for Really Quick Battles (Continued)

Non-Combat Maneuvers

Some people may be doing other things while the fight is raging. Since this system tends to speed combat slightly, give anyone not directly involved in combat 2 or even 3 turns for each Quick Contest in the fight. As soon as a character joins the fray, of course, he loses the ability to take double moves. This rule allows one's friends to hold off the foe long enough to pick a lock or rob a safe.

Other Situations

It would defeat the purpose of Quick and Dirty rules to go into the detail necessary to cover every possible situation! The GM should be guided by the suggestions above, using common sense to cover unusual requests. The players should not make the GM's job any harder by arguing about a decision, especially if these rules are being used because of limited time!

Competition Fighting

The action in most modern combat sports (boxing, fencing, karate, etc.) takes place, for the most part, in bloodless tournaments. Tournament fighting, both professional and amateur, is a place for PCs to test their mettle and even make a living.

Tournament combat is not like "normal" fights to the death. Unlike real combat, there are rules to be followed. Although in both cases winning is important, competition fighting goes about it in a different way.

Roleplaying Tournaments

Competition or tournament combat is different from standard fights. Depending on the emphasis of the campaign, it can be minimized or ignored altogether. With the rules below, however, the GM can make it as exciting as a "real" hit-point-draining battle.

Combat Length

Depending on the rules of engagement, tournament fights last between 30 seconds or so to several rounds of 2 or 3 minutes each. Obviously, to roleplay every round in even the shortest fight is next to impossible, considering that the ***GURPS*** combat turn is 1 second long. Two different ways to roleplay competition fights are described below, depending on the situation and the amount of detail the GM desires.

The Detailed Method: For a fully roleplayed, movie-like description of the fight, the battle will focus on some "highlights" of action separated by a number of turns where nothing much happens (this reflects the reality of most sports fights). In other words, the opponents will trade blows for a couple of seconds, circle each other for several more, and so on. At the beginning of the round, the GM rolls 4 dice, or fewer if he wants more detail. This is the number of seconds that elapse before any telling blows are exchanged; during this time it is assumed that the opponents circled, threw jabs at each other, etc. Then a 2- or 3-turn fight is played out; whenever one of the antagonists manages to break free from the fight (a successful dodge and retreat, for instance) or at the GM's discretion, the fighters disengage and the same number of dice are rolled for the next exchange of blows.

Example: "Dutch" McNamara is squaring off in the boxing ring against Jose "Shatterhands" Rodriguez. Each round lasts 2 minutes (120 seconds). At the start of the fight, the GM rolls 4 dice, and gets a 16; he tells his players that they circled and sparred for 16 seconds before closing. Three seconds of fighting are roleplayed (Dutch lands one solid punch and defends successfully against Jose's attacks). The fight is now 19 seconds long. The GM rolls again, and gets a 10, so they will get to fight again on the 29th second of the round. On the average, Dutch and Jose will play out about 24 seconds of the 120 seconds in the round.

The GM alone keeps track of the time, unless one of the characters has Absolute Timing, in which case he knows how much time is left. When the round is over, the foes return to their corners (or their equivalent); thus, a fighter can be literally saved by the bell. This method produces a long, detailed fight, and is most useful in situations where the stakes are high (the climactic fight for the world championship, for instance).

The Quick Method: This alternative system can be used for GMs who want less detail or for less important fights. Resolve each "round" (ranging from 30 seconds to several minutes) as a Quick Contest of Skill (see p. B87); the contestants get one roll for every 30 seconds of the engagement (round up). If nobody wins, the round ends as a draw; otherwise, the winner gets one "point" (not related to any competition point system, but a tool for the GM to resolve the fight). The fight ends when

one contestant accumulates 5 points more than his opponent. On a Critical Success on the contest, the winner gets 1d+1 points immediately.

Example: In the fight above, the GM uses the Quick Method. Each round lasts 2 minutes, so each round is four Quick Contests of Skill between Dutch and Jose (Boxing Sport skills of 17 and 15, respectively). In the first round, Dutch wins three of the four rolls, so he wins that round and gets 1 point.

The second method will resolve the battle more quickly, but will give the players a more passive role, leaving it up to the GM to convincingly describe the fight.

Fatigue

This will be an important consideration in all types of tournament fights. While real combat usually lasts only a few seconds, a sports fight (boxing, for instance) can go on for as long as half an hour, an hour or even longer! Fatigue loss (described on p. B134) can cause a fighter to lose as surely as his opponent's skill.

If a match (or a number of matches on the same day) lasts more than 3 minutes, fatigue will start building up. Each fighter will automatically lose 1 point of fatigue after 10 seconds. After 3 minutes, each contestant will roll against his HT; if he succeeds there is no effect. On a failed roll, he loses another fatigue point; on a critical failure, he loses *2 points.*

Modifiers: -1 for every previous two-minute bout of fighting.

These rolls assume that there is a rest period of at least 30 seconds between rounds; otherwise, fighters must roll *every* minute, at -1 for every minute they have already fought. If the rounds of a particular competition are shorter than 3 minutes (most are), make the rolls whenever the total fighting time reaches 3 minutes.

Optional Rules: To better represent the effect of fatigue on a contestant, use these rules. When a fighter's Fatigue is reduced by 2/3, he will suffer the effects of the Low Pain Threshold disadvantage (see p. B29). If he has the High Pain Threshold advantage, he temporarily *loses* it instead, while if he already had the Low Pain Threshold disadvantage he suffers *twice* the standard penalties! This represents the weakening effect of a long fight, making a tiring fighter more susceptible to a knockout. When his ST goes down to 3, his Move is halved, as per p. B29; he also gets a -1 penalty to all his Active Defenses, or loses his Combat Reflexes bonus.

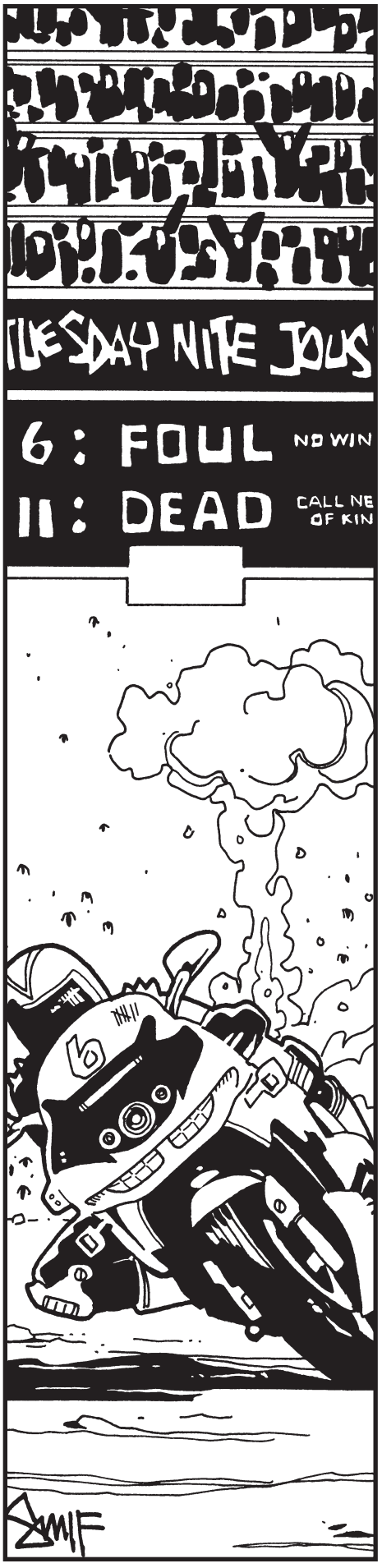
Judges and Fouls

Most competitions will have a number of impartial observers watching the fight, both to decide who the winner is and to spot and penalize fouls. They vary in quantity, from a single referee to six or more. Every time a point is scored, a foul is committed, or anything happens that the judges must rule about, the GM must make a Vision roll for *each* judge.

Modifiers (optional): +3 to -3 depending on their position with respect to the contestants at the moment (the GM can determine it randomly, or it may depend on the judges' arrangement; in some competitions, a judge sits on each corner, so it stands to reason that whenever something happens, some of them will have a better view than the rest); a random modifier (roll 1d-3 and apply the bonus or penalty), to determine whether the judge was paying attention at that particular moment; others, including the judges' personal biases (they should not be great; the judge is supposed to be impartial, after all).

On a successful Vision roll, the judge will vote accurately; on a failure he will not see the point or foul; on a critical failure, he will interpret the event in the worst manner possible (ranging from giving the point or foul to the wrong contestant to declaring the fight won in favor of the wrong person). Of course, if someone *"bought"* the judge, his votes will be predetermined!

If the Quick Method is being used, the judges roll only once per round.



Abstract Vehicular Combat

These systems cover various forms of abstract engagements between naval vessels and between spacecraft. For a detailed, "nuts and bolts" treatment of vehicular combat, see ***GURPS Vehicles.***

Naval Combat System

These rules are intended for late-TL4 and TL5 sailing ships, but can also be used for late-TL2 and TL3 historical or fantasy ships (use the *Boarding* rules and no cannon). Fast, powered ships, long-range guided missile strikes and antisubmarine warfare are all beyond the scope of these rules!

Ships

To use these rules, a few basic facts must be known about each vessel. The following system is deliberately vague; for detailed shipbuilding rules, use ***Vehicles.***

First, determine if each vessel is a sloop (small, single-masted, with triangular sails), a brig (medium-sized, full-rigged craft) or a ship (large, full-rigged vessel with many masts), then consult the table below:

Ship Type	*Avg. Speed*	*Max. Speed*	*Typical Firepower*	*Maneuverability Number*
Small Sloop	12	16	0-50	-1 to -3
Large Sloop	10	14	80-100	-2 to -4
Small Merchant Brig	8	10	35-75	-2 to -5
Small War Brig	9	12	170-300	-3 to -5
Merchant Ship	6	9	45-135	-4 to -6
Large Warship	7	10	350-700	-4 to -6

Speed is in mph, running with wind on the quarter, and assumes average encumbrance and average wind conditions.

Maximum Speed is under ideal wind conditions.

The direction of wind relative to direction of sail also plays a role:

Wind is . . .	*Astern*	*On the Quarter*	*Abeam*	*On the Bow*
Speed is . . .	-2 mph	100%	-2 mph*	20%

* Sloops sail with the wind abeam at 100% speed.

Typical Firepower rates the number and size of cannon carried by the ship. Cannon are rated by shot weight (e.g., a "24-pounder" fires a 24-pound ball). Firepower is found by adding the shot weight of all the guns on a ship, then dividing by two. This gives the total weight of shot in a broadside, called the ship's *firepower.* The lowest end of each range given is for smaller or earlier ships; the upper end represents larger or later ships, or ships that have been deliberately up-gunned for combat at the cost of range and carrying capacity.

Maneuverability Number is how well the ship responds to changes in course, and how close it can sail to the wind. It normally subtracts from Shiphandling skill during tricky maneuvers.

Combat

Actual ship-to-ship combat is a complex subject. For roleplaying, the question is "Who won, and what happened to the PCs?"

If the ships are enemy warships, the usual goal is to sink the foe, although capture is also a possibility. For a pirate or privateer vessel, capture of a merchant is the only real goal – sinking a ship doesn't gain any money. However, a pirate faced with a warship has an entirely different goal – escape! A merchant ship's prime goal is always to get away.

Battle is conducted in combat rounds. The length of time represented by each round is up to the GM. The "default" value is 1 hour; ship battles can be drawn-out affairs.

The goals of the ships affect the length and *intensity* (see p. 96) of the battle.

The battle may be relatively short if a faster ship is intent on boarding another ship – the ship might close quickly or be severely damaged quickly. The maneuvering *can* go on for hours, as the lighter ship might not want to expose itself to the firepower of the slower ship. The intensity of such a fight is still low. At the other extreme, a fight between men-of-war can take all day, and be *very* intense.

Use the following system regardless of the goals. If the ships board quickly, or after a lot of maneuvering out of range, assign a *light* intensity to the battle, make the Tactics rolls, and proceed to the section on *Boarding.*

The type of shot fired determines which damage tables are used, however. Round shot is aimed at the hull – its purpose is to puncture the hull, causing leaks, and to cause damage and confusion wherever there is enemy crew and marines. Chainshot is fired at the rigging and sails – its purpose is to slow the ship down and reduce maneuverability so the ship can be boarded. It rarely damages the hull. Grapeshot is fired to sweep the deck clear of enemy personnel – it is fired just before boarding, and is deadly to unarmored people.

Detection and Engagement

Under ideal viewing conditions, a lookout 30 yards up can spot another ship on the horizon 22 miles away. That is the maximum distance at which a ship can be seen. From 16 to 18 miles is more common, given any haze at all or the high humidity of the tropics. From on deck, a ship can be seen 12 miles away under prime conditions.

If one ship wishes to avoid the encounter, the GM must determine how far away the ships are, and their relative speeds. The direction of the wind is also important; some ships are able to sail closer into the wind than others. A ship may be slower than another sailing with the wind, but actually faster sailing close into the wind.

A slower ship trying to overtake a faster one hasn't a chance, if the faster ship can go in an optimum direction – one with the wind on quarter. Unfortunately for some crews, that direction is often *toward* the ship it wishes to evade, or into a reef or toward the main bulk of the enemy's fleet!

The GM determines if an encounter takes place, based on the distance, relative speeds, direction and intensity of the wind and willingness of the two parties involved.

Sailing ships in the 17th and 18th centuries didn't move at very high speeds. Consequently, the maneuvering before the battles usually took a few hours; sometimes a long chase lasted days. All possible preparations necessary for battle could usually be completed. The exceptions to that rule were poor weather conditions that reduced visibility to under a mile, and ambush – a ship suddenly swooping out of a concealed cove.

Factors Affecting the Battle

If there is a battle, whether one-on-one or fleet against fleet, the following system resolves the action with one set of die-rolls, based on a Quick Contest of Tactics between the opposing captains. (Throughout this section, the Naval specialization is meant when referring to Strategy.) If there are more than ten vessels in the battle, each fleet commander substitutes his Strategy skill for Tactics.

There are, of course, several modifiers to each captain's Tactics skill. All of these modifiers are cumulative:

Maneuverability: The relative maneuverability of the ships is an important factor in a battle. The difference between the maneuverability numbers of the two ships is added to the more maneuverable ship's captain's Tactics skill. In multiple ship encounters, average the maneuverability numbers of each side, rounding *up.*

Relative Firepower: To find the relative firepower of the two forces, find the *firepower* rating of each vessel, total the firepower rating for all vessels on each side, and then find the ratio of the larger firepower to the smaller.

A ship receives a 25% bonus to its firepower rating if it was *braced* or *reinforced* for combat and cannon recoil when it was built. Using the abstract system presented here, this is determined by the GM's opinion and the ship's mission: most warships *will* be braced, pirate ships *may* be, and merchant ships probably *won't* be. If a ship's total firepower is fractional, do not round off.

Add the firepower on each side, and find the ratio of larger to smaller in the first column of the table below, rounded *up* to two places. Then read across to the second number to find the Relative Firepower Modifier for the Quick Contest of Tactics, which is added to the Tactics skill of the more powerful force's commander.

Firepower Ratio	*Relative Firepower Modifier*
1.20 or less	No modifier
1.21-1.40	+1
1.41-1.70	+2
1.71-2.00	+3
2.01-3.00	+4
3.01-5.00	+5
5.01-7.00	+6
7.01-10.00	+7
10.01+ or more	+8

If one side has no firepower, the opposing force gets a +8 for better than 10-to-1 superiority.

Special Circumstances: The GM assigns bonuses in the Quick Contest of Tactics, or subtracts penalties, for any circumstances which affect the battle.

Examples:

Having the faster ship by 2+ mph (average speeds): +1

Attack totally by surprise (less than 2 minutes warning): +5

Attack partially by surprise (less than 10 minutes warning): +2

Familiar waters: +1 to +3 (fighting in a familiar reef area is worth +3)

Defending your home port or base: +2, plus any familiar waters bonus

Your ship is between the wind and the foe (you have the "weather gage"): +2

Having a green crew (average Seamanship skill below 10): -2

Having a crack crew (average Seamanship skill 13 or above): +2

Player Character Involvement: The skills of the player characters, and the players' decisions, can affect the outcome of the battle.

Player Character Glory

In the course of a battle, each PC makes two die rolls: one for daring in battle – the Glory roll – and one for survival. The Glory roll is made *before* resolving the Contest of Tactics; the Survival roll is made *after* the entire battle. A PC may choose to take extra risk during the battle, or to play it safe, choosing any number from -6 to +6 as a modifier to his Glory roll. However, the *opposite* modifier applies to the Survival roll. Naturally, these modifiers must be chosen before the Glory roll is made.

The Glory roll is made against "Battle" skill. This is not a skill which can be studied in itself. It is the average of the PC's Tactics skill (defaulting to IQ-6) and the primary skill the PC uses in the action (Shiphandling, Gunner, etc.). If the skill involved is a non-combat skill, roll against that skill alone, without averaging in Tactics (e.g., Seamanship; note that Shiphandling most definitely is a combat skill!). If no particular skill applies, roll against the average of DX and IQ. The result can modify the Quick Contest of Tactics which determines the outcome of the battle.

Glory Roll	*Modifier to Quick Contest of Tactics*
made by 10+ or a critical success	+5/+3/+1
made by 7-9	+4/+2/–
made by 4-6	+2/+1/–
made by 0-3	–/–/–
missed by 1-3	-2/-1/–
missed by 4-6	-4/-2/–
missed by 7+ or a critical failure	-5/-3/-1

Use the first modifier if the PC is the commander, the second if he is a combatant or active seaman, and the third if a noncombatant. If more than two PCs are involved on one side, apply only the *best* and *worst* resulting modifiers to the Contest of Tactics. Note that the best result may be a negative number, or the worst result may be a positive modifier. Apply both anyway.

The effect of Glory rolls can extend beyond the battle. If your daring helps carry the day (and you are lucky enough to be noticed by the Right People), you might receive a bonus, a decoration, a promotion, or even a patron. Pirates might gain free Reputation, which may lead to being elected captain eventually. Cowardice in the face of the enemy will have obvious negative effects.

The Survival roll is detailed under *Player Character Survival*.

Battle Plans

As an optional rule, the GM may require the players to give him a battle plan (or plans, if there are PCs on both sides). This depends on the PCs' roles – a captain has a lot of influence in the plan of a campaign, a gunner has none. If, in the GM's opinion, these plans are especially good or bad, he may apply from +3 to -3 in the Tactics contest. However, as wind-driven naval tactics are a specialized branch of tactical studies that most players and GMs haven't studied, it may be hard to accurately originate or assess a good plan. This option may be ignored.

Resolving the Contest of Tactics

Having noted all these modifiers, the Quick Contest of Tactics – or Strategy, if ten or more ships are involved in the battle – is rolled. The winner of this Quick Contest is the winner of the battle. The *difference* in the amounts by which the leaders make or miss their rolls determines the *outcome*.

Intensity of the Battle

A second roll (1 die) determines the intensity of the battle, and the degree of damage suffered by each force. Degree of damage ranges from A (none) to F (near total). The GM may decide to assign the intensity of the battle, based on the details of the encounter, rather than rolling randomly. For example, a pirate ship (whose sole intent is to board a merchant ship as soon as possible) is much more maneuverable and faster than a large merchant ship. The actual long-range battle wouldn't last very long – intensity 1 or 2, perhaps 3 if the merchant ship is heavily armed. Two warships involved in an all-out, all-day battle would be fighting an intensity 5 or 6 battle.

The table below lists several pairs of damage degrees. The damage for a battle is determined by cross-referencing the battle outcome – inconclusive, marginal, definite or decisive – and battle intensity – 1 to 6. In each pair of letters, the first indicates damage taken by the winner, and the second indicates damage taken by the loser. (Thus, a result of "B/F" indicates minimal damage to the winner and crippling damage to the loser.)

outcome table

Difference in Contest	*Outcome of Battle*	*Battle Intensity and Degree of Damage* 1	2	3	4	5	6
0-3	inconclusive	A/A	B/B	C/C	D/D	E/E	F/F
4-10	marginal	A/B	B/C	B/C	C/D	D/E	E/F
11-20	definite	A/C	B/D	B/D	C/E	C/E	D/F
21+	decisive	A/E	A/F	B/E	B/F	C/F	C/F

Assessing Damage

Three types of damage are important in an abstract naval battle: personal injury to important characters, specific damage to the PCs' ship or ships, and the casualty percentage suffered by each force.

Ship Damage

To determine damage to individual ships, the GM rolls on the table below, on the line appropriate to the damage taken by that ship's force.

Ships braced for combat when built (as before, most warships, some pirates, few merchants – GM's decision, if not known) add +2 to this roll; e.g., a roll of 4 for a vessel built as a warship means a result of 6. Add +1 to this roll if nothing but grapeshot was used against the ship – see *Boarding.*

ship damage table

Damage Degree	*Die Roll* 1	2	3	4	5	6+
A	1/0/0	–	–	–	–	–
B	2/1/0	1/1/0	1/0/0	1/0/0	1/0/0	–
C	3/2/0	2/2/0	2/1/0	1/1/0	1/0/0	1/0/0
D	3/2/1	2/2/1	2/2/0	2/1/0	1/1/0	1/1/0
E	3/2/2	3/2/1	2/2/1	2/2/1	2/1/0	1/1/1
F	3/3/3	3/3/2	3/2/2	2/2/2	2/2/1	2/1/1

The result indicates which *Ship Damage Tables* (below) are checked, and how many times. A result of (for instance) 3/2/1 would indicate three Light Damage rolls, two Medium Damage rolls and one Heavy Damage roll.

Lighter damage rolls are made before heavier damage rolls. Damage to cargo, rigging and sails is cumulative. Ignore – and do *not* reroll – results which damage a component that has already been destroyed.

Fleet Casualty Percentage

If the PCs' ship is part of a very large fleet, it may not be desirable to compute damage to every single ship. In that case, damage to each fleet as a whole is determined as a "casualty percentage" – the percentage by which the fleet's firepower is reduced. This percentage is given by a die-roll using the table below.

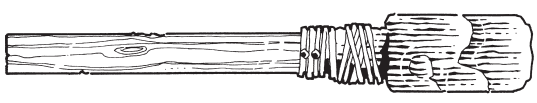
Degree of Damage	***A***	***B***	***C***	***D***	***E***	***F***
Fleet Casualty	None	1d+5%	2d+10%	4d+20%	8d+40%	12d+60%

If it is important to the adventure, the GM decides how this reduction is allocated in the fleet, based on the circumstances of the battle. (If damage is over 100%, all firepower is lost.) However, damage to the PCs' own ship should always come only from the *Ship Damage Table.*

Possible PC Injury

When a damage result on the tables below shows a *, any PC in that area must *immediately* make a Survival roll (see below).

When a ** is shown, any PC in that area must make a Survival roll at -5. If two ** are shown, two Survival rolls are required, etc.



damage tables for round shot

Roll 1 die for sloops and other one-masted ships, 2 dice for merchant and warships of two masts or more.

Light Damage Table: Round Shot

Roll	*Damage*
1	Hull damage: -2 to Shiphandling until repaired.
2	One ship's boat damaged: 2 days to repair.
3	Cannon supports damaged: 10% less firepower, 2 days to repair.
4	Sails damaged: reduce speed by 10% (round down).
5	Rigging damaged: -1 to Shiphandling.
6	Main Deck area hit. *
7	Hull damage: -2 to Shiphandling until repaired.
8	Cargo damaged: 10% destroyed.
9	Forecastle damaged. *
10	Poop area damaged. *
11	Cabin area damaged. *
12	Galley damaged: one day to rebuild. *

Medium Damage Table: Round Shot

Roll	*Damage*
1	Hull damage: -4 to Shiphandling until repaired. Roll 1d; on a 6 the ship begins taking on water and will sink in 1d hours unless the pumps are manned.
2	One ship's boat destroyed.
3	Cannon damaged: 50% less firepower, Armoury skill and 2 weeks needed to repair. Roll 2d: On a 12, the ship is aflame and will burn to the waterline in 10-60 minutes unless the pumps are manned.
4	Sails damaged: reduce speed by 50% (round down).
5	Rigging damaged: -4 to Shiphandling.
6	Main Deck area hit. *
7	Hull damage: -4 to Shiphandling, jettison 30% of cannon *and* cargo or ship sinks in 10-60 minutes.
8	Cargo damaged: 50% destroyed.
9	Forecastle damaged. *
10	Poop area * *and* Cabin area * both damaged.
11*	Steering Gear damaged: -4 to Shiphandling.
12*	Capstan damaged: cannot move cannons or anchor until repaired (two days).

Heavy Damage Table: Round Shot

Roll	*Damage*
1	Mainmast broken 10 feet above deck: -90% to speed.
2	Magazine blows up, ship destroyed. **,**,**
3	Sails and Rigging severely damaged: -90% to speed, -10 to Shiphandling.
4	Cannon destroyed: firepower reduced by 75%. Roll 1d: On a 6, the ship is aflame and will burn to the waterline in 5-30 minutes unless pumps manned.
5	Hull damage: -4 to Shiphandling, jettison 50% of cannon and cargo or ship sinks in 5-30 minutes.
6	Maindeck area severely damaged. **
7	Cargo destroyed or rendered worthless.
8	Poop destroyed ** *and* Cabin destroyed. **
9	Forecastle destroyed. **
10	One mast destroyed (roll randomly): -50% to speed (-90% for mainmast).
11	Rudder destroyed: -6 to Shiphandling until replaced.
12	All pumps destroyed.

damage tables for chain shot

Roll 2 dice for all ships.

Light Damage Table: Chain Shot

Roll	*Damage*
2	Ship's boat damaged: 2 days to repair.
3	Mainmast shaken: crew aloft. *
4	Forecastle damaged. *
5	No damage.
6	Rigging damaged: -1 to Shiphandling.
7	Sails damaged: -10% to speed.
8	Spars damaged: -1 to Shiphandling.
9	No damage.
10	Maindeck damaged. *
11	No damage.
12	Poop damaged. *

Medium Damage Table: Chain Shot

Roll	*Damage*
2	Ship's boat destroyed.
3	Mainmast broken near top: -20% to speed.
4	Forecastle damaged. *
5	Mizzenmast broken near top: -20% to speed.
6	Rigging damaged: -4 to Shiphandling. *
7	Sails damaged: -50% to speed.
8	Spars damaged: -4 to Shiphandling. *
9	Foremast broken near top: -20% to speed.
10	Maindeck damaged. *
11	Mainmast broken near top: -20% to speed.
12	Poop damaged. *

Heavy Damage Table: Chain Shot

Roll	*Damage*
2	Ship's boat destroyed.
3	Cannon destroyed: reduce firepower by 25%.
4	Poop destroyed. **
5	Mizzenmast broken 10 feet above deck: -50% to speed.
6	Rigging severely damaged: -10 to Shiphandling until replaced. **
7	Sails severely damaged: -90% speed until replaced.
8	Spars severely damaged: -10 to Shiphandling until replaced. **
9	Foremast broken 10 feet above deck: -50% to speed.
10	Maindeck severely damaged.**
11	Mainmast broken 10 feet above deck: -90% to speed.
12	All pumps destroyed.

Chain Shot Hits: Chain shot penalties are cumulative if different components are hit with each shot. They increase the penalty if a subsequent hit gives a greater penalty to the same component. Otherwise, subsequent hits on the same component are ignored.

Shiphandling Rolls: Penalties to Shiphandling rolls can affect the tactical handling of the ship. Each -4 to Shiphandling is a -1 to Tactics in the next round of combat.

Ending the Round/ Breaking Off Engagement

In an abstract system, ending an engagement must be at the discretion of the GM. As a rule, any ship faster than its foes can break away. In some situations, slower ships may still escape by scattering, risking a reef, making for port, etc. GMs should be sympathetic to clever PC ploys to escape a hopeless battle!

If the engagement is in the open sea, only allies can save the slower, less maneuverable ship that can't blow the enemy out of the water!

Starting a New Round

If both sides still want to fight, or if one side cannot (yet) escape, another round of combat begins. Recalculate the firepower of both sides to account for lost or damaged ships, dead or unconscious crew, and any reinforcements that may have appeared. Battle plans and Glory modifiers do not affect the second and subsequent rolls of a battle.

Player Character Survival

Each PC and important NPC must make a Survival roll at the conclusion of the entire battle (but before boarding – see below), based on his HT. This number is modified by the size of the PCs' ship, and the degree of damage it suffered. If the battle ran for more than 1 round, use the highest degree suffered during the battle, plus 1. So, for instance, if there were 3 rounds, with degrees A, C and A, the PCs would roll on the "D" line.

Degree of Damage	*Survival Roll Modifier*	*Ship Type*	*Survival Roll Modifier*
A	No roll	Large Warship	+3
B	+5	War Brig	+2
C	+2	Merchant Ship	–
D	–	Merchant Brig	-1
E	-2	Large Sloop	-1
F	-5	Small Sloop	-2

Combat Reflexes also helps a PC avoid injuries in ship-to-ship combat, giving a +2 on the Survival roll.

Having determined the appropriate Survival roll for each PC, roll to determine the injuries incurred during action:

Survival Roll	*Injury*
made by 5+ or a critical success	unhurt
made by 1 to 4	1 hit
made exactly	2 hits
missed by 1 to 2	1d+1
missed by 3 to 4	two 1d wounds
missed by 5 to 6	two 2d wounds
missed by 7+ or a critical failure	three 2d wounds

Boarding

Boarding is an essential aspect of naval warfare in general and pirate tactics in particular. If both ships desire boarding (a rare occurrence, but it happens), there is no problem – go right to the boarding rules after 1 round of light-intensity combat. If only one ship wishes to board, roll a Quick Contest of Shiphandling after each round of combat, with the following modifiers:

If your ship's average speed is 2+ mph faster: +1
For being between the wind and your foe (the "weather gage"): +1
For a crack crew (average Seamanship skill 13+): +1
For a green crew (average Seamanship skill below 10): -1
If your ship is more maneuverable: add the difference in maneuverability numbers

If the shiphandler who wishes to board ties or wins the Quick Contest, proceed to boarding. Otherwise, proceed to another round of combat.

Grapeshot

The last round of cannon shot fired before boarding is often grapeshot. This is small, anti-personnel shot that scatters like a shotgun blast and is very effective against human targets. If either side uses only grapeshot, add +1 to the roll when determining which *Ship Damage Tables* to use – grapeshot isn't very effective against ships. Since grapeshot is only potent at close range, it replaces ordinary shot only in the closest (most effective) broadside against the enemy.

If the opposing ship uses grapeshot against the PCs, an additional Survival roll is needed before the boarding action begins. No roll is needed for persons below deck, however. If the players' ship uses grapeshot, roll against the Gunner skill of the master gunner. Reduce the opposing forces by the following percentage:

Made roll by 5+: -20%
Made roll by 2 to 4: -10%
Made roll exactly or by 1: -5%
Missed roll: no reduction

Missile Fire

Player characters who are not involved in specific duties (gunner, shiphandler, etc.) may be awaiting the enemy ship's approach with ready musket or pistol. The marksman may attempt a specific target, if desired (someone aiming at your character is a good choice), or simply shoot at anyone. Before 1700, tillers were used instead of steering wheels, and the tiller was behind walls – no shots at the tillerman are allowed. Any person on a ship, except in the rigging, is automatically in light cover: -2 to be hit. Poop railings are usually large and sturdy enough to offer -3 or even -4 protection, half-covered or head-and-shoulders exposed. See p. B118 for details.

The missile shot may be done at any range. The trick is to hold your fire as long as possible without getting picked off yourself. The GM may write down on a piece of paper at what distance the

enemy will shoot and ask the players when they will fire. A character who is not aiming gets an IQ roll (Acute Vision helps) to spot anyone aiming at him. One who is aiming can only notice his target, or spoil his aim. Since 4 seconds is the maximum aiming benefit, those who take the full aim get an IQ roll 4 seconds before they fire to spot anyone aiming at them. Make the attack rolls as usual.

A ship is an unsteady platform for firing. There is a minus to any missile fired from on board ship, as per the following table:

Dead calm:	0
Light Breeze:	-1
Moderate Breeze:	-2
Light Gale:	-3
Heavy Gale:	-4

A successful Seamanship roll will reduce the penalty by 2, but will never give a bonus. A roll is required for each shot fired. Once the Seamanship roll is attempted, the shot must be fired.

Boarding Action

Most boarding actions will involve large numbers of people on both sides. The majority of pirate ships carry as many men as they can (usually over 100). This is not only to assure that boarding will be completely successful, but also to provide a "prize crew" to bring the captured ship safely to port.

Before beginning boarding, determine damage from ship-to-ship combat, including any wounds to the PCs. Set up the PCs on their ship, using a battle map, if possible. Some PCs may have specific duties and hence locations: gunners, shiphandlers, etc. Others will simply be part of the boarding party (or repelling party) and ready to attack. If at all possible, have the player characters in the same area of the ship.

In the case of ships with cannon, a boarding ship won't usually be brought up broadside to broadside. That makes it too easy for the enemy to blast you apart if their guns are still loaded, or even if the gun crews have a lot of determination. Most boarding is partial broadside: bow along bow, or bow along stern. The bowsprit is a favorite path to the enemy ship.

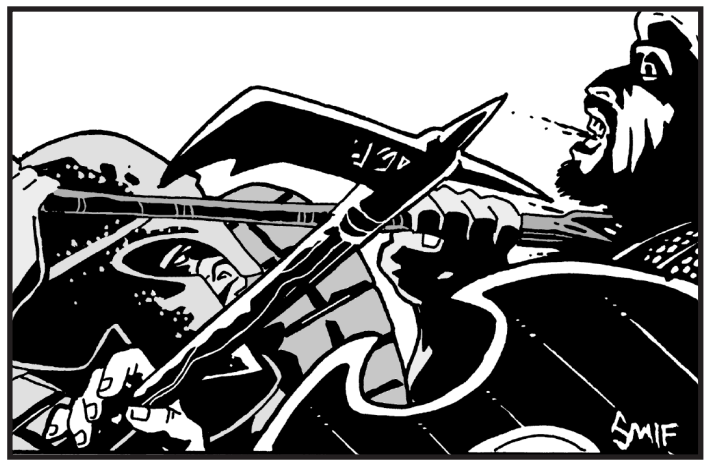
How the player characters fare will determine how their entire crew fares. The GM must determine how many NPCs (and of what type) to pit against the player characters. Most boarded ships that are severely outnumbered will simply surrender – even a warship, although it's less common. Therefore, if there is fighting at all, it should be fairly close. The NPCs will be either numerous or high-point characters – maybe even both!

Only rarely does the entire crew of a ship board; usually a skeleton crew will stay behind to handle the ship. Only in desperate situations is a ship emptied as the crew boards. If the boarders can spare it, they'll leave 20 men behind, or as many as they safely can and still get good numerical superiority. The captain will certainly board – it's his role to inspire his crew. The ship's master, carpenter, doctor, master gunner, cooper, etc., will not.

The GM should have decided what type of ship and crew the players are facing in advance. Merchant ships carry a few marines, but the sailors are expected to do most of the fighting. Often, the marines hired on merchant ships have better musket skills than sword skills. The theory is to deter the pirates at a distance. They are also good with the bayonet (use Spear skill).

Sometimes a merchant ship is sent out loaded with hidden marines. The object is to lure pirates close enough to capture or kill them all. In those cases, the opponents are trained soldiers, sometimes even the elite. This is an instance of both parties being eager to board – although the pirates wouldn't be if they knew who was awaiting them! Warships are occasionally detailed to hunt pirates, and warships often board each other. If the adventurers are in the navy, they might easily be involved in such an action. Such opponents will be tough fighters.

Once the opponents are chosen, the ships are drawn together on the map and the battle begins. Grappling hooks are too numerous to cut effectively, especially if marksmen are covering them. Boarders may swing on to the boarded ship, or leap across the railing or run on the bowsprit. If the PCs are not very numerous, a few NPC allies can be added. Play out the combat in basic or advanced combat rules as desired. As the microcosmic battle goes, so goes the whole boarding action. If the players are defeated, their crew is defeated. The GM should be generous and accept offers of surrender.



Space Combat System

These rules are intended primarily for "realistic" engagements between TL8+ science-fiction spacecraft. For fast, furious, cinematic action and dogfights in space opera settings, see the ***Space Opera Combat System,*** *p. 106.*

Only FTL ships are likely to meet and fight in deep space. But ships of any kind, moving on maneuver drive, can contest the strategic area around a planet or jump point.

The combat system presented here is intended to maximize the involvement of individual PCs (and, of course, significant NPCs). It gives many different skills the chance to be decisive in a battle.

Two types of damage are represented here: personal injury to important characters, and specific damage to the PCs' ship or ships.

Spacecraft

To use this combat system, a few general pieces of information are needed for each ship. First, the GM should decide on the approximate volume of each ship in cubic yards (cy), using these guidelines:

Fighter: 5-500 cy
Corvette: 1,000-3,000 cy
Destroyer: 15,000-20,000 cy
Cruiser: 50,000-75,000 cy
Battleship: 100,000-150,000 cy
Dreadnought: 200,000-300,000 cy

Next, decide which ship is the fastest. Finally, determine Defense Factor (DF) and Firepower (FP) for each spacecraft. These quantities are defined in great detail in ***GURPS Space.*** If the DF and FP of a spacecraft are unknown, or if the GM wants to keep things deliberately abstract, the following general guidelines can be used.

Defense Factor (DF)

This number abstracts the defensive capabilities of the ship. Armor, force fields and stealth all contribute to DF. (See *Computing Attacks,* p. 102, for other factors.) DF from multiple sources is additive.

To decided on how much DF a vessel will need, use the following rule of thumb at TL8: noncombatant ships require DF 1-3; fighters, DF 2-4; light warships (destroyers, corvettes, etc.), DF 4-6; and ships-of-the-line (anything cruiser-sized or larger), DF 10+. Add +1 to these figures at TL9, or +2 at TL10; add an extra +2 per TL after 10. Finally, add 50% to the result for slower *or* heavier warships (carriers, heavy cruisers, etc.) that are expected to suffer concentrated attacks.

Armor (TL7; see p. S78): Minimum DF is 1, and DF from armor rarely exceeds 7 or 8. Note that larger ships can mount more armor; DF may be as high as 9 for destroyers and cruisers, and 10 for dreadnoughts and battleships.

Force Fields (TL11; see p. S79): As per armor, except that since force field generators are somewhat lighter, a force field DF of 9 or more is not impossible for a large warship.

Stealth Suites (TL7; see p. S87): Against foes of equal or lower TL, a stealth suite can provide DF 1-6, depending on quality. Pirates may be able to afford DF 1-2 systems, while cutting-edge naval ships might have DF 6 stealth.

It is most efficient for armor, force fields and stealth to provide DF in equal parts; excessively high DF from a single source would result in an unrealistically massive and expensive craft.

Example: A scenario calls for a generic "TL11 heavy cruiser." Since the GM cannot find his copy of ***GURPS Space,*** he uses the guidelines above. The ship should have a base DF of 10 (it's a ship-of-the-line), raised to 14 for its TL, then increased by a further 50% for being a *heavy* cruiser, for a total DF of 21. The GM decides that DF 6 is due to its advanced stealth suite, DF 8 is due to its armor and DF 7 is due to its force fields.

GURPS Vehicles *and DF:* If the spaceship's ***Vehicles*** stats are known, use the following method to determine DF:

Armor: Convert DR to DF using the following table:

DR	*DF*	*DR*	*DF*	*DR*	*DF*
under 70	0	280-559	3	2,240-4,479	6
70-139	1	560-1,119	4	4,480-8,959	7
140-279	2	1,120-2,239	5	etc.	etc.

Force Fields: If a ship has deflectors, add 1 to DF. If it has force screens, calculate DF based on screen DR separately, then add it to total DF..

Stealth: Add 1 for the *basic* version or 2 for the *radical* version of each of the following systems: stealth, IR cloaking, emission cloaking.

Firepower (FP)

This number abstracts the *offensive* capabilities of the ship. See p. S86 for the FP values of specific weapons, if the ship's precise armaments are known. This system assumes that they *aren't.* To estimate a ship's firepower, look at its role:

An undergunned ship with long range or a lot of cargo capacity (like a merchant or carrier) cannot seriously harm an equivalent ship, and mounts weapons for defensive purposes only; assign it a FP equal to 5-20 times its DF.

A warship, relying on supply ships for fuel and ammo, and built to patrol as well as fight, should be able to engage ships equivalent to itself; it should have FP equal to 20-100 times its DF.

An up-gunned ship, like an orbital space fortress, with no need for mobility and designed solely for combat, might have FP equal to 50-500 times its DF.

Use the low end of each range for older or lighter craft, or those designed purely for point defense. Use the high end for war-like cultures, or those that have been on a war footing for some time. Use the middle of the range for everyone else.

The exact composition of the ship's armaments is left up to the GM; be creative! There are two exceptions:

First, a *specific number* of FP 3-5 "point defense" weapons should be designated to shoot down missiles (see *Point Defense Gunnery,* below).

Second, if the ship carries missiles, decide how much of the ship's FP is due to guns, then multiply what's left by 1.5 for conventional missiles, 5 for nuclear missiles or 15 for antimatter missiles (TL11+). This "missile FP" represents *expendable* missiles, and should be divided up between a *specific number* of missiles; conventional missiles may have FP 1-10, atomic missiles FP 20-100 and antimatter missiles FP 200-1,000, The captain of each ship may expend as many or as few missiles as he wishes each combat round; but once they're gone, they're gone! (Other weapons can fire every combat round.) Note that atomic and antimatter weapons are actually much more effective than the multipliers indicate, but they're also *expensive,* so fewer missiles are carried.

Example: The cruiser above has DF 21. The GM decides that it is a typical warship, and gives it a mid-range FP of 60 times its DF, or FP 1,260. The GM describes this as two main batteries of three heavy particle beams, two secondary batteries of three medium particle beams, and a dozen small (FP 5) lasers for point defense.

If the cruiser were a missile cruiser, it might only have FP 360 from guns (described as point defense weapons and light gun batteries); the remaining 900 would be multiplied by 15 (for TL11 antimatter missiles) to get FP 13,500 in missiles. The GM decides that this represents three FP 1000 "heavy" missiles, a dozen FP 600 "medium" ones and twenty FP 165 "light" ones.

GURPS Vehicles** and FP:* If the vessel's ***Vehicles stats are known, FP can be estimated more precisely, as follows:

FP is based on the *dice of damage* the weapon inflicts. Only weapons that can function in vacuum can be used for space combat.

FP is equal to dice of damage/100 for guns and non-nuclear missiles. For nuclear and antimatter missiles, it is assumed the explosion is a proximity blast occurring some distance from the target. Thus, FP is equal to the warhead yield in kilotons × 10.

If an attack has an armor divisor, multiply dice of damage by that divisor when calculating FP, e.g., 20d(2) is treated as 40d.

For automatic fire lasers multiply FP by RoF. Otherwise, multiply FP by the square root of RoF (first converting fractional RoFs to decimals, e.g., 1/4 is 0.25).

It is up to the GM whether to bother with results that give fractional FPs, or to simply round to the nearest whole number.

Special Radiation Effects of Missiles: Nuclear and antimatter missiles produce radiation and EMP effects which can injure both ship crew and computers. Missiles intercepted by antimissile fire do not produce radiation.

The rad dose delivered by each unintercepted missile is equal to (FP×TL×10). Add all the missiles together to make one radiation dose. See p. 145 for protection against radiation, and for radiation effects. If the ship has armor or a force field of DF 1, it has a radiation Protection Factor of 10. DF 2 gives a PF of 100, DF 3 gives a PF of 1,000, and so on.

If a ship crew takes enough rads to incapacitate them immediately (4,000 rads or more), that ship is out of the battle. A crew that takes over 160 rads may fight out that battle but will be incapacitated within a day.

Combat Rounds

Battle is conducted in combat rounds. The length of time represented by each round is up to the GM. The "default" value is one hour; space battles can be drawn-out affairs. But in a close-orbital engagement, a round might be ten minutes – and in a long-range running battle between STL craft at the edge of a system, a round might be a day!

The GM also decides how many combat rounds make up a "battle." In general, a battle has ended when the forces have an opportunity to regroup and plan their next moves. When a battle ends, characters make Survival rolls (p. 105).

Some engagements may consist of several combat rounds, one right after the other. Others may consist of several *battles,* with the characters having an opportunity to try more damage control, and make new battle plans, before each.

Detection and Engagement

Before any combat between spacecraft can occur, the opposing forces must detect each other. To do this, the sensor operator on each ship rolls against his Electronics Operation (Sensors) skill. If one or both forces detects the other, they then decide whether they will engage in combat. If neither detects the other, no combat will occur, unless they are closing unwittingly. In this case, each makes another roll hourly, or more often if quality of sensors allows it. Two forces may pass in space and never detect each other.

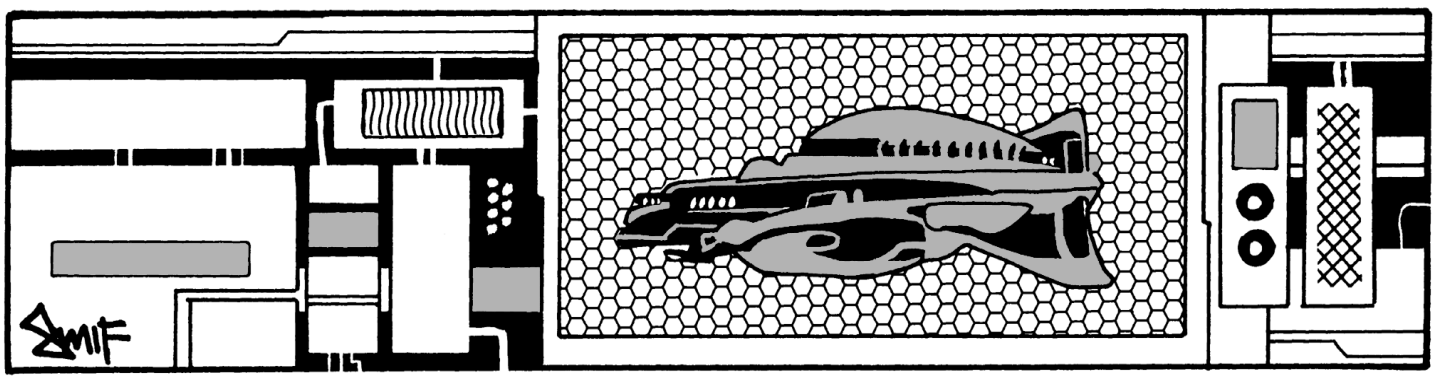
If detection occurs, the next step is to determine whether combat can happen. Speed is the most important factor in this; a fast ship can easily close with a slower one. But a slow ship with missiles may still get some shots at a fleeing opponent.

Thus, the decision to fight usually lies with the commander of the faster force. If only one side wishes to fight, but is not appreciably faster than the foe, the question of engagement is resolved by a Quick Contest of Piloting skill between the worst pilot in the fleeing force and each pilot in the pursuing force. Any pursuer who wins the contest may engage the fleeing force.

Should only one side detect the other, and the detecting side prefers *not* to fight, it can simply alter course to avoid closing before the other force detects it. If the detecting side wishes to engage, it can close the gap. As it closes, the opposing force will get additional sensor rolls to detect its approach; once each side has detected the other, the final decision to engage once again falls to the commander of the faster force.

Shadowing: If one force detects another without itself being detected, the detecting force may attempt to *shadow* the other, following its movements and staying on the very edge of sensor range. To do so, the shadowing sensor operator must make an Electronics Operation (Sensors) roll every fifteen minutes, including all appropriate modifiers, to keep a fix on the shadowed craft. Failing this roll means that sensor contact with the shadowed craft has been lost. If the roll is successful, the shadowing pilot must then roll a Quick Contest of skills against the shadowed sensor operator, Pilot vs. Electronics Operation (Sensors), to avoid being detected.

If the shadowing craft has superior sensor range or superior stealth, it can move in closer, and the sensor operator needs to roll only once per hour.



The Battle

If there is a battle, whether one-on-one or fleet against fleet, the following system resolves the action.

Phase 1: Contest of Tactics

The two ship captains (or force commanders) roll a Quick Contest of Tactics. If there are more than 10 vessels in the battle, use Strategy skill instead. Special circumstances and the PCs' actions can modify the rolls, as detailed below.

If one commander wins the contest by more than 3 points, he may choose either to do more damage to the foe (by shifting all his attacking results by one column to the left on the *Combat Results Table*) *or* to suffer less damage to his own forces (by shifting all his defending results by one column to the right). A commander who scores a critical success gets two column shifts: one in each direction, or both in the same direction! The commander must make his choice now; he must tell the GM, but not the opponent.

Special Circumstances: The GM assigns bonuses in the Quick Contest of Tactics, or subtracts penalties, for any circumstances which affect the battle. A few examples:

Attack totally by surprise: +5 first round, +2 second round.

Partial surprise – less than 3 minutes warning: +2 (first round only).

Familiar space: +1 to +3 (e.g., fighting in a known asteroid field is worth +2).

Defending your home system: +2, plus "familiar space" if applicable.

Battle Plans: If PCs are force commanders, or important in the planning the battle, the GM should require the *players* to give him a battle plan (or plans, if there are PCs on both sides) before making the Tactics roll. If the GM feels these plans are especially good or bad, he may apply from +3 to -3 in the Contest of Tactics.

Phase 2: Assign Firepower

Each PC who is a *ship captain* (including fighter pilots) now declares how aggressively he will press his own attack, as follows:

Extremely aggressive: +50% to effective Firepower of all ship weapons; -2 to ship's effective DF.

Aggressive: +25% to effective Firepower of all ship's weapons; -1 to ship's effective DF.

Per doctrine: No modifiers.

Defensive: -25% to effective Firepower of all ship's weapons; +1 to ship's effective DF.

Extremely defensive: Halve the effective Firepower of all ship's weapons; +2 to ship's effective DF.

The GM or Adversary decides how aggressively NPC captains will perform. The ship's crew has no say in the captain's decision, unless they want to stage a mutiny.

Each side in the battle (players, GM and/or Adversary) now lists the amount of FP that each ship will use during the first combat round. Some weapons may be assigned to point defense (antimissile) fire; their FP cannot be used to attack enemy ships. Remaining FP should be assigned to specific enemy ships.

If PCs are ship captains, each captain assigns his own weaponry. If the force commander gives specific orders about weapon assignment, it is up to the captain how closely to follow them. NPC captains are controlled by the GM or (for enemy ships) the Adversary, and may or may not follow orders exactly.

Phase 3: Point Defense Gunnery

Any weapon may be assigned to point defense (anti-missile) fire, targeting one attacking missile. The character controlling the point defense weapon attempts his Gunner roll, plus or minus 3 times the difference in the TLs of his weapon and the enemy missile. On a successful roll, the missile is destroyed, and does not contribute its firepower to that combat. On a failure, the missile is unaffected, and that point-defense weapon may not fire at it a second time.

Point-defense weapons do not contribute their firepower to the combat, regardless of whether they destroy their target missiles – or even if no missiles are fired at the ship. Point-defense gunnery is not affected by the aggressiveness of the captain's attack.

If more than one missile is fired at the ship during a given combat round, a point defense weapon may attack a second one at -2, a third one at -4, and so on. No attack may be made at a modified skill of less than 3! These modifiers are not affected by the length of the round; in a quick, close battle, the missiles will be fired at short range and can be engaged (hit or miss) quickly, while in a long-range battle, it will take longer to deal with each missile. The time to hit a missile is as soon as it comes in range – they accelerate constantly and will be moving very fast if they have come in from a long distance!

Any number of gunners may attack the same incoming missile, but it counts as one shot for each of them.

If missiles are used for point defense, each attack on an enemy missile expends one of the ship's own missiles. Each subsequent missile fired by the same gunner is fired at a cumulative -2 penalty, as above.

Ship commanders can use NPC gunners for point defense. Unless the NPC gunner's skill is already known, roll 1d+10 to generate skill for an experienced gunner, or 1d+6 for a non-gunner pressed into service. Gunnery computers can also be used, at their effective skill (usually 12 or more). Characters who serve on point defense cannot attempt damage control, etc., on that same round.

PCs with ESP ability can use their Precognition skill. Add (Precognition-10) to Gunner skill, spending one fatigue point, to guess where the incoming missile is . . .

Phase 4: Computing Attacks

Each PC who is serving as a gunner (including fighter pilots, but not including point defense gunners) may now make a Gunner roll. Fighter pilots who are both flying and shooting may substitute a Piloting roll if they choose.

For PCs only, each point by which the roll is made increases that weapon's effective Firepower by 10%. A critical success doubles Firepower. (Missing the roll reduces that weapon's Firepower by 10% for each point by which the roll was missed, and a critical failure reduces Firepower to zero for that round.) For one-man fighters, Firepower of the whole ship is affected.

Each ship in the battle now undergoes a single *attack,* based on the total effective Firepower of all weapons aimed at it (except for destroyed missiles). The attacking Firepower is compared with the ship's Defense Factor to yield a ratio, rounding in the defender's favor. The *Combat Results Table* then gives the outcome of the attack.

A ship's basic Defense Factor is given by its armor, force fields and stealth, if any. If a hull is unarmored, its Defense Factor (DF) starts at 0. If a ship's *final* DF, after modifications for stealth and hull size, is 0 or less, treat it as having a DF of 0.25. An aggressive attack lowers effective defense, and vice versa. However, a ship can get bonuses or penalties to Defense Factor for other things:

10 or fewer cy: +2
100 or fewer cy: +1
1,000 or fewer cy: 0
10,000 or fewer cy: -1
100,000 or fewer cy: -2
1,000,000 or fewer cy: -3
Over a million cy: -4
Ship has warp drive: +2

Ship can make short, aimed hyperspace skips at intervals of 5 minutes or less: +1

Combat Results

To determine damage, the attacker rolls one die on the table below, on the line appropriate to the final odds ratio. Treat any result of less than 5 to 1 as having no effect. Divide any result of greater than 1,000 to 1 into separate attacks – one or more at 1,000 to 1, plus a remainder.

combat results table

Odds	*Die roll, as modified*						
	1	*2*	*3*	*4*	*5*	*6*	*7+*
5:1	1/0/0	–	–	–	–	–	–
10:1	1/1/0	1/0/0	–	–	–	–	–
20:1	2/1/0	1/1/0	1/0/0	–	–	–	–
50:1	2/2/0	2/1/0	1/1/0	1/0/0	1/0/0	–	–
100:1	3/2/0	2/2/0	2/1/0	1/1/0	1/0/0	1/0/0	–
200:1	3/2/1	2/2/1	2/2/0	2/1/0	1/1/0	1/1/0	1/0/0
500:1	3/2/2	3/2/1	2/2/1	2/2/1	2/1/1	1/1/1	1/1/0
1,000:1	3/3/3	3/3/2	3/2/2	2/2/2	2/2/1	2/1/1	1/1/1

Phase 5: Computing Ship Damage

The combat result roll indicates which ship damage tables (below) are checked, and how many times. A result of 3/2/1 would indicate three Light Damage rolls, two Medium Damage rolls, and one Heavy Damage roll.

When rolling on the ship damage tables, roll 1 die for ships of hull size under 1,000 cy, 2 dice for ships of 1,000 to 10,000 cy, and 3 dice for ships over 10,000 cy.

Lighter damage rolls are made before heavier ones. Weapon and computer damage, and "shaken up" results, are cumulative but must be repaired separately. Ignore – and do *not* reroll – results which damage a component that has already been destroyed.

light ship damage

1 – Ship shaken up – *all* subsequent rolls involving ship operations at -1. Requires 3 damage-control rolls to fix.

2 – Drive damaged – ship at -10% drive power (assume a 10% loss of acceleration).

3 – One main weapon damaged – an Armoury+3 roll (or equivalent) repairs it. (If precise armaments are unknown, GM decides on lost FP.)

4 – Life support damaged – loses 10% of original capacity (i.e., ship's operating range is cut by 10%).*

5 – Sensor suite damaged – all sensor rolls at -3. Halve Firepower of non-missile weapons.

6 – Power plant or capacitor bank damaged, losing 1/4 its base capacity or 10 MW, whichever is greater. This result may be rolled more than once.

7 – One weapon in six (but at least one) damaged – each at -1 to hit on point defense. (If precise armaments are unknown, the GM decides which weapons are affected.)*

8 – One accessory damaged – roll randomly, or GM assigns.

9 – One main auxiliary craft damaged – apply one meaningful Medium damage result.*

10 – One area (not otherwise mentioned on this table) damaged.

11 – Fuel storage holed. Lose 10% of remaining fuel or reaction mass.

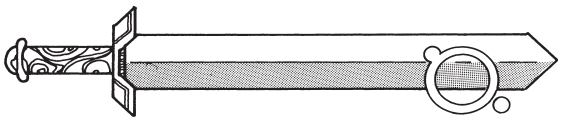
12 – Landing gear destroyed; ship must be repaired in space or make a belly landing (Hull Integrity roll at -4 penalty).

13 – Cargo area (lacking that, hangar deck or passenger area) shaken up. Contents may be damaged.*

14 – Passenger area (lacking that, cargo area or hangar deck) shaken up. Passengers take 1d damage each.*

15, 16 – Hangar deck (lacking that, passenger area or cargo area) shaken up. Each auxiliary craft takes one Light Damage roll.*

17, 18 – Drive damaged – as #2 above.



medium ship damage

Roll once for Hull Integrity (see below) for each Medium Damage result taken.

1 – Ship shaken up – *all* subsequent rolls involving ship operations at -2. A damage-control roll at -4 reduces penalty to -1. A second roll at -6 removes the penalty.

2 – Drive damaged – ship at -50% drive power (assume a 50% loss of acceleration).

3 – One main weapon damaged – halve its firepower. Requires 2 damage-control rolls to repair. (If precise armaments are unknown, GM decides on lost FP.)*

4 – Life support damaged – loses 30% of original capacity (i.e., ship's operating range is cut by 30%).*

5 – Ship's computer damaged – all rolls using computer assist are at -3, unless a backup is available.

6 – Power plant or capacitor bank damaged, losing half its base capacity or 20 MW, whichever is greater. This result may be rolled more than once.*

7 – One weapon in six (but at least one) wholly destroyed. (If precise armaments are unknown, the GM decides which weapons are affected; this should reduce total FP by 1/6.)*

8 – Artificial gravity (if it exists) knocked out; all crew now need Free Fall skill (see *Zero Gravity,* p. 143) on any rolls they try. Reduce effective Firepower by 10%. If there is no artificial gravity, one area not mentioned on this table is damaged.*

9 – Main bridge damaged – all rolls by this ship's personnel, except Survival rolls, at -1. Damage control at -3.*

10 – One area (not otherwise mentioned on this table) damaged.*

11 – Fuel storage holed. Lose 25% of remaining fuel or reaction mass.*

12 – Intership communication ability lost; will require four damage-control rolls to recover. Until then, ship cannot communicate or coordinate with other ships in the battle.

13 – Cargo area damaged (lacking that, hangar deck or passenger area). Cargo takes approximately 10% damage, as determined by GM.*

14 – Passenger area damaged (lacking that, cargo area or hangar deck). Each passenger takes 2d damage.*

15, 16 – Hangar deck or boat bay damaged (lacking that, passenger area or cargo area). Each auxiliary craft takes one Light and one Medium damage roll.*

17, 18 – Drive damaged – as #2 above.

Damage Table Notes: Any time the damage result could describe more than one ship system (e.g., "drive" when the ship has two different drives), roll randomly to see which one is affected.

With some FTL drives, it will be impossible to enter FTL until the drive is fully operational. With other drives, the ship is simply slowed.

Damage to the sensor suite halves Firepower of all weapons except missiles, until it is repaired. Loss of the sensor suite means that no weapons except missiles can be used!

heavy ship damage

Roll once for Hull Integrity (see below), at a -2 penalty, for each Heavy Damage result taken.

1 – Power plant or capacitor bank destroyed. Ships with antimatter engines blow up.**/**

2 – Drive destroyed (no repair possible).**/**

3 – One main weapon destroyed. (If precise armaments are unknown, GM decides on lost FP.)**

4 – Force field projector destroyed – if there are no force fields, sensor suite lost.

5 – Ship's computer destroyed; halve Firepower unless a backup is available.

6 – Ship's frame sprung. Reduce Hull Integrity by 1d. Cost to repair will be 1d×10% of base hull cost.

7 – Roll 1 die for each weapon; a 6 destroys it. At least one weapon must be destroyed. (If precise armaments are unknown, the GM decides which weapons are affected; this should reduce total FP by *at least* 1/6.)**

8 – Artificial gravity (if it exists) destroyed; all crew now need Free Fall skill on any rolls they try. Reduce Firepower by 10%. If there is no artificial gravity, one area not mentioned on this table is destroyed.*

9 – One bridge destroyed – ship is dead in space, unless there is another bridge.**

10 – One area (not otherwise mentioned on this table) destroyed.**

11 – Fuel or reaction mass storage opened to space. All fuel or reaction mass (roll if ship has both) is lost.**

12 – As #4 above.

13 – Cargo area destroyed (lacking that, hangar deck or passenger area). Contents take 50% to 100% damage, depending on their nature – GM's ruling.**

14 – Passenger area opened to vacuum (lacking that, cargo area or hangar deck).**

15, 16 – Hangar deck or boat bay destroyed (lacking that, passenger area or cargo area). All auxiliary craft take 1/1/1 damage. 1d damage-control rolls will be needed to open a passage to launch auxiliaries.**

17 – Drive destroyed.**/**/**

18 – Power plant or capacitor bank destroyed.**/**/**

Possible PC Injury

When a damage result shows a *, any PC in that area of the ship must *immediately* make a Survival roll (see p. 105). When a ** is shown, any PC in that area must make a Survival roll at -5. If two ** are shown, two survival rolls are required, and so on.

Note that for a ship of 100 cy or less, anyone on board is effectively "in" any area hit. If no specific plan of the ship is available, the GM decides who is affected by each hit.

Hull Integrity (HI)

A Hull Integrity roll must accompany each Medium or Heavy damage result; the Hull Integrity roll is made first. The basic HI is equal to the ship's TL plus its hull (armor) DF, rounded down; roll this number or less to avoid damage. If using the ***Space*** or ***Vehicles*** rules, heavy compartmentalization adds 1 to HI; total compartmentalization (typical of most warships) adds 2. If the damage was Heavy, roll at a -2 penalty.

Treat any critical failures as ordinary failures.

Any failed Hull Integrity roll will cause problems. Each individual failure can be repaired in one hour by an Engineering,

Mechanic (Starship), or Vacc Suit roll, as appropriate, unless indicated otherwise:

Roll failed by 1-2: Some compartments lose pressure. Make a separate HI roll for each compartment that matters – e.g., bridge, engineering, control rooms for each weapon. A failed roll puts that compartment in vacuum. Everyone in the compartment must roleplay their attempt to escape and/or get into a vacc suit! Compartments in vacuum cannot be used except by vacc-suited crew.

Roll failed by 3-4: As above, but all rolls at -2.

Roll failed by 5-6: As above. Also, roll separately for each major ship system (each drive, power plant, important weapons, life support, and so on), again at -2, to see if it lost power. It will cost 10% of the hull cost to permanently repair this in a shipyard.

Roll failed by 7-8: As above, but all rolls at -4. It will cost 25% of the hull cost to permanently repair this in a shipyard.

Roll failed by 9: Hull loses pressure entirely. All power conduits are broken. All ship systems are wrecked. No damage control possible; if the ship cannot be towed to a shipyard for salvage, it is lost. All crew make Vacc Suit rolls at -5.

Roll failed by 10+: Hull breaks open entirely. If the ship is landed, it collapses and is wrecked. If it is in atmosphere, it crashes! Otherwise, the ship simply splits open, spilling its contents into space. No damage control is possible. All systems are shut down; every man for himself. All crew must make Vacc Suit rolls at -6.

Phase 6: Damage Control

At the end of each combat round, after damage is assessed and PC injury checked, all PCs may attempt damage control (see below). Damage control is considered to start as soon as the round starts, even though it is computed after damage. PCs who are at half their HT or less may attempt damage control at -2 to their rolls, but those at HT 3 or less may not attempt damage control at all. If rounds are an hour long, the first two PCs treated by each medic may attempt damage control based on their HT *after* treatment.

Only PCs who are not involved in controlling the ship or firing the guns may attempt damage control. This requires skills appropriate to the damage. Engineering, Shipbuilding (Starship), Mechanic, and Armoury (ship's weapons) are always appropriate; the GM may rule that others are appropriate for specific sorts of damage. Vacc Suit is appropriate for hull or other exterior damage.

Each PC may make one damage-control roll per hour. The GM may allow PC commanders to use the services of NPC damage control crews as well. In general, not more than 10% of the crew should be considered capable of attempting these rolls, at skills of 1d+10.

A successful roll against a given piece of damage repairs it temporarily (a shipyard will still be needed, and real repairs will cost an average of 50% of original cost). Failure has no effect. A critical failure breaks the equipment, and may have worse effects. For instance, a critical failure to repair a fission plant will irradiate the whole engine room, and a critical failure on an antimatter plant will blow the ship up!

Damage control on computers and sensors requires an Electronics roll with the appropriate specialty. This is a matter of quick troubleshooting and replacing modules. If the first roll fails, the damage cannot be repaired until after the battle.

Some types of damage will give penalties to the roll, or require more than one roll, as noted on the Damage Tables. Note that when a component is listed as *destroyed* rather than *damaged,* it cannot be repaired unless the ship has a spare available!

If a component is repaired, and then damaged again in the same battle, subsequent damage-control rolls are at -2 for each time the component has been damaged. This does not apply to welding the hull or splicing power lines after a Hull Integrity failure.

Emergency Medical Aid: The ship's medic, and anybody else with First Aid skill, will be busy during a battle. Anyone who is injured during a round of battle may be the subject of a First Aid roll during the damage-control phase. First aid takes 10 minutes per victim. A medic can get a skill bonus for heroism by taking a penalty on his next Survival roll (or vice versa), as described below.

The medical team's ability to get key crew back into action can make the difference between victory and defeat, especially on a small ship.

Ending the Round

In an abstract system, ending an engagement must be at the discretion of the GM. As a rule, any ship faster (i.e., with better acceleration) than its foes can break away. In some situations, slower ships may still escape by scattering, hiding, landing on a planet, and so on. GMs should be sympathetic to clever PC ploys to escape a hopeless battle!

If the engagement is at slower-than-light speeds, fight one last round of combat using missile weapons only.

Starting a New Round

If both sides still want to fight, or if one side cannot (yet) escape, another round of combat begins. Recalculate the firepower of both sides to account for lost or damaged ships, dead or unconscious crew, and any reinforcements that may have appeared.

Battle plans do not affect the Tactics rolls made for the second and subsequent rounds of a battle.

Starting a New Battle

The GM may also rule that the forces will have time to regroup, repair and make new plans, even though both want to continue fighting. This might be the case if, for instance, the forces met at high speed and passed through each other while firing!

In this case, determine survival as described below. Allow one damage-control roll per PC for each hour that passes until the next battle. If FTL radio exists, forces can communicate with their bases.

Player Character Survival

At the conclusion of the entire battle, each PC and important NPC must make a Survival roll, based on his HT. This is modified by the size (in cubic yards) of the PCs' ship, and the degree of the heaviest damage it suffered. PCs with Combat Reflexes get an extra +2 to effective HT for this roll, because they can react quickly to emergencies.

Those who have the bad luck to be in a portion of the ship that takes damage must also make one or more Survival rolls (using all the modifiers listed below) *during* the battle.

It is assumed that a vacc suit is available; those without access to a vacc suit have -2 on any Survival roll. Actual airtight body armor gives a +1 or better – GM's option.

Degree of Damage	*Survival Roll Modifier*	*Ship Size*	*Survival Roll Modifier*
Light	0	100,000+	+2
Medium	-1	50,000+	+1
Heavy	-2	10,000+	–
More than		5,000+	–
one Heavy	-3	1,000+	-1
		Under 1,000	-2
		Any non-military ship	-2

Having determined the appropriate Survival roll for each PC, roll to determine the injuries incurred during action:

Survival Roll Result	*Injury*
made by 5+ or a Critical Success	unhurt
made by 1 to 4	1 hit
made exactly	2 hits
missed by 1 or 2	1d+1 hits
missed by 3 or 4	two 1d wounds
missed by 5 or 6	two 2d wounds
missed by 7+ or a Critical Failure	three 2d wounds

Crew Losses

In a situation where there are a great many NPCs on the PCs' ship, a "group survival roll" may be made to see how many "generic crew" have been killed or incapacitated. Assign the crew a generic HT of 10, unless they are of a race with a different average HT. Roll, using all the above modifiers. The ship loses 10% of its current crew for each point by which the roll was failed. Check once at the end of each battle, and again *during* the battle for all crew in a compartment affected by a damage result marked with a *.

Heroism and Caution

At any time during the combat, a PC who makes a skill roll (for any reason) may elect to behave either heroically or cautiously. Heroic behavior gives a +1 or +2 bonus on the skill roll; cautious behavior gives a -1 or -2. And either choice gives the *opposite* modifier on the PC's next Survival roll.

For instance, suppose a PC is attempting damage control. He may get up to a +2 bonus on the roll by declaring that he is behaving heroically; perhaps he is entering a potentially radioactive area in order to make a repair quickly. Likewise, he may declare that he is behaving cautiously, taking up to a -2 penalty. Either way, the opposite modifier applies on that PC's next Survival roll, whenever it is.

These modifiers are cumulative. An engineer who is heroic three times before a Survival roll, for a +2 each time, will take a -6 when that roll is made. But each bonus or penalty applies only to one roll . . . the next one made.

The GM may also declare that certain damage-control tasks are hazardous and require the crewman to take a penalty on his next Survival roll if he tries those tasks at all!

The effect of bravery or caution can extend beyond the battlefield. If your daring helps carry the day (and you are lucky enough to be noticed by the Right People), you might receive a decoration, a promotion, or even a patron. Cowardice in the face of the enemy will have obvious negative effects.

Space Opera Combat System (SOCS)

This system (by Sean Barrett) originally appeared in a slightly different form in ***GURPS Lensman.***

SOCS requires a creative, imaginative GM and players. It does not lend itself to games theory min-max optimization. To the contrary, it even recommends that combat bonuses be granted for good roleplaying – which is an accurate simulation of the genre. A space opera hero wins because his hearts (however many he may have) are pure and he has *panache,* not because his craft has a tight turning radius.

In space opera combat, the emphasis is on fast-moving, exciting action. Realism is of secondary – if any – importance. The effectiveness of weapons and the durability of spacecraft can vary wildly, depending on whether or not an important character is involved. This is an important feature of the genre: consistency (and these rules) must never interfere with the action. For example, there is no *realistic* reason for a fighter ship to always have its nose pointed in the direction it is moving. It could *realistically* be moving one way, but turn sideways or even backwards in "flight" and fire its weapons in another direction. In space *opera* combat, this maneuver is impossible, and these rules, being an *accurate* simulation, do not allow it. (Explanation of the principles that make it impossible is left to the GM.)

Accordingly, even if they are flying identical ships, a minor character's craft is much more fragile than that of a major character. The slightest damage will obliterate a minor character's craft, but a minor character can never seriously damage a major one (unless the plot calls for a shipwreck). At most, small explosions jostle the main character and cause some sparks and smoke. Automatic equipment will usually die, forcing him to go to manual override. Kicking, swearing and cross-circuiting to "B" will make the important systems function again.

Note that "major" and "minor" refer only to importance to the plot, not to which side of the conflict they are on. Good guys' and bad guys' ships also differ, but in a different way. Minor characters are all easily shot down, but while bad guys often explode into clouds of scintillating vapor at the slightest touch of a beam, good guys take longer to die, allowing their cries of "I'm hit, I'm hit!" to enrage the heroes and renew their determination.

Unless there are specific reasons to the contrary, good guys' ships are all white. Bad guys' are black or greenish-grey. Minor characters frequently have an inexplicable fondness for red shirts.

Ship Classes

For purposes of SOCS, all ships are divided into three categories, each of which is handled differently in combat.

Craft with fixed, forward-firing weapons are classed as "fighters." Their combat technique consists solely of maneuvering to bring their weapons to bear. They typically have light force screens (if any) and no armor, relying on their small size and high maneuverability for defense. Usually, they only have a single pilot and low endurances – missions are typically over in hours. Examples of this class are common: the X-wings of *Star Wars,* the Vipers of *Battlestar Galactica,* the "broomsticks" of *Footfall* and so on.

At the other end of the spectrum are the ships expected to bear the brunt of combat – the "ships of the line." They mount many guns and projectors of various sizes as well as the strongest defensive screens and armor available. They are not necessarily clumsy and are seldom slow, but maneuvering is not particularly important in their battle tactics, since their multitude of weapon systems ensures that most can always fire. They simply allow their defenses to absorb hostile fire, rather than trying to dodge it. Periodically, the idea of the lightly-armored, fairly maneuverable "speed is armor" battle cruiser recurs, but seldom works as well as its proponents wish. Ships of the line have crews in the hundreds or even thousands, and they undertake missions that last months or years. The battlestars of *Battlestar Galactica,* the star destroyers of *Star Wars* and the maulers and dreadnoughts of *Lensman* are of this class.

Between these two extremes are ships that mount several independent weapons, but are not powerful enough to participate in heavy combat. Their defensive systems will protect them against some damage, but heavy fire will overwhelm them fairly quickly. They are much more comfortable than fighter craft, but are not intended for long missions – their endurances are measured in weeks at the most. These "cutters" are much more maneuverable than ships of the line, but not as nimble as fighters. They usually have only a few weapon mounts, frequently identical. Any ship that must maneuver to unmask its weapons (e.g., can't fire to the rear without turning around) is considered to be in this class. Examples include *Star Wars' Millennium Falcon* and the speedsters of the *Lensman* series.

Unarmed ships are also divided into three similar categories for purposes of combat – even though they can't shoot back, their attempts to escape can be roleplayed. Small craft, intended to hold a few people and a little cargo for a short period of time are called "shuttles." Very large unarmed ships are classed as "freighters" and those intermediate in size are called "yachts," regardless of their actual use.

As with any grouping system, some examples are difficult to resolve. *Star Trek's* various *Enterprises* have endurances of several months and are apparently among the largest ships in their universe, but they are under-gunned and weakly-defended by most fleets' standards. In these cases, the GM's decision will be based on the desired game "feel."

Craft Ratings

Every ship of space has a *Maneuver Rating* (MR), an amalgam of several factors including the power of the ship's engines, the structural strength of its hull, the efficiency of its inertial or gravitational compensators, the design's angular moment, the acceleration tolerance of its crew and so on.

Every weapon mount is rated in *Firepower,* including not only its destructive power but also rate of fire. (This statistic is also used in the *Space Combat System* on p. 100.) A weapon's maximum effective *Range* is either "long" or "short;" a short-range weapon cannot hit anything at long range. Finally, a weapons system's *Accuracy* may be so good (or so poor) that the gunner's skill receives a bonus (or penalty).

Damage

A single hit on a large ship rarely obliterates it utterly. The area hit may be vital, and some sort of chain-reaction may start that proceeds to damage more of the ship, but the initial destruction will be fairly localized. However, because of the tremendous variety in ship designs, a generic hit-location system would be unwieldy. For purposes of SOCS, therefore, fighters have only one location and any heavy damage will cripple them, but cutters and ships of the line must be divided by the GM into several separate targets, each of which can be damaged without necessarily affecting others. For example, each weapon mount is a separate target; one turret can be knocked out, but others will continue to fight.

In SOCS, damage is divided into three levels (disregarding "none"). Because the range of available Firepower varies so widely from one universe to another, each GM must determine the expected range of Firepower for his universe, and divide that range to match the three levels.

If the total Firepower that hit a particular target in a single turn is relatively low, only "cosmetic" damage was done. Surfaces are charred and blistered, meters swing wildly, breakers open and are automatically reset, holes are punched in non-essential panels. If the GM desires, actual damage occurs that will not be apparent for some time – a fuel tank may be leaking, reactor shielding may be slowly degrading. The situation will not become critical until after the combat is over.

A total Firepower in the middle of the expected range does "light" damage. Fighters tumble briefly, small insulation fires break out, breakers arc over and spray the molten remains of their contacts across the compartment, an unimportant NPC is horribly maimed. *Continuing* damage of some sort also begins – a serious air leak, raging fires, poison gas release or similar. The target will complete this turn (since all action in a turn is simultaneous), but is out of action for the next combat turn and loses any accumulated bonuses. After taking that next turn for damage control and cross-circuiting to "B," the target returns to service in the following turn.

Firepower at the high end of the total range does "heavy" damage. Breakers weld themselves shut, then explode into huge fireballs. Fighters spin out of control in flames, then explode. Large rotating equipment rears up off its mounts and tumbles about the compartment. Busbars burst in showers of molten slag. Raging fires break out, creating toxic smoke. Ammunition detonates in magazines. Nearly all minor characters are killed. After completing this turn, the target is completely *hors de combat.* The services of a tender or shipyard will be required to return the target to service.

Under special conditions, the total Firepower will do damage beyond the "heavy" range. "Great" damage results in the complete comminution of its target and everything surrounding it for considerable distance. Spaceships are annihilated by this level of damage, and GMs may have difficulty justifying the survival of any PCs.

Finally, for those times when foes should not just be dead, but really most sincerely dead, "stark" damage is possible. In this case, ships are not merely vaporized . . . the vapor itself is heated to fusion temperatures.

These damage results assume no protection, either armor or force screens. Fighters generally will have little or no such, but cutters might, and ships of the line certainly will. Protective systems vary too greatly for a generic system to describe fully, but they all have the effect of reducing the damage one or more levels. For example, a ship could have "ablative heavy armor" that stops light or cosmetic damage fully and reduces the first heavy hit to cosmetic, but is in turn reduced to "ablative light armor." Now it stops cosmetic damage fully and reduces the first light hit . . .

Inter-ship Relationships

Ship-to-ship combat is divided into turns, representing a constant length of time, determined by the GM as appropriate for his universe. In many cases, a turn will be about ten seconds.

Distance and spatial relationships are also abstracted for the purposes of SOCS. Range is divided into three zones: short, long and "out of." Every pair of ships has a range between them, but since most ships on a side will keep some kind of formation, it is usually sufficient to keep track of only a few distances. The GM will decide when the range between a pair of craft has changed.

Ships out of range may be able to detect each other, but they have no chance of hitting each other with their weapons. At long range, some weapons have a chance of hitting, but there is no way to improve that chance by maneuvering. All combat at this range consists of simple rolls to hit and dodges (see below). Most combat will take place at short range. All weapons can hit, and maneuver becomes critical for both offensive and defensive purposes.

A target's size also affects marksmanship. Fighters, shuttles and other targets of that size do not modify the targeting roll. Targets smaller than that penalize the Gunner roll by -1 or more at the GM's discretion. Some targets – self-directing drones, for example, may also get a Dodge roll. Larger targets give bonuses. Cutters and yachts give +2 to targeting rolls, while ships of the line and freighters are +4 to hit. Still larger targets such as orbital fortresses and small planetoids are +6, while hitting a planet-sized target is automatic. Note that these numbers assume that the gunner is trying for a hit anywhere on the target. If he wishes to hit a particular point on the target the roll is modified accordingly. For example, a single gun mount on a planetoid-sized fortress is roughly fighter-sized. Generalized attacks on the fortress would be awarded a +6 to hit. Specific attacks on that mount would have no bonus.

The Gunner skill roll needed to hit may get an *Aiming Bonus* (AB). A weapon without any AB suffers a -5 *snap-shot* penalty to the Gunner roll. Two types of AB can be earned, and both apply simultaneously. Keep track of the *Position* AB earned by the pilot separately from the *Sustained Fire* AB earned by individual gunners.

A pilot earns a *Position* AB by positioning his craft well. It applies to all fire from his craft on a single target the pilot is maneuvering toward. Note that any weapons on his craft that cannot bear on that target cannot use this Position AB. The GM is the final authority on spacecraft firing arcs.

The *Sustained Fire* AB is earned by gunners. Every turn after the first that a target stays within a particular gunner's sights and he continues to fire at it, he gains +1 to his Sustained Fire AB. The GM will decide if this occurs – the limited firing arcs of many weapons make it easy for a highly maneuverable target to leave the cone of fire. Sustained Fire AB cannot be transferred from one weapon to another – if a target remains in one weapon's cone of fire long enough for that weapon to earn a Sustained Fire AB, but it then moves into another weapon's cone, the second weapon begins with no AB.

Basic Combat

The simplest space battle consists of only two craft, matching skills and machines in unobstructed space. That pure contest is the situation described in this section. When more combatants join, and obstacles clutter the volume of battle, the resulting complexity is discussed below, in *Advanced Combat.*

A turn of combat has two phases – fire and maneuver – and can be broken down as follows:

Turn Sequence

Fire Phase

1. All weapons fire that can bear, and all ships dodge, all simultaneously.

Maneuver Phase

2. All pilots chose maneuvers:
   - A. Fly Straight
   - B. Maneuver Offensively
   - C. Maneuver Defensively
   - D. Reversal
   - E. Go Totally Defensive
   - F. *Special*
3. Roll to perform maneuvers.
4. GM rules on effects of maneuvers – range changes, positions relative to hazards or other bodies and so on.

Fire Phase

In the first phase, a gunner whose weapon can *bear* can fire at his foe. To illustrate, consider a cutter shaped like a classic flying saucer with two gun mounts, one on top of its fuselage and one on the bottom. In the frantic maneuvering of combat it would not be able to maintain the exact edge-on attitude necessary for both mounts to be able to shoot at the same target at the same time. Roll against Gunner skill, plus the weapon's Accuracy, plus either that weapon's current total AB or the snap-shot penalty of -5.

A failed Gunner roll completely misses the target. Success is a hit and does damage appropriate to the weapon's Firepower. The results of a critical failure vary from weapon to weapon, but some malfunction similar to those on the *Firearm Critical Miss Table* (p. B202) occurs. A critical success does the same collateral damage as a normal hit, but the *effect* of the damage is increased one level. Thus a light weapon would still make a small hole, but it would be a small hole right through the engineer – and the heart of the generator!

Precision Gunnery: Weapons' Firepower ratings assume that they are being used more or less at random. If a gunner is familiar with a target's layout, however, he can be much more selective in his targeting. He will do the same damage, but he will be much more efficient with it.

If a -5 penalty to Gunner skill is accepted before rolling, all normal hits are handled as if they were critical, and critical hits are improved twice. That is, the level of general destruction remains the same, but the effect on combat is raised one or two levels. Thus, a hit that does light damage will still make only a small hole and only kill minor NPCs, but what it hits will be taken out of action permanently. That small hole went through something truly vital, not just a room partition.

Dodge Roll: Pilots can avoid incoming fire both by physically dodging it and by using counter-weapons such as point-defense guns and chaff to interfere with it. All of these techniques are included in a single Dodge roll that is the average of Piloting skill and the craft's MR. A successful Dodge roll lowers the damage done by one level. All attacks and dodges are simultaneous. Note that Dodging has no effect on anyone's AB.

Maneuver Phase

During the maneuver phase of the turn, pilots choose one of these actions:

Fly Straight – or – "You're going to WHAT?" A pilot can always choose to fly a little slower and less aggressively. This maneuver has exactly the same effects as failure on a Maneuver roll. *Why* a pilot might wish to do such an apparently suicidal thing will become apparent later.

Maneuver Offensively – or – "Ten more seconds and I've got the shot!" You can perform this maneuver against any target that does not have Position AB on you. Make your Piloting roll, with a bonus equal to the MR of your craft. Failure has no effect. If you succeed, your Position AB is improved a point. On critical success, your Position AB is *doubled* (or it is now 2 if you had none before). Critical failure means that you lost your quarry and everyone on your craft loses all ABs on that target.

Maneuver Defensively – or – "One's on your tail! Break high right!" Designate one enemy weapon mount or craft that you are defending against, and make your Piloting roll, with a bonus equal to the MR of your craft. All ABs earned by anyone on *your* craft are immediately lost. Failure on your skill roll has no effect. If you designated an entire craft, success reduces that pilot's Position AB one point; if you designated a weapon mount, that gunner's Sustained Fire AB is reduced a point. If your attacker's Position AB is now zero, you can begin to Maneuver Offensively against him next turn. On critical success, you have lost your attacker, who now no longer has any ABs against you at all. If you critically fail, you have flown right into his sights. His Position AB is *doubled.*

If both sides of a pair maneuver (both Offensively, or one Offensively and the other Defensively) and roll similar results (both succeed, both critically fail or so on), the ABs are unchanged. That is, if neither craft has any AB and both successfully Maneuver Offensively, no AB is gained and they can still only trade snap-shots next turn. If an offensive craft has Position AB +2 and Maneuvers Offensively while his foe Maneuvers Defensively, but both succeed, his Position AB is still +2.

A pure fight between well-matched opponents can last quite a while. If nothing is going to happen to break up the pattern of shoot-dodge-maneuver-maneuver-repeat – no one is going to run out of ammo or fuel, no one else is going to join in, no asteroid fields are handy – the GM may want to reduce the battle to a simple Quick Contest of Piloting Skills. This pure situation should be rare.

Fighter Combat

It does not matter if the pilot and the gunner of a fighter are the same being. He can earn *both* types of AB, by maneuvering and continuing to fire at the same foe. However, he must acquire a Position AB before he can acquire *any* Sustained Fire AB.

ABs are the crux of fighter combat. If you have acquired a Position AB, you are on the offensive, and your foe is defensive. He cannot have a Position AB while you do, nor can he fire on you until he reverses the situation.

A dogfight is in one of two situations – *head-to-head* or *chase.* It will shift back and forth, but at any time it is in one or the other.

In head-to-head, neither craft has Position AB on the other. They may be pointed toward each other, both turned away from each other or any other relationship except one chasing the other. In this situation, all attacks are snap-shots. The classic dogfight starts this way, with both craft aware of each other and eager to fight.

In the chase situation, one fighter has acquired a Position AB and is offensive. The other is defensive and cannot fire on the offensive craft. If one craft has surprised – "bounced" – the other, the GM may award Position AB to the ambusher and the dogfight will start in the chase.

Cutter and Ship of the Line Combat

Cutters or ships of the line are handled like fighters, with a few exceptions.

Cutters cannot get any Position ABs on fighters, nor can they dodge their attacks. Ships of the line cannot gain Position ABs on fighters or cutters, nor dodge their fire.

Against other cutters or ships of the line, a cutter's pilot can Maneuver Offensively like a fighter to accumulate Position AB, and the pilots of ships of the line can earn Position AB against other ships of the line only.

Individual weapon mounts can always build up Sustained Fire ABs, but smaller craft are very likely to leave their cone of fire quickly, and GMs can rule at any time that such a Sustained Fire AB has been lost. Also, because the pilot and the gunners are not the same person, it is impossible for them to coordinate perfectly. If the ship's pilot maneuvers at all, Offensively or Defensively, all gunners immediately lose all Sustained Fire ABs.

Ships of the line and, to a lesser extent, cutters are designed to take hits and continue fighting. The various armor and force shielding particulars must be determined by the GM.

The different capabilities of different ship types call for different strategies as well as tactics. Smaller ships' abilities to dodge may let them get in "under" heavy defenses where a ship of the line would be an easy target. A huge ship can take up station far from a planet and blast the surface, causing mass destruction while remaining largely immune to surface defenses. Smaller assault craft would have to actually work their way through those defenses, but may be more effective for "surgical" strikes . . . .

Battle Stations!

All fighters and shuttles, many cutters and yachts and a few freighters with very small crews operate with every station always manned. Ships of the line, though, cannot. Weapons stations are exceedingly boring when there's no one to shoot at, and the crew is too small to provide frequent reliefs. Readiness quickly begins to decline.

Accordingly, under normal conditions, ships of the line operate at *standard* readiness. If the captain suspects that trouble may be imminent, he can place his crew on *Alert.* When trouble actually begins, the crew is ordered to *Battle Stations.*

A crew at standard readiness cannot fire any weapons, and all damage their ship suffers is one level worse, since most hatches are open, the damage control stations are not manned and so on.

It takes two minutes for a human crew to go from standard readiness to Alert. Once on Alert, the ship no longer suffers the increased damage penalty, but can only fire half of its weapons.

It takes three minutes to go from Alert to Battle Stations. At Battle Stations, the ship functions at full capability.

The GM should let the PCs play out these times, with modifiers for where in the ship they begin relative to their battle stations, their knowledge of the ship, their Running skills and so on. Once a particular weapon mount is manned, it can fire regardless of the rest of the ship's readiness.

Battle Stations cannot be manned indefinitely. After six hours, the crew begins to tire and alertness begins to decline. *All* rolls

made by a human crew are penalized by one for every hour over six at Battle Stations. Alert can be held longer; rolls are penalized one for every four hours over a full day of Alert.

Advanced Combat

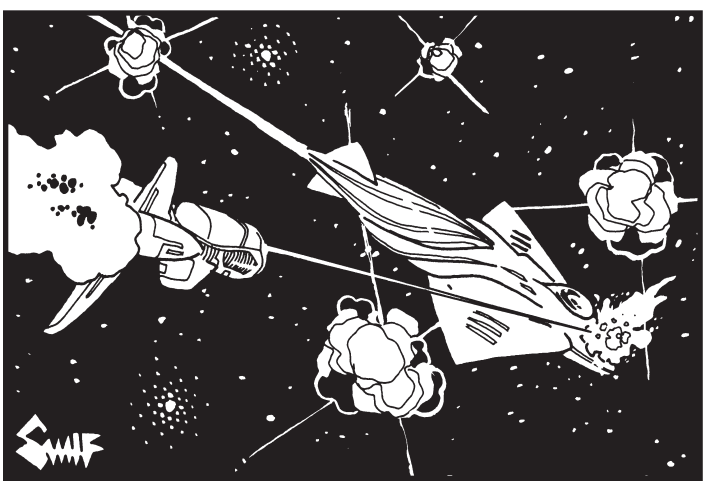
Often, a particular class of craft will have certain space combat maneuvers especially suited to it. These techniques cannot be described in detail in this general guide; individual GMs must decide what is possible in their universes. In general, a Piloting roll is required, often at a large penalty, but if it succeeds, any Position ABs involved are shifted in that pilot's favor. Failure results in a similar shift in the other direction. A common example of such a special maneuver is the Reversal.

Reversal – or – "I'll hit the brakes, and he'll fly right by!" If you get an enemy of your own size or larger neatly trapped at your six-o'clock – giving him an uncomfortably high Position AB – you may be able to reverse the situation, and take his Position AB for your own. This maneuver is risky, with a real danger of instant annihilation, but it can save a situation just when disaster seems certain. A larger class craft cannot perform it against a smaller – e.g., cutters cannot Reverse on fighters.

When a Reversal is announced, both craft immediately lose all Sustained Fire ABs. Both pilots roll against Piloting skill, plus their crafts' MRs – but the *offensive* pilot must subtract his Position AB! The closer he is to his target, the harder it is to follow a Reversal. If both pilots roll the same type of result (success, failure, etc.), the situation is resolved like a Quick Contest – the one who succeeded by more (or failed by less) wins, and the results of a critical success on the appropriate combat maneuver, above, are applied: either the defender has completely lost his attacker or the attacker's Position AB is doubled. If the attacker rolls a critical success and the defender doesn't, not only is the attacker's Position AB doubled, but all his gunners automatically hit in the next turn. If the defender rolls a critical success and the attacker doesn't, the former defender now has the former attacker's Position AB – the situation has exactly reversed. If either pilot rolls a critical failure, the craft collide and are destroyed.

When more than two ships are involved in a battle, the situation rapidly complicates. A lone ace will find that high skill is no longer the ultimate deciding factor when he is led right into the guns of his quarry's escort or wing man.

The clear distinctions of simple combat – offensive and defensive, head-to-head or chasing – are not completely lost in multi-craft combat. They are simply applied to pairs of craft. Each craft's Position AB applies to a single enemy, as does each weapon's Sustained Fire AB. More than one weapon or craft can accumulate ABs against a particular target.



If a gunner has a Sustained Fire AB, he can fire only at that target without losing the AB. If your ship has a Position AB against one target, gunners who fire at that target can add that AB. A gunner who is not also the pilot can fire at any target without affecting the ship's Position AB, but the pilot cannot fire at any target but the one he is maintaining a Position AB on.

Since a Dodge does not actually involve perceiving an incoming shot and deliberately getting out of its way, but rather consists of random jinking in the hope of throwing off someone's aim for a moment, a pilot may Dodge many shots each turn, rolling separately for each one.

A pilot can Maneuver Offensively against any single target, except a fighter that already has a Position AB against him.

Maneuvering Defensively affects the AB of only a single attacker. If more than one attacker has acquired an AB against your craft, you must designate which one you are defending against this turn. When this maneuver is used, your gunners lose any previous AB they may have had, though they can still take snap-shots.

To defend against multiple attackers, use Total Defense:

Go Totally Defensive – or – "Get out here! They're all over me!" If several enemies acquire ABs against your ship, survival becomes problematical. Going Totally Defensive will only delay the inevitable, but it may delay it long enough for help to arrive. Any ABs your gunners may have acquired are lost, and they may not fire at all on the following turn. Make a Piloting roll. The results are the same as those for Maneuvering Defensively above, but apply to *all* attackers.

In multi-craft combat, the importance of wing men or formations becomes obvious. While an enemy is lining up a shot on one pilot, the wing man can be lining up the shot on the enemy. The enemy cannot Maneuver Defensively without losing his AB against the first pilot, so either he will break off that attack or the wing man will get an easy kill. Ships in formation are not in danger of forming a *furball* (see below). If a formation is somehow *very* closely coordinated, a formation can fight and maneuver as a single, enormous ship.

The Furball

When several craft from each side meet, the battle never divides neatly into one-on-one duels. Instead, when one craft manages to acquire an AB on another, that one yells for help, a comrade begins to track that attacker, whose friends join in and so on. The result is a confused jumble of wildly jinking fighters exchanging snap-shots, in which it is nearly impossible to identify the craft that has suddenly appeared right in your sights. The many crafts' exhaust trails form a distinctive tangled, glowing cloud – a *furball*.

In any engagement of more than half a dozen craft, when several entangled ABs have been established, the GM may declare that a furball has formed. In a furball, *any* critically failed Piloting rolls result in collision with a randomly chosen other craft. Also, *after* each snap-shot is resolved, the gunner must make a sense roll. On failure, he has shot a comrade.

Boxed Ships

If four or more craft all get Position ABs on a single enemy that is their size or smaller, the single craft is said to be "boxed." A boxed ship cannot make *any* maneuvers. It can only return fire and Dodge, and unless help is coming *fast* should probably sur-

render. Larger numbers can surround more than one ship at a time, but at least four times as many are required to do the surrounding as are surrounded. (And strictly speaking, twelve or more ships "englobe" their foe.)

Follow-the-Leader – or "You'll kill us all!"

At times, a highly-skilled pilot will find himself out-gunned by less capable foes and in imminent danger of being brought down by sheer weight of numbers. Fortunately, at such times there is usually a nearby "equalizer" that the pilot can use to turn a contest of firepower, which he would probably lose, into a contest of Piloting skill, which he expects to win. Asteroid fields, narrow winding canyons in planets' surfaces, flare stars, dangerous nebulae and disintegrating planets can all be handy. This high-speed derring-do is most appropriate for fighters and cutters. Ships of the line have their own unorthodox techniques – see below.

To initiate a follow-the-leader contest, the pilot simply heads for the hazard at high speed. His intentions are immediately obvious to his pursuers, and any that do not want to follow can break off.

Any that follow may continue to fire and Maneuver Offensively until their prey actually enters the hazard. Within the hazard, no standard maneuvers can be performed. Rather, after firing, everyone involved must make a Piloting skill roll every turn. MR still applies, but the pilot leading the chase may select any hazard level he desires (limited only by the GM's ruling – this meteor storm may not be dense enough to allow more than a -5, for example). Both he and his pursuers then make their Piloting rolls with that penalty.

Each pursuer who succeeds may continue the next turn. A pursuer who critically succeeds gains +1 to AB. If he fails, he completely loses his quarry and cannot continue the attack.

If the pursued pilot makes his roll, the chase continues. If he fails his roll, all pursuers gain +1 to AB. If the pilot critically succeeds, *all* of his pursuers accumulate -1 to AB. Any pursuer with an AB of zero has lost his quarry and cannot continue.

Anyone who rolls a critical failure has made a spectacularly fatal mistake – collided with an asteroid, been immolated in a flare or whatever catastrophe is appropriate to the hazard.

Unorthodox Tactics – or "Have you gone *mad*?!?"

Out-gunned ships of the line usually cannot rely on reflex and maneuverability, but rather on some piece of knowledge that the pursuers lack. The fleeing ship does something apparently pointless: a variation on a well-known and easily countered tactic, a maneuver that is "well beyond the safety limits of the ship" or something outright suicidal.

The effectiveness of the maneuver is proportional to the amount of real jeopardy the ship is in. Role-playing the danger is important. The fleeing ship will take significant damage, with many system failures, exploding panels and at least a couple of NPCs dying in horrible ways. The GM will decide which ship personnel are using what skills, and require appropriate rolls. Success gives a large combat bonus for a few turns, but failure causes massive damage to the ship. Critical success results in the enemy's total obliteration and critical failure annihilates the fleeing ship.

Inventing Maneuvers

Skilled pilots constantly "push the envelope," trying out new maneuvers and combat techniques. Sometimes a genuinely useful trick is discovered.

GMs can allow player pilots to work out such maneuvers, particularly in a new design of craft, though it should not be made easy for them. The requirements should be arduous. Minimum skill levels to even start, large amounts of flight time, many skill rolls at a sizable penalty and the potential of a fatal mishap are all appropriate.

If the maneuver is allowed and successfully developed, it will give any pilot who knows it a bonus against any opponent who doesn't, as well as having some special effects. The exact amount of the bonus and nature of the effects are left to the GM's discretion, but some factors affecting them include the skills of the developing pilots, the magnitude of their successes in the development process and the quality of the name they give their technique. (Simply descriptive names such as "split-S" are worth less than metaphorical ones like "scissors" or "cobra." A character's reputation will determine whether or not he can get it named after himself, like the "Immelmann.")

The value of a new maneuver decays rapidly over time, as the enemy sees the maneuver and both adopts it and learns to counter it. In pitched warfare, with several battles fought every day, a maneuver's "half-life" may be a short as a week; *i.e.*, in a week, its value is cut in half, in two weeks, to a quarter of its original bonus and so on. Round down. It will soon reach zero.

Kamikaze Attacks

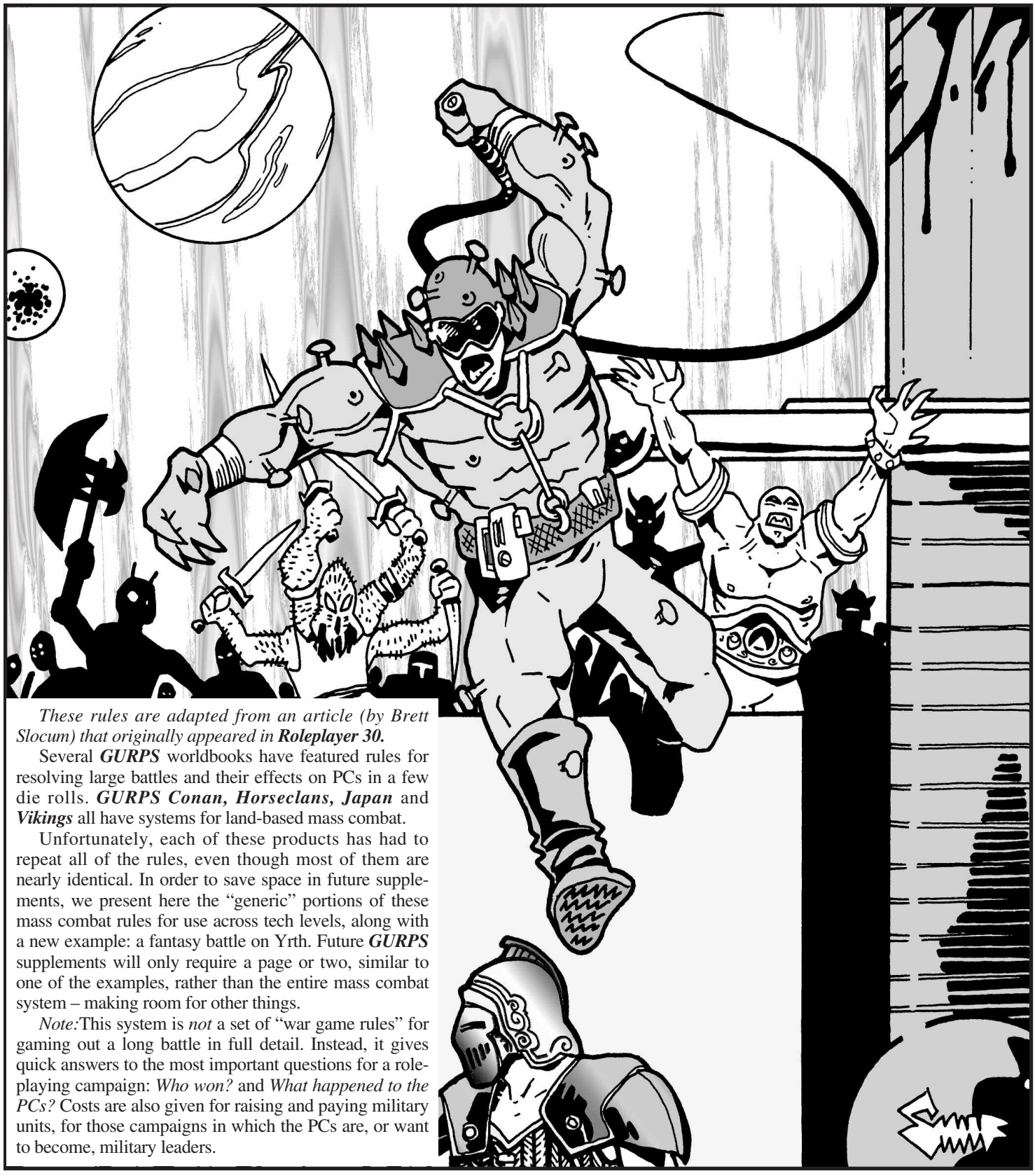
Fanatic pilots or those in crippled ships that won't make it home anyway may elect to go out in a blaze of glory and plasma, ramming an enemy.

In most space battles, this gesture may be grand but not especially effective. Compared to the energies hurled by weapons systems and stopped by shields and armor, the kinetic energy of a ship is not significant. A 20,000-ton battleship ramming at one mile per second will cause only as much damage as a 6 kiloton atomic bomb. A 50-ton fighter, even at that speed, is trivial. If shields stop meteors and missiles, they will certainly stop rams.

However, if the shields are down (or are ineffective against matter), the ramming ship should be considered an explosive weapon – all energy stored in its engines and weapons will be instantly released – with damage applied directly to hull armor. Fighters and cutters (and shuttles and yachts) will be completely obliterated. A large portion of a ship of the line (or freighter) will be obliterated, but the ship as a whole may be able to fight on, depending on the area of impact – and, of course, whether or not any major characters are aboard.

The many variables inherent in this situation make it ideal for a plot twist. If an NPC rams a ship containing player-characters, the PCs will probably survive, albeit trapped in a rapidly leaking derelict hulk with an unstable reactor that will soon overload. . . . On the other tentacle, if a PC rams an enemy ship, his last great act of defiance should be awarded by a dramatically stupendous explosion. On the third tentacle, it should be made clear that anyone who *chooses* to ram will certainly be killed in the crash. Ramming is not a standard tactic.

4 MASS COMBAT



These rules are adapted from an article (by Brett Slocum) that originally appeared in ***Roleplayer 30.***

Several ***GURPS*** worldbooks have featured rules for resolving large battles and their effects on PCs in a few die rolls. ***GURPS Conan, Horseclans, Japan*** and ***Vikings*** all have systems for land-based mass combat.

Unfortunately, each of these products has had to repeat all of the rules, even though most of them are nearly identical. In order to save space in future supplements, we present here the "generic" portions of these mass combat rules for use across tech levels, along with a new example: a fantasy battle on Yrth. Future ***GURPS*** supplements will only require a page or two, similar to one of the examples, rather than the entire mass combat system – making room for other things.

Note: This system is *not* a set of "war game rules" for gaming out a long battle in full detail. Instead, it gives quick answers to the most important questions for a role-playing campaign: *Who won?* and *What happened to the PCs?* Costs are also given for raising and paying military units, for those campaigns in which the PCs are, or want to become, military leaders.

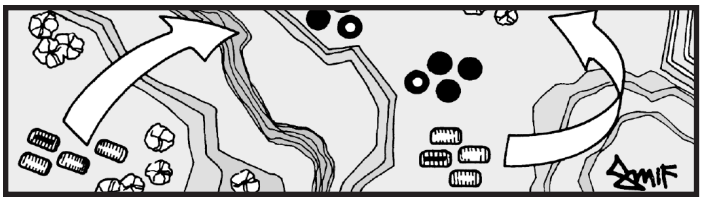
Overview

Each military force contains a number of *units,* each with a single type of fighter. For instance, Megalan mounted knights and yeoman longbowmen would be treated as two separate units. Most units should be from 10 to 500 men; the GM has the last word on what may be a unit.

Each unit has a *Troop Strength* reflecting its size, type, and quality. A force's Troop Strength is the sum of its units' Troop Strengths. All units are recorded on a *Force Roster* (a blank form is included at the end of the chapter). Each unit has a designated commander, who may be a PC or NPC. The force has a force commander, as well.

In a battle, the opposing commanders roll a Quick Contest of their Strategy skills, modified by Troop Strength and other advantages. The contest determines who wins the battle and how many casualties were taken. Meanwhile, each PC's *Battle* skill and choice of *Risk* determine his chance of *Survival* and *Glory.*

This procedure lets the GM reduce a long battle to a very few die-rolls. Again, this is *not* a wargaming system, but a roleplaying aid.



Mass Combat Turn Sequence

The system has seven steps for each battle (or for each day of an extended battle):

1. Determine each military force's makeup by unit. Determine each unit's Troop Strength (TS). Total the units' TS for the force's TS.
2. If special abilities (magic, psionics, superpowers, etc.) are being used, determine each military force's Extraordinary Strength (ES). Allocate ES points to the special effects in both offense and defense. Resolve special effects.
3. Roll for Catastrophe for each force.
4. Determine each PC's Battle skill and Risk factor, then roll for Survival and Glory.
5. Modify commanders' Strategy skills by:
   - **a.** Catastrophe, if any.
   - **b.** Relative Troop Strength.
   - **c.** Defensive position.
   - **d.** Special unit superiority.
   - **e.** Glory (or death) of unit leaders.
   - **f.** Special circumstances.
   - **g.** GM's appraisal of the two commanders' battle plans.
   - **h.** Use of magic, assassins and diviners.
6. Quick Contest of effective Strategy skills
7. Each PC on the losing side makes a second Survival roll.
8. Determine casualties for each army (and, if it matters, for each unit).

The Armies

The first step in fighting a battle is determining the composition of the opposing armies. Throughout history and literature, many types of military organization have been developed, some more "organized" than others. In general, there are four main classes of military organization (listed in order from most to least organized): modern, ancient, feudal and tribal.

Modern Armies

Modern armies are usually organized as described below. For more on Military Ranks, see p. B22.

A *squad* (or cavalry *lance*) is the smallest military unit, composed of six to 16 soldiers, including a squad leader of Rank 1 or 2 (Sergeant or Sergeant First Class).

A *file* is composed of two to four squads (12 to 48 soldiers) and a leader of Rank 2 (Sergeant First Class). This unit class is often omitted from many armies.

A *platoon* is composed of two to four files (26 to 196 soldiers) and a leader of Rank 3 (Lieutenant).

A *company* (or cavalry *troop*) consists of two to four platoons and a leader of Rank 4 (Captain or Major). At the company level and higher, there will be support personnel (e.g., cooks). There may also be special-purpose troops, temporarily or permanently attached to the unit (e.g., engineers, scouts). Larger units are usually composed of mixed troop types.

A *battalion* (or cavalry *squadron*) consists of two or more companies and a leader of Rank 5 (Lieutenant Colonel). Artillery is usually organized in battalions (or batteries), and combined with larger units.

A *brigade* (or *regiment*) consists of two or more battalions and a leader of Rank 6 (Colonel).

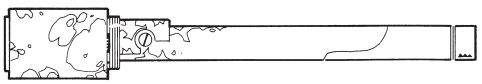
A *division* consists of two or more brigades and a leader of Rank 7 (Brigadier or Major General).

A *corps* consists of two or more divisions (plus attachments) and a leader of Rank 7 or 8 (a General officer).

An *army* consists of two or more corps and a leader of Rank 8 (Lieutenant General or General).

Ancient Armies

Ancient armies often displayed complex organizations that were not matched until the Napoleonic era. The best-known examples are Greece and Rome.



Greece

The classical Greek armies were organized as follows (see also ***GURPS Greece):***

A file was composed of eight soldiers in line behind the front soldier.

A platoon (*enomotia*) was composed of three to four files side by side (24 to 32 soldiers), including a leader of Rank 3 (*enomotarch*), plus a rear guard leader of Rank 2 (*ouragos).*

A company (*pentekostys*) consisted of two to four enomotiai (50 to 128 soldiers), including a leader of Rank 4 (*pentekontere*). This is the basic unit of the Greek *phalanx,* a rectangular formation of heavy infantry with spears

A battalion (*lochos*) consisted of four to six pentekostyes (200 to 768 soldiers) and a leader of Rank 5 (*lochagos*).

A division (*mora*) consisted of two to four lochoi (400 to 1,540 soldiers) and a leader of Rank 7 (*polemarch*).

The Spartans had six morai and Athens had ten, one for each tribe of Athenians.

Rome

The organization of the legions of the Roman Empire (in the period 100 B.C. to 300 A.D.) was as follows (see ***GURPS Imperial Rome*** for more details):

A *century* contained 80 to 100 legionaries, including a leader of Rank 4 (*centurion*). The centurions from the First Cohort outranked the rest (Rank 5). The Senior Centurion of the First Cohort, the *Primus Pilum* ("First Javelin"), (Rank 6) was second-in-command of the legion in all but name. The *principales* (Rank 1) and the cohort standard bearers, or *signifiers* (Rank 2) were the lowest petty officers. The *optiones*, or "chosen" were the centurion's immediate assistants (Rank 3); sometimes there was more than one *optio* in a century.

A *cohort* consisted of 6 centuries (480 to 600 soldiers) and was led by a *tribune* (Rank 5). The Tribune of the First Cohort (Rank 6) was the official second-in-command.

A legion had 10 cohorts (4,000 to 6,000 soldiers) plus a unit of about 120 Light Cavalry (LC) to protect the flanks and for use as scouts and messengers, and was led by a *legate* (Rank 7) and the Prefect of the Camp (Rank 6), second-in-command of all non-combat matters.

A large army would consist of several legions and auxiliary units.

Roman auxiliary cavalry was divided into units called *alae*, between 500 and 1,000 men strong. Each *ala* was divided into smaller units called *turmae*, which had about 20-40 men trained to work in groups of 6-10 men each.

Alae were led by a tribune; the *turmae* were commanded by *decurions* (Rank 3). There were 1-4 decurions on each *turma;* in theory, they commanded units of 10 men.

Feudal Armies

Feudal armies are much more loosely organized. The main constituents are the feudal levies. These march to battle under their local leader. Once with the field army (which is simply all the troops under a single command for a battle or campaign) they are formed into ad hoc units with similar equipment and the senior man in each such unit is designated its commander. Such units are usually no more than 100 strong; that is about the largest force that one man can control by voice and hand signals. These units are normally called companies and their commander is called a captain. Such appointments are only for the campaign; they do not require the Military Rank advantage. The captain appoints a petty officer for every ten soldiers; these also do not require Military Rank.

In addition to feudal levies, some feudal armies had small, permanent units, usually the rulers' elite guards. These would be organized along more modern lines.

The higher appointments of a feudal army are also ad hoc. The force is usually broken into three components: Van or Vanguard (the advance guard, which marches first), Main and Rear. Each body is under a commander selected by the king. The commander is usually a senior noble or veteran mercenary; again, the appointment is only for the campaign. Each commander selects a number of aides, ranging from messengers to senior advisers.

Mercenary forces in a feudal setting can be of any size and organization. Anyone who can attract a following can set himself up as a sell-sword. They usually ape the composition of the armies around them. Commonly, any leader who can supply up to 100 men is called "captain," while one who can supply several companies calls himself a general.

Tribal Armies

Primitive societies fight by tribe, clan and band rather than in any organized formation. The only title of command is chief, and a chief might lead anything from half a dozen rogues to thousands of warriors. Some tribal armies include female warriors; therefore, they can field relatively larger forces.

Troop Strength (TS)

The next step is determining the strength of the soldiers within the army. The Troop Strength value of an individual in a unit depends on his *type* and *quality*. Multiply this value by the number of men (or other creatures) in the unit for the unit's total TS.

Troop Type

Each unit is composed of a single troop type. All persons in a unit are similarly equipped. Troop types are differentiated by armor, weapons and mobility.

Usually armor and weapons are lumped together into classifications of "Heavy," "Medium," and "Light." Heavy troops have rigid armor and heavy, or "shock," weapons. Medium troops usually wear flexible armor (e.g. chain mail) and have somewhat less damaging weapons. Light units have little or no armor (leather or less) and have much less damaging weapons. A final division is whether the soldiers have formal training in weapons and other military matters. Soldiers without training (and often with no armor and improvised weapons), such as feudal peasant levies, are called "irregulars." Beware of underestimating the strength of irregulars, since they can still be battle-hardened elite warriors (see *Troop Quality and Morale,* below).

Issues of troop mobility come down to whether or not the soldiers use vehicles for transportation and in combat. Those who walk are called "infantry" and those with some vehicle are usually called "cavalry," be it a horse, a tank (armored cavalry), or a helicopter (air cavalry).

If a unit also uses ranged weapons, a bonus to the Troop Strength is added. Those troops with specialty weapons, such as artillery, and members of non-human races are put into separate units.

Some units treat a group of soldiers as one unit, usually the crew for a large piece of equipment, such as artillery. The TS of these units includes the crew. The crew has no separate TS, except when they get separated, such as in a Rout. In this case, treat these soldiers as TS 2.

The following tables provide guidelines for the Troop Strength of various troop types:

Equipment

None	TS 1
Very Light	TS 2
Light	TS 3
Medium	TS 4
Heavy	TS 5
High-Tech armor	+1/2 DR
Fine or Very Fine weapons	+1
Irregulars	-1/3 TS (round down)

Mobility

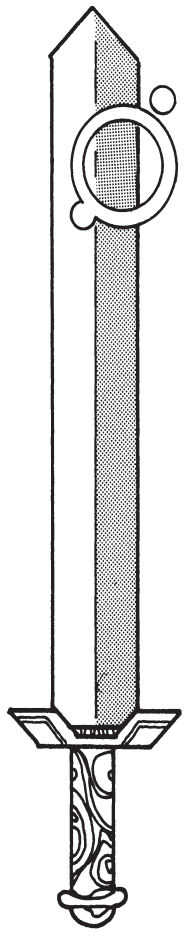
Light Horses	+1
Medium Horses	+2
Heavy Horses	+3
No stirrups	-1
Armored vehicles (e.g. armored personnel carriers, but not tanks)	+TL
Flying vehicles (e.g. helicopters)	+TL

Ranged Weapons

Sling, javelin	+1
Ordinary bow	+2
Longbow, composite bow or crossbow	+3
Pistol or other short firearms	+3
Rifle or other long firearms	+TL

Special Weapons

Light Chariots (TL2-) (add TS of additional Light missile wielder)	+15
Medium Chariots (TL2-) (add TS of additional Medium missile wielder)	+25
Heavy Chariots (TL2-) (add TS of additional Heavy missile wielders)	+35
Elephants	+100
Small Ballistae (TL5-)	+15
Large Ballistae, Small Siege Engines or Light Artillery (TL5-)	+25
Large Siege Engine or Heavy Artillery (TL5-)	+50
Light Tank	+25
Medium Tank	+40
Heavy Tank	+60
Fighter Aircraft	+50
Bomber Aircraft	+100
Helicopter Gunship	+50
Modern artillery (TL6+)	+100



The value of other special weapons is up to the GM.

Examples: Medieval knights are Heavy Cavalry, giving a TS of 8 (5 for heavy weapons and armor and 3 for heavy warhorses). If they carried crossbows, the TS would be 11 for the ranged weapon bonus.

Modern TL7 Air Cavalry, consisting of six light infantry and a helicopter gunship with a crew of two, would have a TS of 17 for each soldier (3 for light weapons and armor, +7 for firearms, and +7 for mobility), plus a TS of 50 for the helicopter, which operates as a gunship after dropping off its infantry, for a total of 152. The crew of the 'copter is included in the helicopter Troop Strength.

The Stirrup

There is some controversy over the value of stirrups for cavalry. The traditional view is that stirrups significantly increased the effectiveness of cavalry, while some military historians say this claim is overblown.

For these rules, cavalry troops without stirrups have a -1 TS penalty, as shown in the *Mobility* table above. They are limited in the weapon tactics they can use and the missions they can perform. Cavalry charges using couched lances cannot be performed without stirrups. Cavalry without stirrups will generally be used for scouting, raiding, flank and missile attacks, and charging broken or shaky formations of infantry. If battle plans call for cavalry to charge well-formed infantry, especially pikemen, the GM should penalize the Strategy roll appropriately.

Though Light Cavalry without stirrups have the same Troop Strength as Light Infantry, there is a Special Unit Superiority bonus (see below) for cavalry, so a completely LC force gets a +3 Strategy bonus against a force composed entirely of infantry, the equivalent of a 2 to 1 advantage.

Experimental Weapons

Shortly after a new weapon is introduced, it may be deemed to be experimental, while armies struggle to grasp the best way to use the new technology and while the "bugs" are worked out. The GM may rule that such weapons are worth less TS than indicated above, subtracting up to half the given Troop Strength or more in case of extremely unreliable or risky weapons.

Non-Human Races

Members of non-human races get a bonus (or penalty) to their TS equal to:

(ST modifier + HT modifier + Extra Hit Points)/2.

Examples: A reptile man (+3 ST, +3 HT) gets a +3 bonus. A halfling (-3 ST, +1 HT) gets a -1 penalty.

TS can be no lower than 1 because of racial penalties. Bonuses for ranged weapons and armor are added *after* determining this minimum TS. For example, halfling light infantry have a TS of 2, while halfling heavy infantry with slings have a TS of 5.

TL Differences

When armies of differing TLs fight, a special adjustment is made to compensate for advances in tactics, logistics, medicine and other fields, plus the sheer shock value of advanced weaponry: the more advanced army's gets a bonus to the Strategy roll equal to (Difference in TL) + 2.

Example: A TL5 army attacking a TL3 army would add +4 to their Strategy roll.

A small, technically-advanced force can still be overwhelmed by superior numbers, better strategy, or unlucky accidents like anyone else. GMs who feel this adjustment is too unbalancing can ignore it, reduce it or put an upper limit on the modifiers to the Strategy contest that can be contributed by TL.

Increases in TL also increase the effectiveness of soldiers in large numbers. To reflect this, the limit of a +8 bonus to the Strategy roll for a relative TS of 10 to 1 or more is waived for the higher TL army when the difference in TL is greater than 2 (see *Relative Troop Strengths* below).

Superhumans

Supers with significant offensive and defensive abilities should calculate their TS using a variety of the above rules. Those supers with more subtle, less front-line powers (such as magic or psionics) can consult the *Exceptional Powers in Battle* section instead.

Use the High Tech armor adjustment for supers with large amounts of DR. Use the ST and HT adjustments from the *Non-Human Races* section above to compensate for high levels of those attributes. Flying supers with ranged offensive abilities (e.g., Flamin' Jane from ***GURPS Supers***) should use the Helicopter Gunship TS as a base, while flyers without ranged abilities use the Flying Vehicles mobility bonus for their TL. Gadgeteers with advanced technology can use the *TL Differences* section to reflect this. By using the available tables, the players and the GM should be able to calculate satisfactory TS values for superhuman individuals.

Troop Quality and Morale

Troop quality is determined by the average experience of the men in the unit. This directly determines the unit's base *Morale* (see table below).

If the campaign situation or adventure does not dictate the quality of a body of troops, determine troop quality by rolling three dice on the chart below.

Use the same chart when determining the quality of a newly-raised unit (see *Raising Troops*) or when recruiting replacements – in this case, it gives the *average* quality of the replacements you were able to hire.

Morale is used to determine the reactions of units to losses and overwhelming odds. More experienced soldiers are more likely to hold their position in a bad situation than raw recruits.

troop quality table (roll 3d)

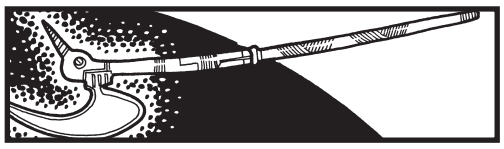
Die Roll	*Troop Quality*	*Battles Fought*	*Base Morale*	*Troop Strength*	*Base Pay & and Cost to Raise*
3*	Elite (E)	15+	16	2.0×base	+50%
4-6*	Veteran (V)	10-14	15	1.5×base	+25%
7-9	Seasoned (S)	6-9	14	1.2×base	+10%
10-12	Average (A)	4-5	13	1.0×base	base
13-15	Green (G)	1-3	11	0.8×base	base
16-18	Raw (R)#	0	9	0.5×base	-20%

*Roll again if you were trying to raise a new unit, or to recruit more than 10 men.
#No battlefield experience. If troops of this quality are also Irregulars (no military training), their morale is reduced by an additional -3.

typical skill table

Troop Quality	*Weapon Skill*	*Tactics Skill*	*Battle Skill*
Elite*	15	11	15
Veteran*	14	9	13
Seasoned*	13	7	12
Average	12	6	9
Green	11	5	8
Raw	10	4	7

*This type of troop has the Combat Reflexes advantage.



Unit Commander and Morale

A unit commander's leadership can affect the morale of his soldiers. Add +1 to Morale for every 3 skill levels in Leadership skill over 12 and -1 for every 3 levels below 12. For example, a Seasoned unit with a commander with Leadership 15 (+1) has a Morale of 15, while a commander with Leadership 9 (-1) would bring Morale down to 13. To randomly select the Leadership skill of a unit commander, roll on the *Force Commander's Experience* table below, substituting Leadership for Strategy.

When a unit gets a new commander (no matter how experienced), drop all troops except Raw to the next lowest Quality.

force commander's experience table (roll 3d)

Use if one or both force commanders are NPCs.

Die Roll	*Quality*	*Battles*	*Strategy Skill*
3	Elite	15+	16 + 1d
4-7	Veteran	10-14	14 + 1d
8-11	Seasoned	6-9	14
12-15	Average	4-5	12
16-17	Green	1-3	10
18	Raw	0	9

Unit Morale and Troop Strength

Units that are demoralized (i.e., below their base Morale) often fight less effectively than normal. At the GM's option, the Troop Strength of demoralized units can be reduced, and the TS of units whose Morale is above their base Morale may can be increased. A unit's Troop Strength can be reduced (or increased) by 10% for each point by which their current Morale level is below (or above) their base Morale.

Example: Due to poor leadership and some serious defeats, a Veteran Heavy Infantry platoon (30 soldiers with total TS of 225 and base Morale of 15) has an effective Morale of 13, the same as Average quality troops. This unit's TS could be treated as 180 until they can regain their base Morale level.

Changing Troop Quality

In a continuing campaign, units will lose troops and replace them – sometimes with experienced men, sometimes with raw recruits. Keep track of the number of battles (not just days of battle) a unit fights, counting anything over 20 as 20. When a unit adds new men for any reason, the new Troop Quality is the new average experience of the men. GMs may not want to count battles where there was little resistance, such as engagements with odds of greater than 10 to 1.

Example: Titus of Megalos commands a Veteran unit, with average experience of 10 engagements. It has 87 men. Titus recruits 11 more men, of "Green" quality. Average experience is computed as follows: 87 × 10 for the old troops, 11 × 1 (use the low end of the experience scale) for the new men. 870 plus 11 is 881. Divide that by 98 men, for an average experience of just under 9. Round down to 8. The company is now considered to have an average experience of 8 engagements, making it merely "Seasoned." Two more fights will bring it back to "Veteran" status.

Six months of military training will change Untrained troops into Raw quality. A year of training will turn Raw troops into Green. No further increases in quality can be made without actual battle experience.

Building and Feeding an Army

An army travels on its stomach, but it won't go very far if you don't pay it, either. The following sections give costs for raising, feeding and paying troops.

Raising Troops

The cost to raise a body of troops is determined by troop type. The general method of determining this is to total the cost to purchase equipment and pay a hiring bonus. The hiring bonus is usual-

ly equal to a month's pay, or about 10% of the equipment cost. GMs may modify costs for special circumstances, such as unusually good or bad availability of men, horses and equipment.

For ranged weapons, add the equipment cost and the difference in hiring bonus to the total, per man. The hiring bonus is usually considerably higher for trained missile troops because of their lower availability.

Normally, troops of Elite and Veteran quality cannot be "raised" – there are not that many trained men currently unemployed, unless the GM decides that a mercenary unit is available.

The GM decides what sort of troops are available. PC leaders will usually want to raise the best troop they can, given their budget. If the GM needs to determine troop quality *randomly,* use the table above under *Troop Quality and Morale.*

Paying and Maintaining Troops

The cost to feed and maintain an infantryman is equal to the cost of living for Status level 0; the cost to feed riding animals is generally the Status 0 cost of living times their size in hexes. Particularly large animals (e.g., elephants) or those with expensive feeding needs (e.g., carnivores) will cost more; how much more is up to the GM. Troops *must* be fed, or a unit will revolt, dissolve or desert.

Troops also expect monthly pay; unpaid troops can be dangerous to their leaders or employers. Morale drops by 1 after the first missed payday, by 2 after each missed payday after the first. Make a Morale roll on each missed payday, *after* reducing Morale. A failed roll gives bad results, as per the GM's whim. Every *second* payday made increases morale by 1, but only to the extent of eliminating the negative modifiers for previously missed paydays. Limit the Morale of Elite and Veteran units to 14 for determining the results of no pay.

Generally speaking, human troops expect to be paid about 10% of the equipment cost, each month, with the bonuses given in the *Troop Quality Table* for experience. An additional 50% bonus will increase morale by 1 for the next month; a 100% or more bonus will increase morale by 2 for the next month. Income from looting counts as pay. Troops may forego some pay, if the chances of substantial looting in the near future are high. If those chances are not fulfilled, though, the backlash from the troops could be much worse. In some eras, troops may be paid in lands, citizenship and other inducements.

Conscripts fighting against their will do not need to be paid, though some conscripted armies still do pay their soldiers (e.g. the U.S. Armed Forces during the Draft). Additional paid security forces will often be needed to keep unpaid conscripts from deserting. These forces should be better equipped than the conscripted forces to maintain order (e.g. the Republican Guard of Iraq during the Gulf War). Conscripted troops generally have lower morale than volunteers; -1 for paid conscripts, and -2 or lower for unpaid conscripts.

The Battle

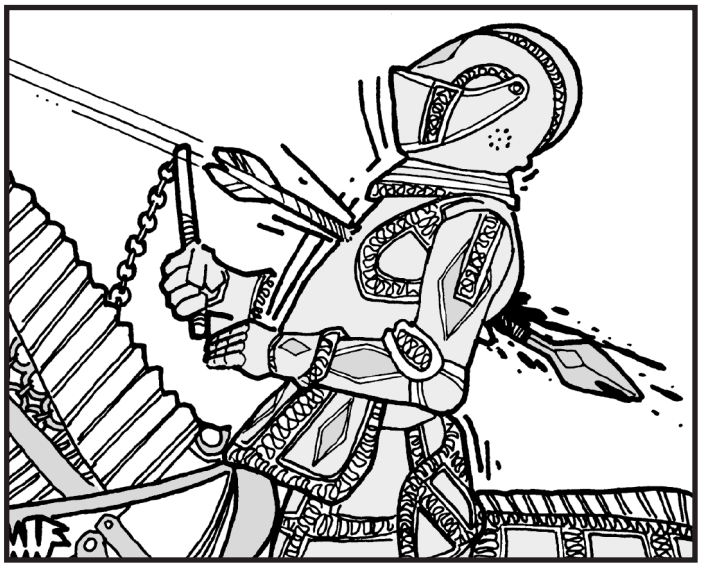
This section describes the method for determining the outcome of the battle between the armies constructed in the previous section.

Special Abilities

In some settings, special abilities (magic, psionics and super powers) can be used in warfare. Before rolling for catastrophes, resolve the effects of special abilities on the battle. For more details, see *Exceptional Powers in Battle,* p. 123.

Catastrophes

When the battle begins, the GM rolls three dice on the following table, once for each side, to see if something goes disastrously wrong. The commander (but no other PC) can use Luck, if he has that advantage, to re-roll a catastrophe.



catastrophe roll

3-7 – No catastrophe.
8-9 – Enemy manages some sort of surprise: -1 to Strategy roll.
10 – Enemy receives unexpected reinforcements or is just lucky. Increase his Troop Strength by 10%. (The GM may be creative about what occurred.)
11 – The battle plans have been partially revealed to the enemy by turncoats, spies, magic, etc.: -2 to Strategy roll.
12 – Dissension among allies or top leaders weakens morale. -2 to Strategy roll, -1 to Morale of all units.
13 – Enemy reveals a terrifying atrocity: -1 to Morale of all units if Morale roll is failed; +1 to Morale, in anger, if Morale roll is made.
14 – Ally or unit commander defects to enemy, revealing plans and taking his troops with him. Recalculate forces' Troop Strengths; -2 to Strategy roll.
15 – An important unit leader (rolled randomly among leaders commanding at least 20% of that side's Troop Strength) is wounded early in battle (2d of damage): -1 to Morale of all units, -2 to Morale of his unit.
16 – Commander wounded early in battle (2d of damage): -2 to Strategy roll, -3 to Morale of all units.
17 – Important unit leader (rolled randomly as above) killed (or if a PC, wounded and unconscious) early in battle: -2 to Morale of all units, -3 to Morale of his unit. (If a PC, he makes no further Survival or Glory rolls.)
18 – Commander killed early in battle (or if a PC wounded and unconscious). Base Strategy roll cut in half (round up). -5 to Morale of all units.

The *Catastrophe Table* may be altered depending on the culture involved. For example, defections are more common than atrocities in feudal Japan, so their positions in the above table could be switched.

Consequences to Player Characters

The more daring and brave a warrior is, the more likely he is to get hurt! Each PC in a battle must roll against *Battle* skill. Battle skill cannot be studied or taken as a beginning skill. It is equal to the average of the PC's Tactics skill (defaulting to IQ-6) and his main Combat/Weapon skill, with +2 if the character has Combat Reflexes and +1 if the character has Danger Sense.

A character with both a melee and a missile weapon bases his Battle skill on his melee weapon skill, unless his missile weapon skill is Guns or Beam Weapons. A character who is inappropriately armed for his TL (a stone axe at TL5, a black powder musket at TL7, bare hands at *any* TL after TL0) may use his lower-TL skill, but has -TL/2 (round *up*) to his Battle skill; e.g., an unarmed character *can* use (Karate + Tactics)/2 to figure Battle skill, but he is at -2 in TL4 feudal Japan, and -5 in a TL9 cyberpunk conflict.

Since the battlefield is a very dangerous place, no matter how careful or skilled a soldier is, Battle skill rolls are limited to 16. If the PC is rolling for survival at a penalty, due to Risk or being on the losing side, these modifiers are first applied to Battle skill before imposing the limit of 16. Therefore, PCs with Battle skill greater than 16 can still receive some benefit.

The Tactics skill covers the PC's prudence; the weapon skill covers his ability to kill his foes before they kill him. Note Battle skill on the PC's record sheet *in pencil,* since it will change if he goes into battle with different weapons, or if his Tactics or weapon skills are improved.

Risk

A PC can choose to take more or less risk in a battle, announcing his choice before his Survival roll. He may choose any number from -6 to +6 as a modifier, -6 being very risky and +6 being very cautious. This Risk modifier is applied to the Survival roll. However, the *opposite* modifier applies to his Glory roll. No guts, no glory! If Survival is -4, then Glory is +4. Cowardly PCs and those PCs in units held in reserve or who otherwise were not exposed to the full impact of the battle, should not pick a Risk factor below -1. Overconfident PCs should not pick a Risk factor above +1. PCs with the Berserk, Glory Hound or On the Edge disadvantages should not pick a Risk above 0!

Survival Roll

If the Survival roll results in 1 or 2 hits of damage, take the injury directly off HT, subtracting only Toughness. If the roll indicates a result on the *Damage Table,* roll the indicated number of wounds and subtract DR as prescribed. In all cases, determine hit location(s) randomly. If a PC unit or army leader takes enough injury to fall unconscious, his unit's final Strategy roll is affected as per *Catastrophes* (see above). A PC can use Luck to re-roll the Survival roll.

Battle Skill Roll	***Result***
Made by 5+ (or critical success)	Unhurt
Made by 1-4	1 hit of damage
Made exactly	2 hits of damage
Missed by 1-2	Damage Table Column A
Missed by 3-4	Damage Table Column B
Missed by 5-6	Damage Table Column C
Missed by 7+ (or critical failure)	Damage Table Column D

damage table

TL	*A*	*B*	*C*	*D*
3-	1d+2-DR	2× 1d+2-DR	2× 2d+2-DR	3× 2d+2-DR
4-7	(TL/2)d-DR	2× (TL/2)d-DR	2× (TL)d-DR	3× (TL)d-DR
8-9	(TL-3)d-DR	2× (TL-3)d-DR	2× (TL+3)d-DR	3× (TL+3)d-DR
10-13	(TL)d-DR/2	2× (TL)d-DR/2	2× (2TL)d-DR/2	3× (2TL)d-DR/2
14	(TL)d-DR/5	2× (TL)d-DR/5	2× (2TL)d-DR/5	3× (2TL)d-DR/5
15-16	(TL)d-DR/10	2× (TL)d-DR/l0	2× (2TL)d-DR/10	3× (2TL)d-DR/l0

Glory Roll

A warrior who gains glory will have improved Reputation, and the associated reaction bonus, for the specified period. The indicated modifiers to the Strategy roll are used *only* if the PC is a unit leader. This Strategy bonus is 1 point higher (and any penalty is 1 point worse) if the PC is force commander. Roll for Glory even if the character dies – a glorious death can inspire the troops.

Battle Skill Roll and Result

Made by 10+ (or critical success) – Covered with glory: +2 to Reputation for 1d months, and +1 *permanently;* roll for promotion; +2 to Strategy roll.

Made by 7-9 – Fought with great courage and heroism: +1 to Reputation for 1d-2 months (1 month minimum); roll for promotion; +1 to Strategy roll.

Made by 4-6 – Fought heroically: roll for promotion; +1 to Strategy roll.

Made by 0-3 – Fought competently.

Missed by 1-3 – Fought adequately.

Missed by 4-6 – Fought poorly: -1 to Reputation for 1d-2 months (1 month minimum); -1 to Strategy roll. Superior officer notices your ineptness or caution; make a reaction roll to see how he will treat you after the battle. A result of Bad or worse indicates a possible demotion in rank.

Missed by 7+ (or critical failure) – Fought very badly; -2 to Reputation for 1d months; -3 to Strategy roll. Results from superior officer as above. In addition, if you survive the battle, someone your equal in rank will publicly name you a coward and, in some cultures, will try to provoke a duel.

Some results may be different depending on the culture involved. For example, a loss of Reputation in feudal Japan may cause a character to contemplate suicide.

Promotion

Check the reaction of the character's superior officer after the battle, based on the character's improved Reputation. With a Very Good reaction in some cultures and time periods, the character may be offered a battlefield promotion of one Rank (see p. B22). If the reaction is Excellent, the PC may also be offered a transfer to an elite unit. In any period or culture, a favorable reaction (Good or better) will dispose the superior to do the heroic warrior some favor; this may well consist of an especially dangerous and honorable position in the next battle – or the Favor advantage (p. 125) could be taken, with the superior being treated as a one-time Patron.

Strategy Modifiers

The GM now takes into account the circumstances of the battle, which may raise or lower the effective Strategy skill of each side's commander. All these modifiers are cumulative.

Relative Troop Strengths

Compare the troop strengths of the opposing forces. Divide the *greater* TS by the *lesser* one for the "odds factor." For example, a TS of 100 vs. a TS of 50 is an odds factor of 2. The greater the odds factor, the greater the bonus to Strategy skill of the stronger force's commander.

Odds Factor	*Strategy skill bonus*
1.2 or less	No bonus
1.2+ to 1.4	+1
1.4+ to 1.7	+2
1.7+ to 2	+3
2+ to 3	+4
3+ to 5	+5
5+ to 7	+6
7+ to 10	+7
10 or more	+8

When a force is more than 2 TLs higher than the opposing force, the 10 to 1 odds limit is waived for the higher TL army. Each additional 10 to 1 odds is equal to another +1 Strategy. For instance, when a TL 6 force is fighting a TL 3 feudal army, 30 to 1 odds would yield a +10 on the Strategy roll.

Defensive Position

If one side is clearly the defender, it gets Strategy modifiers based on its position. When appropriate, these modifiers are cumulative.

Attacker attacks downhill: . . . . . .-3 or worse
Attacker approaches under cover: . . . . . .-1
Attacker must come up a gradual incline: . . . . . .+1
Attacker must come up a steep incline: . . . . . .+2
Attacker must come up a steep incline on bad ground: . . . . . .+3
*Attacker must force a narrow passage (defile, pass, ford, or bridge): . . . . . .+2 to +8, depending on how narrow it is.
*Defender is protected by palisade, breastwork, trenches, dry moat or unforded/unbridged river: . . . . . .+3
*Defender occupies a manor, stronghold, unwalled city or fort: +4
*Defender occupies a walled city: . . . . . +6
*Defender occupies a castle: . . . . . .+8

These defensive factors can be combined. For instance, a castle on top of a steep hill would count as +10.

*Reduce the value of any modifier with an asterisk (*) by 2 if the attacker has artillery or mining crews with Demolition experts. Battles involving the starred modifiers use a different set of combat tables (see *Resolving the Contest of Strategy*).

Special Unit Superiority

A force will receive a Strategy bonus if it has at least a 2 to 1 superiority in the numbers of certain troop types, regardless of troop quality. In a siege action, all cavalry are counted as infantry. If the opponent has no troops of the equivalent type, treat as 5 to 1 or better.

There are three types of superiority for low tech armies (TL 5-): *artillery* (only in siege situations); *cavalry* (only in non-siege situations); and *missile weapons* (not artillery).

In modern armies (TL 6+), there are also three types of superiority: *artillery* (always counts), *armor* and *aircraft.* "Off-map" artillery support (such as shelling from a battleship, or cruise missiles) counts towards artillery superiority *if* the force commander can call in strikes at will; otherwise, it only counts as extra TS (at TS 100 per gun) since it cannot be used flexibly.

Other types of units, such as undead or high-tech mobile infantry, can be considered special units at the GM's option.

Each type of superiority counts separately: if you have a force of mounted archers and the foe has no cavalry or missiles, you have 5 to 1 superiority in both missile weapons and cavalry. Ratios for determining superiority are rounded down.

Ratio	*Strategy skill bonus*
2 to 1	+1
3 to 1	+2
5 to 1 or more	+3

Optional Rule – TL and Superiority: When armies of the *same* TL face off, it is assumed that even if one side has special unit superiority, the foe is at least somewhat familiar with the capabilities of those units, and will know *some* tactics for coping with them, limiting the size of the bonus to +3.

However, when forces of *different* TLs do battle, this is often no longer true. The higher-TL units will likely be totally alien to the lower-TL strategists, and thus have much greater shock value than would otherwise be warranted.

As an optional rule, if the side with special unit superiority is of higher TL *and* the unit in question does not exist at the lower TL, the GM may wish to multiply all bonuses by the TL difference between the two sides. For instance, a TL7 force with total (5 to 1 or more) superiority in aircraft over a TL5 force would get +3×(7 -5) = +6, not +3.

Neutralizing Special Units

Some types of units neutralize the superiority of the special units described above. For instance, pikemen can neutralize a cavalry charge, and anti-aircraft artillery can neutralize the advantage of air superiority. When figuring special unit superiority, count these neutralizing units as the same type as the special unit for the side with less of the special unit. Thus, pikemen cannot give you cavalry superiority, but they can neutralize the other force's superiority.

In cases where the neutralizing unit is also a special unit for other purposes (e.g., anti-aircraft artillery), these units cannot count as both. E.g., artillery devoted to the anti-aircraft role does not count towards artillery superiority.

Special Circumstances

Add Strategy bonuses or subtract Strategy penalties for any of the following situations. All these circumstances are determined by the GM or the group's roleplaying; for instance, a unit is unsupplied if the GM says it is.

Taken totally by surprise: . . . . . -5
Partial surprise – less than an hour's warning: . . . . . -2
Force-marched into battle: . . . . . -3
No supplies: . . . . . -3
Short supplies in a besieged city or castle: . . . . . -2
Supplied by forage only: . . . . . -1
On home grounds: . . . .+2 (not cumulative with defensive bonus for village, temple, city, manor or other fortification)

GMs may give additional bonuses or penalties from -5 to +5 for other factors as they see fit: e.g., a heavy fog when trying to launch a closely coordinated attack might be worth -3.

Optional Rule – TL and Surprise: The superior speed and detection countermeasures of higher-TL fighting vehicles, when faced only with low-tech sensors, can allow a high-tech force to literally appear out of nowhere. In addition, a "first strike" with high-tech weapons is likely to be *especially* damaging to a lower-TL force that lacks the appropriate defenses.

To reflect this, in any situation where one force has access to fast or stealthy vehicles, or to heavy weapons such as aircraft bombs and artillery, that are of higher TL than the opposing force, *and* the high-tech force has achieved surprise, the GM may multiply the modifier for surprise (-2 or -5) by the difference in Tech Levels. For instance, if TL10 space aliens arrived – undetected – in orbit around a TL7 world and assaulted with drop ships and orbital beam weapons, the surprise modifier would be -5×(10 - 7) = -15, not -5!

Battle Plans

The GM should sketch a map of the battlefield (or perhaps of several, optional battlefields) for the players based on their armies' knowledge of the area, especially if the PCs are unit or force leaders. The GM should then ask the *players* to give him a battle plan for their side (for both sides, if there are PCs on both sides or if there is an Adversary Player for the non-PC side). If the GM thinks a plan is especially good or bad, it deserves a Strategy roll bonus or penalty of from +3 to -3.

If the GM is playing the part of the adversary, he should occasionally spring a tactical surprise on the players. Describe what happens realistically. If they handle it well, they get a Strategy roll bonus; if they react poorly, they suffer a penalty.

Special Forces

If either side has the services of assassins, commandos, scouts or spies, their proper use can be an important part of the battle plan. Special forces like these may be sent on a variety of missions. The success of each mission depends on the number of personnel assigned and (in general) on the Stealth (or in some cases, Tactics) skill of their leader. Special forces missions can be played out as whole adventures (see ***GURPS Special Ops***), or abstracted into the general battle plan.

Assassination of the enemy leader will be a Catastrophe for the foe, if it works. But it's risky, and if it fails, the enemy's morale will be improved, especially if your spies are publicly executed before the battle!

Scouting the enemy forces is much safer and easier, and will usually give a +1 or, if many commandos are used, a +2 on Strategy. High-tech surveillance aircraft and spy satellites can also give a +2.

Security assignments can be given, to protect the lord and generals from opposing assassins, or to ambush and kill enemy scouts.

Other creative uses of spies should be encouraged and rewarded by the GM. If assassins are paid well and treated with respect, they will undertake almost anything.

Diviners

A careful commander might consult diviners before a battle. The effectiveness of divination in general is known only to the GM . . . and even in a campaign where magic is real, an individual diviner may be a fake. A general may have many diviners, but he must pick just one to believe. A genuine diviner who makes his skill roll gives +1 to his lord's Strategy roll, or +2 on a critical success. If the diviner is a fake, average his own Strategy roll with the commander's, unless the commander either fully accepts (use just the diviner's Strategy) or discounts the diviner's advice (use the commander's Strategy). The details of these modifiers, of course, must remain secret from the players.

Resolving the Contest of Strategy

After determining the opposing commanders' effective Strategy, a Quick Contest of Strategy is rolled to determine how well the troops are handled. (For battles involving a total of less than 200 men, Tactics skill may be used instead.) The force commander can use Luck, if he has that advantage, to reroll his Strategy skill.

The winner of the Quick Contest of Strategy is the winner of the battle. The *difference* in the amounts by which the commanders make (or miss) their rolls will determine how decisive the victory is. Whether defeated troops withdraw in good order or rout depends on their *Morale* roll (see below). Refer to the appropriate table below to find the outcome. Use Tables B or C if any of the starred *Defensive Position* modifiers applied (see p. 119).

Example: One leader makes his roll by 4, the other by 2. The difference is 2; the battle was inconclusive. If one leader makes his roll by 4 and the other *misses* by 4, the difference is 8 – a much more one-sided battle.

A. Open-Field Battle

Won by 0-3: Inconclusive battle. Each unit on both sides should make a Morale roll. Those who succeed hold position. Those who fail by only 1-4 withdraw in good order. Those who fail by 5 or more rout (see below).

Won by 4-7: Marginal victory. Each unit of the loser withdraws in good order if it can make a Morale roll; otherwise it routs.

Won by 8-12: Definite victory. As above, but loser's Morale is -2.

Won by 13-16: Great victory. As above, but loser's Morale is -4.

Won by 17+: Overwhelming victory: The loser routs.

B. Defender Wins

Won by 0-3: Inconclusive battle. The attacker is thrown back but holds his former position. He may attack again on the next day, at -2 Morale.

Won by 4-7: Marginal victory. The attacker holds position if more than half its troops can make a Morale roll; otherwise the whole force withdraws in good order.

Won by 8-12: Definite victory. As above, but Morale roll is -2.

Won by 13-16: Great victory. Each attacking unit withdraws in good order if it can make a Morale roll; otherwise it routs.

Won by 17+: Overwhelming victory: As above but Morale is -2.

C. Attacker Wins

Won by 1-3: Inconclusive battle. The attacker technically won, but the defender will suffer no Morale penalty on the next day of battle.

Won by 4-7: Marginal victory. Both sides hold position. The defender will be at -2 Morale on the next day of battle.

Won by 8-12: Definite victory. The defender holds position if more than half its troops can make a Morale roll; otherwise the whole force withdraws*.

Won by 13-16: Great victory. The attacker captures the position. Each individual unit of the defender withdraws* in good order if it can make a Morale roll; otherwise that unit routs or, if there is no escape, surrenders.

Won by 17+: Overwhelming victory. The attacker captures the position and takes the enemy commander alive. Each individual unit of the defender withdraws* in good order if it can make a Morale roll at -2; otherwise that unit routs or, if there is no escape, surrenders.

**If defenders get a "withdraw" result and have nowhere to go, make a second Morale roll for each such unit at +2 over the previous roll. A success means that unit holds position and another battle is likely. (These defenders probably have their backs to a wall or have retreated to an inner stronghold.) A failure means that unit surrenders.*

Some outcomes on these tables may be modified by culture. For instance, losing feudal Japanese commanders who cannot withdraw in Table C will attempt suicide.

Sieges

In an actual siege involving a defender within a walled city or castle, the above rules and Tables B and C only apply when the attacker storms the fortifications. The overall siege is a long, drawn-out affair, taking months or even years to complete. Many other tactics may be employed instead of an all-out assault, which tends to be very bloody. Cutting off supplies and water to the area and waiting for starvation, bribing someone to open the gate, catapulting diseased animal carcasses and firebrands, and infiltrating with spies are all alternative methods of taking a fortification.

Morale

Each unit starts with a *Base Morale,* determined by its Troop Quality. Campaign events can affect morale before the battle. Catastrophes affect morale *for that battle only.* Loss of established leaders affects morale until the force wins a clear victory; as long as the force is defeated, has inconclusive battles or marginal victories, the morale will stay low.

Example: Titus of Megalos has a veteran unit – base morale 15. Loot was good last month, so they entered the battle with a +1 morale, for a 16. In the first hour of battle, Titus was wounded (-1 morale). So effective morale is back to 15. After the battle, morale returns to 16.

Morale is used to determine whether a defeated unit withdraws in good order or routs. The GM may also require a morale roll whenever a unit is asked to do something dangerous or unreasonable (e.g., fight at unreasonable odds, go without food, water or pay, scale a castle wall despite the fact that the defenders are dumping sewage over the walls, etc.).

Morale Modifiers

In a war against a hereditary foe, Morale is always +1.

Units defending home territory always have +2 morale.

Atrocities always require a morale roll. On a failed roll, morale drops by 1. On a successful roll, morale rises by 1 instead, in anger.

Morale before a battle is +1 if the unit has defeated the same foe this year. It is -2 if the unit has been defeated by the same foe this year.

A force that knows its position was penetrated by spies will have -1 morale, or -2 (at least) if important people were killed. It will have +2 if enemy spies were caught and slain. Likewise, a force will have +1 morale if it knows its spies have succeeded in scouting the foe, and -1 if it knows its spies were killed.

Bonus payments can increase morale (see *Paying and Maintaining Troops,* p. 117).

Rout

Units, or even the entire force, may rout, fleeing in panic, on a very bad combat result (see *Resolving the Contest of Strategy*) and/or a failed Morale roll. If a unit routs, its casualties are increased. Whether a routed unit will ever reform *as a unit* is up to the GM. The survivors may be able to reassemble under a number of circumstances: the battle was in friendly territory, the unit was largely cavalry, there were plenty of places to hide, the leader is charismatic, etc. PCs whose units are routed (or totally crushed) must make their second Survival roll at -2 (see *Second Survival Roll*).

Casualties

After the Contest of Strategy, casualties for each force are determined. This does *not* affect the PCs; their fates are determined by their Survival rolls. Even if a PC's unit is entirely wiped out, a PC who makes his Survival rolls gets away somehow.

Find the Quick Contest of Strategy difference on the *Casualty Table* below. Opposite that number (a positive number for the victor, a negative number for the loser) is listed the percentage of troops that side lost in the engagement. For example, if the difference is 3, the loser consults "-3" and loses (4d + 20)% of his troops as casualties, while the victor consults "3" and loses (4d)% of his troops.

If the defender was protected by his position (modifiers with an * under *Defensive Position*), add that modifier to his contest difference (but not his opponent's) before assessing casualties. For instance, if the defender lost the roll by 3, but had a +3 Strategy modifier due to position, he would take casualties on the "0" line.

A unit's armor type (heavy, medium, or light) moves them downward on the Casualty Table:

Heavy Cavalry, Heavy Infantry: adjust result down by *4 lines.*

Medium Cavalry, Medium Infantry: adjust result down by *2 lines.*

Light Cavalry, Light Infantry, Pikemen: adjust result down by 1 *line.*

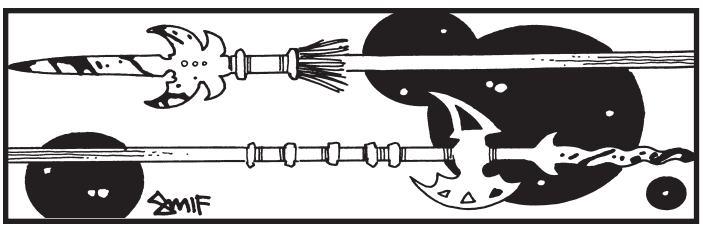
If a unit routs, roll a die and adjust casualties upward by that many *lines* on the Casualty Table.

If the GM thinks that the battle was particularly intense, the casualty results for both sides can be moved up one or more lines.

Round all losses up. Losses are divided evenly among the units of a force unless the GM decrees (or a PC leader says) that some particular unit was leading the fray or holding back.

Half the casualties (round down) are killed or permanently maimed. The other half recover at (2 + TL)% (of the original unit) per day in camp, or 2% per day on march. If magic healing is available, add 1d% to the recovery rate. One healer is required for every 10 injured soldiers to get this bonus. Races with Slow Healing recover half as quickly, and those with Rapid Healing (or Regeneration) recover twice as quickly. These racial qualities do not affect the magic healing rate of 1d%. Treat races with an average HT above 13 as having Rapid Healing, and treat races with HT of 7 or below as having Slow Healing.

Lost artillery become the property of the victor; after an inconclusive battle, each side retains half its lost artillery and the rest is considered destroyed.



casualty table

Contest difference	*Casualties*
-19 or less	(12d+60)%
-17, -18	(11d+55)%
-15, -16	(10d+50)%
-13, -14	(9d+45)%
-11, -12	(8d+40)%
-9, -10	(7d+35)%
-7, -8	(6d+30)%
-5, -6	(5d+25)%
-3, -4	(4d+20)%
-1, -2	(4d+15)%
0	(4d+10)%
1,2	(4d+5)%
3,4	(4d)%
5,6	(3d)%
7,8	(2d+2)%
9, 10	(2d)%
11,12	(1d+2)%
13, 14	(1d)%
15, 16	(1d-2)% (1% min.)
17, 18	(1d-4)% (1% min.)
19 or more	no losses

Second Survival Roll

Any PCs on the *losing* side of a battle must make a second Survival roll, using the same Risk modifier as for the first roll. Adjust this roll down by -1 for every 3 full points of difference in the Contest of Strategy. If defending, adjust *up* by any bonus for starred *Defensive Position* modifiers (see p. 119).

If the PC's unit was routed (see *Rout*), the second Survival roll is made at -2. Any adventuring after that will be directed, at least for a time, toward getting home alive or regrouping with other lost battle comrades.

Roleplaying Battle Scenes

The system presented here will resolve large combats. It is up to the GM to make these interesting for the players – and vice versa. The GM should always sketch a map of the battlefield (or perhaps of several optional battlefields) to help the PCs visualize the strategy, especially if they are unit or force leaders.

Players whose characters are in leadership positions may attempt to give orders to their troops once the battle has started and any enemy surprises have appeared. PCs who are mere troopers can control only their own fates – and then, only to a limited extent – by deciding how much bravery (or cowardice) they will show. But they should describe their actions anyway: not just, "I'm going for a -3 on Survival to get a +3 on Glory," but, "I'm shouting insults and charging the enemy standard-bearer."

Similarly, the GM should present all morale effects with maximum drama – during preparations for the battle, at the beginning of battle and when the troops begin to rout.

Remember: roleplaying should be fun. Players should be heroic; after all, each character thinks of himself as the hero of his own story. GMs should remember that *they* are storytellers; tell the tale well, and reward heroism.

After the Battle

When the battle is finished, there will be opportunities for looting, ransoming prisoners, and regrouping forces.

Loot

Many military units – not just mercenaries – depend largely on loot to make life worthwhile. The loot available in even a burned-out and picked-over city can be immense and is up to the GM to settle.

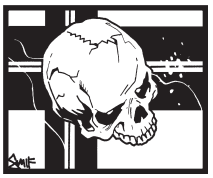
But the loot from a battlefield is also very valuable. The force that holds the field after a fray will be able to recover the arms and armor of all its own casualties, and most, if not all, of the other side's dead. If the foe routed, both its dead and wounded – *all* its casualties – will be left for looting.

Very roughly speaking, the average value of the gear stripped from a killed or captured trooper would equal 1/3 of the cost to "raise" that trooper (see *Raising Troops*). It would sell for less – possibly only 20% of that cost, in cash – but to an army, most or all of the salvage will be useful. Halve these numbers again for cavalry; live horses are expensive, dead ones are rations at best.

For various reasons, some cultures (e.g., feudal Japan) did not make a practice of looting the battlefield. Other cultures may take trophies, such as heads, from their dead enemies. Battlefields were often looted by the locality's poor (bandits or peasants) before the relatives of the dead could make arrangements for burial. Sometimes such scavengers also found soldiers who had been left for dead by their comrades and enemies. In such a case, check the scavenger's reaction roll; he might kill the soldier, ignore him or nurse him back to health.

PCs who have been wounded, or even those who thought themselves dead, may wake up in a peasant's cottage, in the enemy camp, in prison, or as slaves.

Ransom of Prisoners



Especially in aristocratic societies, it can be highly profitable to take a noble foe as a prisoner rather than slay him outright. Many such lords would carry a ransom of hundreds, if not thousands, of dollars.

Some cultures did not hold captured enemies for ransom. They may be either executed, held as hostages for their relatives' good behavior or held for some other fate.

Multiple Combatants

Most battles are fought between two sides, though many individual allies may be on each side. If more than two forces are fighting independently from each other, a multi-party Contest of Strategy can be used with the commander who wins by the greatest margin holding the field, while the others take the effects from the tables based on their difference from the winner. In this case, the Relative Troop Strength Strategy bonus is figured against the average of the other opponents' TS.

Quick and Dirty Mass Combat

If you don't want to take the time to break each side down into its component units, just estimate the force's Troop Strength and overall base morale (possibly by assigning an "average quality" and "average type" to each force). Apply all other modifiers as before, estimating where necessary. Roll the Quick Contest as before, taking casualties and checking morale, when required, for the entire force.

Two sets of equivalents may help here.

500 irregular infantry are approximately equal to:
330 light infantry, irregular cavalry, or pikemen,
250 medium infantry or light cavalry,
200 heavy infantry,
165 medium cavalry,
125 heavy cavalry,
20 siege engines.

Similarly, 500 raw recruits are approximately equal to 300 green troops, 250 average troops, 200 seasoned troops, 165 veteran troops, or 125 elite troops.

Exceptional Powers in Battle

Combat in many settings can be affected by exceptional abilities, like magic, psionics and superpowers. These powers can be used directly, such as hurling fireballs at enemy troops, or more subtly, such as disabling enemy leaders, scouting enemy forces, or bringing a single morale-shaking disaster to the enemy. Supers with powerful offensive and defensive capabilities should fight as soldiers, using the Troop Strength section to calculate TS. Those supers with less battle-oriented skills, along with mages and psis, should use this section to determine their effect on the battle.

Determining Exceptional Power Available

To determine the exceptional power available to each force commander, an *Exceptional Strength* (ES) must be calculated for each character under his command who possesses exceptional powers.

Computing Exceptional Strength

Compute the Exceptional Strength (ES) for each force by computing the number of ES character points invested by each practitioner in his specialty.

Mages count points invested in IQ, Magical Aptitude (or Clerical Investment, if it grants battle spells), Strong Will and battle-related spells. Psionicists count points invested in IQ, Strong Will and battle-related psionic powers and skills. Supers count points invested in IQ, Strong Will and battle-related super powers and skills. If the total is less than 100, the character is not strong enough to affect a mass combat. If the total is 100 or more, use the following table:

100 character points = 1/2 Exceptional Strength point
150 character points = 1 Exceptional Strength point
200 character points = 2 Exceptional Strength points
250 character points = 3 Exceptional Strength points
300 character points = 5 Exceptional Strength points
350 character points = 8 Exceptional Strength points
400 character points = 12 Exceptional Strength points
450 character points = 16 Exceptional Strength points
500 character points = 20 Exceptional Strength points
Add 1 Exceptional Strength point for each additional 10 character points.

Exceptional Strength Modifiers:

Mages:
Mage possesses Powerstone: +1/10 points of Powerstone
Mage possesses enchanted item: +1 to +5 (GM's discretion)
Low mana: ×1/4
Normal mana: 0
Very high mana: ×2

Psionicists:
Psionicist has assistance of booster drugs or technology: +1 to +5 (GMs discretion)

Using Exceptional Powers on the Battlefield

Each player secretly and simultaneously marks the number of points expended on each special effect detailed below (including defense – see *Defending Against Hostile Powers* below), after the Troop Strength of both forces has been calculated, but before they are revealed or any die rolls are made.

To use a specific effect, a practitioner must have some power or spell that could produce the desired effect. If none of the mages available has Healing spells, then they cannot perform battlefield Healing effects. The GM determines which effects are possible for each side.

Catastrophes

Special powers can attempt to force a Catastrophe (see p.117) on the opposition by increasing the opponent's Catastrophe roll. Each 2 points expended will give the foe a +1 modifier on his Catastrophe roll.

Affecting Morale

Exceptional powers can be used to improve the morale of friendly units, or to reduce the morale of enemy units. In either case, one point provides a +1 (or -1) morale modifier for 100 TS of troops. Thus, for example, a unit of 20 Green Heavy Infantry (Total TS 100; Morale roll of 11+) can have its morale modified by +2, giving them the morale of Average troops (13+), or -2, lowering their morale to that of Raw troops (9+), for an expenditure of 2 points.

Healing

Exceptional powers can be used to improve the survival chances of injured troops. One Exceptional Strength point can adjust the result on the Casualty Table down by one line for 100 TS of troops. This option counters and is countered by "Striking Against the Foe" below.

Scouting

Exceptional powers can be used to observe enemy forces, and to thereby reduce the effectiveness of an enemy's strategy. If the force with the exceptional individual is being run by the *player,* successful use of scouting powers will give him some advance warning of the preparations used by the enemy, and allow him to revise his battle plan (GM's discretion as to how much).

If the force is being run by an NPC, abstract this information to a +1 Strategy modifier, costing 3 Exceptional Strength points. More energy can be expended if desired (particularly if the enemy has special defenses), but no more than a +1 modifier can be gained in any case.

Confounding the Enemy

Special powers can also be used to disrupt the enemy's battle plan. If the force leader knows the enemy battle plan (through diviners, scouting magic or more mundane means), or if he just wants to guess, he can use the exceptional abilities to create conditions adverse to the enemy's plan. Such efforts include flooding a river to be forded, bringing up a dense fog, or even causing an earthquake in a narrow defile.

To do this, the player of the force should describe the effect, and how it would be produced (what spell or psionic skill would be used, etc.). The GM should analyze the effectiveness of the strategy and assign an appropriate Exceptional Strength cost and Strategy roll modifier.

Striking Against the Foe

Rather than providing unique capabilities, many of these powers can simply be hurled against the foe. These special powers can be fearsome weapons, and have made the difference between defeat and victory in more than one battle of myth or science fiction. Each Exceptional Strength point can adjust the result on the Casualty Table up by one line for 100 TS of troops.

Defending Against Hostile Powers

Exceptional Strength points can be allocated to defend against hostile powers.

These points are not allocated to other specific effects; rather, they are used to block other effects after the allocations are revealed.

Each point of power allocated to defense blocks 1 point of the opponent's offensive power. Exceptional powers must be blocked in units. It is not possible, for example, to block only 1 enemy ES point allocated to Catastrophe modifiers; these must be blocked in units of 2.

Should more points be allocated to defense than the other side allocated to offensive capability, all of the opponent's power is blocked, but the remainder of the defensive points are wasted.

This ends the "mechanical" portion of mass combat. Dealing with the outcome in terms of the campaign is left to the GM and the players. Below are some examples of troop types and a completely worked out battle using these rules.

Examples

Combined with the above rules, descriptions such as the ones in the examples below provide all the information needed for a particular culture and time period.

Armies of World War I

The nations involved in World War I were fairly standardized in organization and troop types. The available troop types will be described in detail. The composition of the armies of the nations involved in World War I is sufficiently similar to be treated as the same for the purposes of ***GURPS*** Mass Combat.

Troop Types

Light Cavalry (LC): Troops riding light horses, with little armor, using rifles and sometimes sabers. TS value 10.

Light Infantry (LI): Regular soldiers wearing little or no armor and using rifles. Most of the armies of the war fall into this description. TS value 9.

Irregular Infantry (II): Irregular foot soldiers and untrained fighters employing whatever weaponry is available. Specialists are included in this troop type. They are often experienced. Villagers also are irregular infantry, but inexperienced. TS value 2. Add any ranged weapon bonuses that apply.

Light Armor (LA): A light tank, with crew of 2-3. TS value 15. Since the tank was experimental during WWI, the TS value is reduced appropriately.

Fighter Aircraft (FA): A plane with a crew of 1 or 2. TS value 25. Since aircraft were quite new to warfare during this period, their TS is reduced by half.

Modern Artillery (MA): A large cannon or howitzer, with crew of four. TS value 100. Artillery can comprise no more than 10% of the TS of a field army.

Aztec Troop Types

See ***GURPS Aztecs*** for more information on Aztec tactics and warfare.

Shorn Ones: Well-equipped and armored with feathered war suits. TS: 5. Minimum quality: Veteran.

Otontin: Well-equipped but almost no armor. TS: 4. Minimum quality: Seasoned

Eagle and Jaguar Knights: Animal-skin armor, helmets, shields, macauitls and atlatls. TS: 4. Minimum quality: Average.

Veteran: Cotton armor and shields, macauitls and atlatls. TS: 3. Minimum quality: Average.

Youth: No armor. Shields and macauitls. TS: 2. Minimum quality: Green.

Militia: No armor. Bows and arrows. TS: 1. Minimum quality: Green.

Because all males underwent combat training, no troops will have a troop quality of Raw.

Feudal Japanese Troop Types

Japanese weapons and warfare are covered in detail in ***GURPS Japan.***

Mounted Samurai (MS): Moderately-armored cavalry using longbows, yarinage, and tachi. TS value 7. (If mounted on Western horses instead of Japanese ponies, TS value 8.)

Foot Samurai (FS): Moderately-armored footmen armed with naginata, yari, bo, tetsubo, nodachi, katana, yarinage, longbows. TS value 6. If using teppo (muskets), TS 7.

Commoner Footmen (CF): Lightly-armored townsmen or peasants armed with nata, masakari, kama, yari, bo, wakizashi. TS 3. (If using teppo, TS 6.)

Miners (MN): Mining crew of 10+ miners and a Demolition specialist. TS value 2 (in an open battle) or 8 (to the attacker in a siege). Miners at TS 8 can comprise no more than 10% (up to 1,000) or 5% (over 1,000) of the TS of a siege force. Miners over this percentage are TS value 2.

Cannon (CA): Usual crew is six; usually experienced. TS value 50. Cannon can comprise no more than 10% of the TS of a field army, and no more than 50% of the TS of a castle.

Oyumi (OY): A giant crossbow used in castle defense but not by field armies. It has a crew of four, usually experienced. TS value 25. Oyumi can comprise no more than 50% of the TS of a castle.

Horseclans Troop Types

Based on the works of Robert Adams; see ***GURPS Horseclans*** for more about this setting.

Heavy Cavalry (HC): Armored cavalry with trained warhorses, heavy lances, and other "shock troop" weapons. Horse archers of this type normally employ crossbows, but Kindred favor their hornbows – add appropriate TS value. TS value 8.

Medium Cavalry (MC): Moderately-armored cavalry using medium warhorses (with light barding), light lances, spears, and other weapons. TS value 6.

Light Cavalry (LC): Troops mounting light horses, with very little armor, javelins, spears, and other light weapons. TS value 4.

Irregular Cavalry (IC): Barbarians or mountaineers without formal training, on light horses, with a variety of armor and weaponry. TS value 3.

Heavy Infantry (HI): Footmen, in full plate or less, with axes, greatswords, and other heavy hand weapons. TS value 5.

Medium Infantry (MI): Moderately-armored footmen – half-plate or less – fighting with polearms, swords, and other medium weapons. TS value 4.

Pikemen (PI): Lightly-armored – generally leather and light metal combinations – and equipped with pikes, poleaxes, and oversized dirks. Pikemen are typical in Skohshun forces, and rare in forces of other nationalities. TS value 3.

Light Infantry (LI): Regular footmen and trained spear levies wearing little or no armor and fighting with polearms, spears, javelins, shortswords, and other light skirmish weapons. TS value 3.

Irregular Infantry (II): Irregular footmen and untrained spear levies employing any armor and weaponry available. Pioneers, engineers (or "dung-beetles"), artificers, and other specialists are included in this troop type. They are likely to be experienced, though. TS value 2.

Armored Prairiecat (AC): Fully-grown prairiecat with leather or leather/chain armor. TS value 8

Prairiecat (PC): Fully-grown prairiecats, without armor. TS value 6.

War Elephant (WE): A single heavily-armored, battle-trained elephant and its feelahks (trainer). Some WE can carry up to four archers in "baskets" – add the appropriate TS value. If the trainer can mindspeak with the elephant, increase quality two grades – not to exceed "Elite." TS value 100.

Armored Chariot (CH): An armored war-cart, driver, and barded horse. An archer can be carried – add the appropriate TS value. TS value 35.

Siege Engine (SE): A large catapult or dart-thrower, with crew of 4. TS value 50.

Hyborian Troop Types

Based on the *Conan* saga, by Robert E. Howard. Other information about the setting can be found in ***GURPS Conan.***

Heavy Cavalry (HC): Armored cavalry with trained warhorses, heavy lances and other "shock troop" weapons. Hyborian knights are considered heavy cavalry. Horse archers of this type normally employ crossbows – add the appropriate TS value. TS value 8.

Medium Cavalry (MC): Moderately-armored cavalry using medium warhorses (with light barding), light lances, spears and other light weapons. The Hyrkanians are the classic example of horse archers of this type. TS value 6.

Light Cavalry (LC): Troops mounting light horses, with very little armor; javelins, spears and other light weapons. The horse warriors of the kingdom of Kusan in Khitai fall into this category. TS value 4.

Heavy Infantry (HI): Footmen, in full plate or less, with axes, greatswords and other heavy hand weapons. The Black Dragons of Aquilonia are one excellent example of this type of force. TS value 5.

Medium Infantry (MI): Moderately-armed footmen, in half plate or less – fighting with polearms, swords and other medium weapons. Most Hyborian troops fall into this category. TS value 4.

Pikemen (PI): Lightly-armored – generally leather and light metal combinations, and equipped with pikes, poleaxes or dirks. Pikemen are typical in Hyborian and Vendhyan forces but rare in forces of other countries. TS value 3.

Light Infantry (LI): Regular footmen and trained spear levies wearing little or no armor and fighting with polearms, spears, javelins, shortswords and other light skirmish weapons. Most of the militias and tribal warriors of the Hyborian Age fall into this description. TS value 3.

Irregular Infantry (II): Irregular footmen and untrained spear levies employing any armor and weaponry available. Pioneers, miners and other specialists are included in this troop type. They are likely to be experienced. TS value 2.

Miners (MN): Mining crew of 10+ miners and a mining expert. TS value 2 (in an open battle) or 8 (to the attacker in a siege). Miners at TS 8 can comprise no more than 10% (up to 1,000) or 5% (over 1,000) of the TS of a siege force. Miners over this percentage are TS value 2.

Siege Engine (SE): A large stone or dart-thrower, with crew. TS value 50.

War Elephants (WE): A trained elephant, its mahout and up to four archers. War Elephants are used only by Vendhyan and Turanian armies. Elephants are never better than Seasoned quality. TS value 100.

Imperial Roman Troop Types

See ***GURPS Imperial Rome*** for more information.

A Manipular Legion (300B.C.-100 B.C.)

Velites: Lightly-equipped skirmishers. 1,200 men. Average quality. Individual TS 4. Total TS 4,800.

Hastati: 10 maniples of 120 men each. Average quality. Individual TS 5. TS 600 per maniple. Total TS 6,000.

Princeps: 10 maniples of 120 men each. Seasoned quality. Individual TS 6. TS 720 per maniple. Total TS 7,200.

Triarii: 10 maniples of 60 men each. 5 are Seasoned troops, the other 5 Veteran units. Individual TS 4.8 or 6. TS 288 or 360 per maniple. Total TS 3,240.

Cavalry: Light Cavalry in 10 turmae or 30 men each. Seasoned quality. Individual TS 3.6. TS 108 per turma. Total TS 1,080.

Number of Troops: 4,500.

Total TS: 22,320.

A Cohortal Legion (100 B.C.-100 A.D.)

First Cohort: Usually placed on the right flank, this was the striking arm of the legion. The First Cohort was usually made up of Veteran troopers, equipped with chainmail or banded armor, a large shield, short sword and two javelins. 600 soldiers with TS 7. Total TS: 4,200.

Two Seasoned Cohorts: Made of veterans slightly less well trained, similarly armed. Individual TS: 6. TS: 3,600 each.

Seven Average Cohorts: The bulk of the legion. Individual TS 5. TS: 3,000 each.

Cavalry: The average legion had only 120 cavalrymen. They were sometimes divided into two groups to guard both flanks. They wore chain, scale or banded armor, long swords and spears, and were of Seasoned quality. Individual TS 6. TS: 720, or two troops of 360 each.

Auxiliary Slingers: Lightly-armored foreign troops, of Average to Seasoned quality. Their number varied. This legion has 1,000 auxiliaries, divided into two 500-man troops to protect the legion's flanks. Individual TS 4. TS: 2,000 each.

Number of Troops: 6,120.

Total TS: 37,120.

Late Imperial Army

Imperial Guard units (palatinae): Cavalry, 500 strong, of Seasoned quality. Individual TS 8.4. Total TS 4,200.

Two Legions (Light Infantry): 1,000 men each: one unit has Average quality, the other is Green. Individual TS 3 or 2.4. Total TS: 3,000 and 2,400 respectively.

Skirmishers: 500 men. Light Infantry with bows, Average quality. Individual TS 5. Total ST 2,500.

Number of Troops: 3,000.

Total TS: 12,100.

The Last Roman Armies

Cataphracts (HC): 500 men, Average quality. Individual TS 7. Total TS 3,500.

Horse Archers (MC): 500 men, Average quality. Individual TS 7. Total TS 3,500.

Light Cavalry: Two troops of 500 light lancers each, Average quality. Individual TS 3. Total TS 1,500 each.

Number of Troops: 2,000.

Total TS: 10,000.

Viking Troop Types

More information can be found in ***GURPS Vikings.***

Heavy Infantry (HI): Well-armored footmen with sword and shield, or a heavy polearm. This would be a Norse fyrd, or picked troops of an European ruler. TS value 5.

Medium Infantry (MI): Moderately well-armored footmen with sword or axe and shield. Huscarls, or good European troops. TS value 4.

Light Cavalry (LC): Troops mounting light horses, with very little armor; javelins, spears and other light weapons. The Norse did not use cavalry as such, but might have faced it occasionally. TS value 4.

Light Infantry (LI): Light-armored footmen with axe or fighting spear and shield. Regular Norse carls, or average European troops. TS value 3.

Irregular Infantry (II): Irregular footmen and untrained spear levies using any armor and weapons available. TS value 2.

Rabble (R): Villagers and victims. TS value 1.

Yrth Armies

The example at the end of this chapter is based on fantasy warfare on Yrth (the world of ***GURPS Fantasy***); therefore, the armies of Yrth will be treated in extra detail here. The nations of Yrth employ a wide variety of military organizations and troop types. These will be described, followed by a section describing the military particulars for each nation.

Troop Types

Heavy Cavalry (HC): Armored cavalry with trained warhorses, heavy lances and other "shock troop" weapons. Megalan and Caithness knights are considered heavy cavalry. Horse archers of this type normally employ crossbows. TS value 8.

Medium Cavalry (MC): Moderately-armored cavalry using medium warhorses (with light barding), light lances, spears and other light weapons. TS value 6.

Light Cavalry (LC): Troops mounting light horses, with very little armor; javelins, spears and other light weapons. TS value 4.

Irregular Cavalry (IC): Troops, without formal training, on light horses, with a variety of weapons and armor. Barbarians fit this troop type. TS value 3.

Heavy Infantry (HI): Footmen, in full plate, with axes, great swords and other heavy hand weapons. Dismounted knights are one excellent example of this type of force. TS value 5.

Medium Infantry (MI): Moderately-armored footmen, in half-plate or less, fighting with polearms, swords and other medium weapons. Most military troops fall into this category. TS value 4.

Light Infantry (LI): Regular footmen and trained spear levies wearing little or no armor and fighting with polearms, spears, javelins, short swords and other light skirmish weapons. Most of the militias and tribal warriors of Yrth fall into this description. TS value 3.

Irregular Infantry (II): Irregular footmen and untrained spear levies employing any armor and weaponry available. Barbarians, pioneers, miners and other specialists are included in this troop type. They are likely to be experienced. Peasant levies also are irregular infantry, but inexperienced. TS value 2.

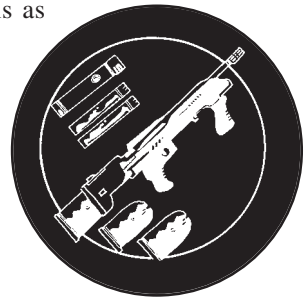
Pikemen (PI): Lightly-armored – generally leather and light metal combinations – and equipped with pikes or poleaxes, and dirks. Pikemen are typical in Megalan Imperial legions, but rare in forces of other countries. TS value 3.

Miners (MN): Mining crew of 10+ miners and a Demolition specialist. TS value 2 (in an open battle) or 8 (to the attacker in a siege). Miners at TS 8 can comprise no more than 10% (for forces of up to TS 1,000) or 5% (for forces whose TS is over 1,000) of the TS of a siege force. Miners over this percentage are TS value 2.

Small Siege Engine (SE): A small stone or dart-thrower, with crew of two. TS value 25. Siege engines of both sizes can comprise no more than 10% of the TS of a field army, and no more than 50% of the TS of a castle.

Large Siege Engine (LE): A large stone or dart-thrower, with crew of four. TS value 50. Siege engines of both sizes can comprise no more than 10% of the TS of a field army, and no more than 50% of the TS of a castle.

Troop Costs



The equipment cost for troops is as follows, per man:

Heavy Cavalry: $14,000
Medium Cavalry: $9,000
Light Cavalry: $5,000
Irregular Cavalry: $3,000
Heavy Infantry: $9,000
Medium Infantry: $5,000
Pikemen: $2,000
Light Infantry: $1,500
Irregular Infantry: $200

Small Siege Engines: $15,000 average – varies widely, includes armor.

Large Siege Engines: $25,000 average – varies widely, includes armor.

Add $500 per man if the troops are slingers, $1,000 for ordinary archers, $1,500 for archers with composite bows, longbows or crossbows.

The cost to maintain a soldier in the field is $200; to maintain a knight and horse: $800. Monthly pay is expected to be equal to 10% of the equipment cost listed above, regardless of experience.

Megalos

The backbone of the Megalan military is the Imperial Legion, organized after the Roman model of ancient armies (see pp. 113-114). All legions are pure infantry. These are trained professionals (usually Seasoned or better), divided into heavy, medium and light legions. Private legions exist, usually controlled by powerful

nobles, but their morale and training is usually lower (Green to Seasoned) than for the imperials. The Imperial Legions are the most powerful fighting force on Yrth.

The True Dragon Legion is an elite heavy legion composed of reptile men, whose ancestors were slaves, freed to subdue an island. They are fanatically loyal to the empire, and act as the Emperor's Guard.

Megalan knights are heavy cavalry, often of Elite quality, and are organized along feudal lines.

Megalos deploys small units of mounted scouts and light cavalry, no larger than a company in size.

Each legion and many smaller units have powerful contingents of magicians, expert in battle magic. Megalan military tactics rely heavily on magic, so they are at a disadvantage in Low and No Mana areas.

Araterre

This country has no armies. If necessary, the inhabitants could fight as Irregular Infantry (II) with the fencers being of Elite quality.

Caithness

Caithness is a feudal country, relying upon its knights (Seasoned to Elite Heavy Cavalry) for protection, backed up by feudal levies of men-at-arms, mostly Light through Heavy Infantry (LI, MI and HI) with other types possible. Because of the Low Mana of the area, Caithness does not use magic in battle.

Al-Haz

The desert warriors of Al-Haz are nearly all medium and light cavalry with regular bows. The armies of Al-Haz are feudally organized. For religious reasons, magic does not play a part in the military of Al-Haz.

Al-Wazif

Al-Wazif maintains a standing army composed of most troop types and organized similarly to the ancient Persians. The soldiers are well-trained and are of Average or better quality. Individual lords have their own feudal armies, as well. Mages are very important to the Wazifi military, and stockpiles of magic items are hidden around the country in case of war.

Cardiel

Cardiel has two legions, one Seasoned Heavy and one Veteran Medium, carryovers from the period of Megalan domination. The rest of their army consists of knights and feudal levies, similar to Caithness.

Sahud

Each Sahudese lord can call upon troops of all types, organized feudally. The thought of fighting these soldiers, though, whose rules of war are so strange, would give a Megalan commander nightmares.

The Nomad Lands

The various Nomad tribes field differing types of warriors, but most are either Irregular Infantry or Cavalry (II or IC), often of Seasoned to Elite quality. They are organized around tribal clans.

Non-Human Races

Centaurs: Treat as Irregular Cavalry (IC) of Average or better quality. Centaurs are tribally organized. Racial TS modifier is +2.

Dwarves: Always Medium or Heavy Infantry (MI and HI) of Seasoned or better quality. Dwarves are also supreme miners, and Dwarvish MN troops have a TS of 10 in a siege, and TS of Medium or Heavy Infantry in open battle. Use either modern or classical Greek organization. If the Dwarvish mountains are attacked, all adult dwarves, male and female, would fight, fielding a powerful force. Racial TS modifier is +1.

Elves: Light Infantry or Cavalry composite or long bowmen (LI or LC), usually of Seasoned or better quality. In their home territory, elves are the consummate guerrilla warriors. Feudal organization is used by the elves. Because of their racial Combat Reflexes, Elves cannot be Irregulars. Racial TS modifier is +0.

Giants: Usually Medium Infantry (MI) of Average or better quality. They can throw rocks like a small siege engine and they can thus be counted as such. Giants are tribally organized. Racial TS modifier is +11.

Gnomes: Gnomes rarely fight outside their forest homes, but if attacked, they would be Irregular Infantry (II) of Green to Seasoned quality. Every adult would be a part of the fighting force. A Gnome village can deploy a surprising force with little preparation. Racial TS modifier is 0.

Goblins: Goblins rarely fight open battles. If a village were attacked, treat as Irregular Infantry of Green to Seasoned quality. Racial TS modifier is -1.

Hobgoblins: Treat as Irregular Infantry (II) of Green to Veteran quality. Hobgoblins organize along tribal lines. Racial TS modifier is 0.

Halflings: Treat as Irregular Infantry (II) with slings and other missile weapons, of Green to Seasoned quality. Racial TS modifier is -1.

Kobolds: Treat as Irregular Infantry (II) of Green to Seasoned quality, but you never know how many are going to come out of the woods. Racial TS modifier is -1.

Minotaurs and *Ogres* do not organize into armies, but would be considered Irregular Infantry of Average or better quality. They both organize along tribal lines. Ogre TS modifier is +7. Minotaur TS modifier is +3.

Orcs: Usually infantry of any type (LI, MI, HI, or II) of Green to Seasoned quality, though a few small groups of Veteran or Elite quality exist. Orcs organize tribally. Racial TS modifier is +1.

Reptile Men: Usually Medium or Heavy Infantry (MI or HI) of Seasoned or better quality. Rumors of reptilian riding beasts (allowing cavalry) have been heard in far western Caithness, but their truth has not been verified. Wild Reptile Men organize along tribal lines; civilized Reptile Men adopt the organization of their host country. Racial TS modifier is +3.

Zombies: Light. Medium or Heavy Infantry. Zombies never check morale. TS modifier is +3.

Skeletons: Light, Medium or Heavy Infantry. Skeletons never check morale. TS modifier is -1.

Dragons: Hatchling is TS 15, Young is TS 30, Adolescent is TS 45, Adult is TS 60, and Monstrous is TS 80.

Lycanthropes: Werewolves are TS 5 each. Werebears are TS 10 each. Wereboars are TS 10 each. Weretigers are TS 15. Wereeagles are TS 7.

Battle Example: Caliburn the Bravo Goes to War

Caliburn, a thug for hire, lives in Bannock on the border of Megalos. Their hereditary enemy is Al-Wazif, since they have been invaded by them (and have returned the favor) many times over the centuries. One summer the Wazifi border army marches in to attack the city. Caliburn and 14 of his fellow thugs, er, body-

guards decide to volunteer to help fight off the enemy (because otherwise the local magistrate will arrest them as unpatriotic vagrants). They have no military training and have never fought in a battle before, so they are Raw Irregular Infantry. The 15 of them at TS 2 are a unit, counted at half base TS because of their inexperience: TS 15 in all.

The rest of the Megalan army consists of a few cohorts of the 5th Megalan Heavy Legion ("Warhammer"), a couple of medium mercenary companies, the city militia (including 120 archers – 600 TS) and numerous irregular units like Caliburn's, for a total TS for the Megalan force of 3,500. Unfortunately, there are no knights or other cavalry in the area. The commander of the city militia, a retired legionnaire, is acting as force commander and is a Seasoned veteran with a Strategy skill of 14.

The Wazifi army has a variety of troop types, including cavalry and 40 Light Cavalry archers (240 TS), for a total TS of 4,000. The commander of the Wazifi force is of Veteran quality, with a Strategy skill of 16.

Neither side is using special forces, but both sides have mages. The Megalan army has a total of 4 ES points and the Wazifi army has 3.

The mages of Megalos decide to use a point to reduce the morale of one of the Seasoned Medium Infantry 20-man units (TS 96 reduced to TS 86), as well as Striking it. Another point is spent on Striking an Elite Heavy Infantry unit (TS 100). The last point is spent on Healing for one of the Medium Infantry mercenary platoons (TS 96).

The Wazifi mages use two points to Strike at one of the mercenary companies. The GM secretly determines that this company contains the mercenary platoon protected by Healing. The last point was used to improve the morale of an Average Medium Infantry unit (TS 40 increased to 48) by 2.

The Catastrophe roll is next. The Bannock commander rolls an 8, indicating an enemy surprise and giving -1 to the Strategy roll. The GM determines that a company of Wazifi Heavy Cavalry was missed by the Megalan intelligence reports. The commander of the Al-Wazif army rolls a 17, indicating a unit commander has been killed, giving a -2 to the Strategy roll and -3 Morale to his unit. The GM determines that this is the unit of Light Cavalry archers (TS 240 drops to 168). The final Troop Strength of the Wazifi army is 3,926.

The other Strategy modifiers are calculated below:

Relative Troop Strength bonus: No modifiers, since the ratio (3,926/3,500) = 1.12 is less than 1.2.

Defensive Position: No modifiers, since the Bannock army is meeting the Wazifis in an open-field battle.

Special Unit Superiority: Megalos gets a +2 for archer superiority (600/168 = 3.6). Al-Wazif gets a +3 for cavalry superiority, since Megalos has no cavalry in the field.

Special Circumstances: Megalos is on is home ground and gets a +2 bonus.

Battle Plans: After reviewing the battle plans of both force commanders, the GM decides neither battle plan is substantially better and gives no bonus.

The total Strategy bonuses are +1 for Al-Wazif and +3 for Megalos.

In the quick Contest of Strategy, the Wazifi commander rolls a 13 (made by 4) and the Megalan commander rolls a 10 (made by 7) for a difference of 3 in Megalos' favor. Since this is an open-field battle, Table A is used, yielding an "inconclusive" result. All units on both sides roll Morale and take casualties, and all PCs make Survival and Glory rolls.

Caliburn has IQ 12 (Tactics defaults to IQ-6) and Shortsword skill at 15. His Battle skill is therefore (6+15)/2 = 10.5, rounded down to 10. The player chooses a Risk of -2, giving him a Survival roll of 8 and a Glory roll of 12. Then the player rolls a 10 for Survival (missing by 2) and an 11 for Glory (making by 1). Looking on Column A of the damage Table under TL 3, Caliburn takes 1d+2-DR (4 points damage), but fights competently. The battle is inconclusive. The thugs' base Morale is only 6, but it is +3 because they are defending their home territory against a hereditary foe. On a roll of 8, they hold their position. Caliburn has his buddy with the First Aid skill treat him, and recovers 2 points.

The Wazifi unit which lost its commander has an adjusted morale of 11 (+1 for hereditary foe). They roll a 15, indicating they withdraw in order. If they had not been fighting a hereditary foe, they would have routed.

Since the Bannock army won the Strategy contest by 3, they look under 3 on the Casualty Table (4d%), while the Wazifi army uses the -3 row (4d+20%), yielding base casualty rates of 13% and 30% respectively, for unarmored troops. Individual units apply the armor modification to the casualty rate (down one, two or four lines on the table for Light, Medium, and Heavy units). Those units that suffered magical Strikes increase their casualty rates by one line on the chart, while those that were magically healed reduce the rate by one line. After calculating all the casualties, the Bannock army has 3,268 TS and the Wazifi army has 3,351 TS. The odds are now better for Bannock.

The next day, Caliburn is more cautious and chooses a Risk of -1, giving him a Survival roll of 9 and a Glory roll of 11. One of the thugs has been killed. Caliburn's player rolls 13 for Survival (missing by 4) and 10 for Glory (succeeding by 1). Caliburn is wounded twice for a total of 3 hits of damage, and again fights competently. Today Megalos wins a Definite Victory, and the Al-Wazif army withdraws to its homeland. Another one of the thugs has been killed; the others are now more experienced at fighting and count as Green troops rather than Raw ones, bringing their TS up to 80% of base: (13 × 2 × 0.8) gives TS 20. Caliburn and his 12 friends return to their city, full of stories of their glorious deeds, without which the city would never have succeeded in repelling the devilish invaders.

FORCE ROSTER

Troop Name	*Troop Type*	*Troop Quality*	*Morale*	*# Men*	*Basic TS*	*Leader: HT*	*Strat*	*Tact*	*Battle*

5 HAZARDS AND HOSTILE ENVIRONMENTS

This chapter covers hazards *other* than combat – such as acid, collisions, electricity and poisons, as well as hostile environments, including the extremes of gravity, pressure and temperature. For rules that address the resulting injuries and recovery, as well as for rules on illness and disease, see Chapter 6.

Acceleration

High-g maneuvers and sudden acceleration or deceleration can impose severe stresses on living organisms. If this is severe enough, a character may lose consciousness. Anyone subjected to sudden high-g maneuvers must make a G-modified HT roll; if it fails, he rolls on the *Acceleration Effects* Table.

First, find the acceleration in g. As a rule of thumb, assign 0.5 g per 10 mph added to or subtracted from speed in one second. The higher the felt g-force, the more difficult the HT roll. Halve the *felt* g-force for *each* of the following that applies: wearing a g-suit, seated in a g-seat, seated in a womb tank. Ultra-tech gravity webs and grav compensators reduce the *actual* experienced g-force, depending on TL; apply their effects *before* modifying for felt g-force! Once the effective g-force is known (round fractions up), consult the table below:

G-Modified HT roll

Up to 2 g	No roll necessary
3 g	Roll HT
4 g	Roll HT-1
5 g	Roll HT-2
6 g	Roll HT-4
7 g	Roll HT-6
8 g	Roll HT-8
9 g	Roll HT-10

. . . and so on, rolling at an additional -2 HT for each extra g.

Modifiers: +5 for the Acceleration Tolerance advantage (10 points), -3 for the Acceleration Weakness disadvantage (-5 points) – see pp. CI19, CI79.

Each high-g maneuver is a new acceleration – roll again. Note that no repeated roll is required for *constant* acceleration or deceleration: the horizontal forces are less extreme. Do not roll again for constant acceleration unless it continues for more than an hour – than roll each hour, at 3 g less.

Acceleration Effects Table

When a character fails his roll to deal with a high-g maneuver, look up the amount the roll failed by on this table:

1 – stunned 1d turns ("gray-out").
2 – unconscious 2d turns.
3 – unconscious 3d turns.
4 – unconscious 4d turns.
5 – unconscious 6d turns.
6 – unconscious 10d turns.

On all the results below, the victim is unconscious for 10d turns *and* suffers damage:

7,8 – 1d-3 damage.
9,10 – 1d-2 damage.
11,12 – 1d-1 damage.
13 – 1d damage.
14 – 1d+1 damage.
15 or more: 1d+2 damage.

Arctic Survival

Surviving in sub-freezing temperatures is difficult – even for a seasoned veteran. Successful Survival (Arctic) rolls are necessary to find/thaw fresh water, resist freezing effects (p. B130), locate food sources (berries, game, plant life) and build shelter from the elements.

Most cold weather hazards are worsened if the victim is wet. Cooling by evaporation and increased heat loss make survival in such a state nearly impossible (-5 to effective HT rolls to survive).

First aid for cold weather ailments usually requires warmth. A successful First Aid or Survival-4 roll will restore hits lost due to freezing *provided an adequate shelter and heat source is available.* A heat source in this sense may include flame, electric heat or body warmth. Without shelter or heat the roll is at -5. If neither is present, roll at -10.

Specific ailments (frostbite, hypothermia, etc.) are not detailed here but the GM is encouraged to do additional research to add realism to an "Arctic Survival" adventure.

Building Shelter

Shelter eliminates the hazards of wind chill and sunburn. A successful Survival (Arctic) roll is required for any of the shelters listed below. A failure means the time spent is lost and the shelter is useless.

A trench. A trench is simple and quick to build. Dig a hole big enough to lie down in and cover it with a tarp or a roof of intertwined branches. It negates the wind chill factor, but does not significantly increase temperature. See *Digging,* p. B90 for time.

A snow cave. Tunneling into a packed snow bank and hollow out an area to rest in. One man can build a snow cave large enough for three people in 1d-3 hours (minimum 1). Without a shovel, he is at -2 to Survival and takes twice as long.

An ice house. An ice house, or "igloo," is made by stacking blocks of ice or compacted snow into a small rounded structure, then coating the outside with loose snow. An ice house eliminates the wind chill factor and internal temperatures can reach 40 degrees from body heat. The warmth inside the ice house welds the blocks firmly together, enabling it to stand up to extremely high winds. It is -2 to Survival to build and takes 2d man-hours per person accommodated.

Continued on next page . . .

Arctic Survival (Continued)

Diet for the Frozen Wastes

Just keeping warm takes a lot of food in the great cold. The Eskimo live almost entirely on animal products; they eat muscle meat, organ meat and fat; they melt fat and drink it hot. Most of the food goes to maintain body temperature.

In arctic conditions, lose *two* points of fatigue instead of one for each missed meal (see sidebar, p. B128).

Dog Teams

Dog teams are the only reliable arctic transportation in the before TL7. Handling a dog team is at Teamster-2 and familiarization for dog driving takes two weeks.

Bends

A character must gradually decompress when going from a higher-pressure environment to a lower-pressure one, or he may suffer "bends," as small bubbles of nitrogen gas form in the bloodstream. This most commonly occurs when ascending too quickly from a deep tunnel, when surfacing too rapidly from a dive, or when a pressurized aircraft or spacecraft suffers a hull breach at high altitudes.

Whenever one of these conditions occurs, a character must roll versus HT:

Critical success means no ill effects whatsoever occur.

Success means that the character suffers from severe pains; he will be at -2 to DX and IQ for at least an hour, and must roll vs. HT each hour to recover, but there will be no lasting effects.

Failure indicates that the character is completely incapacitated: he faints or is paralyzed for at least an hour, and must roll vs. HT each hour to revive. Each failed HT roll inflicts 1d damage. Once conscious, the victim is at -2 DX and IQ for at least another hour. A HT roll is required each hour to recover; any failure costs the victim 1 point of DX permanently (a condition called "divers' palsy"). Only 1 point of DX will be lost per episode, regardless of the number of failures.

Critical failure indicates sudden death!

Extra Damage: Assess additional damage equal to 1d + the g-force if the character is caught wholly by surprise and thrown to the floor, against the side of a vehicle, etc.

Acid

Acids range from extremely weak (e.g., boric acid), through medium strong (e.g., the acetic acid found in vinegar, or the citric acid found in lemon juice), to extremely strong (e.g., hydrochloric, perchloric, nitric and sulphuric acids). Most laboratory acids are dangerous only to the eyes. However, very strong or super-concentrated acids can burn through locks, body armor and flesh. Caustic chemicals also make useful poisons, which burn out a victim's gastrointestinal tract. For game purposes, strong alkalis are treated identically to acids.

When a strong acid is simply splashed on a victim, it inflicts 1d-3 points of damage; armor protects normally. If immersed in acid, a being takes 1d-1 damage per turn, armor protecting with its full DR on the first turn, DR-1 on the second turn, DR-2 on the third and so on. If acid splashes a victim's *face,* he must make a HT roll to avoid being blinded. On a failure, the acid burns the eyes; if more than 2 points are inflicted, the victim is blinded (use the crippling injuries rule on p. B129 to see if the damage is permanent)! On a critical failure, permanent blindness is certain.

Acid also eats through vulnerable materials. Modern body armor loses 1d points of DR and one point of PD per acid attack. Other items suffer pitting and corrosion. When used against a lock's pins or other small, vulnerable items, acid requires 3d minutes to eat through the item.

Several caustic poisons are suitable for use in food. These substances are no harder to disguise than any other poison. Anyone who swallows caustic material takes 3d damage, at a rate of 1 point every 15 minutes. An attempt to cause vomiting may merely cause more damage to the esophagus, increasing damage by 1d points. Therefore, any failure on a Poisons roll for diagnosing the problem may prove disastrous. Proper treatment consists of feeding the victim a slightly alkaline solution to absorb the toxin. Egg white, milk, and soapy solutions are all useful antidotes. In game terms, a successful Poisons or Physician roll can halt the progress of the caustic. Each attempt at treatment requires 2d minutes.

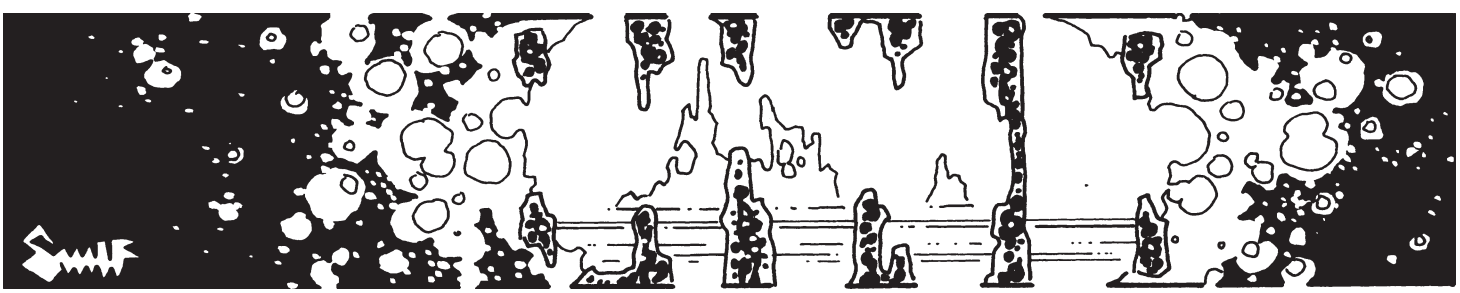
A vial of hydrochloric, hydrofluoric or sulfuric acid powerful enough to produce the effects above costs $10 at TL7.

Altitude

Extremely high altitude, as encountered in the mountains of China, Tibet, and South America, is hard on the human body.

On Earth, an unprotected human will have trouble breathing at above 10,000 feet, and will also suffer from cold. Unless a character has an oxygen mask, double fatigue costs for any exertion between 10,000 and 15,000 feet.

Above 15,000 feet, an oxygen mask (or life support) is *required,* and the rules for freezing (p. B130) apply. Five minutes of *any* exertion costs 1 fatigue; quadruple fatigue for strenuous work.



High-altitude natives are acclimatized; they have no extra fatigue cost. On alien worlds, multiply these altitudes by the air pressure in Earth atmospheres at sea level.

Altitude Sickness

Altitude sickness can be a serious problem above 10,000 feet.

Altitude sickness is a group of related physical problems brought on by a rapid rise in elevation and heavy exertion. The GM should roll 3d (in secret) once per *game session* for everyone adventuring above 10,000 feet.

Modifiers: Add encumbrance level to the roll. Anyone who has previously suffered from altitude sickness rolls at +1. People who spend a long time at high altitudes, descend to sea level for a few weeks and then return roll at +3. HT and Immunity to Disease make no difference.

14 or less – No effect.
15, 16 – Acute mountain sickness.
17 – Pulmonary edema.
18 – Cerebral edema.

Acute Mountain Sickness. In its mildest form, symptoms include headaches, exhaustion and shortness of breath, loss of appetite, nausea and severe vomiting. A victim temporarily lose 2 points of fatigue and 1 point of DX. Roll against HT once per day to recover from the condition; a critical failure leads to Cerebral Edema (see below).

Pulmonary Edema. Symptoms are coughing, shortness of breath and bubbling noises in the lungs. As the condition worsens, the victim will begin to cough up a pinkish foam, then fall into a stupor followed by death. A victim has -3 fatigue and -3 to DX. He loses 1d-2 hits per day (minimum of 1), lapsing into a coma when hit points are 0 and dying after 1d days in coma. Taken to a lower level, he may begin making HT-4 rolls to recover. For each 1,000 foot drop in altitude, add +1 to the roll. On a successful roll he recovers in 15-HT days.

Cerebral Edema. This is caused by fluids in the brain. Symptoms include violent headaches (-4 to IQ and DX), weakness (lose 5 points of fatigue), staggering, dizziness, hallucinations and babbling. The victim loses 1d+1 hit points per day, lapsing into a coma when his HT reaches zero. Death follows in 5d hours. Recovery is as from pulmonary edema (above).

Arctic/Cold Weather Hazards

Wind Chill Factors

Wind lowers the effective temperature for those exposed. The following chart can be used in conjunction with the *Freezing* rules on p. B130. The intersection of wind speed and thermometer reading is the effective temperature; being wet lowers the effective temperature by 20°.

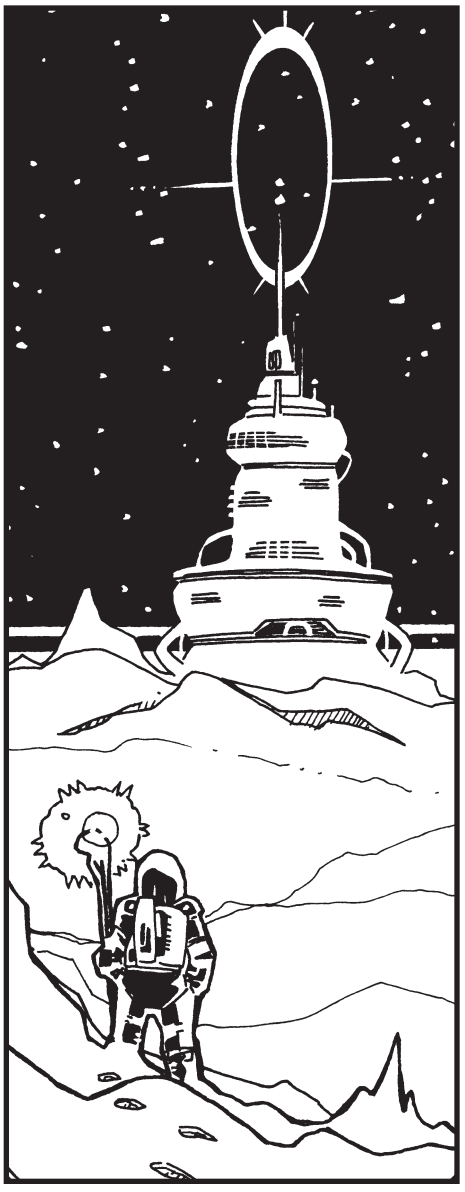
Wind Speed	***Thermometer Reading (°F)***							
(mph)	***30°***	***20°***	***10°***	***0°***	***-10°***	***-20°***	***-30°***	***-40°***
0	30°	20°	10°	0°	-10°	-20°	-30°	-40°
5	27°	16°	6°	-5°	-15°	-26°	-36°	-46°
10	16°	4°	-9°	-21°	-33°	-46°	-58°	-70°
15	9°	-5°	-18°	-36°	-45°	-58°	-72°	-85°
20	4°	-10°	-24°	-39°	-53°	-67°	-82°	-97°
25	0°	-15°	-25°	-44°	-59°	-74°	-88°	-103°
30	-2°	-18°	-33°	-48°	-63°	-79°	-94°	-110°
35	-4°	-20°	-35°	-49°	-67°	-82°	-98°	-115°
40	-6°	-21°	-37°	-53°	-69°	-85°	-100°	-116°

Effects of Varying Gravity: Gunfire

Bullet ranges are affected by gravity. Divide listed Max range by local gravity to get local Max. Other ranges are not affected by gravity, though 1/2D will be very slightly less if air pressure is high.

Required ST to handle a weapon without recoil effects increases by 1 for each loss of 0.2 G, as the user's weight goes down. It does not change in increased gravity.

Ordinary guns recoil very badly in microgravity; Min ST is increased by 5, and vented gases give the user an additional -1 to hit for each shot already fired, until the user moves away or waits a minute. Guns designed to be used in microgravity or zero-G are sometimes available; they vent their gases to the side, which also stabilizes them. Prices are usually tripled.



Effects of Varying Gravity: Climbing

When climbing long distances up or down stairs, ladders, trees, and so on, use the Climbing rules on p. B89, but modify speeds as follows for variable gravity:

High Gravity

If gravity is more than 1 G, multiply the time required under Earth gravity by *twice* the local gravity, minus 1. In 1.2 G, a climb takes 1.4 times as long, so a 10-second (Earth) climb takes 14 seconds.

Low Gravity

At less than 1 G, multiply the time that would be required under Earth gravity by the local gravity. In 0.5 gravity, climbs take half as long, and so on.

Microgravity and Zero G

At less than 0.2 G, climbing is more like controlled flying. Use the formula given above, but maximum speed is 5 yards per second (you are just grabbing a handhold occasionally to guide yourself). Long climbs use the same speeds as short ones.

Whiteouts

Whiteouts occur when the ground is covered with snow and the sky is a low, white overcast. The horizon disappears as the sky and ground merge into a blanket of white causing all sense of depth perception to disappear. Travel in a whiteout is possible at 3/4 normal speed (modified according to terrain). Combat is also possible, but missile weapons are at -3.

Sunburn

Sunburn is the most likely Arctic hazard. The long daylight and the reflectivity of ice and snow crystals combine to burn face, hands, lips, eyelids – even the roof of the mouth and inside the nose! Unprotected flesh (sunglasses, cream, masks, etc., protect) takes 1d-1 damage per day.

Snow Blindness

Traveling through a sunlit snow field, a whiteout or other bright condition can lead to a temporary (but painful) affliction called snow blindness. This is a sunburn of the eyes; they swell shut and exposure to light becomes extremely painful.

Anyone without eye protection (such as sunglasses) will go snow blind after 3d+3 hours in such conditions. He will be blind and at -2 HT due to pain until the swelling goes down and the eyes heal (roll against HT each day after the second day). First aid for snow blindness is cold packs and total darkness. Pain relievers such as codeine or morphine will negate the -2 HT.

Thin Ice

Anyone suddenly immersed in water must make a HT roll. A failure reduces DX and DX-based skills by -3 because of shock to the system from the sub-freezing temperature. Relative strengths of ice are given on p. B188.

Crevasses

Crevasses (cracks) form when large sections of frozen snow and ice move too rapidly for the surrounding ice to keep up. These crevasses may be hundreds of feet deep and a few feet to many yards across.

Snow blowing across the gap can bury the crevasse. A successful Arctic Survival-2 or Vision-5 roll will spot this hazard.

Frostbite and Exposure

In Arctic climate, the air temperature is almost always below freezing and wind chill factors can be unbelievably savage. The air can be cold enough to freeze a man's lungs as he breathes, and frostbite will quickly attack any exposed area.

Anyone exposed to the savage elements in Arctic latitudes must make a HT (or Arctic Survival) roll every 30 minutes. In severe weather, this might be increased to every 20 or 15 minutes. A failed roll costs a point of fatigue; when ST reaches 3, start losing HT instead.

For the purposes of this roll, HT is modified by the following factors:

Each 10° below 0°F (including wind chill) . . . . .-1
Light clothing . . . . . .-5
Wet clothing . . . . . .-5
Normal winter clothing . . . . . .+/-0
Arctic (e.g., Lapp, Inuit) clothing . . . . . .+5

Wind chill is discounted if shelter is available from the wind.

Icy Waters

Death in icy waters is by thermal shock rather than freezing; the main difference is that shock is a lot quicker. In water that is well below freezing and only kept liquid by its salt content, a strong man might live for four minutes; if he can be pulled out in that time, given dry clothing and a hot drink, he might avoid death by hypothermia. Maybe.

For each minute a victim spends in the water, he must make a HT roll: the roll is not modified by clothing, as the icy water gets in everywhere. If the roll is made, he loses 1 point of fatigue; if the roll is failed, he loses a number of points equal to the amount by which the roll was failed. When ST reaches 3, start losing HT instead.

While rolling for thermal shock, don't forget to check for drowning as well. The two make a deadly combination.

Collisions

When one moving object hits another, this is a collision. These rules assume vehicles or pedestrians, but can be used when *any* massive objects collide at speed.

A vehicle in a collision normally *inflicts* dice of damage equal to (its hit points × collision speed in mph)/200, rounded up to the nearest full die. If this is too high a number to roll, the GM can convert it into a more reasonable die spread before rolling e.g., 480 dice could be 6d × 80. The dice of damage it *takes* is usually based on what the other vehicle inflicts.

See ***GURPS Vehicles*** for detailed rules covering what happens to a vehicle after a collision. As a rule of thumb, assume that the operator must make a control roll (against Driving, Piloting, etc.) to avoid a crash.

If a pedestrian, animal, robot, etc. is struck, it inflicts damage like a vehicle based on its hit points (usually equal to HT, for a person) and its current speed. Impacting with a person can damage a vehicle: if an average person (HT 10) is hit at 50 mph, he will inflict 10 × 50 / 200=2.5, rounded to 3d damage! Similarly, an airplane striking a bird (1 hit point) at 1,000 mph can be in serious trouble, taking 5d damage!

All collision damage is *crushing*.

Overruns: If the striking object in has a Size Modifier (see p. B201) that is 3 or more greater than that of the other object (like a car hitting a human), *and* inflicted twice the damage it suffered, it *runs right over* the other object! The object performing the overrun does additional damage to the object it is overrunning as if trampling (see p. B142), except that vehicles add a further die of damage for each additional ton of weight over 5 tons!

Collisions with Large Objects: If a moving object hits a stationary object that is too big to push aside – like a wall, rock or iceberg – it inflicts its normal collision damage on it but it *takes* the same damage, up to a maximum of the damage it inflicted or the sum of the structure's HP and DR, whichever is less.

Immovable Objects: If a moving object hits the ground, a hill or the like, it simply takes (its own HP × collision speed in mph)/200 dice of damage. Reduce damage by -2 per die for collisions with water or -1 per die for collision with snow, soft mud, etc.

DR and Collisions: DR will always protect an inanimate object from collision damage, but the crew may get mashed up – see below. Body armor DR has *no* effect on collision damage.

Whiplash and Concussion: Any violent impact may jerk the crew and passengers around inside a vehicle, toss them through windscreens, or (at high velocities) result in broken necks even if they are securely strapped in. Assume that any collision in which the vehicle is brought to a halt or slowed by 20 mph or more does

Effects of Varying Gravity: Falling

To compute damage due to falling under gravity other than Earth-normal, figure the damage that would have occurred under Earth gravity, as per p. B114. Then multiply it by the actual gravity. Thus, a fall that is computed to do 12 points of damage (before armor, etc., is taken into account) would do 24 points of damage under 2 gravities.

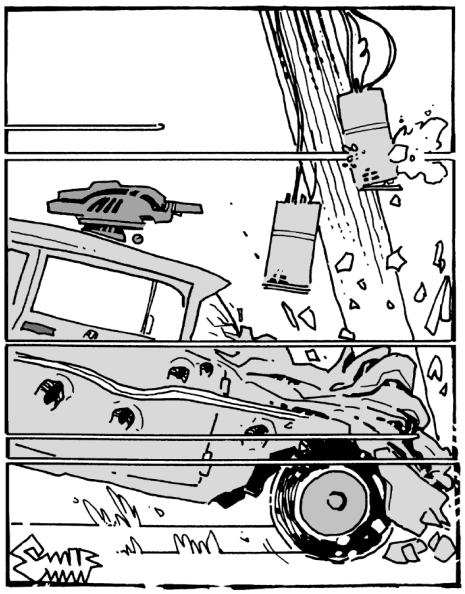
Use a similar procedure for determining damage done by falling objects.

Those interested in absolute realism should be aware that "terminal velocity" – the maximum speed an object can fall before air resistance stops further acceleration – is increased in high-G and decreased in low-G. More importantly, terminal velocity is lower in thick atmosphere, higher in thin atmosphere, and unlimited in vacuum! So the "effective maximum fall" (200 yards for most objects; 50 yards for people, who have high air resistance) may vary widely. A general formula: terminal velocity is multiplied by 0.25 in Very Dense atmosphere, 0.5 in Dense, 1.5 in Thin, 2 in Very Thin. It is unlimited in Trace or No atmosphere.

Effects of Varying Gravity: Throwing

Multiply the object's Earth weight by the local gravitational field to get its local weight, and use this to calculate throwing distance (see p. CI10). Whatever you throw, remember the "equal and opposite reaction" on the thrower.

Under *any* gravity, the distance you can throw an object straight up is exactly half the distance you can throw it horizontally.



Seasickness

Everybody aboard a ship must roll vs. HT during their first day at sea. A successful roll means that the character is not seasick and does not need to roll again this voyage. A failed roll indicates the person becomes seasick – nauseated by the rolling sensation of a ship at sea. Modifiers to the roll include type of vessel (a large vessel, or one with roll stabilizers, gives +3), weather (up to -5 in very rough weather) and marine experience (add 1/3 of the character's Seamanship skill to the HT roll).

A seasick character is generally ill and has -2 to DX and IQ (-5 on a critical failure, and the character has vomited). He gets one roll each 24 hours to recover. A critical failure makes it worse, -5 to future rolls. Another is required should the ship enter heavy seas.

Some people are especially prone to seasickness. They have the Motion Sickness disadvantage (see p. CI82), and are sick for the whole time at sea; they do not get a roll to recover. All rolls are at -2, even if the initial HT roll was a success.

Space Sickness

Anyone entering free fall must roll vs. Free Fall+2. A failed roll means they become *space sick* – disoriented and nauseated by the constant falling sensation. A space sick character feels generally ill and has a -2 to all rolls (-5 on a critical failure, plus choking as per drowning, p. B45). He gets one roll (HT or Free Fall, whichever is better) each 24 hours to recover. A critical failure on this roll makes the sickness worse, as described above.

Some people are especially prone to this disorder. This is the *Space Sickness* disadvantage, p. CI84. A naturally space sick person is space sick all the time he is in free fall; he doesn't roll to recover. All his rolls are at the -2 level even if the initial HT roll was a success. He chokes and has the -5 to all rolls on *any* failure of the initial HT roll.

1d-2 damage per 20 mph. This damage is not absorbed by armor, but the Toughness advantage does protect. Double damage if not wearing safety belts!

Different Atmospheres

Atmosphere Types

The different types of atmosphere are described on p. S109. Here, we'll concern ourselves with their effects on human adventurers. Note that the details of a poisonous atmosphere usually don't matter to people without breathing gear. They die. Only in case of a very minor suit leak or malfunction will exposure to a really poisonous atmosphere be survivable.

Hydrogen: Non-poisonous, but quickly diffuses through plastic or rubber, and is very explosive in the presence of oxygen. Definitely a hazard for careless spacedogs.

Oxygen-Nitrogen: This is the only atmosphere breathable by humans. Even if the gas mixture is right, pressure differences (see below) may make it less than ideal. But if the atmosphere happens to be superrich in oxygen, IQ and ST may be slightly increased – or, at least, penalties caused by gravity may be ignored.

Polluted: This is an oxy-nitro atmosphere with contaminants. The effect of the contaminants may range from merely irritating (wear filter masks or take 1 point of damage each day) to deadly (treat as poison gas of GM's choice). Note that not all types of pollution are immediately obvious to the explorer. If pollution is not detected with sensors, a Physician or (if a library is available) Research roll may be attempted *once ill effects are noticed,* to determine the problem and suggest a solution. If the first roll fails, repeated attempts can be made daily, at a cumulative -1 per attempt. Some forms of contamination are subtle indeed, and there will be severe penalties to the rolls; these worlds can be death traps. Metal dust, microbes, allergens, complex biological poisons released in trace amounts by plants . . . scientifically-minded GMs may come up with a wide variety of atmospheric hazards.

Carbon Oxides: Carbon dioxide is unbreathable, and poisonous in large concentrations. A 15% concentration requires a HT roll every minute to stay conscious; the roll is at -1 for every added percent of carbon dioxide. At 25%, roll vs. HT hourly, and lose 1 HT for each failed roll.

Carbon monoxide may also be present; it is deadly. Its symptoms are headache and dizziness in tiny amounts, unconsciousness and death at higher ones. At concentrations over 1%, roll hourly vs. HT; each failed roll costs 1 IQ, HT, and DX. At concentrations over 2%, roll every ten minutes, at half the time interval *and* -2 for each % over 2%. If a victim is removed from the monoxide, he'll recover. If not, he will die with a cherry-red face.

Nitrogen: Unbreathable but otherwise inert and harmless, except at *very* high pressures, when it causes nitrogen narcosis. The effect is that of happy drunkenness: roll vs. IQ every 30 seconds to avoid. The sufferer will not realize he has become irrational, but any observer can easily tell!

Reducing Atmosphere: Harmless but unbreathable. Includes hydrogen (see above) and methane, which can be recognized by a sweetish, oily odor.

Ammonia: Corrosive and poisonous, but easily detected by its choking odor. Exposure to ammonia requires a HT roll; a failed roll costs one hit point. Roll every minute for small concentrations, more often for large ones. Each failed roll also reduces the victim's Vision roll by 1, as his eyes burn and water. After 2 hits are lost, convulsive coughing begins (-3 to DX until clean air is reached). Severe exposure requires the survivors to roll HT-2 or be blinded.

Chlorine: Corrosive and deadly poisonous. Also easily recognized by odor. A few breaths of 1% chlorine will kill. Even 0.005% is dangerous: roll as for ammonia, but all rolls are at HT-2, and the blinding roll is against HT-4. Another roll vs. HT-4 is required to avoid lung damage (1d of *permanent* HT loss!).

Fluorine: As for chlorine, but worse; all rolls are at another -2.

High-Oxygen: Oxygen in concentrations higher than Earth-normal is corrosive. An oxygen leak will make its victims feel bouncy and aggressive. At this level there is no danger except overconfidence (all IQ rolls at -1). When eyes and nose start to burn, the level is becoming dangerous. Roll as for ammonia, but at +2 to all rolls, and with no chance of blinding. However, too much oxygen also greatly increases fire hazards.

Nitrides: Corrosive compounds with a distinctive odor. Treat as for ammonia.

Sulfur Compounds: Compounds with *strong* odors. Usually a sulfur leak will be noticed long before it is dangerous. Otherwise, treat hydrogen sulfide as ammonia (but flammable), sulfur trioxide as chlorine, sulfur dioxide as ammonia.

Pressure Differences

Different levels of atmospheric pressure are described on p. S109. Atmospheric pressure has the following effects:

Very Thin or Trace atmospheres might as well be vacuum. Humans can't breathe them, even if oxygen is present.

Thin atmospheres provide less oxygen. Those breathing it will move slower and fatigue more quickly; increase all fatigue penalties by 1. If a respirator is worn, this penalty does not apply. Vision rolls are at -1 (or more) unless the eyes are protected from evaporation and supplied oxygen by goggles.

Dense atmospheres can be breathed with some discomfort (-1 to all HT rolls). Or a reducing respirator may be worn.

Very dense atmospheres require a reducing respirator to breathe.

Superdense: Any superdense atmosphere, regardless of composition, requires armored suits. If some of the constituents are poisonous, this presents a separate problem.

Corrosive Atmospheres and Equipment Leaks

Corrosive atmospheres will eventually eat through even the best protection, leaving adventurers exposed to deadly gases.

The degree of corrosiveness governs the intervals at which the GM checks a suit or vehicle for failure. In a mildly corrosive atmosphere (high-oxygen, nitrides or ammonia, for instance), this may occur once per week. In an extremely corrosive one (such as fluorine), you might check every hour. The presence of liquid water makes corrosive atmospheres even more dangerous, since acids can form.

At each interval, roll 3 dice for each suit or vehicle exposed. Subtract 2 for a vehicle with heavy compartmentalization, or 4 for total compartmentalization. Unless armor has been penetrated, a high DR will reduce the chance of a suit or vehicle leaking as follows: DR 30-99 gives a -1, DR 100-299 give a -2, DR 300-999 gives a -3, DR 1,000 or more gives a -4; if it has more than one value, use the lowest DR. Other modifiers can be added. For instance, vehicles in bad repair are

Poison

Many of these poisons can be encountered in nature, but adventurers will more commonly encounter them in the hands of enemy warriors and assassins!

There are many ways of making sure the poison reaches the target. Poisoned weapons are common, especially ranged ones like arrows and darts; a single hit, or three blocked or parried attacks, will wipe the poison off a weapon (see p. B132). Digestive poisons can be put in food and drink (this may require a couple of Sleight of Hand rolls). There are many other more exotic methods to poison people: poison gas, "contact poison" (in solvents such as DMSO), poison poured into the mouth of a sleeping victim, time-release toxins or even a ring with a sharp point hidden underneath.

Note: Medical drugs, addictive drugs and alcohol are all covered in Chapter 6.

Aconite

This plant poison affects the nervous system, HT-5 hours after ingesting it. The victim first feels a tingling sensation on his skin, tongue and throat, followed by loss of muscle coordination (reduce DX by 2d) and difficulty in breathing. The subject must make a HT+1 roll. A successful roll results in no damage, with DX loss recovered at the rate of 1 point per hour. On a failure he takes 2d damage, and on a critical failure he dies.

This is a digestive poison; see *Wolfsbane* for the effects of aconite as a blade venom.

Arsenic

This is actually arsenious oxide, a compound of arsenic. This poison is tasteless and colorless (-6 to Poisons rolls to spot it in food). If a large dose is ingested, the victim will feel burning pain in his mouth and throat, as well as abdominal pain, nausea and vomiting (if a HT-4 roll is not made, the victim takes 1d damage and is at -4 ST and DX; on a successful roll, he takes no damage but is still at -2 ST and DX due to nausea). On a critical failure, the victim dies in HT-8 hours.

It is possible to develop an immunity to arsenic by ingesting small doses. Every week after small non-lethal doses are taken daily, roll against HT. A successful roll confers a +1 HT against the effects of the poison (maximum bonus is +6); on a failure the poison has no effect. A critical failure reduces ST, HT and DX by 1; roll against HT for each stat once each following week to recover them.

This is a digestive poison. As a rule of thumb, assume that the effects take at least 1 hour to appear.

Continued on next page . . .

Poison (Continued)

Belladonna Alkaloid

These chemicals, notably atropine, have assorted medical uses. In fact, atropine sulfate serves as an antidote for nerve agents. However, when swallowed in larger doses, belladonna alkaloids can prove lethal. Within minutes, the victim suffers fever, confusion and the inability to sweat. Even if the victim manages to avoid death, belladonna alkaloids often cause permanent kidney damage.

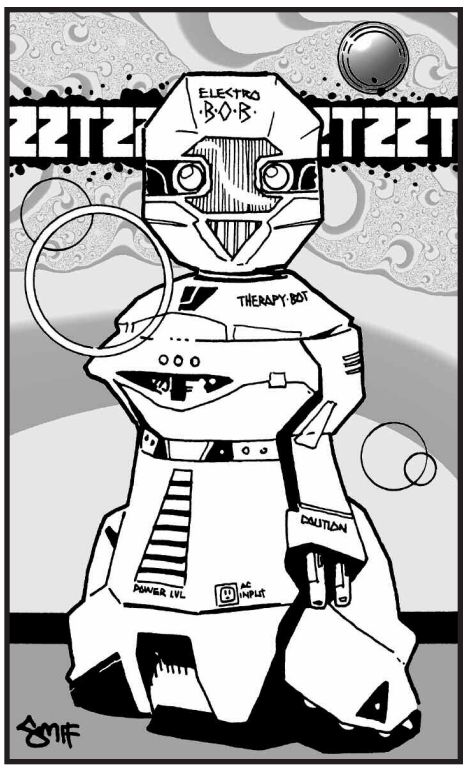
Anyone who ingests atropine suffers 1d points damage immediately. The victim suffers another 1d points damage every 15 minutes thereafter, until the poison is removed from his system. In addition, victims lose 4 points of DX and 2 points of IQ for as long as the poison remains active.

To halt the progress of the atropine, victims must clear their stomachs. Anyone attempting to vomit may attempt a HT roll at -2 every 15 minutes. Every unsuccessful try increases this penalty by another -1. A properly-equipped doctor may halt the progress of atropine using a Physician roll, with no penalties. Treatment involves pumping the stomach and administering sedatives to prevent damage to the central nervous system.

After recovery, an atropine victim must make an HT roll or permanently lose one point of HT. An attending doctor may assist by making a Physician roll, which gives the victim a +2 bonus.

A dose of atropine costs $20 at TL7.

Continued on next page . . .



much more likely to leak. An immediate check is also required whenever a vehicle is damaged or badly shaken up. In the case of damage that penetrates DR, roll at +6.

A modified result of 14-16 means a slow leak, a 17 is a fast leak and an 18 indicates explosive blowout. Specific results of each leak depend on the type of gas (see above). Even a trace of fluorine, for instance, will send its victims to the hospital in minutes. Assume that mild corrosives will cause 1d damage per minute until the vehicle is patched, and won't do controls or interior fittings any good, either. Severe corrosives, like chlorine or fluorine, will cause burning and poisoning – at least 3d damage every minute until patched – and will definitely damage electronics and fittings. Hydrogen has no effect on its own, but once it combines with oxygen, any spark will result in a fireball!

In a superdense atmosphere, any uncorrected leak will blow out at the next check interval. Otherwise, just add 3 to the roll for a slow leak, or 6 for a fast one.

If the outside pressure is Earth-normal or less, vehicle cabin pressure can be kept above outside pressure, so outside air can't leak in. But this is impossible with denser atmospheres!

Some leaks can be detected by eye or nose, some can be detected by vehicle leak-detection gear or pressure sensors, and some just come as a fatal surprise to the occupants.

Patching a vacc suit leak requires 3 seconds and a Vacc Suit roll (all vacc suits have an exterior patch kit, easy to reach). If the first attempt fails, repeated attempts are at a cumulative -1 each time.

Patching a vehicle leak requires a minute, mechanic's tools, and a Mechanic roll, at -4 for a blowout. TL13+ living metal bodies will automatically seal a leak within a few seconds of it occurring, so only a blowout is dangerous.

Electricity

Uninsulated characters who are exposed to electricity may receive a shock. The effects of this are *highly* variable, and can range from a momentary shock that stuns the victim to instant death! Where the exact type or amount of electrical damage isn't specified, the GM should determine the effects based on the source of the shock, the length of contact and how well grounded the victim is, using the guidelines in this section.

All electrical damage falls into one of two basic classes, *nonlethal* or *lethal*.

Nonlethal Electrical Damage

This is typical of the damage caused by specially-designed nonlethal stun weapons, real-life electric fences and more mundane things such as static shocks on a cool, dry day. These are generally high-voltage, low-power shocks, and are unlikely to kill, but can stun the victim or even render him unconscious.

When a character receives such a jolt, the GM should require an immediate HT roll, modified by the strength of the jolt: +2 for a short circuit in a hand-held gadget, no modifier for a stun weapon that delivers a momentary shock, and -3 or -4 for a specially-designed stun weapon that delivers a continuous current (like a Taser or stun wand).

Other Modifiers: High Pain Threshold gives +3; Low Pain Threshold gives -4. Nonmetallic armor gives a +1 per 10 DR for most shocks, or +1 per 5 DR if the shock is caused by a weapon (e.g., a Stingray gyroc or Taser dart) whose effectiveness depends on penetrating armor.

Failure indicates that the victim is physically stunned (see p. B127) for as long as the current is applied and for (20-HT) seconds (minimum 1) after that, whereupon regular recovery rolls are permitted each turn. Critical failure indicates the victim's heart has stopped – see *Instant Death,* below.

In addition, stun weapons will inflict fatigue damage. This is typically 1d if the HT roll is failed, but particularly powerful stun weapons may inflict up to 3d on a failed HT roll, and 1d even if the HT roll is made. Anyone reduced to 0 fatigue in this manner falls unconscious but takes no further damage (although they will remain unconscious until the current is shut off).

Lethal Electrical Damage

Lethal shocks are generally caused by power mains, lightning, cinematic electric fences and ultra-tech beam weapons. This kind of shock cooks flesh and inflicts real damage; it may even stop the victim's heart!

Lethal electrical damage is treated as normal damage, with the following special rules: metallic armor protects against electrical damage with PD 0, DR 1; other armor protects normally. If a character is grounded and wearing metallic armor, then lightning and electrical beam weapons will actually be *attracted* to him, giving a +2 to the attack roll or the chance of being hit.

If the victim suffers lethal electrical damage (even 1 hit point), he must roll vs. HT minus half the electrical damage that penetrated DR (round up) or be physically stunned for as long as the current is applied and for (20-HT) *minutes* (minimum 1) after that. He will also be at -2 DX for *another* 20-HT minutes when he recovers. DR does not affect this roll (since armor has already been penetrated), but High or Low Pain Threshold still give +3 and -4 respectively.

Instant Death: Electrical damage can also kill suddenly, without actually reducing a character to -HT. A character who takes *any* lethal electrical damage must roll versus HT a second time, with a penalty equal to half the damage inflicted (round up), or his heart will stop. He immediately goes to 0 HT if still at positive HT. He passes out and will die in HT/3 minutes (regardless of wounds) unless he receives CPR, which requires a First Aid-4 or Physician roll, and can only be performed by a character trained at TL7+.

Localized Injury: Highly-localized attacks that don't affect the target's entire body – such as cattle prods and most magical electricity attacks – cause pain and burns, but are unlikely to cause long-term stunning or stop the heart. In this case, the victim simply rolls vs. HT+2 (modified by High/Low Pain Threshold, as above). On a failure, he is physically stunned for 1 turn and may roll vs. HT to recover on each turn thereafter. If the attack hits an arm or hand, a Will roll is also required to avoid dropping anything carried in that hand. Damage may also be inflicted, and will bypass metallic armor (see above), but there are no other effects.

Extreme Cold

For general rules covering cold, see p. B130. Wind chill and other Arctic hazards are covered on p. 133.

Deep Water

Each minute an unprotected diver spends in extremely deep water, he takes 1d cold damage. This is assessed on the first round he spends in the cold. Any DR which is effective against cold (including Toughness) protects.

A greater danger from cold water is hypothermia. Whenever anyone takes damage from the cold, he must also immediately make an unmodified HT roll. If he fails, he goes into shock. He will be unable to take any action whatsoever (*Exception*: with a successful Will roll he will be able to call for help, assuming he has a means of underwater communication) until he's warmed up and First Aid is successfully administered. While in shock, he will continue to take damage from cold each minute, and to make HT rolls to see if his heart stops.

The cold water will stop a diver's heart on a critically-failed HT roll. If the heart stops, he'll die in 3d minutes, unless he's removed from the water and suc-

Poison (Continued)

Botulin

This toxin causes the most lethal form of food poisoning. Therefore, botulism poisoning could be construed as accidental. Botulism takes effect in 2d hours and causes 4d damage. Victims may roll vs. HT for half damage. A proper antidote can halve the damage again. Doses of the antidote cost $10. A dose of botulin costs $200 at TL7.

Cantharides Beetle

These insects can be crushed and used to poison food or weapons. An hour after being poisoned, the victim suffers 2d damage, and loses 4 points of DX to nausea. A successful HT roll prevents any effect.

Chloral Hydrate

Knockout drops, or Mickey Finns, work much more efficiently in fiction than in fact. Nevertheless, drugs such as chloral hydrate can render a victim unconscious when administered in food. Note that these chemicals have a strong flavor, and a Cooking roll is required to disguise them in any but the most pungent foods and drinks.

Knockout drops require half an hour to take effect. At this point, the victim should attempt a HT roll with a -3 penalty. If the roll fails, the victim suffers immediate weakness and disorientation causing a -5 on all skill or attribute rolls. The drug takes its complete effect 4d minutes later. At that point, the victim falls unconscious.

Once knocked out by a Mickey, a victim may attempt a HT roll each hour to recover. The penalties remain in effect. Every hour, the victim may attempt yet another HT roll, with every success diminishing the penalties by one point, until the victim makes five rolls, eliminating all penalties.

A dose of knockout drops costs $2.

Continued on next page . . .

Poison (Continued)

Curare

Amazon natives are famous for their use of *curare,* a deadly poison that blocks nerve impulses to the muscles, causing them to go limp and eventually affecting the heart and respiratory muscles, causing death. The curare formula may contain up to thirty ingredients (most of them for magical effect), including stinging ants and powdered snake fangs, but the deadliness of the poison is obtained from the sap of an Amazon vine called *Strychnos toxifer.* Heroes who wish to make their own curare must use the Poisons skill.

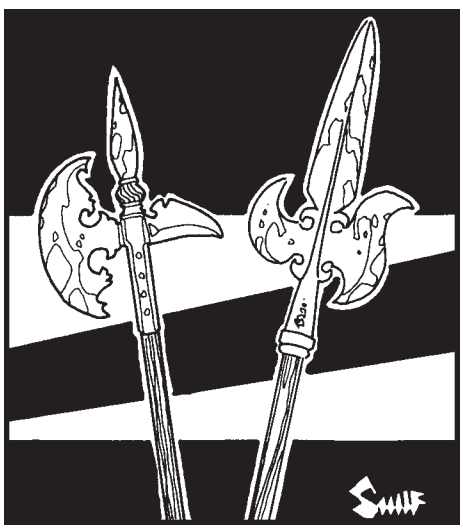
Curare takes effect only when injected or given through DMSO. Curare poisoning is survivable under a number of conditions. A poisoned dart or arrow may have lodged in fatty tissue or a muscle mass, the dosage may be insufficient for the body weight of the victim, and external respiration may be applied to keep the victim alive.

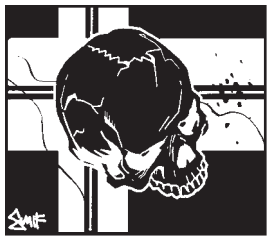
Allow the victim a HT-6 roll to resist the effect. Failure means the victim is completely paralyzed and falls unconscious. Paralysis victims may attempt a second roll, without penalties, to remain breathing. If this fails, the victim suffers normal damage for suffocation, as described on p. B91. A successful First Aid-2 roll made every 30 minutes will keep the victim alive, and allow a HT roll (also every 30 minutes) to recover. A critical failure on any of these rolls indicates death in 1d minutes.

If the initial HT-6 roll is made, the victim is at -5 DX for the next 15-HT minutes (minimum of 2).

By making a Poisons roll, the attacker can measure a dose of curare which will not affect the lungs, thereby leaving the victim alive but helpless. A failure on this roll indicates a potentially lethal dosage.

Continued on next page . . .





cessfully resuscitated with CPR or defibrillation. To administer CPR, the attending character (the "medic") must make a successful roll vs. First Aid-4 or Physician; the incapacitated character (the "patient") must also make a HT roll. If either roll is failed, defibrillation can be attempted. This involves restarting the heart by administering an electric shock to the patient, and requires specialized medical gear; defibrillation equipment is about the size of a suitcase. Defibrillation requires a roll vs. First Aid-5 or Physician-2, and even if successful, the patient must roll vs. HT-3 to survive.

Once he recovers from shock, the patient will be incapacitated for a number of hours equal to (24 - HT + 1d). If he required CPR to resuscitate, add 3d to the amount of time incapacitated, and if defibrillation was used, add 6d. An incapacitated patient is conscious, but cannot leave his bed.

Outer Space

At TL7+, insulation is good enough to allow vehicles and colonies to withstand any degree of cold, even that of an iceball world in interstellar space, as long as there is a power plant to provide heat. Unless something goes wrong, the atmosphere in such a colony would be quite comfortable. But a malfunction wouldn't doom the inhabitants immediately; the temperature might drop gradually, giving time to make repairs or call for help. See *Freezing,* p. B130.

Extreme Heat

Temperatures that are merely uncomfortable can be dealt with in the traditional manner: stay in the shade and don't move around too much. In areas where temperatures range from 90° lows to 130° highs, averaging about 110°, increase fatigue by 1 whenever it is assessed at all. If temperatures range from 100° to 140°, averaging about 120°, increase fatigue by 2 if it is assessed. See p. B130 for the other effects of high temperatures.

At TL8, vehicles can traverse deserts hot enough to melt lead. At TL9, permanent colonies can exist in such places. This is not likely to be needed except in very unusual circumstances (e.g., secret outposts, mines for very rare substances). In general, the environment within such a colony would be very comfortable but . . . if something goes wrong, everyone will die quickly.

Gravity

Gravity is measured in "Gs," or "gees," with 1 G being Earth-normal gravity. When a character is created, his "standard gravity" may be defined. If no standard gravity is defined, assume the character is native to 1 G.

Changes in gravity make things heavier or lighter. This changes things like jumping and throwing (see the sidebars on pp. 133-135). For instance, if a "1-lb." object is being thrown under 2 gravities, it weighs 2 lbs.

For purposes of calculating Move scores, gravity changes *encumbrance.* Multiply each character's encumbrance by the local gravity *before* calculating the Move score. Also, calculate the change in the character's own weight, and add this change to encumbrance – or subtract, if gravity is lower. (This means that encumbrance should be recalculated each time a different planet is visited. GMs who find this a waste of time may fill their universes with 1-G worlds.)

Gravity has no effect on *weapon use or damage*. Even though you can pick up heavier weapons under changed gravity, you can't fight well with them. And primitive weapons do the same damage under any gravity, because their *mass* is unchanged. The exception is zero-gee – see below.

G-Tolerance and G-Increments

All creatures function best in the gravity they are native to, but some creatures can tolerate changes in gravity better than others can. The amount of change you can tolerate without problems is the *G-Increment.* Normal humans (and other creatures) are assumed to have a G-Increment of 0.2 G. This means that each change of 0.2 G in the gravity will have a cumulative effect, as described below. Round gravity down. For an ordinary person native to Earth, 1.19 G is treated as 1 G (no penalty), but 1.2 G is treated as a one-increment penalty.

An increased ability to tolerate changes in gravity is the *Improved G-Tolerance* advantage, described on p. CI26.

G-Increments have to do with the way in which DX and HT change with gravity. ST changes are the same for everyone, regardless of their G-Tolerance, because they reflect actual weight! Characters native to worlds of different gravity will figure their G-Increment from a different base level. For instance, if your native gravity is 1.3 Gs, you will suffer the same effects at 1.5 Gs that a normal Earthman would at only 1.2.

However, figure all other gravitational effects as for standard characters. Don't try, for instance, to figure out what a heavy-worlder's encumbrance would be on his home planet and work from there to find his movement on a light world. It all cancels out.

High Gravity

High gravity makes everything heavier. This increases encumbrance, as described above. For instance, suppose a person weighs 120 lbs. on Earth, and has a load weighing 60 lbs. On Earth, this is simply 60 lbs. of encumbrance. On a world with a gravitational pull of 1.5 G, that load weighs (1.5×60 lbs.), or 90 lbs, and the person also weighs 50% extra, or 180 lbs. So his total encumbrance is 150 lbs. – 90 lbs. of gear, 60 extra lbs. of his own weight. This means he will move slowly and fatigue rapidly. In very high gravity, your own body weight is enough encumbrance to fatigue you, and mechanical aids can be necessary just to get around.

High gravity also affects other stats, as well:

Strength (for jumping, throwing things, etc.): Multiply the distance normally thrown or jumped by the ratio of normal gravity to local gravity. Under 1.2 G, you throw things (or jump) (1/1.2), or 0.83, times as far.

Dexterity and DX-based skills suffer as well, because everything falls too fast and your muscles are under extra strain. Reduce DX by 1 for each G-Increment

Poison (Continued)

Cyanide

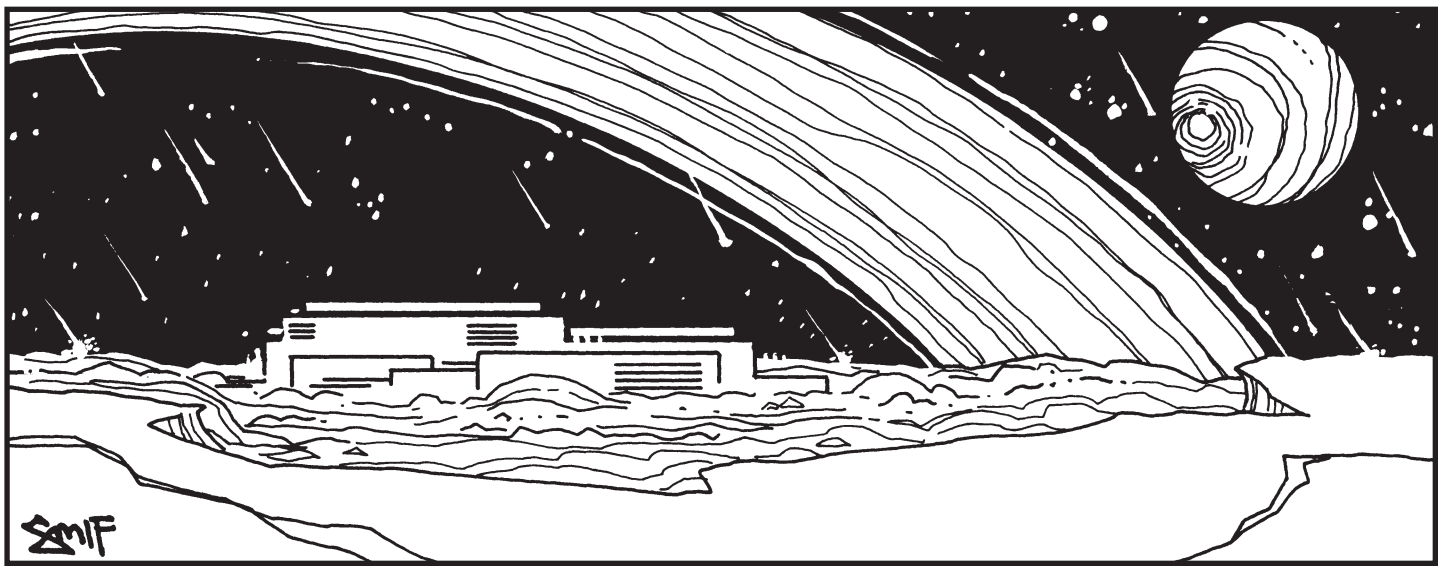
Cyanide is effective either in food, as an injection or as a gas, and causes almost instantaneous death. Because of cyanide's uses in electroplating, hardening steels and mining gold, this substance is available to civilians. Chemists synthesize cyanide as a salt of prussic acid. Hydrogen cyanide and sodium cyanide are most often used in assassinations, although potassium cyanide and mercuric cyanide are also deadly and also used for many innocent purposes. Cyanide salts are white, crystalline powders. The poison has a faint scent, similar to bitter almonds. Poisoners can disguise the taste of cyanide in any almond-flavored dish, or in coffee. Cyanide causes 4d damage.

The effects of cyanide resemble a cardiac arrest. An unsuspecting examiner must make a Diagnosis roll with a -3 penalty to notice the true cause of death.

An oxidizing agent, such as potassium permanganate, can render cyanide harmless. However, the substance must be applied immediately to have any effect. Cyanide victims who attempt to use such chemicals as antidotes may attempt HT rolls with a penalty of -1 per second which has elapsed since poisoning. If the roll succeeds, the victim takes only 1d damage. Agents may also use these antidotes to gain temporary immunity to cyanide. This requires a Poisons roll at -2. The GM should make this roll in secret, without informing the player of the results. If the roll succeeds, the character is invulnerable to cyanide for 6d minutes. Once again, the GM should keep the results secret.

Spies occasionally use cyanide to commit suicide after capture. A dose of cyanide costs $200 at TL7.

Continued on next page . . .



Poison (Continued)

DMSO

DMSO, or dimethyl sulfoxide, is not a poison itself – but it is a chemical which is often used to transmit poisons through the skin. It is notorious for its use with hallucinogens such as LSD. In game terms, a dose of DMSO allows any normally injected or ingested drug to function by contact. It costs $5/dose at TL7.

Fugu Toxin

The nerve toxins (such as *tetrodotoxin*) found in the bladder of such fish as the *fugu* (globefish) are among the deadliest substances in nature. When swallowed, such toxins cannot be resisted; they cause skin tingling for 2d minutes, then paralysis, followed by 5d damage. This takes effect in 6d minutes.

Suitable antidotes will halve the damage taken. However, anyone who wishes to provide this care must make a Poisons roll at -3 to identify the type of poison in use. Most doctors simply do not encounter this problem often! In Japan, where detoxified *fugu* is considered a delicacy, physicians suffer no penalty to their Poisons roll. To cook the globefish, one must hold a special license in Japan.

Poisoning arrows with *fugu* make it a blood poison doing 1d damage; a successful HT-4 roll per wound reduces the effect to skin tingling.

A dose of globefish toxin costs $500.

Hemlock

This poison was used in the execution of Greek philosopher Socrates, and was common in the ancient world. Upon ingestion, paralysis and weakness set in. Make a HT roll; if you make it, you are at -2 DX and ST. On a failed roll, lose 2d DX and ST. After HT-8 hours, make another HT roll to avoid blindness. A final HT roll, at -2, is made 1d hours later. If the roll is made the victim takes 1d damage; if it is failed he takes 3d damage. A critical failure means death. All lost stats are recovered during normal healing rolls (see p. B128), recovering 1 point per day per stat on a HT roll.

Hemlock is a digestive poison. The initial effects take at least 1 hour to appear.

Continued on next page . . .

unless the character has the G-Experience advantage (p. CI25). In that case, reduce it by 1 for every *two* increments.

In high gravity, something as minor as a stumble can lead to injury. If someone falls (a likely result of many sorts of failed skill rolls!), treat it as a 2-yard fall *at the local gravity.* Damage can mount quickly. Roll for location of the injury, ignoring torso results and rolling again.

Intelligence and IQ-based skills are reduced by 1 for every 2 increments of increased gravity, because of reduced blood flow to the brain and general fatigue. Exoskeletons don't help this (except for some special models that are much more expensive). Lying in a fluid bath relieves the IQ problem, but you can't do much physical work that way.

Health is also reduced under high gravity, because the heart has to work harder. Reduce effective HT by 1 for every two full increments. This *does* mean the character has fewer hit points. These "lost" hits are immediately recovered if the traveler gets back to lighter gravity.

Low Gravity

Low gravity makes everything lighter. Encumbrance will decrease as weight drops. Encumbrance may quickly reach zero, since the reduction of a character's body weight counts as *negative weight* for purposes of encumbrance. For instance, take the 120-lb. character described above. On a 0.5 G world, his 60 lbs. of gear weigh only 30 lbs. And his 120-lb. body weighs only 60 lbs. He has "saved" 60 lbs. of body weight to apply against the 30 lbs. he is carrying. His encumbrance is negative 30 lbs.

Important: Negative encumbrance does *not* mean negative weight! "Encumbrance" is an artificial concept which includes a character's body weight. "Weight" can never be negative. Even a helium balloon has weight.

However, your negative encumbrance *does* give a Move bonus. Each 30 pounds of negative encumbrance give a +1 to Move, up to a +3 bonus. Example: Under 0.5 G, a 120-lb. character weighs 60 lbs.; if no gear is carried, that 60 lbs. is all negative encumbrance, giving a +2 to Move. *Yes, this is an approximation; we won't be able to reality-check it for a few years. It allows for clumsier walking due to low gravity, and makes the simplifying assumption that heavier people are larger and stronger.*

Whenever taking advantage of this Move bonus, however, a character must make a DX roll (at a penalty for low gravity – see below) to avoid losing his balance in the unfamiliar gravity. If he misses it, he falls down. Moving at normal rates (as though on a world with standard gravity) requires no roll.

Low gravity affects other stats, as well:

Strength (for jumping or throwing things): As described above for high gravity. Take the ratio of accustomed gravity to your local gravity. Under 0.2 G, you jump 5 times as far.

Dexterity and DX-based skills are affected in various ways. For most purposes (sword fighting, throwing things), reduce DX by 1 for each increment of gravity *unless* the character has the G-Experience advantage (p. CI25). In that case, reduce it by 1 for every *two* increments. For activities like lockpicking that would not be affected by gravity, there is no penalty. And for a few things (a DX roll to catch a falling object, for instance), DX is *increased* by the above amount, because things fall more slowly in low gravity. The GM must decide whether low gravity helps or hurts a given effort.

Intelligence and *Health* are not affected by lower gravity.

Microgravity

Microgravity means any gravitational field of less than 0.2 G. In microgravity, nothing has significant "weight," but mass remains.

Encumbrance is rarely important in microgravity, unless the PCs are carrying their spaceship. HT is unaffected. (Characters with lowered HT from bad hearts or similar systemic problems may experience an effective increase in HT in near zero-G, at the GM's discretion.) Thrown objects may go a *long* way; use local weight to calculate throwing distance (see p. CI10).

A character's DX in microgravity depends on his Free Fall skill. Whenever a "normal" DX roll would be required, substitute a Free Fall roll instead. When any DX-based skill is attempted, use that skill level or the Free Fall level, whichever is worse.

Any microgravity maneuver except the most simple requires a roll against Free Fall skill, or the maneuver fails in some way. (Simple maneuvers would include pulling yourself hand over hand along ladders, walking with magnetic boots, or using ordinary hand items. Maneuvers requiring a skill roll include firing high-recoil weapons without flying backwards, attempting to throw or catch items, acrobatics, and so on.) Seriousness of the failure depends on how badly the roll is missed. If you are tossing a lifeline to a friend who missed his own Free Fall roll and is now floating off into space, a missed roll simply means the line has missed him. But if your roll is a critical failure, you miscalculate and go floating into the void to join your companion.

GMs can use failed Free Fall rolls to set up situations in which skill and ingenuity will be tested. On the other hand, if the PCs all have high Free Fall skills (15+), GMs should dispense with all but the most critical rolls.

Note that in the microgravity of (for instance) an asteroid with a 10-mile diameter, it is easy to throw things entirely away (escape velocity is only 32 miles per hour), and a strong man could jump into orbit.

Zero Gravity

True zero gravity is found only in space, spaceships, and nonrotating orbital stations. Free-fall situations use the same rules as microgravity, above, with a few additions.

In free fall, things hang unsupported. A single person can move a very heavy object . . . very slowly! And *stopping* something in free fall is just as hard as starting it. If you have something to push against, you could start a ton of steel moving through space in zero G. And if that moving ton of steel traps you against your ship, it will crush you to death . . . very slowly.

In free fall, thrown objects fly in straight lines, forever . . . until they hit something.

Speed in zero-G depends on how hard you can push off from a surface or massive object. You may launch yourself at any speed up to 1/2 your ST. Launching requires a full turn during which you can do nothing else – unless you can make a Free Fall roll at -3 to skill. If you succeed, you may do something else with any free hand. (But all weapons fire is at -3 – and high-recoil weapons may send you off in the wrong direction; see below.) Once moving, you continue to move at the same rate until you catch or hit something which stops you.

On the turn you hit or catch something, roll against Free Fall skill. If you miss the roll, you take an extra turn to recover. A critical miss means a hard landing; take 1d-2 damage (armor protects from all but 1 hit of this) and bounce back at a rate of 2 hexes/turn, moving until you are stopped. You must make a HT roll or be stunned as well.

You may attempt to slow your movement or change direction by throwing an object or firing a high-recoil weapon (any weapon with a -4 recoil penalty). Each attempt requires a Free Fall roll. If you succeed, you slow down by 1 hex/turn, or change direction by 60 degrees. If you fail, you will change direction randomly (GM determines in any sadistic manner). A critical failure starts you spinning, and requires a Free Fall-3 roll to right yourself; you may try once per turn.

Poison (Continued)

Irradiated Thallium

The metal thallium is poisonous. When exposed to intense radiation, thallium breaks down into a microscopic powder, which is almost impossible to purge from the body. A victim of this poison suffers no immediate effects. After 1d hours, the victim suffers 1d damage from the thallium metal. Each day thereafter, victims must attempt a HT roll to avoid damage from the radiological destruction of tissues. If this roll fails, the victim loses 1 point each from ST, DX and HT. If any score drops below zero, the victim dies. If the victim ever scores a critical success on his HT roll, the poison ceases to function. After this, the victim may recover. Lost ST and DX returns at the same rate as HT. A dose of irradiated thallium costs $1,000.

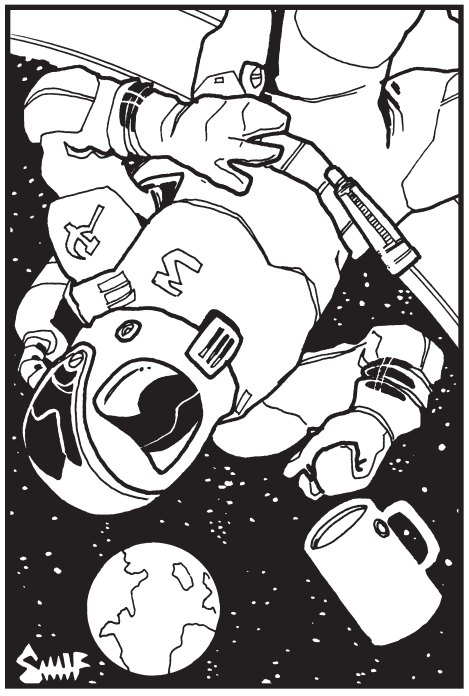
Lacquer

This is tapped from the lacquer tree in the spring. Honest folk use it to preserve wood. However, it can be used as a contact poison, causing blistering like poison ivy: -1 DX for each contact, lasting 1d days. It cannot be used on weapon-edges; more prolonged contact is needed. It could be used on a foe's own sword – on the *hilt.*

Mixed with incense, it makes a respiratory poison. Anyone breathing the poisoned incense must roll vs. HT+4 or take 1d damage. Even if the HT roll succeeds, the victim will lose 1d of DX for 1d minutes, due to itching and sneezing.

Lacquer is, in general, commonly available.

Continued on next page . . .



Poison (Continued)

Lime Powder

People who breathe this choking dust suffer 1 point of damage per turn, with damage ceasing when they fall unconscious. They may resist this damage with a successful HT roll. Victims must make another roll vs. HT to protect their eyes. Those who fail are blinded, and so are at -10 to DX! The blindness only ends when victims flush their eyes for five minutes.

Masuizaki Powder

This Japanese poison is made from a type of weed, and must be manufactured by the user. Taken internally, it causes the victim to sleep for 1d hours per dose, up to 4 doses. On a HT roll, subtract 15 minutes for each point by which the roll is made.

This drug can also be combined with incense; burned in an open room, it merely makes people drowsy (roll vs. HT to resist; -1 to IQ and DX if the HT roll is failed), but in a closed room it has the effect of one dose taken internally, as described above.

If blown from a blowpipe, the powder can be dodged or blocked, at -3, but not parried. Its effect are for a dose taken internally, as described above.

It cannot be used on weapons.

Mustard Gas

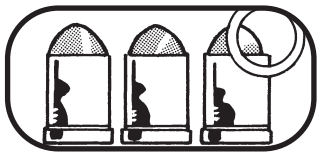
Those who breathe this gas suffer 1 point of damage per turn until they die or leave the area. They may resist this damage with a successful HT roll. Victims must make another roll vs. HT to protect their eyes. Those who fail suffer a -5 on DX for ten minutes. Anyone with exposed skin must make a *third* HT roll each turn to avoid taking 1 further point of injury from blisters. Wet victims take double blister damage.

Continued on next page . . .

Movement in zero-G using vehicles, thruster packs, hand thrusters and so on is governed by the rules or skills appropriate for the item. Movement along a bulkhead, hull or other surface in magnetic boots is at standard Move for characters with Vacc Suit skill, and Move-1 for those without the skill.

To use fists or a primitive weapon (such as a sword) in zero G, roll vs. weapons skill or Free Fall (whichever is less) to hit. If you hit, roll vs. Free Fall to avoid being sent floating away by the "equal and opposite reaction" of your blow.

Pressure



These rules discuss the dangers of extreme pressure when exploring the ocean bottom. Similar rules can be used for extreme atmospheric pressure, as might be encountered by space explorers on some worlds.

The greatest danger of the ocean depths is the extreme pressure of the water. Pressure suits, submarines and the like are generally pressurized to normal sea-level atmospheres. This makes the difference between the inside and the outside pressure *tremendous.* An instant pressure change from sea-level to 600 fathoms will, in general, be instantly fatal. Of course, the GM can usually avoid such disasters (the airlock door opens just a *second* sooner than expected . . .).

If someone is exposed to extreme pressure without a pressure suit, roll a Quick Contest of ST each second he is exposed, with the water pressure having a ST of 100 (this can be decreased for shallow water, or increased for the depths of the Marianas Trench). If he loses the contest, he takes thrust/crushing damage for ST equal to the amount he lost by. This damage is reduced by any DR that is effective against all crushing attacks.

Chances of survival are greatly increased by the use of a pressure suit. "Off-the-rack" suits give a -3 penalty to all DX-based rolls, including all physical skills and combat rolls. This penalty is reduced for custom-tailored suits or high-tech materials (GM's option), but there is always at least a -1 to physical skills.

Suit punctures are just as dangerous as running out of air. Small punctures will probably kill a normal human in 10 seconds at most. Major breaches can kill almost instantly. Fortunately, deep-water pressure suits are tough, with DR 5 and 80 Hit Points.

If a pressure suit takes between 0 and 19 points of damage, it is considered intact. As long as the suit remains at this level of damage, it is pressure-tight, and the diver inside takes only crushing damage from blows, regardless of the attack mode used.

If the suit takes between 20 and 49 points, it is punctured. The wearer must roll each round against pressure, as above, but the pressure is only considered to have a ST of 40. Pressure suits all carry a patch kit, which can be used to repair a puncture in 2d seconds. Any further damage to a patched suit will unseal the patch, reopening the puncture. The suit still keeps its DR, but the wearer takes full damage from cutting and impaling attacks.

If the suit takes between 50 and 80 points of damage, the wearer takes full pressure damage each round. The suit can still be patched in 3d seconds, if the wearer can survive for that long. And even when the patch is on, it will only last 1d minutes if the suit is that badly damaged.

A suit which takes 81 points of damage or more is considered completely destroyed, and cannot protect the user in any way.

The depths of the ocean are also *cold*. For the effects of this cold on unprotected characters, see p. 139. A character who goes from a high-pressure environment to a low-pressure one may also suffer from "bends" (see p. 132).

Radiation

Radiation is insidious; it is odorless, invisible and silent. Fatal exposure can be reached in a few minutes, but death – an ugly, agonizingly painful death – can take weeks to come. The following rules detail the effects of radiation damage in ***GURPS,*** replacing (at the GM's option) the simpler rules presented in ***GURPS Space.***

For most purposes, the "default" of gamma radiation is assumed throughout these rules and any ***GURPS*** text, unless specifically noted. All radiation moves very fast on the human scale; thermal neutrons are the slowest, but still move a few thousands of hexes per second! For simplicity, treat all radiation as moving at the speed of light.

Aside from gamma rays, the following other varieties of ionizing radiation exist:

Alpha particles are helium nuclei (helions) stripped of their electrons. These heavy particles have very little penetrating power, being stopped by a few centimetres of air or by anything substantial. Alpha sources represent a danger only if they are in prolonged contact with the skin – in which case they cause burns very much like thermal burns, and skin cancer – or if ingested or inhaled. They are then 20 times more damaging to living tissue than equivalent gamma sources. Another danger they present is cascade radiation (not to be confused with induced radiation): objects bathed in alpha radiation gradually become ionized, as the alpha particles strip electrons from the object's atoms.

Proton radiation is also possible; the GM should treat it as alpha radiation with roughly four times as much penetrating power. Proton radiation does ten times as much damage to living tissue as gamma radiation does.

Neutron radiation is not ionizing by itself. Neutrons are progressively absorbed by matter (including flesh, which becomes slightly radioactive as a result – metal becomes highly radioactive). About 180 yards of air, 2 yards of lead or half a yard of water will absorb a neutron beam. Because most of the human body's atoms are hydrogen, carbon, nitrogen and oxygen, which can each absorb one neutron without becoming radioactive, a neutron source has to be very powerful before it starts posing a threat.

Beta particles are free electrons. They are stopped by about 5 yards of air, 1/2 inch of water or thin metal, wood or stone. Magnetic or electrostatic containment is also possible. Beta radiation won't penetrate the skin; like alpha sources, beta sources are therefore dangerous only if inhaled or ingested, or if in prolonged contact with the skin. Beta particles are five times as damaging to living tissue as gamma radiation is. Beta particles can cause cascade radiation, of so short-lived a nature as to be entirely negligible. So-called "delta radiation" is just energetic beta radiation produced when alpha or gamma radiation strips electrons from atoms it hits.

All of the above applies to the radiation given off by radioactive substances; the radioactivity found in cosmic rays (also known as Millikan rays), in the solar wind or in a planet's radiation belts can be much more energetic. Every time the energy of particulate radiation doubles, the penetrating power roughly triples. Cosmic rays made of particles typically penetrate *over a yard of lead!*

X-rays (also known as Roentgen rays) and gamma rays are high-energy light. They cannot induce radioactivity at all.

Protection Factor

All materials have a Protection Factor (PF), which determines how much energy (gamma radiation, specifically) the material will stop. A PF of 100 means the material lets only one one-hundredth of the radiation through.

Poison (Continued)

Ne

This is made by boiling the bark of the Japanese pepper tree. It is commonly used to poison fish so they can be caught yet eaten safely. A dose of *ne* can also act as a digestive poison, doing 1 die of damage and causing dizziness and vomiting. It is resisted on a HT roll. It can't be used on weapons.

Nerve Gas

Nerve gases appear most often as military weapons. German scientists synthesized the primitive gases Tabun and Sarin in the Second World War. Modern gases, such as VX, kill in far smaller amounts. Another modern development, they binary weapon, consists of two harmless gases which form nerve agents only when mixed.

Victims can absorb nerve gases through the lungs or skin. Symptoms of poisoning include headache, vomiting, shrinking of the pupil and paralysis. Nerve gases cause 2d points damage per minute to exposed victims. Victims who lose over half their HT continue to take damage even after they escape the gas. Nerve gas contaminates an area for 3d hours after its use.

Atropine sulfate halts the effects of nerve gas. However, this drug itself is a poison, and completely incapacitates the victim for 2d hours. A dose of atropine antidote costs $10.

Nerve gas is a strategic weapon, and is simply not for sale under most circumstances.

Venom

Many creatures attack with venom. Venoms are treated just like any poison, and are divided into types based on their effects. See the sidebars on pp. 147-149 for details.

The description of each type of venom includes its effect if it is not resisted, the length of time before it takes effect and how long the effect lasts. Also included are the HT roll (if any) allowed to resist the venom, and its effect on anyone who successfully resists. Venom strength (amount of damage) varies, even within a given type, and depends on the animal.

Most venoms are *blood* agents – they must enter the body through a wound or injection. They can be delivered by fangs, stings, quills, claws, pincers and even sprays. In general, the skin must be broken for the venom to take effect, though spitting cobras can envenom the eyes and some exotic beasts may have a contact poison or even a gaseous cloud!

Continued on next page . . .

Poison (Continued)

Note that DR, including Toughness, does not protect against damage once the venom is in the bloodstream. DR *will* protect against the delivering agent – fang, claw, stinger – but doesn't protect against substances sprayed in the eyes. The description of a venomous animal will normally give the DR that it can penetrate.

As a rule, all "normal" animals – and, for that matter, all fantasy creatures – should react normally to all venoms unless some immunity is specifically mentioned in the creature's description.

One general exception: Most creatures are immune to the venoms of their natural prey. King snakes, for instance, are almost totally unaffected by rattlesnake venom. So a creature that eats poisonous snakes could reasonably be assumed to be immune to most snake venoms.

Viper Venom

This poison is extracted from a live viper and used on arrows and other missile weapons. It is a blood poison, doing 1d damage per wound. A successful HT roll will reduce damage to 1d-3.

Each viper will yield up to 4 doses; each dose requires a successful Animal Handling roll, and a failure indicates no more venom will be available from that snake. A critical failure means snakebite doing 3d damage.

Wolfsbane

An herbal poison that can be used on edged weapons. See *Aconite* for its effects when ingested. One hour after receiving wolfsbane, a victim suffers 2d damage. Survivors then lose 4 points of DX to numbness and spasms for two hours. A successful HT roll prevents any effect.

An inch and half of steel, or half an inch of lead, or 750 yards of air, has a PF of 2; a yard of water has a PF of 8; a yard of earth has a PF of 27; a yard of concrete has a PF of 64; a yard of steel has a PF of 17 million.

Note that a high-energy particle beam hitting a thin slab of material will be turned into an intense spray of cascade gamma radiation.

Radiation Exposure

The radiation dose received by a creature is defined as the amount of energy absorbed divided by the absorbing mass. The International System unit of radiation dosage is the joule per kilogram or Gray (Gy); 1 Gy=1 J/kg. Other units include the roentgen (120 roentgens=1 Gy) and the rad (100 rads=1 Gy). While the Gray is the most common modern measurement, ***GURPS*** uses the more familiar rad.

Exposure levels from "hot" environments will generally be expressed in rads per unit of time. Such radiation "baths" affect large and small creatures uniformly. Rayguns, however, release a set quantity of energy; GMs should keep in mind that the raygun delivers all its energy into the same volume regardless of the size of the target, like a bullet.

Exposure to radiation is most likely when people are handling broken or tampered nuclear power sources. Here are very rough guidelines:

Handling the nuclear battery from a wristwatch or flashlight . . . . . 1 rad/hour
A raygun or radio power source . . . . . 5 rads/hour
A mining tool or a moon-rover's power source . . . . . 100 rads/hour
A tank or submarine power source . . . . . 400 rads/hour

Here are some other sources of radiation exposure:

The body's own atoms . . . . . 0.025 rads/year
Bedrock . . . . . 0.10 rads/year
Maximum legal professional dose . . . . . 5 rads/year
One gram of ingested uranium-235 . . . . . .0.7 rads/day (mostly alpha)
Soil of the Chernobyl exclusion zone . . . . . 50 rads/year
Fallout on ground, one megaton fission ground burst:
- One day after . . . . . 7 rads/hour
- Five hours after . . . . . 36 rads/hour
- Two hours after . . . . . 2 rads/min.
- One hour after . . . . . 5 rads/min.

One gram of ingested californium-251 . . . . . 5 rads/min. (mostly alpha)
Solar flare, at Earth's distance . . . . . .15 rads/min.
One gram of ingested radium-226 . . . . . 16.5 rads/min. (mostly alpha)
Jupiter's radiation belts . . . . . 30 rads/min.
Smoking a cigarette . . . . . .0.003 rads
Routine medical X-ray . . . . . 0.04 to 1 rad
Professional Emergency Dose . . . . . 25 rads (once per lifetime)
One megaton fission air burst, 1 mile away . . . . . 10,000 rads
Food irradiation . . . . . 20,000 rads

The dosage from cosmic rays varies wildly, from trivial to highly dangerous and requiring lots of shielding. So many variables affect this, and the radiation levels experienced in Earth's Van Allen radiation belt, that GMs should simply tell players what they expect, and let them find out when they get there!

Effects of Radiation

Radiation dose received is measured in rads. The more rads you receive, the more likely you are to suffer an ill effect. The GM should keep track of each character's radiation injuries, noting each dose and the date on which it was received.

Each radiation injury heals separately from all others received; after a month, it starts healing at the rate of 10 rads per day. However, 10% of the original radiation injury will never heal.

For example, someone spends a day in a "hot" environment, accumulating a 200-rad dose. After 30 days, that particular injury starts to heal. After another 18 days, at the 20-rad level, the injury stops healing.

Every time the character receives a substantial dose, as well as every day he spends in a "hot" environment, he should roll vs. HT on the Radiation Effects Table, below, using his current total accumulated dose.

radiation effects table

Accumulated Dose	*HT Mod.*	*Critical Success*	*Success*	*Failure*	*Critical Failure*
Up to 10 rads	+0	None	None	A(6d)	B
Up to 20 rads	+0	None	A(6d)	B	C
Up to 40 rads	+0	A(6d)	B	C(1 HT)	D
Up to 80 rads	-1	A(5d)	B	C(2 HT)	D
Up to 160 rads	-3	A(4d)	B	C(3 HT)	D
Up to 4,000 rads	-5	A(3d)	B	C(4 HT)	D

Note: The HT modifier applies to all HT rolls the victim makes, whether for radiation, contagion, spell resistance, etc.

A: *Radiation burns.* Chronic, "somatic" damage – -2 HT for a week. Roll the indicated number of dice; if all come up sixes, the victim will develop cancer and die within a year. Starting a few hours after his irradiation and lasting through seven days, the victim has Low Pain Threshold (see p. B29) – if he had High Pain Threshold to start with, then it is nullified for the duration. Radiation also causes "genetic" damage, but very little is known about its likelihood. Human women, who never produce new ova, are more vulnerable than men, who constantly produce new spermatozoa. (Suggested rule: The offspring of a human female who has taken over 250 rads ever, or a human male who has taken over 100 rads in the last week is completely at the GM's mercy. Any birth defect imaginable is possible.) Genetic damage under 100 rads is undetectable by late-TL7 medical science.

B: *Haematopoietic syndrome*. In addition to radiation burns, other effects occur within a day: nausea and vomiting lasting a day or two and loss of 1d ST, DX and IQ. Afterward, the victim rolls vs. HT daily: on a critical success, he recovers 2 points of ST, DX and IQ; on a success, he recovers 1 point of ST, DX and IQ; on a failure, he makes no improvement; on a critical failure, he relapses – he loses 1 point of ST, DX and IQ. As long as the victim's ST, DX and IQ are depressed, he also suffers from hemophilia (see p. B28).

C: *Gastrointestinal syndrome.* In addition to the haematopoietic syndrome, other effects occur within 1 to 3 weeks: *permanent* loss of the indicated HT, as well as losing all his body hair. The victim then starts losing 1 hit per day, rolling vs. HT daily: on a critical success, the hit-point loss stops and normal recovery can occur (the hair grows back). As long as hit points decline, the victim is at risk from opportunistic infections. He is also subject to bouts of nausea, vomiting, diarrhea, fever and prostration; roll vs. HT hourly or whenever the victim tries to do anything other than rest quietly. If HT falls below 4, the victim's teeth and nails also start to fall out.

D: As C, except that even a critical success on the HT roll won't stop the daily HT loss: death is certain.

A dose of over 4,000 rads induces *cerebrovascular death:* within an hour, the victim loses 2 hits, 2 IQ and rolls vs. HT to stay conscious. Repeat every hour.

Venom Types

Type A

Anyone injected must roll against HT-4 immediately, and then again at the beginning of each day for the next three days. Effects occur within 15 minutes of the injection if the initial roll is failed, or upon arising on the day of the failed roll if the initial roll was successful. If all rolls are successful, the venom has no effect. A failed roll means the venom does the listed damage – critical failure means death.

Modifiers to the HT roll: +1 if the venom is sucked out within five minutes, +2 if antivenin (TL 6+) is used for treatment and -2 if the victim performs strenuous physical activity.

Type B

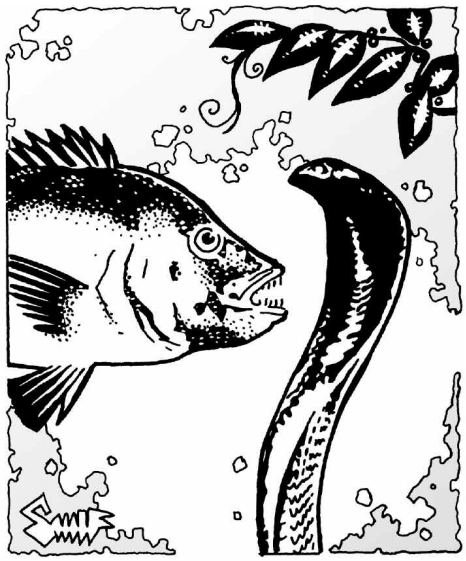
Anyone injected must make a roll against HT-6 immediately, and then again at the beginning of each day for the next three days. Effects occur in one minute if the initial roll is failed, or upon arising the day of a failed roll if the initial roll was successful. If any of these rolls are failed, the venom does the listed damage – critical failure means death. Anyone injected with the venom is at -2 DX for three days (or at -4 DX for the remainder of the three days if any of the HT-6 rolls are failed).

Modifiers to the HT roll: +2 if antivenin (TL 6+) is used for treatment (suctioning the wound has no effect on this type of venom).

Type C

Anyone injected must immediately make a roll against HT-6. Failure means that the venom does the listed damage immediately, and the victim is at -4 DX for the next three days – critical failure means instant death. If the HT-6 roll is made, the victim takes half damage, and is at -2 DX for the next three days.

Continued on next page . . .



Venom Types (Continued)

Type D

This venom does no actual damage. However, a human-sized victim will be paralyzed for six hours if a roll against HT-3 is failed, with full paralysis occurring in 5 minutes. This paralysis is complete, except for breathing, heart beat, etc. – the victim cannot move or communicate in any way, though he is conscious.

Critical failure results in the victim falling into a coma – total unconsciousness for 1d+6 hours; after that, roll vs. HT. If the roll fails, the coma continues for another 1d hours, and so on. If the coma lasts for more than 24 hours, the victim, upon awakening, will be at -2 to all attribute and skill rolls for a period of time equal to the length of the coma.

If the HT-3 roll is successful, the victim is paralyzed for only 3d minutes. The GM should make all rolls in secret so the players will not know how long the paralysis will last.

Type E

This is a local poison, usually from small arachnids such as the Brown Recluse. If the victim is bitten on a limb (the most common target), he takes the listed damage, and his use of the limb is at -3 for 1d days – no HT roll to resist. For feet and legs, this means a -3 to Move; for hands and arms, a -3 to DX-based skills.

After the initial period, make a check against HT (at no penalty). Failure means that the symptoms worsen – the victim is at an additional -1 for the next 1d days. After this period, make another HT check, continuing to subtract 1 from the use of the limb for each failure. If the total penalty reaches -7, the victim begins losing 1 HT per day. Critical failure at any stage means that gangrene has set in – the affected limb must be amputated to save the victim's life. Amputation at any time *before* a check against HT will prevent further deterioration and possible death. A successful HT roll on any day means that the victim recovers 1 point of DX or movement per hour until he has totally recovered from the venom.

If the bite is on the torso or head, the venom does double damage and reduces *all* attribute checks and skill rolls by -3 until a roll against HT is made. The first roll is made on the day after the bite; continue to check daily, subtracting an additional 1 for each failure. If the total minus reaches -7, the victim dies. Critical failure means death in this case, as amputation is rather drastic! A successful HT roll at any point means that the victim recovers 1 point per day until fully recovered.

Continued on next page . . .

Other symptoms include diarrhea, vomiting, dizziness, low blood pressure, stupor, incoherence, hyperexcitability, loss of coordination and uncontrollable trembling. Unconsciousness is followed by convulsions and then death (when IQ or HT reaches zero).

A dose of 200 rads causes sterility and blindness for a few months, while a dose of 500 rads will permanently sterilize and blind (assuming the victim survives).

Hit Location

In some circumstances, only some of a person's body parts may be irradiated. For some cancers, a short hard burst of radiation is just what the doctor ordered! To assess the dose's effects, convert the body part's dose into an "equivalent whole-body dose": divide a dose to the head or limbs by 15, one to the torso by 8, and one to the vitals by 4.

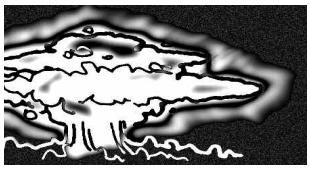
A very localized radiation injury causes the slow necrosis of the body part; over the course of several months, the blood vessels progressively fail and gangrene eventually sets in.

Another location effect is the depth of burn. Massive, highly-charged particles such as alphas quickly expend all their energy (e.g., in the skin). Lighter, uncharged particles (neutrons, gammas) are "whole-body" exposures, since they are just as likely to interact deep inside the body as with the skin.

Other Species

The rules above were designed with mammals in mind; for non-mammal PCs, apply the following modifiers to radiation doses to determine effects:

Crustaceans/Molluscs/Worms: Divide effective dose by 2.
Fish: Divide effective dose by 3.
Reptiles/Amphibians: Divide effective dose by 4.
Avians: Divide effective dose by 5.
Insects: Divide effective dose by 80.
Arachnids: Divide effective dose by 100.
Protozoans: Divide effective dose by 1,000.



Plants vary, but are generally very sensitive to radiation. A tree can be killed by as small a dose as 60 rads, for instance. Grasses are hardier, being able to survive doses of 2,000 rads or more. PC plant-races might fall anywhere in between or outside these ranges entirely, as the GM sees fit. Likewise, the responses of totally alien life forms must be decided by the Game Master.

Radiation Effects on Electronics: EMP

The electromagnetic pulse (EMP) from nuclear (and antimatter) weapons can permanently scramble computers and other delicate electronic equipment. Any electronic gear (sensors, etc.) is vulnerable. The only exceptions are *hardened* devices, specifically designed to resist EMP.

For simplicity's sake, assume that the EMP is proportional to the momentary rad dosage produced by a nuclear blast. However, unlike rad dosage, EMP from each blast does not accumulate – it is always figured separately. Thus, while the combined rad dose from several nuclear blasts could kill all the humans in the area, it is quite possible that no single EMP could kill the computers.

The higher the TL, the more resistant electronic gear becomes. Rad levels equivalent to an EMP kill, by TL, are as follows:

TL7	100 rads
TL8	200 rads
TL9	500 rads
TL10	2,000 rads
TL11+	10,000 rads

Vacuum

The good Lord must like vacuum . . . so say spacers. After all, He made an awful lot of it. Vacuum in itself is not deadly, so ship crewmen may survive briefly without air. They may even deliberately enter vacuum without protection or air *if they have to.*

You can't hold your breath in vacuum, and you might rupture your lungs if you try. The only safe way to enter vacuum is to exhale and leave your mouth open. You can then operate on the oxygen in your blood for (HT) turns if active, (HT×4) turns if moving slowly, or (HT×10) turns if passively waiting. Double these times if you hyperventilate first; quadruple them if you used pure oxygen. Halve these times if you were caught by surprise and didn't even have time for one deep breath.

Once out of breath, one fatigue is lost per turn; when ST reaches 0, the victim falls unconscious. Four minutes later, he dies. There is a chance of brain damage (permanent -1 to IQ) if the victim is saved after more than two minutes without air; roll vs. HT to avoid this.

Rapid Decompression

If a ship loses a lot of air to a meteor strike, or if a respirator suddenly goes bad, a spacer may find himself trying to adapt to rapidly falling pressure. Popping ears are a sure sign of a pressure change (IQ+4 to notice for anyone with space crew experience, IQ for anyone who has gotten even a basic passenger briefing). If your ears keep popping, pressure is still going down. If the situation is not stabilized quickly, the spacer must get to a pressure suit, escape pod, etc., or be in vacuum.

Pressure loss is a terrifying thing on board ship. The GM may require all aboard to make a Fright Check; again, experienced crew should get a +4.

Explosive Decompression

"Blowout," or *explosive decompression,* happens when an area suddenly goes from normal pressure to little or none. This could occur, for instance, when a ship loses all its air to a meteor strike, or when someone is tossed out the airlock.

Fifty years of pulp fiction to the contrary, explosive decompression does not turn its victims inside-out and quick-freeze them. What *does* happen is that the body fluids begin to boil away. Small blood vessels rupture, and the mucous membranes dry out. The eardrums pop violently. The victim takes 1d of damage, but *does not die* until he runs out of breath, as described above. However, if rescued, he must make separate rolls, as follows, or suffer *permanent* ill effects as follows:

HT+2 for each eye, to avoid blindness.

HT to avoid -1 DX due to "bends" (see p. 132) from boiling blood.

HT-1 to avoid permanent Hard of Hearing disadvantage.

If the victim is not rescued, his body's liquid will boil off to space within a few hours. The remaining fragile, powdery husk will weigh only a few pounds. Memories and personality cannot be recovered from the dehydrated brain, though DNA (for a clone) could be saved if a sample were taken within a few minutes of death and kept frozen.

Venom Types (Continued)

Type F

Anyone injected must immediately make a roll against HT-6. A failed roll results in the venom doing the listed damage in one minute – critical failure means death. Anyone taking damage is nauseated and dizzy – -3 to all attribute and skill rolls for 1d hours. If the HT-6 roll is made, no damage is taken, but the victim still feels sick for 3d minutes – -3 to all attribute checks and skill rolls, as above.

Type G

Anyone injected must make a HT-2 roll or immediately suffer the consequences. This venom does only 1 HT damage, but does fatigue damage as listed for the creature. If this brings the victim to 0 ST, he falls unconscious for one hour. If ST drops below 0, the victim remains unconscious for one additional hour per point below 0.

If the HT-2 roll is made, the victim takes no HT damage, and only 1 point of fatigue. Critical failure results in a coma – unconsciousness lasting 1d hours. After that, roll vs. HT. If the roll fails, the coma continues for another 1d hours, and so on. If the coma lasts for 24 hours or more, the victim, upon awakening, is at -2 to all attribute and skill rolls for a period of time equal to the duration of the coma.

Type H

Anyone injected must make a roll against HT-2. A failed roll results in the victim taking the listed damage after one hour; no further rolls are necessary. If the HT-2 roll is successful, the victim takes only 1 point of damage. Critical failure results in maximum damage immediately.

Type S

Spitting venom. This type of venom does only 1 HT damage, but blinds the victim (-10 on any combat skill) for 5 minutes if a roll against HT-4 is failed. If the roll is made, the victim is blinded for only 3d seconds. The GM rolls in secret (the victim shouldn't know how long he will be blind).

In addition to its other effects, this venom causes intense pain – -4 to IQ to think clearly. If the *player* has a good idea while he is blinded, have him make an IQ-4 roll for the *character* to come up with the idea.

Type X

A generic classification for unique venoms. Details are given in the descriptive paragraph for the animal. Do not expect one Type X venom to resemble another Type X venom.

6 INJURY, ILLNESS, FATIGUE AND RECOVERY

This chapter elaborates on and clarifies the rules for wounds, sickness (see the sidebars) and fatigue (mainly due to extra effort, p. 171, and sleep, p. 173) presented in the ***Basic Set,*** and includes some optional rules for recovery and treatment. The rules for drugs (sidebars, pp. 153-166) and intoxication can also be found here.

Optional Rules for Wounds and Healing

Cinematic Effects of Injury

In cinematic fiction, people are shown trading punches, kicks and blunt weapons damage with seeming impunity; other than a few nosebleeds and split lips, even cannon-fodder NPCs get up time and time again after punches that should by rights have killed or seriously injured them.

Real-life combat is deadly, and ***GURPS*** reflects this. In a cinematic campaign, however, this is not appropriate; combat is an essential part of this type of campaign, and the characters cannot be expected to avoid it. PCs and NPCs live to fight another day, except, perhaps, at the climactic battle. Here are some optional rules to limit damage in a cinematic battle.

Flesh Wounds

This cinematic rule, from p. B183, will prevent premature deaths without changing the combat system. Anyone who is not actually in combat may spend 1 unused character point, immediately healing all damage except crippling injuries, all fatigue and (if that optional rule is being used) all stun damage. The rationale is that the damage was "only flesh wounds," easily shrugged off by a determined hero!

As an even more cinematic option, the GM can permit the expenditure of character points for recovery *even in the middle of combat* – a "second wind" rule.

Stun Damage

With this rule, all characters have "Stun Points" equal to five times their hit points; this is a new stat, and the player must keep track of it separately. When a character's Stun reaches 0, he is knocked unconscious. Consciousness is regained normally (see p. B129). A conscious character recovers lost Stun at 1 point per minute of rest.

Unless an attacker *specifically* declares an attack as "shoot to kill" before it is made, all damage taken is Stun only. The GM may also treat damage from falling (or falling objects) as Stun damage.

This will result in characters being knocked out just as frequently as in normal ***GURPS*** combat, but it will *extremely* hard for them to be killed. This doesn't eliminate incidental or side effect damage from an attack – anyone hit with a flamethrower will probably have to go to the hospital for burn treatment, he just won't be immediately *killed* by the attack.

If a character is hit by a mixture of stunning and regular attacks, keep track of Stun and HT separately. All regular damage does Stun damage as well; if a blow is aimed to kill and does 7 points of damage, the target also takes 7 points of Stun.

The advantage of this rule is that PCs and NPCs will have a much lower mortality rate. The big disadvantage of this rule is its total unreality. Being shot or run through by a rapier *doesn't* just stun someone! If this bothers you, then stick with the standard ***GURPS*** combat system, and let the bodies fall where they may.

Damage Reduction

This optional rule modifies the Stun Damage rule (above). The GM sets a particular rate – 1/4, 1/3, 1/2 or whatever he chooses. When someone takes damage, only the amount determined by this modifier is applied to HT, with the full value being applied to Stun. This method allows the GM to fine-tune the amount of "unreality" in combat, but requires more bookkeeping, as the players must keep track of how much damage is real and how much is Stun.

More Optional Rules For Stun Points

Adding the Stun stat will raise a number of questions about crippling attacks, vital points, knocking a person unconscious, and so on. The GM can use some of the optional rules described below to solve those problems, or, based on them, create his own rules to deal with special situations regarding injuries.

Vital Points

A blow to the Brain (area 3-4) does quadruple Stun damage; the victim is stunned if he takes Stun damage over HT/2, knocked out if over HT. If normal hit point damage is also taken, it takes precedence over this and its effects are as per B203. Blows to the vitals do not inflict extra Stun damage (but see below).

In any event, when struck in the head or vitals by a crushing blow, the victim must roll to avoid being knocked out, again following the rules of the ***Basic Set*** (see also p. 53).

New Vital Points

The GM may assign new vital areas that increase the number of Stun points a victim loses. A hit to the Head (area 5) or to the Groin (area 11) can do double Stun damage (but no extra hit point damage). This is in addition to any other effects (see p. 53).

Continued on next page . . .

More Optional Rules For Stun Points (Continued)

Crippling Damage

A limb is considered crippled if it takes Stun points equal to the character's HT; rolls to recover (p. B129) are made at +5. If HT point damage is also inflicted, and is enough to cripple the limb, then proceed normally.

Poison Damage

Poisons and venoms do stun damage, at first. However, if the victim does not receive medical aid within HT hours, minutes or even seconds (depending on the severity of the poison – GM's call), a second HT roll to resist the poison must be made, with all its modifiers; on a failure the victim takes normal hit point damage. For poisons with a specific effect other than HT loss (like curare, p. 140), assign those effects instead.

Radiation Treatment

TL6 offers no real radiation treatment. At TL7, drugs are available that can halve your effective rad dosage if a dose ($500) is taken 1 to 3 days in advance. Also at TL7, *chelating* drugs are available to get radioactive fallout out of your system; $500, halving damage after a week and eliminating the fallout entirely after two weeks. This has no effect on radiation already absorbed!

At TL8, advanced chelating drugs ($500) encapsulate and remove fallout immediately. Braintape technology can save a victim; anyone who survives the initial radiation exposure can still have their brain read, unless the dose was 5,000 rads or better. Each increase in TL raises this limit by 1,000 (higher doses scramble nerve tissue beyond that TL's ability to read).

At TL9, Antirad drug (p. 156) is available.

At TL10, expensive treatments ($3,000) are available to reduce your lifetime rad history by 10% per treatment. Each treatment takes about 3 days; they cannot be repeated more often than once per month.

At TL11, these antirad treatments reduce lifetime history by 25% per treatment.

HT rolls to stay conscious or alive are always made on HT. Unconsciousness is automatic if Stun reaches 0.

Example: Chuck has a HT of 12 (and therefore Stun 60) in a campaign with 1/3 Damage Reduction. He is hit by a burst of three 9mm bullets, which do 10, 4 and 13 points of damage. The total 27 points are subtracted from Stun, bringing it down to 33. 1/3 of 27 is 9 points, so his HT is reduced to 3, slowing him down and probably stunning him as well. Of course, without this rule he would be rolling against HT to stay alive!

Different Damage Types

This is another optional rule that suits cinematic "reality," especially in the martial arts. Most crushing attacks (except bullets) do Stun damage, but cutting and impaling weapons, as well as firearms, do full HT damage (or, alternatively, have a Damage Reduction ratio, as described above). This allows for more "relative" realism: it is easier to believe that a victim can be knocked out but be relatively unscathed after being kicked in the head a few times, as opposed to being stabbed in the vitals for the same result.

If this rule is used, bloodthirsty PCs may end up carrying guns, knives and swords into brawls, since such weapons will have a definite "edge" in lethality! Of course, such serial-killer PCs would face equally well-armed foes . . . not to mention law-enforcement agencies equipped with firearms.

HT vs. Hit Points

Many rules in ***GURPS*** refer simply to "HT," assuming that the "Health" attribute and "Hit Points" (or "hits") are one and the same for all characters. While this is generally true, it can be very confusing when it isn't! For example, Extra Hit Points (p. CI24), Reduced Hit Points (p. CI83) and the optional rule, *Redefining Hit Points and Fatigue* (p. CI7), can all lead to characters who have "split" HT scores (as described on p. B141), which can, in turn, lead to some confusion over when the wording of a rule actually means HT and when it really means hit points.

HT is used whenever a die roll has to be made. The most important examples are the rolls made to avoid death, knockout, knockdown or stunning, not to mention the rolls made to recover from injury, crippling or illness. As well, HT is used for all rolls made to resist hazards such as extreme heat or cold, starvation, dehydration, poison or disease. In addition, HT is used for rolls made to avoid succumbing to disadvantages that call for a HT roll. Next, the HT attribute is used in all Contests and Quick Contests made to resist attacks, spells and anything else that is normally resisted by HT. Finally, all HT-based skills are based on the actual HT attribute and not on hit points.

Hit Points are used mainly to absorb damage. Whenever damage is inflicted, it is taken off of hit points and not HT, and the *General Damage* rules (p. B126) refer to the character's remaining hit points. Hit points are also used whenever damage is being compared against some multiple or fraction of "HT" to determine the effects of injury. For example, hit points are used for comparisons made to HT, HT/2 or HT/3 for the purposes of stunning, knockdown, knockout, crippling, decapitation, et cetera. Hit points can also be used as a general measure of bulk when calculating such things as the dosage of certain drugs.

Example: A character has HT 10/17, meaning a HT attribute of 10 and 17 hit points. To stun him or cripple his arm requires damage in excess of his hit points/2, or 9 points of damage; however, his rolls to recover from being stunned or to regain the use of his arm are made against his HT, which is only 10.

There are a few things that affect both HT and hit points. Generally speaking, any disease, poison, spell, psi skill or super ability that drains or lowers the HT attribute also lowers hit points by the same amount.

Example: The character in the example above is attacked by someone with a Steal Attribute (HT) ability. Not surprisingly, he fails to resist the ability with his HT of 10, and loses 3 HT. Both his HT and hit points are temporarily lowered, leaving him with HT 7/14.

Finally, the following special rules for shock, death and recovery from injury should be used when dealing with creatures that have a split HT:

Shock

When a character with a large hit point total is injured, he has his DX reduced *on his next turn only,* just like anyone else (p. B126). The *amount* of damage needed to reduce DX varies, however, depending on his Hit Point total, as shown on the table below:

Basic Hit Points	***DX Reduction***
30 or less	-1 DX per point of damage
31-50	-1 DX per 2 points of damage (rounded down)
51-100	-1 DX per 3 points of damage (rounded down)
101-200	-1 DX per 4 points of damage (rounded down)
201+	-1 DX per 5 points of damage (rounded down)

Thus, a gigantic monster with 60 hit points has its DX reduced by only 3 on the turn after taking 10 hits.

Death

Creatures with split HT make rolls to avoid death (and calculate the level at which "instant death" occurs) at different intervals than do characters whose HT and hit points are equal, as summarized in the table below:

Basic Hit Points	***First Roll***	***Subsequent Rolls***	***Automatic Death***
30 or less	-HT	Every 5	-5×HT
31-50	-HT	Every 10	-10×HT
51-100	-HT	Every 20	-20×HT
101-200	-2×HT	Every 20	-30×HT
201+	-3×HT	Every 20	-40×HT

When referring to the table above, always look up hit points in the leftmost column, but use the *smaller* of Health or hit points in the formulae for determining the points at which the creature must roll against HT or die from its wounds.

Example 1: An elephant with HT 17/45 uses the formulae in the "31-50" row, but uses its *Health* of 17 as its HT when determining when it must roll to avoid death. The elephant makes its first roll to avoid dying at -17 hit points, makes its next roll at -27, and continues to roll with every 10 points of damage thereafter, until it misses a roll or reaches -170 (-10×Health), at which point it dies automatically.

Example 2: A rat, on the other hand, has HT 17/2. It looks in the "30 or less" row, and uses its *hit points* to determine when it must roll to avoid death. The rat makes its first roll at -2 points, another roll at -7, and dies automatically at -10 (-5×hit points).

Of course, any HT roll made to avoid death is made by rolling against *Health*, regardless of which value – Health or hit points – is higher.

Recovery from Injury

Creatures with split HT can recover lost hit points through rest, first aid and medical care just like anyone else. However, each time such a creature regains lost hit points – whether through bandaging, first aid, medical care or gradual recovery – it does so *in proportion to its total hit points.*

Ultra-Tech Medical Drugs

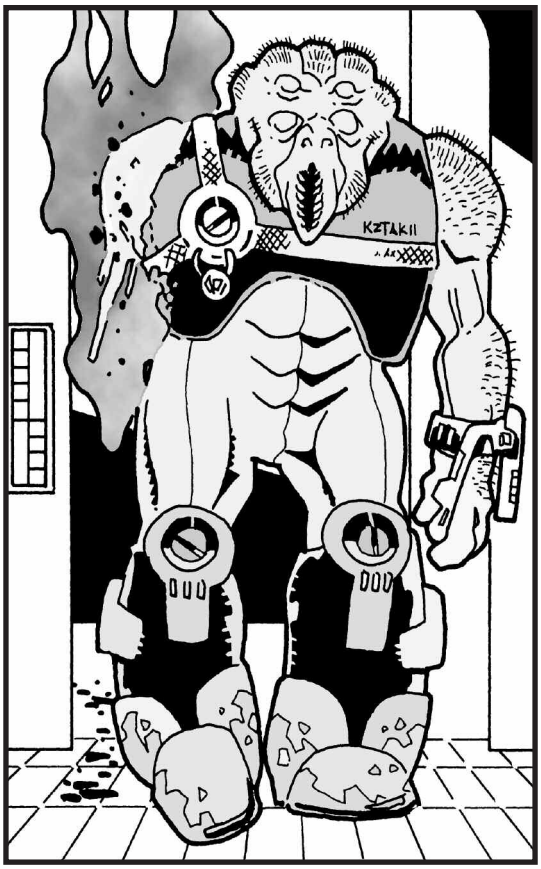
Below is a selection of the most useful TL8-10 "wonder drugs" that have appeared in several ***GURPS*** supplements, including ***Cyberpunk, Space*** and ***Ultra-Tech.*** *See those books for non-medicinal drugs, such as combat drugs, illicit drugs and "truth serums."*

Hypercoagulin (TL8)

When injected into a patient with a bleeding wound, this causes instant coagulation and a cessation of bleeding within 1d+4 seconds. It restores 1 point of HT, and prevents any further damage from loss of blood. The drug should be injected as close to the wound as possible. An injection prior to sustaining a wound will have no effect unless a wound is received within five minutes after the injection.

Overdoses of this drug can kill; for every additional dose within a 24-hour period, roll HT, minus the total number of doses taken. A failed roll means the patient's blood becomes so thick that his heart stops. Full medical facilities (a full blood replacement and possibly a heart transplant) will be required to save his life. Hypercoagulin comes only in injectable form; it costs $25/dose. Hypercoagulin is a useful assassination tool in societies at TL7 and below. Death is by heart attack, and the only wound is a tiny pin hole. The drug is undetectable (". . . a poison unknown to science . . .") below TL8.

Continued on next page . . .



Ultra-Tech Medical Drugs (Continued)

Neurovine (TL8)

This is an antidote for nerve poison. If taken within 15 minutes of poisoning, a Neurovine injection adds +3 to HT on rolls to avoid taking further damage. Note that Neurovine is itself dangerous; taking more than one dose in a day does 3d damage if a HT-2 roll is failed, 1d if the roll is successful. Cost is $30 per dose; it is only available as an injection. Military units issue Neurovine as part of every soldier's first-aid kit.

Revive Capsules (TL8)

These are small, easily breakable capsules. When held under the nose of a stunned or unconscious character and snapped open, the vapor inside will usually revive him completely (roll against HT+5 to regain consciousness, come out of stun, etc). No HT is regained, but the patient is awake. Revive capsules are widely available to the general public and can be purchased freely in drug stores in all but the most repressive societies. Cost is $5/dose.

Note for lower-tech GMs: As early as TL5, "smelling salts" were used. At TL6, ammonia-inhalant capsules are found in first-aid kits. Either will "revive" the patient, with a roll against HT.

Continued on next page . . .

Each time the rules indicate that a character would recover a hit point, he will actually recover 1 hit point for every 20 hit points (or part thereof) that he originally had. The amount recovered is in proportion to total hit points when healthy, and *not* to the number of hit points lost in damage, or to the number of hit points remaining.

This means that creatures with 1-20 hit points recover on a 1:1 basis, as usual, but that those with 21-40 hit points recover on a 2:1 basis, those with 41-60 hit points recover on a 3:1 basis, and so on. Thus, an elephant with HT 17/50 will recover 3 hit points (not 1) each time it makes a daily HT roll to recover lost hit points, and the results of first aid and medical care listed on p. B128 are tripled.

I'm Not Dead Yet! An Optional Wound System

This article (by John M. Ford) originally appeared in a slightly different form in ***Roleplayer 16.***

In ***GURPS***, all the wounds that a character suffers are subtracted from a single damage-point total. Then, except for a few special hits (blinding, say, or a severed limb) they cease to exist as separate wounds. This is not, however, what happens to real people. A graze to the shoulder (1 hit), a flesh wound to the arm (2 hits) and a deep thrust to the chest (7 hits) do not homogenize into 10 hits of generalized injury. They remain a scratch, a minor cut, and a serious wound.

The suggested rule changes to use this system are:

Specific Injuries

Each wound a character suffers is recorded separately. If using the Hit Location rules, the location of the wound should also be noted. Under this system, wounds do not "add" for purposes of treatment and healing. However, the effects of total HT loss (determining unconsciousness, rolling to avoid death at negative HT levels) are unchanged.

A "wound" is defined as the result of one weapon blow or non-weapon attack. Each attack produces a separate wound. (Use common sense. A dragon's paw may have five claws, but it doesn't roll five separate attacks, or do five separate wounds when it hits.) Damage from falls or falling objects is generally a single wound, but more detailed way to handle it is:

a) Roll the total damage. If you die, stop now.
b) If you survive, roll one die:
1 – All the damage is to one location.
2, 3 – Divide the damage equally between two locations (drop fractions).
4, 5 – Divide the damage equally between three locations.
6 – Divide the damage equally between four locations.

Determine the locations in the usual way. If the same location comes up more than once, it gets multiple shares. In this way, you may survive a fall with two broken legs, a broken arm and crushed ribs, or with multiple fractures to one leg (the *Crippling Injuries* rule, B127, applies).

Two forms of damage are still additive:

1) Maltreatment – deliberate or accidental – of an existing wound enlarges the original wound rather than creating a new one (see below).

2) Whole-body damage, such as from fire, exposure, disease or poison, adds into a single total for as long as the victim is exposed (to fire or a hostile environ-

ment) or ill (due to disease or poison). Again, apply common sense. A burn from a torch or a hot iron is localized, not whole-body, burning. It's up to the GM to decide whether to treat multiple magic attacks – fireballs for instance – as separate injuries or as a single, worsening burn. The latter is more realistic but considerably harder on the players.

(RPGs have always underrated the effects of injury on PCs, and nowhere more so than large-scale burns: until very recently, anyone with second-degree or worse burns over half or more of the skin surface was almost certainly doomed.)

Advanced Healing System

The system that follows is absolutely optional, and considerably more complex than the original. It was designed to make medicine, and particularly low-tech field healing by unskilled persons, a much riskier proposition than it now is, with hazards rising drastically as the severity of the wound increases. If you don't want those effects, don't use these rules.

First Aid: In the rules to follow, a *Light Wound* is defined as one of 3 hits or less, a *Serious Wound* as one of 4 to 8 hits, and a *Critical Wound* as one of 9 or more hits. 1-hit wounds are also referred to as *Superficial Wounds*. This all assumes a human with HT in the 3-18 range and about 10 hit points; for creatures with dozens of hit points, multiply the above numbers by the appropriate amount.

Bandaging by an unskilled person will reduce any one Light Wound by 1 point. If the victim's wounds are all larger than 3 points, then the bandaging will still prevent bleeding and other complications, but it will restore no lost HT.

The simpler way to handle First Aid is to use the table on p. B128 as is; the points restored may be divided among the wounds as the medic chooses.

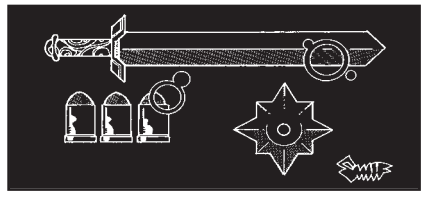
The more complicated way takes into account the rapidly increasing difficulty of treating more severe wounds in the field, and allows more options in treatment, especially where time or materials are limited. Under this system:

Medical TL	*Time per point*	*Success modifier*	*Hits restored*
0	5 min	-2	1, Light Wounds only
1	5 min	-1	1, Light or Serious Wounds
2, 3	5 min	-1	1d-4 (minimum 1)
4	5 min	0	1d-3 (minimum 1)
5	4 min	0	1d-3 (minimum 1)
6, 7	3 min	+1	1d-2 (minimum 1)
8	2 min	+3	1d-1 (minimum 1)

It is possible to treat some wounds and not others, but "partial" treatment has no effect.

A separate First Aid roll is required for each wound treated. The roll is modified by the "success modifier" for TL, and by the severity of the wound:

Superficial: +2
Light: +1
Serious: 0
Critical: -2
Victim's HT is negative: -1 additional
Victim's HT is fully negative: -2 additional



An ordinary success restores points as per the die roll. A critical success restores the maximum possible points (any excess is not applicable to other wounds).

An ordinary failure has no effect on Light or Serious Wounds; it increases a Critical Wound by 1 point. A critical failure, except a natural 18, increases the severity of a Light Wound by 1, a Serious by 2, and a Critical by 3.

Ultra-Tech Medical Drugs (Continued)

Superstim (TL8)

This drug instantly restores 1d of fatigue loss. Roll vs. HT; the fatigue is banished for hours equal to the amount the HT roll was made by (at least one). The only side effect is that when the time is up, the user gets all that fatigue back, plus 2 more.

For each dose taken within 24 hours after the first, the HT roll is at -1. If fatigue goes past 0, the extra points of fatigue lost are taken as lost HT instead. There are no other side effects. The drug is widely available. Pills (taking effect in 30 minutes) cost $25/dose. Hypos (work immediately) cost $50 per dose.

Analgine (TL9)

Also called Painaway, this drug masks pain totally for a period equal to half the user's HT in hours. Any penalties normally inflicted by extreme pain are ignored totally. A Painaway user does not roll for stun or other damage effects until his HT reaches 0, nor does he take any penalties to hit from combat wounds – he just doesn't feel the injury at all. Because of this, he may take more damage than he realizes, and suffer more in the long term. The GM rolls secretly for damage taken by the user, and doesn't tell the player what happens until his character falls over or takes time to examine his wounds.

Additionally, the user's IQ (and all related skills) are lowered by 1 point until the drug wears off.

Once the Painaway wears off, the user will feel the pain of his wounds. Further doses will keep the pain away, but each extra dose lasts one hour less than the first until it is no longer effective. Then at least 24 hours must pass before a dose can be effective. More than one dose at a time has no effect, except lowering IQ by an additional point per dose.

Unfortunately, Analgine is addictive. If more than three doses are taken in a 24-hour period, the user must roll against HT to avoid addiction. Roll again for each later dose taken within 24 hours of the last dose, until use stops. If addicted, the user needs a daily dose to avoid normal withdrawal symptoms (p. B30). There are no other side effects, except that a "ginehead" is likely to hurt himself and not notice! Starting with Analgine addiction is a 15-point disadvantage. Analgine powder can be smoked or skin-popped; it is often cut with other drugs, neutral substances or any garbage the pusher has to hand. Analgine is available as pill or injection at $50/dose.

Continued on next page . . .

Ultra-Tech Medical Drugs (Continued)

Antirad (TL9)

This medication contains a number of different drugs, with the combined effect of partial protection against radiation. Antirad can be taken before radiation exposure (up to a week before), or within an hour after exposure. One dose halves the effective amount of rads from a new exposure; two doses will halve exposure again, and so on. See p. 145, for radiation damage.

An antirad user must roll vs. (HT+3), minus the number of doses taken within the past week. A failure causes the permanent loss of 1 DX.

Antirad does not heal radiation damage, it prevents it. It comes in injectable and pill form for $150/dose.

Ascepaline (TL9)

This drug instantly – but temporarily – restores HT to its full level, no matter how much damage the victim has taken (as long as he's still conscious when he takes the drug). The user must make a HT roll. The amount by which he makes his roll plus two hours is how long he'll remain temporarily healed (minimum two hours). However, while under the influence of the drug, both ST and DX are at -2 (IQ is unaffected).

If he misses the HT roll, the drug will still work for two hours, but he'll be at -4 to ST and DX; if it's a critical failure, the drug will actually do real damage equal to half the amount he's already lost.

When the drug wears off, the user's HT will drop to what it was when he took the drug, plus any additional damage taken, plus 1 point from the drug itself. Further doses cannot be taken until after the patient has healed naturally or through other means. It comes in hypo form only at $150/dose. (Ascepaline does not attach severed limbs or regenerate nerve tissue, it just gives the user back all his hit points.)

Continued on next page . . .

A natural 18 doubles the severity of the wound. (Unskilled people shouldn't fool around in other peoples' viscera unless there's really no other hope.)

If using the *Bleeding* rules (p. B130), bleeding checks are required for each non-Superficial wound (i.e., 2 or more hits); modifiers are -1 for Serious wounds and -3 for Critical ones. These are *instead* of the modifier for total HT loss.

Also, while burns do not usually bleed significantly, the killer in large-area burns is fluid loss: therefore, whole-body burns require treatment for shock (30 minutes, as per the Bleeding rules) or the victim will lose 1 HT every hour for every 5 points of damage. (Again, this is generous: large burns are deadly.)

Natural Recovery: The victim rolls vs. HT, as per p. B128, but rolls separately for each wound. Each successful roll reduces that wound by 1 point. This will, of course, cause much faster healing in characters with many minor wounds. If this bothers you, allow the roll only every second or third day, or impose severe modifiers for any environment other than absolute rest in a quiet and sanitary location.

Medical Care: Physicians may treat multiple wounds simultaneously. For "Patients per doctor" on the table (p. B128), read "Injuries per doctor." Remember that this system is intended for PCs and very important NPCs, not masses of people. A quick system for treating large numbers (say, during a plague, or at a field hospital in a military campaign):

1) Determine a "convalescence number" for the condition: this is the number of healing cycles needed to fully recover (weeks at TL1, days at TL8). For warfare, 7 or 8 is appropriate; a plague might have any value.

2) Determine the mortality rate, as a percentage. This should be fairly low for warfare – if you're hurt lightly enough that you can return to the line after treatment, the doctors probably won't kill you. Plagues might have 80%-90% mortality but short convalescence times (if it doesn't kill you in the first few hours, you'll be fine) or low mortality but long periods of recovery before the patient can work or fight again.

3) Each cycle, each attending physician rolls vs. skill, with the GM adding modifiers for conditions, equipment, fatigue, etc. On an ordinary success, the physician loses the mortality percentage from the group he's treating. On a critical success, the percentage is reduced by 20 points. On an ordinary failure, mortality goes up by 10 points; on a critical failure, by 20 points. (Note that these changes of percentage are for this cycle only; they do not add from cycle to cycle.)

4) Reduce the convalescence number of the survivors by one. When the number reaches zero, that group of patients may return to service or work.

Healing Spells: The Minor Healing spell (see p. B161) will cure up to 3 points of Light Wounds (three 1-point, a 1-point and a 2-point, or one 3-point). It has no effect on more severe injuries.

The Major Healing spell will reduce one Light or Serious Wound by up to 8 points. It has no effect on more severe wounds, and cannot be spread among multiple wounds.

The new spell *Critical Healing* (M/VH, prerequisite Major Healing) will reduce one wound regardless of severity. It is otherwise the same as Major Healing (restores twice the fatigue spent, with the same risks for multiple castings). The three healing spells may be cast on the same person without risk. The Critical Healing magic item requires Physician skill of 25+ for non-mages, and has an energy cost of 4,000.

Another possible spell is *Heal Burns* (M/H, prerequisites Minor Healing and Resist Fire). This heals only burn damage (not heat exhaustion or sunstroke). There is no limit on the severity of burn treated, but as with other healing spells, it must be cast separately on each injury, and has the same hazards for multiple castings on the same person as the other spells. It restores 2 hits for each fatigue point spent.

Some gamers may disagree with the idea that small healing spells (such as Minor Healing) should have no effect at all on large injuries, and may feel that Minor Healing should be able to partially reduce a major wound. GMs may, of course, do it that way. The reason this is not done here is simply that a large wound is not simply a bigger version of a small one. A small, skin-deep sword cut needs mostly to be cleaned and bandaged shut until the flesh knits; better care will reduce pain and scarring, but the medic's contribution is really pretty small. A deep slash, on the other hand, may sever muscles or tendons or cut major blood vessels. Bones may break, usually not cleanly: smashing weapons can pulverize bones. A thrust or cut to the torso may hit an organ, which is real trouble. (Half the Westerns ever made have a scene where, "Y'know what happens to a man what's gut-shot." Wounds that penetrated the peritoneum were generally a death sentence until the end of the 19th century.) Serious wounds, in short, require reconstruction, not just closure.

Psionic Healing: Psionic healers (see p. B175) must make a separate attempt to heal each of the subject's wounds. (Optionally, they may attempt to heal all of the subject's Superficial Wounds.) There is, however, no limit to the severity of the wounds that they may attempt to reduce, unless this is taken as a power limitation. *Light or Serious Wounds Only* is a -20% limitation, while *Light Wounds Only* is a -40% limitation.

Option: Psionic healers who take physical damage as a side effect of healing receive it in the same location as the subject, and generally in the same form. Thus, a psi treating a broken leg would limp, while one treating blindness would be temporarily blinded himself.

Ultra-Tech Medical Drugs (Continued)

Quickheal (TL9)

A dose of this drug will heal 1d of any type of wound damage. This takes ten minutes for the drug in hypo form or one hour for a pill. The patient must also have received first aid, or at least bandaging; Quickheal won't close a gaping wound! It has no effect on HT lost to radiation, disease or poison.

If a second dose is taken within 24 hours, it may be less effective. The patient must roll vs. HT, with a -2 modifier per dose after the first in the same 24-hour period. If the roll is missed, the drug has no beneficial effect, and the patient will become nauseated and disoriented, with a -1 to both DX and IQ for 24 hours. On a critical failure, he'll take 1d of damage.

Quickheal can be found in most first-aid and medical pouches. It may be purchased legally by anyone on free worlds, and by doctors or through prescription on most others. It is abundant on the black market even on worlds where it is for some reason illegal. Injectable Quickheal is $50/dose; pills are $20/dose.

Continued on next page . . .

Partial Injuries

A realistic fact of combat is that an injury that will not cripple a body part will still decrease the effectiveness of a fighter. Usually, adrenalin will compensate for pain and injury over the first furious seconds of a fight, so most normal ***GURPS*** combats need not bother with the pain in an arm or a leg. Long tournaments with fights lasting several minutes, or a long string of separate fights, however, will last long enough to make bruises and minor sprains tell on the characters. To simulate this, GMs may wish to use the optional rules below.

A fighter can ignore the effects of all non-crippling injuries for (2xHT) seconds. At the end of that time, he will start suffering some impairment. The severity of this will be determined by the amount and location of the damage. Characters with High Pain Threshold *halve* all penalties, rounding down (so, a -1 penalty is fully ignored); a Meditation roll (see p. 142) will also halve all penalties.

Arms: A character who takes damage to an arm will lose some effectiveness in its use. If he has taken less than 1/5 HT damage, the limb is hurt but still fully functional; the character suffers pain when he uses the arm, but that is all. He is at -1 DX for any action that involves that arm; this includes using two-handed weapons. If he has taken more than 1/5 HT but less than 1/3 HT damage, the arm is severely damaged, and motor abilities are lost; he is at -3 DX, and using the arm for strenuous activities may require a Will roll (GM's decision). If the damage is more than 1/3 HT, and up to 1/2 HT (which automatically cripples the arm), the character is at -5 DX for actions involving the arm.

If any of the *Multiple Action* rules (p. 71) are being used, at least 1/3 of all the character's attacks will be at the penalties described above, because they will be using the damaged arm.

Legs: If less than 1/5 HT damage is taken to one leg, the fighter will be at -1 to kick with *either* leg (either he is using the injured leg to kick, or he is supporting his body with it!). Any action requiring the character to travel at his full Move will

require a Will roll to overcome the pain. Damage between 1/5 HT and 1/3 HT will reduce Move by 1. Kicking with the injured leg will be done at -3 DX; using the good leg to kick is done at -1 DX, but the character must make a HT roll or he will aggravate his leg injury, taking 1 point of damage. Injuries between 1/3 HT and 1/2 HT reduce Move by 3, the fighter is at -5 to kick with the injured leg, and he cannot stand on the injured leg.

Body: Body injuries can hurt combat performance. Reduce Move and DX by 1 if someone takes more than 1/2 HT damage to the body, and by 2 if he takes more than 2/3 HT damage.

Ultra-Tech Medical Drugs (Continued)

Suspend (TL9)

Suspend slows down all biological functions. Thus, it can keep a badly injured person alive longer. If it is injected into a dying person, it will retard cell death (but it must be injected before the heart stops!). A person injected with Suspend (even if he died after the injection) can be treated or frozen. He won't heal at all while on the drug, but he won't get any worse either.

Suspend takes effect in one minute; its effects last 48 hours, after which the metabolism returns to normal and deterioration of the body begins again. Each subsequent dose requires a HT roll. When a roll is failed, that dose is ineffective; Suspend will not work on that person for (30-HT) days. Injecting more than one dose at a time has no additional effect.

Suspend comes only in injectable form and costs $650/dose.

Anti-Agathics (TL10)

Anti-agathic drugs slow down the aging process. Each dose effectively stops aging for one year. (Actual aging is at a rate of about one week per year.) Unfortunately, once an individual stops taking the drugs, he must make up all the aging rolls he skipped, at a rate of one roll per week. Thus, he rapidly ages to his actual chronological age, which often results in death.

A dose of anti-agathics is actually a set of two injections and six pills, all of which must be taken within a day's time. Some societies reserve anti-agathics for leaders, key scientists, and so on. In others, they are available to anyone who can pay the price: $25,000 per dose. Black-market anti-agathics are cheaper, but may be less effective or have side effects.

Continued on next page . . .

Medical Care – Medicine by TL

The following timeline summarizes medical technology between TL4 and TL13. Below TL4, medical aid is limited to herbal remedies (see *Herbs,* p. 168), first aid (see pp. B127-128) and brute force techniques such as amputation, bleeding and drilling. Above TL13, the human body can literally be taken apart and put back together whole; assume that any wound that is not immediately fatal can be repaired effortlessly.

TL4

The *First Aid* and *Medical Care* rules on p. B127-128 give the chances for recovering from wounds or illness. Medicine is still primitive. There is no known treatment for disease or infection.

Surgery is limited to amputation, bonesetting, removing missiles from limbs and cauterizing wounds – that is, pressing a red-hot iron to the severed blood vessels to stop the bleeding. There are no surgical procedures available for the brain or for the body cavity.

There is still no concept of antisepsis, and no anaesthesia. Opium (see p. 166) is known, but only as an analgesic (painkiller). Most of the "medicines" available are ineffective; some are poisonous.

The best thing to do at TL4 is not get sick or hurt. Rapid Healing, Immunity to Disease and High Pain Threshold are excellent advantages for an adventurer.

TL5

The years of TL5 see more changes in medical technology than in all previous history. Most of this comes between 1850 and 1900. Operations that were usually fatal in 1840 are routinely successful in 1900.

Anaesthesia

After 1850, anaesthesia for surgery is commonly available in the U.S., Great Britain and Europe. It is also available to immobilize a prisoner. It normally takes up to a minute to put a cooperative patient under, and three to five minutes for an uncooperative prisoner. Inhalant anaesthetics are volatile; they must be stored in airtight containers until shortly before use.

After 1885, local anaesthetics for minor surgery are available.

Opium derivatives as soporifics have been known from antiquity (possibly from prehistory). By 1850, morphine injections for pain are well known. So are its addictive properties (see p. 166).

Note: There are effectively no laws controlling the sale, purchase or use of narcotic drugs at this time. Any drugstore in America has morphine, cocaine and heroin (p. 165) for sale. The only drugs that are smuggled are alcohol and tobacco, to avoid the taxes.

Antisepsis

After 1870, antiseptic practice in wound management greatly reduces mortality. There is no direct treatment for a contaminated wound except to flush it with antiseptic; the great life-saver is keeping the wound and treatment as sterile as possible.

Strong emphasis on cleanliness does not develop until after acceptance of the germ theory of disease. Some physicians remain skeptical about this into the 1880s.

TL6

TL6 medicine is much more likely to keep the patient alive than at any earlier time. Antisepsis and anesthesia are in wide use. Most people who go to the hospital come back out.

Antibiotics

Sulfa in the mid-1930s and penicillin in the early 1940s are the first actual cures for disease in history. Until then, medicine could treat symptoms or try to prevent infection, but not cure. Sulfa drugs are generally available in the industrialized world after 1935. Penicillin is available after 1943. At first it is available only to Allied military personnel and is in short supply. Until 1946 there is a thriving black market in penicillin, especially because it is a quick and relatively painless cure for the two common venereal diseases, syphilis and gonorrhea.

Treatment of open wounds with sulfa will prevent infection on any but a critical failure of the First Aid or Physician roll. Treatment of an ongoing infection with penicillin will cure it in 1d days except on a critical failure of the patient's HT roll. This is a relapse; the patient takes another 1d days to recover.

Plastic Surgery

After 1910 any surgeon with a specialization in cosmetic surgery can change a character's face so that it is unrecognizable. This takes a Surgery success roll and 3d+4 weeks to recuperate. On a critical failure, the surgery works but the patient now has Hideous appearance. On an ordinary failure the patient is changed but still recognizable. The 1910 price of a complete face-chance from a reputable surgeon is $1,000; from a criminal doctor, it would be a matter for negotiation. The criminal is less likely to tell the police afterwards, unless they pay him more.

Prosthetics

Artificial limbs at TL6 are considerably better than at earlier periods. (See pp. B27-29 for prosthetics and physical disadvantages.) One artificial limb costs $50 in 1900. It reduces the effect of having one leg to that of having a merely crippled leg. With two artificial legs, a legless person can walk (speed 3 at best) but not run, and is -6 to any DX roll involving staying on his feet. Jumping is impossible.

TL7

Medicine advances so fast at TL7 that most doctors cannot keep up with anything but a very narrow and specialized field. Almost any trauma can be treated if the patient can be reached quickly. Antibiotics can treat most infections. Public hygiene and inoculation end most epidemic diseases, except for a stubborn few viral plagues, in developed societies. Hearts, lungs, livers and kidneys are regularly transplanted. Severed limbs are regularly reattached. Even battlefield injuries have a better than 95% chance of recovery if the patient can be in surgery within an hour. Public health is so much improved that a disease that affects less than half of one percent of the population and is incredibly difficult to spread is described as "a terrifying plague."

Treatments that approach "science fiction" are in (or past) the laboratory stage:

Ultra-Tech Medical Drugs (Continued)

Genericillin (TL10)

This is a very powerful, general-purpose antibiotic. It doesn't treat all diseases, but it's always a good thing to try. When an unfamiliar disease is encountered, Genericillin adds 1d-1 to the effective HT of anyone rolling to resist or shake off the disease, taking effect in half an hour. When a new disease is discovered, record the bonus Genericillin provides to HT, which remains constant for every user against that specific disease. It adds 4 to HT against most Terran diseases.

Cumulative doses have no side effects, except that after a few weeks of regular use, the whites of the eyes become slightly greenish. A dose remains active in the body for about a week.

This is guaranteed to be useful for Terrans only; it is poisonous to most alien species (though some may have equivalent antibiotics). Available only to licensed physicians and medics, except when purchased in emergency medkits. It is injectable only, at $100/dose.

Purge (TL10)

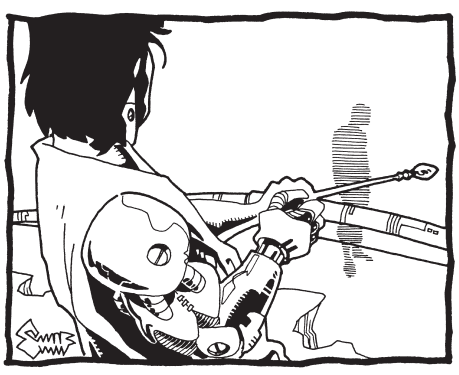
Purge cleanses the user's system of foreign biochemicals, neutralizing any active drugs (including recreational drugs and alcohol) within 2d minutes – if the user makes a HT roll. Failure means that the dose had no effect (though additional doses of Purge may); critical failure also nauseates the user (-3 DX for 1 hour).

If more than one dose of Purge is taken within 24 hours, HT rolls are at -2 per extra dose, as the user's system becomes temporarily immune to the drug.

The drug will not counteract drug addiction or cure lasting side effects (such as lost attribute points) that remain after the drug wears off. Purge has no effect on TL11+ drugs or most deadly poisons, but it will counteract sleep or paralysis gas.

Purge is safe, usually legal, and is sometimes used as a "sobriety pill" by those who can afford it. It is $20/dose in pill or injectable form.

Continued on page 161 . . .



electrical stimulation of broken bones for faster knitting, regrowth of lost digits, drugs to increase intelligence and memory retention. There are organizations which, for a fee, will freeze your corpse against the hope of a later cure. Of course, as of 1996, they can't even safely thaw it out, much less cure what was killing you. But the future holds such promise . . .

First Aid is also better at TL7. Cardiopulmonary resuscitation and rescue breathing, widely taught after 1960, are much more effective than earlier forms of resuscitation. Allow a +2 on any (non-default) First Aid roll to revive a victim of drowning or asphyxiation.

TL8

By TL8, organ transplant (even *brain* transplants!) and bionic replacement techniques enable almost any non-fatal injury to be healed. Because of this, characters in TL8+ campaigns should not be allowed to start with physical disadvantages without good justification (e.g., they are also Poor, or the damage was genetic and clone transplants are impossible). Aging has not yet been conquered, but since worn-out organs can be replaced and many diseases of old age have been cured, the human lifespan has increased significantly.

Almost every known disease can be prevented by a specific inoculation. Any space-traveling civilization will provide these as a matter of course; individuals will have to "update their shots" before travel, or have the ship's doctor do it before hitting port. A spectrum of inoculations for a new environment usually costs $20.

Unknown diseases are another matter. New planets are likely to carry their own infections which – as yet – have no known cure. Worse still are human-manufactured diseases, whether released by accident or designed for biological warfare. Developing a new vaccine is difficult and time consuming – use the *Reinventing Invention* rules on p. CI125, substituting Biochemistry for Engineering.

TL8 medical care is described in the ***GURPS Basic Set*** (p. B128).

Plastiskin

This is an antiseptic plastic patch that holds wounded flesh together. When the flesh beneath it heals sufficiently, the plastiskin patch falls off. Plastiskin is found in any TL8 first-aid kit; without it, TL8 first aid counts as TL7.

Aging

Routine improvements in medical care greatly increase the average lifespan. Anyone receiving civilized medical care at TL8 does not start making aging rolls until they reach a natural age of 70. The increases in frequency for aging rolls that normally fall at 70 and 90 years of age are also set back by 20 years each, to 90 and 110. All aging rolls are made at +5.

TL9

Most people no longer fear injury and disease. Minor wounds can be quickly healed by an injection from a first-aid kit; major disabilities are inconveniences rather than tragedies, with reliable clone transplants performed by the family doctor. Paramedics can use Suspend (p. 158) and portable automedics to keep a seriously injured person alive until given further treatment; DOA is a thing of the past. On a civilized world, accidental death either comes instantly, or it does not come at all. With braintaping, even sudden death can be conquered. The only barrier to immortality is the gradual degeneration of brain cells, which as yet cannot be regenerated.

Unhindered by gravity, zero-g chemistry and AI-aided bioengineering form complex enzymes and hormones.

TL9 first aid and long-term care is described on p. B128.

Aging

Aging rolls do not begin until age 90. Their frequency increases at age 110 and 130. All rolls are made at HT+6!

Anti-agathic drugs (see p. 158) are available, to stop aging completely – but they are experimental, uncertain and very expensive.

TL10

TL10 medical care is described in the GURPS Basic Set, p. B128. Among the many TL10 advances are the ability to store braintapes on standard computer disks rather than in bulky storage devices, and greatly improved first-aid and emergency medical techniques. Psychology is reconciled with biochemistry, as both chemical and electromagnetic techniques are developed to insert, unlock or erase memory and personality.

Aging

At TL10+, aging rolls begin at 110 and frequency increases at ages 130 and 150. All rolls are made at HT+7! Anti-agathics (see p. 158) allow aging to be effectively stopped for those who can afford the massive cost. These may lead to a stratification of society – immortals and everyone else – but if technology improves rapidly enough, within the average person's 150-year lifespan, medical science may advance to the point where anti-agathics are cheap enough for everyone!

TL11

At TL11, braintaping equipment leaves the hospital and enters the ambulance, though it is still very heavy. Easily portable micromedics enable automedic technology to go anywhere. Sensa-skin revolutionizes the field of plastic surgery, making bodysculpt unnecessary.

First-aid gear is essentially the same as at TL10, with the important addition of sensa-skin bandages (heals 2 extra hits, costs $50 and weighs 1/4 pound) to all first-aid kits.

Sensa-Skin

Sensa-skin is TL11 artificial tissue. It can be grown or formed into sections that, when applied to a living body, attach themselves and become a part of it. To apply a section of sensa-skin correctly requires a Surgery or Physician roll at -2.

Use of a sensa-skin patch in first aid will restore an additional 2 points of damage, even if the first aid consists of little more than slapping the patch on (simple bandaging). The only roll required is a DX roll to avoid attaching it in the wrong place.

TL12

The major TL12 advances are total panimmunity and regeneration, enabling missing limbs to be restored without requiring clone transplants or bionic replacement.

Most citizens in TL12 societies receive Level 2 (TL10) panimmunity free as children through government or corporate health-benefit plans. Full Level 3 panimmunity treatments are also available. (For more information on panimmunity, see p. CI28.)

TL13

TL13 first-aid gear is essentially the same as TL11. Sickbay and hospital care is far more advanced, with light and increasingly portable micromedics and regeneration fields. The *chrysalis machine,* capable of totally rebuilding the human body or even "resurrecting" the newly-dead, becomes the standard hospital treatment.

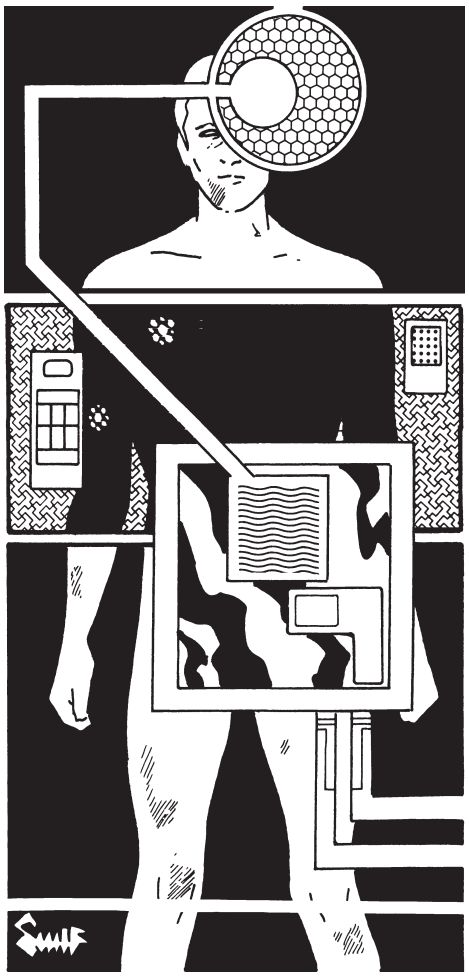
Ultra-Tech Medical Drugs (Continued)

Torpine (TL10)

Torpine puts the user into a healing trance; he becomes unconscious for 24 hours. At the end of that time, all damage taken is totally healed. However, the user comes out of the trance totally exhausted from the demands placed on his system; his ST is at 1. He will also be famished and must eat as soon as possible to fully regain ST. Superstim will not restore this loss but can be used in an emergency to break the healing trance. If this is done, the amount of HT regained is proportional to the time spent in the trance, but ST is still 1.

Because Torpine speeds up the metabolism, each use is likely to add to the user's effective age. Roll vs. HT on coming out of the trance. On a critical success, the user doesn't age. On a success, he ages by a month. On a failure, he ages by a number of months equal to the amount by which the roll was missed. A critical failure ages him by two years!

Torpine is normally only issued to doctors (though it is available on the black market). It comes only in injectable form and costs $250/dose.



Addictive Drugs

The *Addiction* and *Withdrawal* rules on p. B30 are *deadly*. While realistic for "hard" drugs such as cocaine and heroin, they are inappropriate for many others. The following optional rules can be used to solve this problem.

Minor Addiction

An addiction that is worth a mere -5 points shouldn't be particularly life-threatening. Caffeine and tobacco use fall into this category. Instead of using the *Withdrawal* rules in such cases, the GM may opt to say that the expense, social stigma or detrimental long-term effects of use are the whole of the disadvantage. Withdrawal rolls must still be made, but HT loss never results. Instead, going without the drug causes anxiety, irritability, restlessness, etc. This amounts to a -1 on DX, IQ or Reaction rolls (GM's option). Each day without the drug does not increase the size of the penalty, it just prolongs the duration.

It is also quite possible to have a 0-point addiction using the rules on p. B30. Such addictions should *always* be treated as Minor Addictions, and are taken as -1-point *quirks.*

Psychological Dependency

Some drugs, even fairly powerful ones, are not *physically* addictive, but produce strong *psychological* dependency instead. Use the rules on p. B30 for withdrawal, except that withdrawal rolls for such drugs are made against Will (maximum 13) instead of HT. Where HT damage would occur, treat each point of lost HT as -1 point of drug-related quirks and mental disadvantages *instead.* As time passes, these will build up from quirks, to minor disadvantages, to major disadvantages. The GM should pick the disadvantages; Flashbacks (p. CI90) are common. These disappear if the addict gives in and takes a dose of the drug. If the addict manages to go 14 days without the drug, he withdraws as usual – but he must make one final Will roll or he *keeps* his new quirks and disadvantages! These can be bought off normally with earned character points.

Continued on next page . . .

Drinking and Intoxication

Here we present *very* detailed rules for drinking and intoxication in ***GURPS***. These rules will *not* be needed every time a character states he's having a drink. Often it will be sufficient for the GM to hand the player the *Intoxication Table* and simply ask him how drunk his character plans to get that night. However, if alcoholic intake is an intrinsic part of a roleplaying adventure, these rules can add an extra dimension to the action: Just how drunk is your barbarian by the time the big tavern brawl starts up, and how hung over is he the next day, when it's time to leave for the adventure?

These rules will be particularly useful in ***Fantasy, Swashbucklers*** and ***Old West*** campaigns. They will also be useful in cinematic ***Espionage*** games; note that the rules for alcohol given on p. ES62 are simplistic, and do *not* agree with the rules below.

Alcohol Rating

Each beverage is assigned an *alcohol rating* from 1 to 20, with a 1 to 2 for ale, beer, porter or stout, a 2 to 3 for most wine, a 3 to 5 for most fortified wines, and an 8 to 11 for spirits. In general, the alcohol rating will be equal to 1/5 of the drink's alcohol percentage, rounded up; i.e., pure alcohol would have a rating of 20. See the *Alcohol Content Table* for the strength of some typical beverages. This rating is then multiplied by the number of ounces of liquid in each serving, to give an alcohol rating *per round*. In a pub, serving size is typically 12 to 16 oz. for beer, 4 oz. for wine and 1 oz. for spirits.

When drinking, this should be recorded by the player, and each subsequent drink should be added to it in a running total. For example, if a drinker has two 12-oz. mugs of strong beer (alcohol rating 2, for a per-round rating of 24), his total should read 48.

Alcohol Content Table

The following is a table listing the most common types of alcoholic beverage and their typical alcohol percentages. Conveniently, most alcoholic *drinks* contain approximately the same amount of alcohol (one 12-oz. beer = one 4-oz. glass of wine = one 4-oz. mixed drink = one 1-oz. shot = 1/2 ounce of pure alcohol).

Beverage	*Percentage*	*AlcoholRating (per oz.)*
Beer, dark	8-9%	2
Beer, light	2%	1
Beer, normal	4%	1
Brandy	35-40%	7-8
Everclear (pure alcohol)	95%	19
Gin	40-50%	8-10
Moonshine	60-85%	12-17
Most Liqueurs	20-40%	4-8
Rum	40-50%	8-10
Schnapps	30-40%	6-8
Sherry	20%	4
Tequila	40-50%	8-10
Vodka	40-60%	8-12
Whiskey	45-60%	9-12
Wine, cheap	10%	2
Wine, fortified	25%	5
Wine, port	20%	4
Wine, table	12-15%	2-3

Tolerance

Each character has a *Tolerance* for alcohol, equal to twice his HT. The *Alcohol Tolerance* advantage increases your Tolerance level by 5 (see p. CI19). Certain disadvantages give additional modifiers:

Dwarfism: Anyone with Dwarfism automatically has a -5 to his Tolerance.

Gigantism: Gigantism adds +8 to Tolerance.

Fat: A character with the -10 point version of Fat gets a +5 to his Tolerance, or +10 if he has the -20 point version.

Overweight: The Overweight disadvantage gives a +3 to Tolerance.

Skinny: A Skinny character gets a -3 to his Tolerance.

Note that female characters (human ones) should reduce their calculated Tolerance by 40% (round up). Variations in nonhuman Tolerance is up to the GM.

Each time a drinker's total intake reaches a multiple of his Tolerance, he rolls 1d and divides the roll by 2, rounding up, to produce a result between 1 and 3. This roll determines the drinker's current position on the *Intoxication Table* (below). For every roll beyond the first, apply a cumulative +1 per roll; i.e., add +1 to the result of the second roll, +2 to the result of the third roll, and so on . . .

Example: Shorty Steinitz has a HT of 10 and a normal metabolism, so his Tolerance is 2 × 10, or 20. Suppose he drank those two 12-ounce beers. After the first one, he would make an unmodified Intoxication Roll (because it's his first roll). The second beer would make his total consumption 48, which is another multiple of his Tolerance, so he'd roll again – this time at +1. His next roll, if he continues to drink, would be at +2, his forth roll at +3, and so on.

As long as one continues to drink, one's Intoxication Level can *only go up,* never down. In our example, say that Shorty rolled a 3 on his first roll: "Cheerful/Mellow." His second roll is a 1, with +1 for being the second roll, giving a 2. This is a result in the "Not intoxicated" range, but he does *not* sober up – he remains at Level 3. If his third roll is a 1, with a +2 now, giving a 3, his Intoxication Level will not change, but if he rolls a 2 or 3, his Intoxication Level will increase to the indicated level.

It is possible to skip levels on the table below, going (for instance) directly from Level 5 to Level 7. If you skip a step, ignore its special effects – for instance, if you skip step 9, you're much less likely to vomit.

Intoxication Table

1 or 2. Not intoxicated.

3. Cheerful/Mellow

Your current mood is pleasantly heightened. +1 to all IQ-based rolls in any pursuit requiring creativity or imagination. -1 to all Will rolls.

4. Elated

You start to act a bit silly. -2 to all Will rolls, lose the +1 for creative pursuits.

5. Boisterous

You are loud and restless. -3 to Will Rolls, -1 to other IQ rolls and IQ-based skills. -1 to rolls vs. DX or DX-based skills.

6. Unsteady

The alcohol begins to affect your reflexes and perceptions. -3 to Will Rolls, -2 to IQ and DX rolls.

7. Drowsy

You become lethargic and pensive. -3 to IQ rolls (including Will rolls), -3 to DX rolls. Make a HT roll to stay awake. If you fail, you doze off, or feel so sleepy that you leave the party.

Addictive Drugs (Continued)

Below is a short list of drugs for use with the Addiction disadvantage, along with brief descriptions of their effects. Other poisons can be found in Chapter 5 (p. 137); alcohol is treated separately in the main text (p. 162).

Amphetamines

Amphetamines (sometimes referred to as "uppers" or "speed") are stimulants, available at TL6+. They are appetite suppressants, and instantly restore 1d of fatigue loss. Roll versus HT; the fatigue is banished for a number of hours equal to half the amount the roll was made by (at least one). When the time is up, the user gets all that fatigue back, plus 2 more.

For each dose taken within 24 hours after the first, the HT roll is at -1. Large and frequent doses produce exhilaration, and depression can occur when usage ceases. If fatigue goes below 0, the extra points of fatigue lost are taken as lost HT instead. If HT falls to 0, the user suffers a heart attack, blacking out for 1d minutes and taking 3d damage.

Amphetamines are cheap, only slightly addictive and (before late TL7) socially acceptable. Amphetamine addiction is worth no points unless amphetamines are illegal, in which case it is a -5-point disadvantage.

Continued on next page . . .

Addictive Drugs (Continued)

Barbiturates

These are habit-forming drugs used as sedatives and hypnotics; to induce sleep, relieve anxiety and neuroses by inducing drowsiness; and control epileptic seizures. Taken to cause a state of euphoria, barbiturates are among the most widely abused drugs. Sometimes they are used in suicide attempts.

Barbiturates act to depress the central nervous system. The rate at which they work varies widely. Some, such as amobarbital, enter the brain slowly and are used as anxiety reliefs. Others, such as secobarbital, work faster and are used as sleeping pills. Very fast barbiturates, such as thiopental, cause sleep in seconds; these are used as adjuncts to anaesthesia and as knockout drops ("Mickey Finns").

Barbiturates cause a loss of 1 to 6 points of DX and IQ, the amount and duration depending on exact composition, as they impair judgment and motor control. Other depressants – such as alcohol and tranquilizers – cause synergy, increasing the effects of all drugs concerned. An overdose results in coma and death. The human body develops a tolerance for barbiturates, requiring larger doses to produce the same effect.

Barbiturates are cheap, highly addictive and usually illegal, worth -10 points as an addiction – or -20 points if the user routinely incapacitates himself (meaning he is rendered unconscious).

Continued on next page . . .

8. Weaving

Your reflexes and responses are seriously impaired. You can't walk straight or carry on a coherent conversation. -3 to IQ and Will rolls, -5 to DX rolls. Make a HT roll at -2. If you fail, you doze off, or feel so sleepy that you leave the party.

9. Vomit

You become physically ill. You may avoid vomiting on a roll vs. HT-3, but *only* if you stop drinking entirely for the rest of the night – if you continue drinking, you *will* vomit. On a critical failure, you are unable to make it to a rest room, alley or similar appropriate place without throwing up. Whether you actually vomit or not, you don't feel well – you must make a Will roll (at current penalties, as #6, above) to continue drinking, unless you are an alcoholic or distraught (see below), in which case you must make a Will roll to *stop*.

10. Surly/Spacey

If you're in a good mood (see below) you become giddy and incoherent – you think everybody is your best friend. If you're in a foul mood, you become paranoid, and will snap at anybody who tries to approach you. You do not feel well – make an unmodified HT roll to avoid vomiting, then another (whether you vomit or not). If you fail the second HT roll you find yourself losing consciousness – you will pass out in no more than 3d×10 minutes, or whenever you get to a place where you can rest, whichever comes first. You will remain unconscious for 2d+6 hours. If you make the second HT roll, you may make a Will roll (at current minuses) to continue drinking, unless you're an Alcoholic or distraught (see below), in which case you have to make the Will roll to *stop* drinking.

11. Belligerent/Out of It

If your mood is good, you enter an unresponsive, "blissed-out" state. You must make an IQ roll at current minuses to notice even things which directly affect you (somebody is speaking to you, somebody is stealing your wallet, the building is on fire). If your mood is bad you become belligerent, behaving as though you had the Bully disadvantage, and challenging all comers to fight. If you get in a fight, you're at -3 to all attack rolls and active defenses (yes, your DX is higher if you're in a belligerent state than if you're equally drunk but not belligerent – adrenaline), but you take punishment as though you had High Pain Threshold.

After 2d×10 minutes of this behavior (or if physically restrained for more than 1d minutes), you must make two HT rolls and a Will roll as above. If you fail the second HT roll, you will lose consciousness in no more than 2d×10 minutes. If you make all three rolls, you continue drinking and behaving in a belligerent/out of it fashion until you come to your next Intoxication Roll.

12. Violent/Delusional

You become temporarily unhinged by the alcohol. Make a Will roll at current penalties. If you succeed, you realize that the alcohol is making you crazy. You stop drinking and go home to bed. If you fail, roll 1d:

On a 1-3 you start breaking glass, turning over tables and generally destroying everything in sight. If anybody tries to stop you, you will attack them as though you were Berserk. After 3d minutes of destruction, or after winning a fight, you must make two HT rolls and a Will roll as #10, above, to see if you remain conscious and continue drinking. If you fail the second HT roll you will lose consciousness after 3d minutes. If you make the second HT roll, you will demand more alcohol and drink yourself to your next Intoxication Roll. If alcohol is withheld, you will fly into another destructive rage.

On a 4-6 you are menaced by bizarre and threatening hallucinations. The GM will tell you what you *think* you see, and you will react as though it were real. If you're lucky you might just flail around a lot and look like a crazy fool, but you might also destroy property and injure yourself or others in your struggle to escape or destroy the hallucinations.

13. Pass Out

You pass out cold. You may make a roll vs. HT-3 to stay conscious for an additional 1d minutes – long enough to stretch out on a car seat, floor or gutter. Otherwise you pass out right where you are, possibly taking damage from falling off your barstool. Once you're asleep, you must make a final HT roll to avoid vomiting. Vomiting will not wake you up. If you vomit while passed out, roll 1d. If you roll a 6, you are choking on your own vomit – you immediately begin suffocating as per the rules on p. B122. You will die unless somebody else clears your windpipe for you (successful First Aid roll or default at +5 required). Barring tragedy, you will sleep for 2d+9 hours.

14. Alcoholic Coma

You go into an alcoholic coma. While in the coma, you must make a HT roll every 10 minutes. Each failed roll reduces your HT by a further -1. For each full 6 points of HT lost, you *permanently* lose 1 point of IQ. If HT reaches -HT, you die.

You must continue rolling until: 1) the alcohol is purged from your system via a stomach pump, nauseant or equivalent treatment; 2) you make a critical success on the HT roll; 3) you die.

If you haven't vomited yet during your drinking bout (and you don't have the Susceptibility to Poison disadvantage), someone else can induce vomiting (successful First Aid roll required), which will let you roll vs. HT. If you succeed, you will take 1d-3 points damage from the shock to your system, but will otherwise simply be passed out, as above. If not, you will be in very serious danger of death unless you get medical attention.

Special Modifiers

Certain advantages, disadvantages and skills can affect the outcome of a bout of drinking:

Alcohol-Related Quirks: See p. CI79. You are subject to various minor inconveniences or embarrassments when you drink.

Alcohol Tolerance: Increases your Tolerance level. See p. CI19.

Alcoholism: Alcoholics roll on the Intoxication Table normally (except as noted above), except they must check on their first drink to see if it triggers a binge (see p. B30). An alcoholic on a binge will always drink to at least Intoxication Level 9 if he can, after which he *may* feel bad enough to stop. However, while most people have to make Will rolls to *continue* drinking past the point where they become ill, an alcoholic (whether he's on a binge or not) must make a Will roll to *stop.* Alcoholics will very often drink until they pass out.

Carousing: Any time a HT or Will roll is called for on the Intoxication Table, the drinker may substitute his Carousing skill level (but remember that Will rolls cannot be more than 13, regardless of IQ or – in this instance – Carousing skill).

Susceptibility to Poison: See p. CI84.

Shyness & Cowardice

Alcohol tends to make one more outgoing. Shy characters reduce the severity of their shyness by -1 level per Intoxication Level, beginning at Level 5: Boisterous. For this purpose there are considered to be four levels of shyness:

Addictive Drugs (Continued)

Heroin

Heroin is an opium (see p. 166) derivative. It is a powerful depressant that effectively incapacitates the user. An overdose (often the result of using heroin of unknown purity) causes coma and death. Heroin is *very* expensive in its pure form, but it is usually "cut" with filler before being sold. It is not unheard of for the filler itself to be poisonous, which can also result in incapacitation or death.

Heroin is expensive, incapacitating, totally addictive and illegal; an addict has a -40-point disadvantage. The player and GM should be aware that heroin addiction will eventually kill the character, one way or another, unless he seeks professional help to withdraw.

LSD

LSD causes disorientation and hallucinations which render the victim temporarily ineffective, and which may induce fits of paranoia and delusions. The effects last for two hours. During this period, whenever the victim must make a roll of any sort, he must first attempt a Will roll. If the Will roll fails, the victim experiences a hallucinatory experience preventing him from performing the desired action. Furthermore, on a critical failure, the victim will suffer a flashback hallucination whenever exposed to the same event (the GM may want to assign the character the Flashbacks disadvantage, p. CI90). The GM may invent specific details of hallucinations, if desired.

LSD is not *physically* addictive (no penalty to withdrawal rolls), but some users develop *psychological* dependency. LSD is cheap, hallucinogenic and usually illegal. LSD dependence is worth -15 points as a disadvantage.

Mescaline

This drug, originally discovered in a small cactus called the *peyote,* is used in some Indian ceremonies in the American Southwest and Mexico. At TL7+, the purified drug is often sold on the street. Use the rules for LSD (above), except that flashbacks are not common.

Purified or synthetic mescaline is cheap, hallucinogenic, but not physically addictive (no penalty to withdrawal rolls). However, psychological dependency (similar to LSD, above) can develop, and is treated as an addiction worth -15 points.

At TL5-, some American Indians have a peyote habit. Collection of wild peyote is time-consuming, making it difficult to obtain – treat it as if it were "expensive." On the other hand, use is generally socially acceptable. A peyote habit is worth -25 points as an addiction.

Continued on next page . . .

Addictive Drugs (Continued)

Morphine

Morphine, like heroin (see p. 165), is an opium derivative. It became common during and after the American Civil War. Many soldiers, given morphine for pain, became addicted. It usually taken as patent medicine or (especially at TL6+) injected. Like heroin, morphine is a depressant, and an overdose can lead to death. However, it is not usually as incapacitating as heroin; use the rules given under *Barbiturates* for the disorienting effects of morphine.

Morphine is totally addictive. If legal, morphine addiction is worth -10, -15 or -25 points for casual, habitual and heavy users respectively. Add another -5 points if morphine is illegal.

Opium

Opium is a depressant, derived from poppies. It is fairly inexpensive throughout most of the 19th century and is sold by doctors, druggists, grocers and mail-order houses. It is often taken in patent medicines, as laudanum (opium in alcohol) or smoked.

Opium is highly addictive. Users may develop tolerance to opium, drastically increasing the daily dose required. Most casual users have a -5-point addiction. Habitual users may have an opium addiction for -10 points. The addiction is worth -20 points for heavy users with high tolerance. Add -5 points to all of the above if opium is illegal.

Tobacco

Tobacco is one of the most common addictive drugs on Earth at TL5+. Its worst short-term effects are wheezing and coughing, although long-term use is often detrimental to a character's health.

Tobacco is cheap, highly addictive and almost always legal. Tobacco addiction is worth -5 points.

Crippling, Severe, Mild and quirk. Thus even the shyest individual is able to function normally by the time he reaches Intoxication Level 8.

Those with the Cowardice disadvantage may forget about their disadvantage entirely at Intoxication Level 10+. Cowardice will *not* restrain a drunk's unpleasant or violent behavior at levels 8-10.

Other Modifiers

Drugs: Anyone drinking alcohol while under the influence of drugs will be at +1 to +10 to all Intoxication Rolls. +1 might be a mild over-the-counter cold remedy, and +10 would be a powerful mind-altering drug like PCP or cocaine. Certain drugs may be treated as poisons when mixed with alcohol, at the GM's discretion.

Eating: If a drinker eats at least one ounce of solid food between Intoxication Rolls, he gets a -1 to his next roll. Eating larger quantities of food will not increase this modifier.

Empty Stomach: If a drinker has not eaten a meal in the last 6 hours, he is at +2 to all Intoxication Rolls.

Pacing Oneself: A careful carouser my declare before he starts drinking that he is "pacing himself." This means that he is drinking no more alcohol than his Tolerance each hour. In addition to making fewer Intoxication Rolls than those who aren't pacing themselves, he will receive a -2 modifier on each Intoxication Roll. Anyone drinking only beverages with an alcohol rating of 1 is automatically considered to be pacing himself – a human can drink only so much liquid. Alcoholics on a binge, or distraught individuals (see below), may not pace themselves.

Physical Exertion: One who has been exerting himself physically (for example, doing an hour or more of heavy labor, or getting into a fight of any length) will get a -2 to all Intoxication Rolls for the first *hour* after he stops exerting himself – his metabolism is working faster, and processing the alcohol more efficiently.

The GM may assess further modifiers for any other special circumstances which may arise.

Determining Mood

At Intoxication Levels 10 and 11, the mood of the drinker becomes very important. The GM may require a drinker who reaches these levels to roll 1d. On a 1-3, the drinker's mood is fair, on a 4-6 it's foul. This roll can be modified by plus or minus 1-5, depending on the character's mood when he started drinking, and events that happened during the evening. For instance, getting mugged or cheated would give someone a foul mood, while receiving a cash bonus or being with an attractive member of the opposite sex would tend to make one cheerful. However, a natural roll of 1 *always* indicates a good mood, and a natural 6 is *always* a bad mood, regardless of other modifiers.

Individuals with the disadvantages Bully, Bad Temper or Berserk will always be on the violent side, unless they roll a natural 1 – other modifiers are irrelevant. Also, a character with none of the above disadvantages may take the quirk Surly Drunk, which likewise ensures that he will become unpleasant except on a natural 1. Those with the Pacifism disadvantage will get a -2 to all die rolls, and characters with the Common Sense advantage will become unpleasant only on a natural 6. A drinker should reroll his mood each time he passes a new Tolerance multiple, since dramatic mood swings are a hallmark of the extreme drunk.

A carouser who's this drunk is *not* in complete control of his actions. The GM is free to dictate a PC's behavior, if he feels the player is not adequately roleplaying his character's drunkenness – for example, backing off from a fight just because the odds are bad when he's supposed to be belligerent, or taking an active part in the proceedings when he's supposed to be surly, or not reacting appropriately to hallucinations.

Drinking While Distraught

At certain times, one may become mentally distraught. Possible reasons for such a state might be the recent loss of a Ally, Patron or Dependent, inadvertently but thoroughly breaking a Vow or violating a Code of Honor or Sense of Duty, or rolling a 20 or more on the Fright Check Table in the recent past.

A distraught individual will find his ability to drink responsibly greatly impaired. Once he starts to drink he will continue to drink (assuming that alcohol remains available) to at least level 6 on the Intoxication Table, and even then he must make a Will roll (at current minuses) to stop drinking, or drink until he passes out. The drinker can try a new Will roll each time he makes a new Intoxication Roll.

If the GM rules that the character is in a distraught state, and he has nothing else to do to take his mind off his problems, the GM can mandate that he make a Will roll or seek out a bar and begin a drinking spree.

Sobering Up

The only way to sober up is to stop drinking. For each half hour that a character refrains from drinking anything at all, he makes a HT roll. If he succeeds, his Intoxication Level decreases by 1. A character in the process of sobering up does *not* need to make any additional HT or IQ rolls as his Intoxication Level decreases – he just gradually loses his attribute penalties.

Sobering Shock

News or an event of a particularly shocking nature can reduce a drinker's Intoxication Level immediately, as his body floods with adrenaline. If a carouser receives some shocking news (a loved one is sick or in danger, his house is on fire), or becomes involved in an emergency situation (he's violently attacked, or the building he's in catches fire), his Intoxication Level will immediately drop by -3, at the GM's discretion.

Hangovers

If a drinker overindulges in alcohol, he'll probably end up with a hangover (unless he has the No Hangover advantage; see p. CI28). Any time a carouser achieves a value of 2 or greater on the Intoxication Table, he risks a hangover when he stops.

To check for hangover, the drinker must roll 1d+3 at the end of each drinking session. If this roll is equal to or less then the highest (not necessarily last) Intoxication Level of the session, the character has a hangover. The hangover kicks in 1d hours after the end of the drinking session, or on awakening, if he fell asleep before the hangover began. It will last 1 hour for each point by which the hangover roll was missed (minimum 1).

Hair of the dog that bit you, a single stiff drink taken immediately upon awakening, will reduce this time by an hour (drinking more than one drink will not add to this effect, only make the victim drunk again, putting off the hangover). Other, more elaborate remedies may have a more dramatic effect, at the GM's discretion.

A hung-over character will be at a cumulative -1 to all IQ- and DX-based rolls per each hour's duration of the hangover. Thus, someone with a 4-hour hangover will start the day at -4 to DX and IQ. This penalty decreases by one point hourly as the hangover progresses.

A non-aspirin, over-the-counter pain reliever will give a +2 modifier to this penalty beginning 1/2 hour after it's taken, and cuts the time of the hangover down by an equivalent amount. (The modifier is +3 if it's taken *between* the end of the drinking bout and the onset of the hangover, but the GM should require both an IQ and a Will roll at current penalties for the drunk to remember to take it without a reminder from a sober friend, and to actually motivate himself to take it.) Aspirin is

Illness

Below is a selection of illnesses that characters may experience during their travels.

Beriberi

This disease is caused by Vitamin B deficiency; it is not spread by microbes and is not contagious. In pre-modern cultures, it usually strikes high status people – those whose diet is not based on cheaper foods such as vegetables and barley. The GM should make an annual HT roll for characters who eat such a "high status" diet. Failure means an attack of beriberi.

An attack typically lasts 5d days. During the attack, the sufferer suffers 3 times as much fatigue as he normally would. He cannot regain lost ST points by resting; he only recovers 1 ST per full night of sleep (see p. B134). An attack of beriberi causes loss of 1 HT point for 1d months. A character who has suffered an attack must make a *monthly* HT roll to avoid further attacks, until he changes his diet.

Modern vitamin supplements can eliminate all danger of beriberi.

Continued on next page . . .

Illness (Continued)

Bubonic Plague

Early symptoms are shivering, vomiting, headache, giddiness, and intolerance to light. Left untreated, the pain spreads to the back and limbs and the victim becomes sleepless, apathetic or delirious. Body temperature rises drastically. The most characteristic sign is the appearance of buboes, large purple welts on the arms and back. If a character does not know that the plague is in the region, a successful Diagnosis+2 roll will reveal what is happening on first sight of a buboed victim. The plague is rare on Earth, but all doctors learn about it.

Roll against HT+2 each day a person is in a plague-infected region (see p. B133 for modifiers to this roll). A successful roll means the character avoided contracting the disease; a critical success means the character is immune and no longer needs to make daily health checks. A failure means the character has contracted the plague; a critical failure indicates a very severe case, with doubled effects.

An infected victim will fall sick within 24 hours. For each day of the disease, roll against HT. A critical success indicates recovery. Success means the victim remains stable. Two consecutive successes allow him to regain a point of HT. Three consecutive successes mean the victim is over the disease and may regain HT normally. Failure means the victim loses 1d of HT, DX, ST, and IQ, rolling separately. ST, DX and IQ will not be reduced below 3 and will be regained at the same rate that HT is regained, should the victim recover. A critical failure indicates a loss of 2d HT and separate rolls for each stat as per failure. A loss of half the victim's starting IQ means he's become delirious.

In a low-tech setting, a plague city will be full of quacks with false cures and preventatives. A successful Physician roll will reveal any such nostrum to be false, though visitors must be careful who they denounce. At higher Tech Levels (TL6+), the plague can be prevented, treated and possibly cured. Ultra-tech medicine (TL8+) will reduce the plague to at most a minor inconvenience. Magical or psionic cures work as well against the plague as against any other disease.

Continued on next page . . .

even more effective than other pain relievers, but can severely upset the sensitive stomach lining of a hung-over character.

A character may take the quirk Horrible Hangovers, which adds -3 to the attribute penalty and duration of all hangovers. (GMs may allow anyone with Alcoholism or Compulsive Behavior: Heavy Drinking to take Horrible Hangovers as a -5 point disadvantage.)

Example: Billy Joe Bob drinks himself to the *Belligerent/Out of it* stage (#11) before he stops drinking and goes to sleep. He rolls a 5 on his hangover roll (missing his Intoxication Level by 6), so when he wakes up, he's got a doozy. When he gets out of bed, he's at -6 to DX and IQ. He stumbles to the kitchen and takes some ibuprofen (+2) and washes it down with a shot of bourbon (+1); in half an hour, he's down to only -3 penalties. After three more hours, he's back to normal.

Hyperaesthesia

Hung-over individuals are more susceptible to pain than normal. Any sudden or shocking sensory input – a flash of light, a loud noise, a slap on the back – will be intensely painful. The sufferer must make a Will roll (at current minuses) or be mentally stunned for 1 turn.

Those who actually take damage while hung-over must make a Will roll or be mentally stunned for a number of turns equal to their current IQ/DX penalty. Even if they make this roll, they should add their current IQ/DX penalty to their normal penalty to combat skills next turn.

Hangover sufferers with High Pain Threshold have normal penalties to DX and IQ, but may ignore the effects of hyperaesthesia. Likewise, those with the Light Hangover advantage (p. CI27) do not suffer from hyperaesthesia.

HERBS

Herbs are a staple of low-tech campaigns, especially in fantasy settings. The following are some general guidelines for the GM who wishes to introduce herbs into his campaign, as well as a few specific examples.

Use of Herbs

The use of herbs is a mixture of techniques and effects. Certain herbs in small quantities can cure diseases and bodily ills, but in larger doses can kill. Some herbs soothe; others madden. An adventurer takes a risk in gathering herbs without someone trained in herb-lore to advise him.

Herbs can be used in any or all of the following ways: as a poison or as an antidote to a poison, as a preventative or cure for a disease, as protection against magic, or as an aid in spell casting.

Poisons

Poisons can be made from many herbs; these are generally contact, blood or digestive agents (see p. B132). In addition, some herbs are poisons in their natural form.

Some herbs can be used as antidotes to poisons. The effect of an antidote varies depending on how soon it is taken after the poisoning. If taken before the effects of a poison begin to show, an antidote will usually allow a second HT roll to avoid the effects of the poison. This HT roll may be at +1 or +2 depending on the strength of the antidote. If taken after the poison has taken effect, the antidote will reduce the intensity and/or the duration of the effects.

Disease

Some herbs can be used as preventatives and/or as cures for diseases. When used to prevent a contagious disease, the herb gives a bonus to the HT roll to avoid

contracting the disease (see p. B133). When used to cure a disease, the appropriate herb will give a bonus to the HT rolls for recovery (see p. B133).

In order to know what herb to use as a preventative or cure for a specific disease, it is necessary not only to know what herbs work against what diseases but also what disease a person has; this requires a successful Diagnosis roll. A Diagnosis roll is not needed before using a general remedy, if you are fortunate enough to have one.

Protection

Herbs can sometimes be used – even by non-mages – as protection against magic. The herbs available for this, and the use of such herbs, will depend on the campaign world.

Spell-Casting

Some spells require the use of herbs in order to be effective. Other spells work quite well alone but are strengthened by the introduction of the proper herbs. And while many spells do not require the use of herbs in the casting, many practitioners are inclined to throw in a few herbs anyway on the theory that it couldn't hurt.

In addition, some herbs can be used to achieve magical effects without the use of spells. These herbs will work for anyone – with or without Magical Aptitude – unless they have Magic Resistance.

Finding Herbs

Each herb should be categorized as *Common, Average, Rare* or *Very Rare*. In order to find a particular herb growing in the wild, it is first necessary for the GM to decide if the character is looking in an area where the herb might be growing.

If a specific herb is present in the local area, a character can find it by making a successful Naturalist or, at TL3 and lower, Physician (also known as *Herbary* – see p. CI150) roll. The GM normally makes the roll in secret; if the character does not find the herb, the GM does not tell whether the roll was missed or if he was just looking in an area where it didn't grow.

Anyone looking for a particular herb makes a roll against his Naturalist or Physician skill to represent a complete day's search. The Poisons skill may be substituted for the Naturalist skill when dealing with an herbal poison or antidote. Acute Taste and Smell also add +1 to the recognition roll. GMs should use the following guidelines when determining whether or not a given herb is found in a particular area:

Common – grows in most places, easy to locate. Roll against skill+3.

Average – grows in many places, relatively easy to locate. Roll against skill.

Rare – grows in few places, relatively difficult to locate. Roll against skill-3. The only success on a default roll is a natural 3.

Very Rare – grows in very few places, very difficult to locate. Roll against skill-6. Such an herb can never be located on a default roll, even on a natural 3.

Preparing Herbs For Use

Fresh or dried herbs are used in medicines or made into protective charms. Before use, herbs need to be prepared. They can be brewed into teas or decoctions or used directly in their natural form.

Other herb mixtures are made into protective charms and worn. These must be renewed periodically as they lose effectiveness either from the herbs crumbling away or from being exposed to so much "evil" they reach their limits of absorption.

Dried Herbs

Leaves and flowers must be dried for at least two weeks in a well-ventilated area. They are then measured into doses and made into packets. Most dried herbs

Illness (Continued)

Cholera

Cholera may be contracted from contaminated water or food. The GM rolls against the character's HT, with no modifier – infection takes place on a failed roll. After an incubation period of 1d-3 days, the victim will suddenly produce 3-4 gallons of watery diarrhea, followed shortly by vomiting. He will dehydrate so rapidly that his flesh shrivels. Cramps and cold, clammy skin, come next – he will soon be too weak to move.

Victims of cholera roll against HT each day they suffer symptoms. A critical failure results in death. On a normal failure, the patient loses 4 HT and 4 ST. If either drops below 0, death results. As death is caused by dehydration rather than the disease itself, the HT roll is at +1 for each gallon of water the victim can drink that day, for a maximum bonus of +4. Drinking alcohol, tea, or coffee doesn't affect the HT roll.

The disease will run its course in 1d+1 days.

Jungle Fever

This is a generic term for any of a number of tropical diseases that are not clearly understood, mostly at TL5 or lower. Characters born in Europe or North America must always make a HT roll to check for fever when first encountering a tropical jungle, if using these rules. This will even apply when returning to jungles successfully negotiated before.

Protracted stays require a HT roll per week. Treat Fever as an ordinary disease as covered on p. B133. No special modifiers apply, HT loss is -1/day, ST loss and recovery is up to the GM, though there should always be at least one day of severe weakness. Symptoms include extreme weakness, general muscular aches, fever, chills, loss of appetite and hallucinations.

Cinchona (called Peruvian bark or Jesuit's bark) is both a treatment and a prophylactic for fever. It comes only from the Eastern slope of the Andes. Knowing about cinchona is rare and valuable. One dose restores one HT in one day, but never to more than beginning HT. At TL6+, synthetic drugs become available that can produce the same effect.

Leprosy

This disease creates numb areas in which the victim does not notice an injury. Leprosy's major effects are to general health (a leper may not have a basic HT over 12) and Appearance (a leper must make a yearly HT roll to see if the disease has affected appearance; use the same rules as for smallpox scarring, p. 172). Leprosy is a very difficult disease to catch; even years of exposure to victims will not necessarily transmit the disease. It is most contagious in tropical areas and in conditions of filth.

Continued on next page . . .

Illness (Continued)

Malaria

Malaria was once endemic among adventurers; a man without malaria was obviously a stay-at-home.

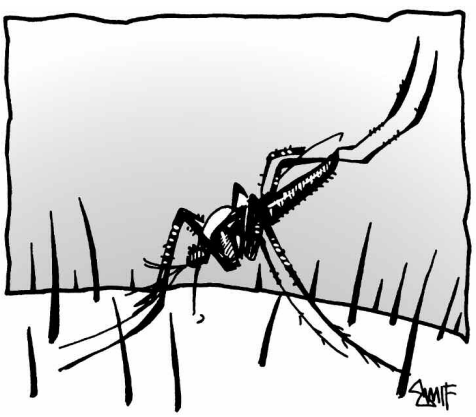
Anyone traveling in tropical and subtropical areas (Egypt, the Mediterranean, Africa, Central or South America, the wetter parts of southern North America, southern China, Indochina) may be stricken with malaria, a protozoan disease spread by over 100 species of mosquito. Roll three dice once for each week spent in a malaria-infested region. A roll of 6 or less means the victim has contracted the disease and symptoms will show in 3d+54 hours. High health gives no resistance to malaria; the protozoa *prefer* a healthy host.

Modifiers: +1 if insect repellents are used regularly; +1 if the victim uses mosquito netting at night; +2 if he takes a prophylactic dose of quinine every day; -1 to -3 (GM's discretion) if the traveler is in mosquito-infested swamps.

A malarial attack lasts 1d+6 hours. Symptoms include chills and a high fever followed by headaches, nausea and profuse sweating. After each attack the victim will return to normal for 48 to 72 hours, then another attack will occur. The sufferer is incapacitated (delirious, unable to move or fight and alternately burning with fever and racked with tooth-chattering chills) during these attacks. Between attacks the victim is weak (-2 to ST) and has little endurance (double all fatigue costs). Malaria is treated with quinine. Roll against HT-2 each day that quinine is administered; on a success, the series of attacks stops. If no quinine is available, roll every day against HT-8. Untreated malaria will prove fatal on a natural 18.

Malaria can incubate for years in an apparently healthy individual. Anyone who has ever had malaria can have another attack at the GM's discretion. Malarial attacks always seem to happen at the most embarrassing time. There is no immunization for malaria.

Continued on next page . . .



keep their potency for a long time; there is only a 50% chance each year that an herb will lose its potency if exposed to air. Powders mixed with food or drink will last a month; dried herbs mixed with food or drink last two weeks – if the food or drink does.

Teas

Teas usually require the amount of dried leaves or petals that can be held in the palm of one hand (about one tablespoon). Steep in a pot of hot water (about one quart) for five minutes. This makes four doses. The tea must be drunk while hot – if cooled and reheated its effects are halved.

Decoctions

Decoctions are made by boiling fresh herbs (leaves, stems, roots, flowers or berries as required) in a pot of water for about 30 minutes. Four handfuls are required in 1/2 gallon of water; this is reduced by boiling to one quart or eight doses. Decoctions last longer than teas – one day if kept exposed to the air, or two weeks if kept in an airtight container. Decoctions can be taken either hot or cold, with the same effects.

Poultices

Poultices are made from decoctions by soaking a bandage in the mixture, and applying hot or cold to the affected area. One quart of the decoction gives enough for eight applications of the poultice.

Sample Herb Listing

The following is a very short list of sample herbs that might be used in a TL 3 fantasy campaign. Those with the Botany, Herbary, Naturalist or Physician/TL3 skill will usually recognize any of these herbs if found and will know their uses. Others will not necessarily know everything on this list.

Angelica — *Rare*

Angelica as a poultice will partially neutralize most contact poisons and caustics; it must be applied twice a day during the first three days after exposure. It adds +4 to HT rolls to recover, and halves any DX penalties due to the poison.

An amulet containing fresh angelica is a powerful talisman against evil magic, giving the wearer a +2 on resistance rolls against all spells. The angelica is only effective for two days after being picked.

Chamomile — *Average*

As a poultice, chamomile aids in recovery from wounds. Apply the poultice to the wound three times daily; it results in a +1 on the daily Natural Recovery roll (see p. B128).

Comfrey — *Average*

Comfrey aids in recovery from broken bones and badly sprained muscles. During recuperation, apply a cool poultice twice a day. For a *lasting* injury (see p. B129), this will reduce the recovery time by one month (but the time is never reduced to less than one month).

Henbane — *Average*

Burning a pastille of henbane leaves creates a smoke that causes disorientation and irresponsible talk and actions; any person breathing it speaks willingly of subjects he or she would ordinarily keep private. The effects are similar to 4 levels of

Weak Will (see p. B37) for the first hour, 3 levels for the second hour, 2 levels for the third hour, and at level 1 for the fourth hour.

A similar but weaker effect can be achieved by burning fresh stems, seeds and leaves; the effects are equivalent to 2 levels of Weak Will for the first hour and 1 level for the second hour.

Langlon — *Rare*

An amulet containing fresh langlon is a powerful talisman against evil magic, giving the wearer a +2 on resistance rolls against all spells. It remains effective for five days after being picked.

Mandrake — *Very Rare*

Fresh mandrake is used in making poppets (dolls in the image of the victims) used for evil magic. Only wild mandrake is effective. It shrieks as it is uprooted, and the sound will drive men mad if they do not put wax in their ears. A successful roll against IQ will prevent the madness.

Plantain — *Average*

Plantain is always used in the preparation of waybread or journeycake, in order to keep it fresh. Other ingredients may vary, according to the taste and skill of the baker, and some waybreads are definitely better than others.

Try A Little Bit Harder: Expanded Rules for Extra Effort

This article (by Daniel U. Thibault) originally appeared in a slightly different form in ***Roleplayer 24.***

In the ***Basic Set***, two Extra Effort rules are detailed: one for jumping, the other for lifting. This is a more generic set of Extra Effort rules, with some slight modifications of jumping and lifting to streamline the rules. Some common points:

Extra Effort costs one point of fatigue in all cases, whether it works or not. The only exception is if the Extra Effort roll is a critical success, in which case the GM may let you keep the fatigue point.

If the Extra Effort roll is a success, you achieve your goal. If it is an ordinary failure, you achieve what you would have accomplished without Extra Effort. A critical failure costs a point of HT in *injury* (pulled muscle or the like) which cannot be cured by First Aid, but only by rest.

Remember that ST is *reduced* by the fatigue lost whenever a test of ST is required, as in throwing, jumping, lifting . . . see p. B134. This means that Extra Effort quickly becomes a losing proposition if used repeatedly in a short period of time.

Running

Extra Effort when running is only possible over long distances (at least 100 yards); each attempt to use Extra Effort applies only to one 100-yard segment. Roll against your HT or Running skill (whichever is better), subtracting current fatigue and applying a -4 per point of extra Move you are trying to sustain. On a critical failure, in addition to the 1 HT of injury, you sprain your ankle, tear a leg ligament, or pull a muscle (GM's choice). Your leg is *crippled* (HT roll to see if this is serious or permanent, minimum 30-minute duration), and you stumble and fall down!

Illness (Continued)

Rabies

Anyone bitten by a rabid animal must make a HT-3 roll or contract rabies (the GM rolls in secret for each bite). Before TL5, there is no cure for rabies. At that point, a painful and lengthy system of 22 daily injections was introduced. This cure is 95% effective if begun within three days of being bitten. Much quicker and less painful cures for rabies are readily available, beginning at TL8.

If a victim fails the HT-3 roll, and does not get treatment within three weeks, begin rolling against basic HT at that time. Roll once per week for the rest of his life. A failed roll means the onset of the final stage of the disease: physical and mental deterioration and agony. Roll vs. HT-3 daily at that point – failure is death. There is no cure once the symptoms appear, unless the GM wishes to be very kind and allow a miracle cure.

Rabbit Fever

Westerners may catch *tularemia,* or "rabbit fever," by handling or eating an infected rabbit or hare. The GM rolls against the character's HT+1 – failure indicates the victim contracts the fever. It resembles bubonic plague, but is much less severe. Symptoms appear 3-5 days later and include severe headache, body aches and fever. Ulcers form at the site of initial infection (often the hands), and the armpits swell painfully. The disease lasts 2d+10 days. Each day, the patient rolls against HT; failure results in loss of 1 HT; success allows the recovery of 1 HT. Critical success indicates complete recovery. All DX and IQ rolls are at -1 during the course of the disease.

Continued on next page . . .

Illness (Continued)

Scurvy

Scurvy is the breakdown of the capillary walls due to a lack of the vitamin C needed to build new collagen. The symptoms are bleeding gums, dark spots all over the body (actually small hemorrhages), swollen joints (from blood seeping into them), wounds failing to heal, weakness and the inability to deal with mental stress. Even such a simple task as standing up can cause a heart attack in a severe case. Vitamin C and rest are the only cures.

Scurvy is caused by a lack of vitamin C, which is found in fresh fruits and vegetables. It takes six weeks without vitamin C before the symptoms appear. After that, roll versus HT daily.

The effects of scurvy are -1 HT per day if an initial HT roll is not made. If the HT roll is made, there is no HT loss, but a HT roll must be made daily until fresh produce is available. As long as the HT roll is made, scurvy does not set in – some people are more resistant to it than others. Immunity to Disease does not help against scurvy – it is not an infection. Each HT lost also reduces ST by 1 for all purposes.

Recovery is fairly rapid with fresh fruits and vegetables. 1 HT and 1 ST are regained for each day of rest on which fresh produce is eaten.

Smallpox

A PC can catch the highly infectious smallpox virus by touching a diseased person or contaminated object, or by even breathing virus-tainted air. Use the *Contagion* rules (p. B133) to determine the spread of the epidemic. It has an incubation period of 7-21 days; roll against modified HT once each day for 21 days after the last contact with the infection. Because smallpox is highly contagious, these HT rolls are at an additional -2. Any failed roll means that the disease is contracted.

If the disease is contracted, the attack lasts for at least 3d days, and causes high fever, headaches and chills. During this time the sufferer is at half normal ST and must make a daily HT roll. A failed roll costs 1 HT point; a success means regaining 1 HT.

Four days after the fever sets in, the characteristic rash shows up on the face, limbs and sometimes over the torso. The rash develops from red bumps into pus-filled blisters. The blisters break and dry up in about nine days, sometimes forming scabs. When the scabby coverings break off, they often leave deep pits and scars that mar the appearance.

Continued on next page . . .

Jumping

Roll against your ST, DX or Jumping skill (whichever is better), subtracting current fatigue and the extra distance in inches. For a broad jump, divide the extra distance by 4; for a running broad jump, divide it by 6.

Optional rule: Add 10% of your Jumping skill (rounding down) to your ST when figuring the distance you can jump. This brings Jumping in line with Running and Throwing, both of which already give a similar bonus.

Lifting

Roll against ST or the Lifting skill (see p. CI132), whichever is better, subtracting current fatigue and applying a -1 for each extra point of ST. For a continuing effort, roll every minute.

Throwing

Roll against your ST or Throwing skill (whichever is better), subtracting current fatigue and applying a -3 for each extra point of ST. Success affects both distance and damage.

Generic Extra Effort

Roll against the appropriate physical attribute (ST, DX, or HT) or skill, subtracting current fatigue *and* at a -3 per point of extra effort. Extra effort only applies to brute strength (ST) or endurance (HT), not to finesse (DX): you can't increase your chance to hit with Extra Effort! Possible applications of generic Extra Effort include cocking a too-strong crossbow, attempting a takedown, and so on.

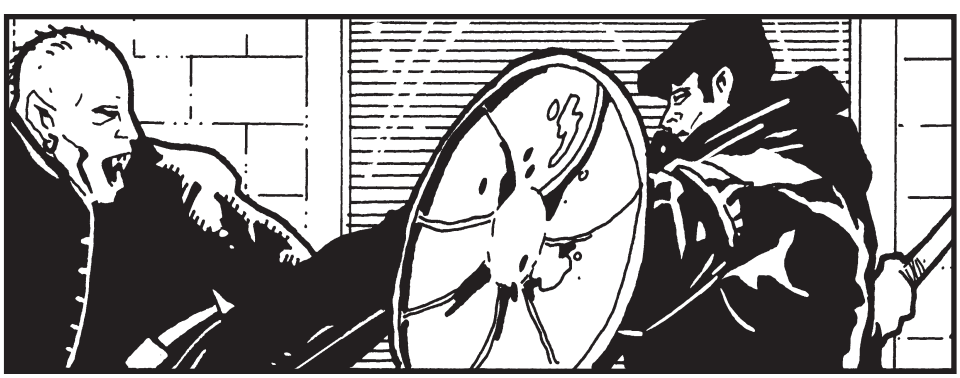
Some feats are inappropriate: holding your breath, for example. Since holding one's breath is entirely a matter of letting time go by and then losing fatigue (see the B91 sidebar), extra effort would be self-defeating. Extra Effort when inflicting damage with a weapon is already covered by one of the All-Out Attack options (see B105).

Extra Effort in Active Defense

This is a good option if you *must* survive that one blow. As an ordinary combat tactic, it would soon leave you breathless and at the mercy of your opponent. A success on any of these rolls is a successful defense; an ordinary failure just fails, and a critical failure is a disaster.

Blocking

Your Block is your *full* Shield skill, minus your current fatigue. On a critical failure, in addition to the 1 HT of injury, you drop your shield, the shield becomes unready, or your shield arm is temporarily crippled (GM's choice).



Dodging

Your Dodge is your *full* DX, minus your current fatigue. On a critical failure, in addition to the 1 HT of injury, you fall down.

Parrying

Your Parry is your *full* weapon skill, minus your current fatigue. On a critical failure, in addition to the 1 HT of injury, you drop your weapon, or your weapon arm is temporarily crippled (GM's choice).

Sleep: Advanced Rules for Fatigue and Recovery

This article (by Richard LeDuc) originally appeared in a slightly different form in ***Roleplayer 21.***

A typical human spends a third of his life asleep. The nature and quality of this time can have a dramatic impact on our waking hours. Because adventurers often find themselves unable to meet their sleep needs, the following guidelines are presented to help GMs deal with the effects of sleep in their campaign.

Properly motivated, a healthy person can remain awake and functioning for many hours, but it will become harder and harder to resist falling asleep. An adventurer who fails to get enough sleep each day will first feel fatigued. Then a loss of mental and physical acuity will occur. When sleep is finally possible, the tired individual will need a few extra hours of rest to recover fully.

Staying Up Late

Each individual needs a certain amount of sleep per day – typically 8 hours. Older people need less sleep; typically, someone from 35 to 50 will need 7 hours sleep, and someone over 50 will need 6 hours sleep.

Young people, on the other hand, need more sleep. Children under 6 should sleep 10 hours per day; those from 6 to 14 typically need 9 hours each day.

Subtracting the person's sleep requirement from 24 will give his normal day length (usually 16 hours). After staying awake longer then his normal day, an adventurer will lose one point of fatigue. Each additional eight hours of wakefulness will cost one more fatigue point. After an individual loses half his fatigue (rounded down), he will start to lose one fatigue point every *four* hours. These losses can only be recovered with sleep.

The sleepless person will also lose one point of IQ and DX with each lost fatigue point. The losses will be reflected in lower skill levels. A person who has lost enough sleep can appear drunk, staggering and slurring his words. Should a character's ST or IQ reach zero, he will pass out from exhaustion.

For the first day-length (typically 16 hours) after the character's normal day, he can remain awake as long as he is occupied. This means performing some skill or action that requires concentration or movement – e.g., driving a car or playing a game. In order to remain awake while not doing anything even remotely exciting, a Will roll is required. At this stage, one Will roll is needed for each two full hours of inaction. This would include boring, uneventful tasks, like standing watch in a deserted area.

After 16 hours it starts to become harder to stay awake. From now on the character will need to make a Will roll every two hours that he is occupied. A character who is doing nothing must make a Will roll every 30 minutes.

Illness (Continued)

Once the attack is over, use the normal recovery rules for generic illnesses (p. B133); all HT rolls for recovery are at -1, however. Survivors must roll against their full HT to find the effects of smallpox on their appearance. Critical success means no change. Success means loss of one level (e.g. Average is lowered to Unattractive, -1 on reaction rolls). Failure means loss of two levels; critical failure means loss of three levels. Appearance can't get any worse than Hideous.

A person who recovers from smallpox is immune from any further attacks. Inoculation will also grant immunity.

Tetanus

Tetanus was one of the great killers before the modern era. The bacillus that carries the disease is found in horse manure, so was common around just about any human-occupied area until the development of the automobile. Any impaling or cutting wound received around a stable or farm-yard is likely to carry the disease. The bacillus is anaerobic, so a deep wound such as that from a punji stake is particularly dangerous.

The infection usually takes time to set in, and the longer it takes the less serious is the disease. Onset within a week is almost always fatal; onset after three weeks has a better than 30% recovery rate. After 1890, tetanus anti-toxin is available. Given any time before the actual onset of the disease it has an excellent prevention rate. Preventive treatment before that is to clean the wound well and, if possible, leave it open to the air.

Allowing a PC to get tetanus is a very serious decision. It might be a spur to action to the rest of the party, as they race the Grim Reaper for the potion/spell/serum that can save their comrade.

The symptoms of tetanus begin with headaches and a stiff neck. As the disease advances, all the muscles lock into a rigid contraction. The mouth locks in a hideous grin, the *risus sardonicus.* Any disturbance may throw the victim into convulsive contractions that can break bones and tear muscles. The only treatment for an advanced case is to keep the victim quiet and unexcited, give anaesthetics for the pain and feed a liquid diet or intravenously.

If a character must be placed at risk of tetanus, use this procedure. Any time up to 21 days after a wound that could have become infected, the symptoms may appear. Roll against HT once per game day; on a failure the symptoms appear. Roll at +1 for each three days since the wound.

Continued on next page . . .

Illness (Continued)

If the infection appears, the victim loses 1 HT per day until he is at 2/3 HT. For this period he is in pain but still able to move. At 2/3 HT he goes into contractions – "lockjaw." If treatment including liquid diet or IV feeding is available, he continues to lose 1 HT per day. Without such treatment, he loses 2 per day. Every third day he rolls against HT (HT+1 if the initial onset was more than one week after the wound; HT+2 if the onset was over two weeks later). A success regains 1 HT; a critical success regains 3. A failure means normal loss for that day; critical failure costs an additional point. If HT is restored to 2/3, the victim remains in contractions but loses only 1 HT a day, even if HT subsequently drops below 2/3. If HT returns to normal, the victim recovers. If HT becomes fully negative, use the dying rules on p. B126. Roll against HT modified for time of onset, as above.

Typhoid Fever

Use the *Contagion* rules (p. B133) to determine the course of the epidemic. The symptoms of typhoid are severe: -3 HT, ST and DX each day for all purposes. Recovery is difficult; roll vs. HT-2 daily. A successful roll prevents further attribute reduction for that day, but a successful HT-2 roll *the next day* is necessary to actually recover 1 HT. After 1 HT is recovered, the remaining rolls are against full HT. Once even 1 HT has been regained, future HT and ST losses can be no greater than -1 per day.

Getting Up Early

Not only will characters stay up late, they will often find themselves getting up early. Getting up early carries penalties as outlined in the table below.

Factors that influence the quality of sleep will have the same effect as not getting enough hours of sleep. Sleeping all night in an uncomfortable place might be the same as waking up two hours early, as would waking up several times in the night. Spending the entire night in the rain, or with a loud party going on next door, can be considered equivalent to waking up four hours early.

Hours of sleep missed	*Effect*
1 or less	no effect
1+ to 2	-1 fatigue
2+ to 4	-2 fatigue and -1 DX.
4+ to 6	-2 fatigue, -2 DX, and -1 IQ
6+	-2 fatigue, -2 DX, and -2 IQ

Adrenaline

Adrenaline is the body's way of responding to life or death situations. This powerful hormone is dumped into the blood when we are frightened. When someone is threatened with grievous physical harm, he can try to throw off the effects of staying up. Any penalties to DX and IQ are temporarily removed for a character who makes a Will roll on the second turn of the threatening situation; the penalties may be ignored until the life-threatening situation ends, or for 15 minutes, whichever is less.

If the emergency situation is still going on after 15 minutes, a new Will roll is required; roll again each 15 minutes. If and when a roll is failed, all the original penalties are felt, plus one additional fatigue point.

Meditation

The effects of lack of sleep can be put off for one hour by a successful roll against the Meditation skill (see p. CI142). There is a penalty of -1 to this roll for each three hours that the character is up past his normal day length. There is an additional penalty of -5 if the meditator performs any action other then standing alert or sitting in quiet contemplation. A character can continue to put off sleep this way until a Meditation roll is missed; then he will feel the full effect of his lack of sleep, and may not make further attempts to meditate until he is caught up on sleep. A critical failure on a Meditation attempt will cause immediate sleep!

Recovery

Characters who go to sleep regain fatigue at the normal rate. Lost attribute points will be restored at one point per hour. The hours used to recover from staying up do not count towards the next day's minimum sleep required. Therefore, staying up will require the adventurer to take an extra hour or two of sleep.

Sleep-Related Advantages and Disadvantages

The advantages Deep Sleeper (p. CI23) and Less Sleep (p. CI27), and the disadvantages Extra Sleep (p. CI81), Insomniac (p. CI82) and Light Sleeper (p. CI82), should be used only if the above rules for sleep and sleeplessness are used.

7 CAMPAIGNING

This chapter discusses several issues that may arise during campaign design: the decision to run a cinematic game, the challenge of running a high-powered game, and the complexity added by having multiple planes of existence in a game world. Finally, some rules that apply to the design of cultures and societies, and their role in the campaign, are presented.

Cinematic Roleplaying

By Sean Barrett, author of ***GURPS Lensman***

Cinematic campaigns are those in which the "rightness" of the story outweighs its realism. While cinematic games are frequently high-powered games and vice versa, they are *not* the same thing! The PCs in a special forces unit are likely to have high point totals, but the campaign may well be grim, realistic and even nihilistic. On the other hand, many of Robin Hood's Merry Men could be designed with less than 100 points and still participate in a cinematic campaign.

In essence, "cinematic" is a *style,* not a point level. ***GURPS*** provides rules like multiple attacks (p. 72), skills like Science! (p. CI158) and supplements like ***Swashbucklers, Cliffhangers*** and ***Lensman*** to help the GM create campaigns where the PCs are able – and expected – to take on ten swordsmen each (*à la The Three Musketeers*), an entire muay thai school (in the spirit of Bruce Lee) or a platoon of border guards (Bond – James Bond) and triumph. However, simply using additional advantages, skills and rules will *not* create epic heroes and action.

The purpose of a cinematic game is to create a story in the legendary style of adventure that inspires "pulp" writers like Alexandre Dumas and H. Rider Haggard. Epic stories cannot be bogged down by mere realism; they've got more important things to do! Cyrano de Bergerac defeated dozens of professional swordsmen simultaneously not because his skill was realistic or even believable, but because his panache allowed nothing less. Space opera craft whoosh or roar in the silence of space just because fast things whoosh and powerful engines roar. In a cinematic game, *rightness* always overrules mere *correctness.*

The Cinematic Formula

Nearly all genres have stylistic conventions that are only ever violated *deliberately,* for reasons that advance the story. The players in a cinematic campaign expect the same formula to hold in the game. When it doesn't, it can only be because the plot requires an exception . . . and then the convention doesn't merely bend – it reverses itself. For instance, swashbucklers routinely escape from taverns by swinging on chandeliers. Usually, this is as reliable a mode of transportation as a carriage. However, if the plot calls for one of the swashbucklers to be captured, he will not merely miss his catch: he will crash down, stunned, at the feet of the Captain of the Guard!

The cinematic rules in ***GURPS*** reflect the all-or-nothing nature of these conventions. For instance, multiple attacks and cinematic defenses will allow for the easy disposal of run-of-the-mill NPCs, but more serious opponents either have higher levels of the same skills, or else are cunning enough to not get caught in situations where those skills can be used against them. The GM can control the ease with which the heroes overcome obstacles by first allowing their exceptional abilities to dominate all routine encounters, and then confronting them with extraordinary encounters.

Cinematic Playing Style

The nature of a cinematic game provides the relationship between the GM and the players. If the GM feels that the players are too powerful, he may become vengeful – hammering them with uniformly overpowering opponents, which eliminates any possibility of an epic tone. If the players feel that they cannot rely on their abilities – if every chandelier dumps them – they will quit trying what doesn't work . . . and so much for dashing action!

Dice

Players quickly gain an intuitive understanding of odds. If their abilities are totally controlled by the dice, they will quickly learn how to optimize their chances of success, and let Game Theory decide their actions instead of dash and style. On the other hand, a completely deterministic game can be perceived as hopeless, with the players totally at the mercy of the GM's whims. The GM and the players must agree in advance how much effect the dice will have on the action.

An epic style of play relies less upon dice than other styles, and the GM must be prepared to overrule the dice on any roll. This is because while some random factor *is* necessary – the protagonists are not infallible, nor is the plot predestined – dice can be just as tyrannical as a heavy-handed GM, and players are apt to revolt if a random number decides that a brave adventurer has suddenly died from a urinary tract infection!

Details

Over-concern with details can also cripple a cinematic campaign. The only details important in an epic story are those that *directly* affect the outcome. At every point, the GM must determine whether the details will advance or hinder the story. If the heroes must cross the Burning Wastes to get to the Dark Tower, they will find enough water along the way. It wouldn't be much of a story if they didn't. Will it advance the story to play out their searches? This is where GM experience and preparation is essential, so that the right details can be brought up and the wrong ones ignored, while still allowing the players to enjoy a maximum of free will.

Trust

The players and the GM must trust one another to be true to the spirit of the story. A player must have confidence that if he tries to swing from the chandelier, the GM will not sneer at him and announce that he has broken his back – and must now play a quadriplegic – because his hands slipped off the grease and wax caked onto it. He may fall, but he should not be punished for trying. Nor should the GM bog down play by requiring rolls against "Leap from Balcony" and "Swing on Chandelier" skills, modified by the dimness of the tavern and the number of glasses of *vin ordinaire* the character had. If the game is to include the glorious action that is common in stories, then such action must be likely to succeed and not tediously complex to game out.

Similarly, the GM must trust that the players won't take inappropriate advantage of the conventions, such as the "inevitability" of the outcome. Yes, they will make it across the Burning Wastes – but that doesn't mean that they don't need proper preparations. A player who remarks, "Don't worry about water at all. After all, we're heroes; we're sure to find some," is probably playing in the wrong campaign. After all, the *character* doesn't know that he's the Favorite of Destiny!

The players must do their part, providing dialog and attitudes in keeping with the style of the campaign. If the arch-villain is going to take the trouble to pause in his escape and explain his grand plan to the captured and soon-to-be-elaborately-killed heroes, the least they can do is tell him that he won't get away with it! Some of this roleplay can be enforced by the environment – unchivalrous individuals will suffer tremendous handicaps in a world where a well-timed snap of "You, sir, are no gentleman!" can do critical damage to one's social status – but it's more fun when it isn't forced.

Cinematic Campaigns

A cinematic world is *fair,* but it is not necessarily honorable or good, and it is certainly not *nice.* Evil dreams and goals – the Count of Monte Cristo's vengeance, for example – can be obtained as reliably as good ones. If certain standards are met and prices paid, then certain rewards will be gained; if standards are not upheld, punishment will be exacted. Above all, actions have *appropriate* results: the manner of a villain's death befits his depravity.

Plots

A cinematic world is also *ordered*. Events have reasons. These are sometimes too deep to be immediately understood, but very few things happen arbitrarily, and nothing significant ever happens at random. However, plots are not necessarily linear or predestined. Reversals of fortune occur, and even if the final goal is set, the manner by which it is reached is not.

Characters

Not every character can attain epic stature, but the most memorable ones do. Epic characters have been singled out; they are fated for Great Things. They may not know this; they may not *want* this; but they don't have much of a choice! This can be represented by the formal *Destiny* mechanic (see p. CI35), but it can also simply be a part of the characters' personalities. They are driven by their needs or desires. Their control over their fate is determined by the price they are willing to pay to attain their dreams. A simple hope or wish has no more force in an epic story than in any other, and a character with no more motivation than that will be swept along by events, unable to affect them at all. Conversely, a burning desire is unstoppable.

However, obsession is a roleplaying challenge, as it can lead to a simplistic character. It's easy to conceive of someone devoting his entire life to the single dream of avenging his father – obviously, he will be interested in little but honing his martial skills and seeking his enemy – but an effort must be made to round the character out. This can be as simple as adding the quirk that when he first meets a stranger, he describes the day of reckoning, down to the actual dialog that will occur when he finds his father's murderer.

A clear character conception is necessary to integrate all the *mechanics* on the character sheet, both to create a personality and to reinforce the inevitability of the goal. A driven character also requires extra attention to integrate into a party, so that his unwillingness to be distracted from his obsession doesn't interfere with intentions of the other adventurers.

Combat

Violence is the most common arena – though hardly the only one – in which epic action takes place. ***GURPS*** provides the cinematic offensive and defensive skills to make it likely, but not certain, that the PCs will overcome the bulk of their foes. Using skills (instead of absolute abilities) retains the chance of failure, so that even against everyday foes, the adventurers will not always win. Of course, even if fortune favors their opponents, they are never slaughtered out-of-hand. (Their nemesis has far more cruel plans for them than that!) Thus, even an ignominious defeat in combat is only a plot twist that provides another opportunity for the adventurers to prove their mettle.

Death and Destiny

Some heroes are so durable that no one, not even their creators, can kill them off: Sherlock Holmes, Blackie DuQuesne, Conan. They have adventure after adventure, never aging, never changing. Some just travel off into the sunset. Many characters, however, do actually die "on stage." More so than any other genre convention, heroic deaths must be handled correctly, satisfyingly and according to formula. Above all, an epic death cannot be trivial, though the means may be: Cyrano is killed by a log dropped on him, Don Quixote dies of fever.

In a cinematic campaign, any PC who dies, dies gloriously, bravely saving his comrades' lives or taking an impressive honor-guard of foes with him. Fate (in the person of the GM) will always be generous to a hero in his dying moments; even if no horde of opponents or other imminent danger was planned, such will appear nonetheless, solely for the purpose of providing the dying hero with opportunity for greater glory. There is no need for stinginess: the PC won't be around to be a problem later, and the GM has an infinite supply of disposable obstacles.

A character with a dream, moreover, will always see at least the beginning of the fulfilment of that dream before dying. The degree of completion is proportional to the degree of obsession. A monomaniacal individual who is close to attaining his goal is unstoppable!

The trust between player and GM is essential in this sequence. Once it is clear that the character is playing out his final act, the GM should feel free to hurl obstacle after obstacle at him, and let them be overcome. This convention can create memorable scenes, as the foes quail before the iron determination of the heroes, but it must not be abused. A dying character's invincibility must be used only for direct progress toward the goal: if Inigo Montoya had stopped introducing himself and advancing on six-fingered Rugen, he would surely have dropped dead from his wounds in an instant!

Yoicks! And Away!

A cinematic game requires that the players and the GM all understand and agree on the style, and then cooperate to achieve it. The cinematic rules of ***GURPS*** will assist them, but such campaigns are more difficult than mundane ones, because an epic story is apt to transcend the rules. The challenge is well worth the undertaking though; when done well, cinematic games can be the most satisfying, because the stories they tell simply feel *right*.

High-Powered Campaigns

Below are some guidelines to follow when setting up a high-powered game . . . or when your formerly low-powered game grows into a high-powered one!

What is a High-Powered Campaign?

For the purpose of this discussion, a "high-powered" campaign is one where the PCs have point values significantly greater than the 100 points recommended in the ***Basic Set***, and as a result have abilities that push the limits of the system with respect to playability or game balance. Such characters commonly occur in ***GURPS Lensman, Special Ops*** and ***Supers*** campaigns, and occasionally in ***GURPS Cyberpunk, Martial Arts*** and ***Psionics*** campaigns.

What Can Go Wrong?

The two most common problems that occur in high-powered campaigns are "excessive depth of ability" and "excessive breadth of ability."

Excessive *depth* of ability occurs when a player spends huge numbers of points in one narrow area, resulting in a PC who has an abusive level of ability in that area – perhaps even a level that the system simply cannot handle. The three most common causes of this problem are the GM who fails to offer the players a wide enough variety of abilities to spend their points on, the GM who is known to present adventures that require only a certain narrow subset of abilities, and the player who equates mastery with larger numbers rather than broader understanding.

Excessive *breadth* of ability occurs when a player uses his ample points to prepare for every conceivable situation and to dabble in every useful profession, resulting in a boring character who has no weaknesses for the GM to exploit and whose abilities infringe upon the professional territory of many other PCs in the campaign. The most common cause of this problem is point optimization, the symptoms of which are usually high attributes and relatively few points spread thinly over a great many skills.

The Successful High-Powered Campaign

What follows are techniques that can help prevent the problems mentioned above.

Why So Many Points?

The GM who is toying with the idea of a high-powered campaign should first pause to consider what all of those character points are actually needed for. Are the PCs superhuman? Mythical? Or are they simply very well-trained? Is the object of the campaign to simulate a fictional work where the central characters are truly too powerful to work in a more usual 100- or 150-point campaign? It only makes sense to enter into a high-powered campaign when you are prepared to accept the consequences. No game with 1000-point PCs is going to feel realistic – in fact, the GM had better be ready to deal with demigods!

What To Buy?

Assuming that the GM and the players can agree that the campaign would work best as a high-powered one, the GM should turn his efforts toward giving the players lots of things to spend their points on. In a ***Supers*** game, this is usually trivial: the PCs have all manner of expensive super abilities available to them. In other types of campaigns this can be tricky. However, the simplest way to handle this is to use the expanded rules for various abilities whenever possible. These are usually found in their own, dedicated supplements.

Examples: Using the full-fledged martial arts *styles* presented in ***GURPS Martial Arts***, rather than limiting martial artists to just the Judo and Karate skills. Using all the spells in ***GURPS Magic*** and ***Grimoire*** rather than just the limited list in the ***Basic Set***.

Required Abilities

Another way to absorb points is to simply require that all PCs possess certain abilities. These are advantages and skills that must be taken by all PCs, similar in many ways to campaign disadvantages (p. B26). This has the effect of tying up a fixed number of points, which helps prevent abusive optimization. Social advantages are especially appropriate here, as their effects are generally game world-specific and allow the GM the greatest degree of control over their exact effects. Unusual Background advantages can often fit into this category as well.

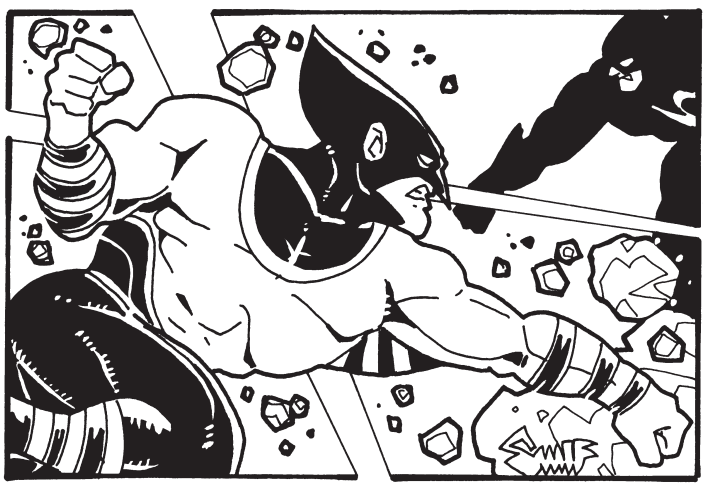
Example: Superhuman PCs in the IST gameworld (see ***GURPS International Super Teams***) are required to take the IST Membership advantage (a combination of Legal Enforcement Powers, Military Rank and a Patron) and the IST Basic Training skill package, which together will cost most PCs more than 70 points.

Category Limits

Yet another way to use up points in a high-powered campaign is to inform the players that their characters will have to be adaptable enough to deal with multiple types of adventures, and require them to spend a minimum percentage of their points in certain GM-specified categories.

Example: A fantasy GM hands his players lists of what he regards as "social," "problem-solving" and "action" advantages, skills and spells, and requires that no fewer than 20% of each character's points be spent in each category.

This method helps prevent PCs from achieving abusive levels by focusing on one narrow area, but must be used with care or the players may feel "railroaded."



Attribute Limits

Similarly, one can combat abuse in a high-powered campaign by limiting high attributes. Attributes affect skills as well as a great many other things, and a PC with a lot of points in attributes (especially DX and IQ) can get out of hand.

Options here include *individual* attribute limits, which limit the starting points that can be spent on any one attribute, or *total* attribute limits, which limit the total number of starting points that can be spent on all four attributes combined. Either type of limit can be expressed as an *value* limit, which specifies an actual number of points (e.g., 100 points), or as a *percentage* limit, which specifies a proportion of the starting points (e.g., 25%).

Modified Skill Limits

The GM may wish to modify the rule, found on p. B43, that the maximum number of starting points a PC may have in skills is 2×Age. This limit can be changed to 3×Age, 4×Age or even waived altogether. The justification for this is that powerful characters are generally either very experienced or have received intensive training. When combined with an *attribute limit* (above), this has the effect of moving a greater percentage of points into skills, which are generally less prone to abuse. This is also more realistic for experienced characters.

Example: ***GURPS Special Ops*** characters are powerful, typically being built on 300 to 400 points. However, they are also subject to a 100-point total value limit on attributes. At the same time, ***Special Ops*** uses a modified skill limit: characters are not subject to any age limitation on skill points, due to their intensive training.

Partitioned Starting Points

Another useful technique is to divide the starting points given to the PCs between *base* points and *experience* points. The players build their initial characters using only their base points. Once the GM has approved these characters, the players may spend the balance of their points (their experience points) as if they were points earned in play: attributes cost double, most advantages are unavailable, and a good, in-character justification is required to purchase new skills, spells and so on. Since high attributes and large numbers of advantages are frequently the source of the problems encountered in high-powered play, this technique can be quite effective.

Example: A GM wishes to run a 300-point mythic fantasy campaign. He specifies 100 base points and 200 experience points. Each player has to make a playable 100-point character. Once the GM has approved these, the players may spend an additional 200 points as if they were earned at that character's usual profession.

This technique limits high attributes, prevents characters from purchasing large numbers of advantages (e.g., a warrior adding Magery just because he can afford it), and keeps characters from expanding their skill lists to include inappropriate choices.

Encouraging Diversification

Adopting techniques that encourage players to buy skills instead of attributes and advantages can lead to excessive depth of ability, such as combat skills in the high 20s, or magic spells in the 30s. In this situation, it is a good idea to explain to the players that true masters are not one-trick ponies, and that an experienced master should not possess a single skill at an abusive level, but rather many related and complimentary skills at moderately high levels. This simultaneously uses up points, reduces abusive skill levels and enhances believability.

Character Development

The previous discussion assumes that the GM has set out with the idea of running a high-powered campaign in mind. In some cases, whether it is planned or not, low-powered PCs gradually grow very powerful. In most cases, this is less of a problem, if only because earned character points are generally spent on abilities that the PC uses in his profession, are essentially half as effective for raising attributes and cannot be used to buy most advantages. However, there are a few guidelines to follow if one wishes to grow one's campaign to a high-powered level:

Reasonable Character Point Awards

Keep character point awards small enough that the players have to think about what they are spending their points on. This effectively introduces a "waiting period" for the purchase of higher attributes and allowed advantages. The usual result is that immediately-useful skills will be raised instead of attributes, leading to well-rounded characters rather than superhuman powerhouses.

Limits on Learning New Skills

Make sure that new skills (and other abilities) are not learned too easily. While some skills are realistically learned quickly under pressure, or through training during "down time," others are difficult to learn except as part of a long career. Allowing a non-combatant mage PC to swing a sword for one battle and then buy the Broadsword skill is as unfair to warrior PCs as is allowing all the warriors to save up 15 points and buy Magery. Too much "easy learning" eventually homogenizes the PCs to the point where they are indistinct from one-another, and can result in loner PCs with no weaknesses to use as plot hooks and no need for companions.

Payment in Kind

Occasionally give the PCs their point awards in the form of specific abilities rather than in points. This can be done in two ways. One is to give "targeted awards," such as a level in an oft-used skill, rather than character points that can be spent on anything. The other is to give "rewards" – such as Military Rank, a Patron, a Reputation, Social Status, Wealth or even an opportunity to buy the Trained by a Master advantage (p. CI31) – instead of generic character points. These techniques allow for the gradual development of a high-powered campaign that is tailored to fit the GM's idea of what is "reasonable."

High-Powered Characters in Action

Even when high-powered characters are kept reasonable using some of the techniques above, problems can occur during play. There are two basic types of problem that crop up in a high-powered campaign: GM limitations and system limitations.

GM Limitations

These are limitations that occur because the GM is not very experienced at actually running high-powered campaigns with high-powered PCs. The usual problems are that the GM does not beef up his adventures enough to withstand powerful PCs, or that the GM overcompensates for the power level of the PCs and creates an impossible adventure. The solution to both of these problems is the same, and comes in two parts:

(1) Be Flexible – The GM of a high-powered campaign simply must be more flexible than the GM of a low-powered one. This is because the PCs can do more, so it is harder to second-guess them, and because the stakes are a lot higher, so a slip has more dire consequences. In practical terms, this means that the GM has to resolve certain plot issues as they arise, rather than trying to deal with them ahead of time.

If the six 300-point commando PCs are chewing up your ten generic soldiers more easily than anticipated, then send in ten more as reinforcements. If the mighty PC archmage is getting stomped by the evil Dark Lord who you thought was a fair match, then give him a lucky break. Imbalances that result in amusement or a momentary annoyance at lower power levels can result in character deaths and chronically-bored players at higher power levels.

(2) Know Your PCs – The GM of a high-powered campaign has to be intimately familiar with the PCs. There is usually a lot of information on the character sheets, and more special rules will arise in play. The GM who does not know the precise capabilities of high-powered PCs is in trouble. Being unfamiliar with a PC's abilities can result in play bogging down as rules are pulled out. It can also result in well-laid plans being circumvented by a forgotten ability.

System Limitations

These are limitations of the printed ***GURPS*** rules as they pertain to high-powered characters. While every effort has been made to ensure that the progression of tables and formulae is clear enough to allow extrapolation to arbitrarily high levels, some rules simply break down at very high power levels. In these circumstances, there are usually optional rules available, and the GM should seriously consider using these.

Example: Combat between characters with very high skill levels works much more smoothly if optional rules such as the Quick Contest option (p. B108), *High-Skill Feinting* (p. 69), *Faster Combat* (p. 73) and *Only the Best Shall Win* (p. 74) are used.

However, there are situations that ***GURPS*** does not cover. In most cases, these are best handled by a little GM flexibility and ingenuity. Every "levelled" advantage and every skill in the ***GURPS*** system has the potential to cause problems at a high enough level. The GM should either limit such traits to the levels where they work well for him, or else agree with the players ahead of time as to just what effects these abilities will have.

Alternate Planes of Existence

The notion of other "planes of existence" is an old one; the myths and folklore of almost every culture contain some variation on the theme. Gods, spirits, dreams – all these things have, at some point, been held to exist *somewhere else,* outside the sphere of normal, earthly life. Likewise, science has recently led us to believe that there may be more to reality than the three "dimensions" we can see, suggesting the existence of different "dimensionalities" or even parallel universes!

Naturally, the concept has been seized upon by writers of speculative fiction and, of course, by gamers. ***GURPS*** is no exception. Within the ***GURPS*** system, one can find many examples of "other planes." The purpose of this section is to aid the GM who wishes to construct a campaign that includes multiple planes of existence, by analyzing the possibilities using examples from the ***GURPS*** system and by making some suggestions about how these realms might interact.

Yes or No?

The first question that the GM must answer is whether or not there will even *be* alternate planes of existence in the campaign.

The main advantage of having multiple planes is that it allows one to use a *much* greater variety of settings and genres, which in turn takes advantage of the full power of the ***GURPS*** system. Interplanar travel also allows a campaign to remain interesting for considerably longer, especially if there is no space travel: if the adventurers have met all the challenges their world has to offer, it's time to find a new world. Finally, the existence of many planes allow for interesting high-powered, high-stakes games: 1,000-point PC wizards are a lot less impressive in the Otherworld (of ***Celtic Myth***), where even the lowliest Sidhe is effectively a 300-point super; and in an Infinite Worlds ***Time Travel*** campaign, one can lose the battle for a whole world without losing the war!

The main disadvantage of interplanar travel is that it multiplies the GM's workload. Instead of having to design one world in detail, the GM will have to sketch out two or more – perhaps with the result that none of them will be particularly detailed. Another disadvantage is that some players will not care about the fate of the campaign world if they can just travel to a new one. As well, if some of the players are unwilling to change worlds, or if some of the PCs are unable to, the GM may be forced to run two games at once. Finally, unless the GM is careful, the existence of other planes can dwarf the importance of the adventurers, leading to bored or disappointed players. Faced with a threat from another plane, the players may feel helpless: What can they do against an entire *universe*? And what is the point of working hard to achieve social goals in your own world, when the fruits of your labor will be lost in the next?

In the final analysis, multiple planes of existence work best in a carefully-planned, long-term campaign with a GM who has the free time to do some planning and who knows his players well, and with players who prefer exploration and travel to local political intrigue and social interaction.

One or Many?

Once the GM has decided to allow multiple planes of existence, he must decide how many to allow. Some genres – especially

futuristic, science fiction ones – work best when there is only one plane of existence besides the "home plane." This is usually for plot reasons: when only one other plane is known, it suddenly becomes very important. It is also easier to maintain a "hard" sci-fi feel if one avoids going overboard, introducing a new plane every adventure or two. Examples of ***GURPS*** books which utilize one alternate plane as a "plot device" include ***Cyberpunk,*** which introduces cyberspace, and ***Space,*** which employs hyperspace.

On the other hand, some campaigns involve *many* other planes. This is often the case when the campaign is centred around the concept of exploring other planes. Examples of this include the parallel versions of Earth in the Infinite Worlds campaign setting, and the various Realms that exist in the planar cosmology of ***GURPS Mage: The Ascension.***

Types of Realities

Alternate planes exist in infinite variety, but they all fall into (or across) a few broad categories.

Alternate Physical Realities

These are places that you can actually travel to. You may have to go there as a spirit, leaving your body behind, or you may be able to arrive in the flesh. However, while you are there, you have a body, the world is real and you are subject to "physical" threats. This type of plane comes in two basic flavors: *parallel realities* and *alien realities*.

Parallel Realities: These are *almost* the same as the PCs' "home plane." They may be *alternate timelines*, where history diverged at some pivotal event, or *mirror worlds*, where the resemblance is purely cosmetic. For example, in the Infinite Worlds campaign setting, adventurers can travel to alternate timelines of Earth. On the other hand, the Otherworld of ***Celtic Myth*** is only a reflection of the real world, and is inhabited by powerful beings called *Sidhe* instead of humans.

Alien Realities: These are as different from the "home plane" as a distant planet might seem to a space explorer – or more so! The laws of physics (or magic) may work differently in such realities, and it may even be that humans cannot survive there. Examples include the world of Yrth, from ***Fantasy***, a magical world that is quite different from Earth; the Dreamlands of ***CthulhuPunk***, an utterly alien land that can only be reached in one's dreams; and the Realms of ***Mage***, which are physical worlds that can be visited using powerful Magick.

Alternate Dimensions or Phases

These are different "states of existence" as opposed to actual planes. They can sometimes be regarded as sub-planes within realities, and are usually reached by attuning one's physical self to a different magical or physical "wavelength," or by technologically altering the number of dimensions one exists in, rather than actually traveling between planes. These realms generally have no native creatures, and can be used to bridge the gap between locations within the same physical reality, in much the same way that a *gulf* (see below) allows one to bridge the gap between realities.

Examples include the ethereal plane – reached by the Insubstantiality power in ***Supers*** or the Ethereal Body spell in ***Magic*** – which allows one to traverse space while ignoring physical obstacles, and hyperspace, which allows one to move quickly across three-dimensional space by entering higher-dimensional space.

Simultaneous, Superimposed Planes

In this case, two planes actually "overlap" one-another completely. Each plane is identical in structure to the other, and is normally invisible to the other plane's inhabitants; if things on the other plane *are* temporarily visible, it is usually as "ghosts" or something similar. Certain beings, especially skilled interplanar travelers, may be able to see both realities at once.

In some ways, these planes are like *mirror worlds* (see *Parallel Realities,* above) that are superimposed upon one another instead of being distinct and isolated. Often, a separate "astral" or "spectral" plane like this will coexist with each physical reality in the campaign, and will serve as an intermediate step between a *void* between realities (see below) and the physical realities themselves.

Examples include the outer astral plane from ***Psionics,*** which allows a psi's astral self to observe the physical world invisibly and travel to the inner astral plane (and then on to other worlds), the spirit world of ***Voodoo,*** and the Near Umbra of ***Mage***.

Gulfs or Voids

These are planes that surround physical realities in much the same way that outer space surrounds the stars and planets. Generally, this kind of plane only makes sense in a campaign that has more than one alternate plane of existence, as it is usually (but not always) only encountered when traveling between planes. It is quite common to have to leave one's body to journey across such a gulf.

Examples include the inner astral plane, which permits travel between the various outer astral planes that surround each physical reality, and the Deep Umbra, which connects the individual Near Umbras that engulf each physical Realm.

Virtual Realities

These are completely synthetic planes of existence, usually created by ultra-tech. They may be simultaneous with the real world, or they may be wholly alien. They differ from other simultaneous or physical planes in that they can usually only be visited by the mind, and allow exploration but not actual travel. The classic example is cyberspace, which is an artificial, electronic world reached by "jacking" one's brain into a computer; one's mind may wander, but one's body is left behind.

Relationships Between Multiple Planes

Once the number and type of planes has been determined, one has to figure out the "planar cosmology": how they are arranged and how they relate to one another. Are they arranged in shells, one nested within the next, or are they an infinite series of parallels? Do they coexist and interpenetrate, or are they isolated and discrete? Do they even interact at all?

For more mystical campaigns, a hierarchical shell structure, with some interpenetration and the occasional thin, traversable barrier, is generally preferable. This gives the GM control over who can go where, and hides secrets within secrets, allowing the campaign to stay mystical. It also offers a simple explanation for many paranormal powers and beings.

For instance, there may be several physical worlds, each of which has one or two phases (such as the ethereal plane) that can be reached by psi or magic for quick travel. Some worlds may also have directly accessible mirror worlds (such as a faerie realm). Each world and its phases may be surrounded by one or more simultaneous planes (such as an outer astral plane), explaining spirits, out-of-body experiences and other paranormal events. All of these worlds and their associated planes and phases, in turn, can themselves be afloat in a gulf between worlds (such as an inner astral plane), providing the possibility of travel or of magical summoning.

For more straightforward campaigns, especially those that focus on interplanar travel using ultra-tech, parallels are more convenient. The GM can simply allow direct travel to and from parallel universes, without the need to cross an intervening void. Within each universe, there is one and only one plane or phase. This eliminates spirits, mystical journeys and astral projection, and speeds the actual act of travel, which may be desirable in a semi-hard sci-fi campaign that is centered on world travel.

Of course, these concepts can be varied or mixed. The mirrors and alternate timelines of each physical world could be directly accessible from other parallels, but to reach alien realities might require travel through some kind of void. Each physical reality might have its own version of hyperspace, allowing for fast space travel between the planets within that realm, and each planet might have a cyberspace, allowing rapid communication across the planet, but there may be no "mystical" planes at all. The ethereal "plane" and hyperspace may be the same thing, interpreted differently as society becomes more scientifically sophisticated. The permutations are endless.

Traveling Between Planes

One cannot really consider the arrangement of the planes without also considering how they can be reached. Perhaps the most important question to answer is, "How do the adventurers get there?" There are many options.

Instantaneous vs. Time-Consuming Travel

First, is interplanar travel instantaneous, or do travelers have to navigate across a void or a gulf on their way there?

Some planes, such as the Otherworld, can be reached just by walking over (or under) the right hill. Others can be reached simply by casting a spell like Ethereal Body (p. M72) or Plane Shift (p. G46). Still others are reached by plugging in a jack (e.g., cyberspace) or turning a knob (e.g., hyperspace, or the parallels in the Infinite Worlds setting).

These techniques haves the advantages of being quick, uncomplicated and relatively reliable. They have the disadvantages of being a little *too* quick, uncomplicated and reliable for GMs who want plane travel to be risky, mysterious or uncommon. Unless the GM is prepared to tolerate regular player-dictated changes of setting, he should make the necessary skills or spells hard to learn, introduce reasonable risks (like nasty surprises when rolls against the Astrogation skill or Plane Shift spell fail) or simply make sure that the alternate worlds are *dangerous*.

On the other hand, certain planes can only be reached by shifting onto an intermediate plane and actually journeying there. Time may not pass at all in the real world, or it may pass at a different rate, but from the travelers' point of view, it *appears* to pass. This is typical of trips to more mysterious realms, such as the astral plane, the Umbra or the Dreamlands.

The advantage of time-consuming travel is that the trip itself becomes an interesting adventure, with plenty of room for interesting encounters. The disadvantage is that the campaign may get bogged down in interplanar travel, and the players may grow bored if their characters have to make long trips to achieve simple tasks. If the GM chooses this option, he should be prepared to flesh out interesting encounters and scenery to make interplanar travel challenging and enjoyable.

Physical Travel vs. Projection

Next, do travelers take their bodies with them, or do they merely send out a projection of themselves – their avatar, mind or spirit?

Travelers can journey to some planes in the flesh. This may be accomplished by a magic spell, such as one of those in the Gate College (p. G44); by technological wizardry, such as hyperdrive or a parachronic conveyor; or simply by stepping though a door into the Otherworld. The explorers arrive in person, and must worry about wounds, equipment and life-support.

Such travel has the advantages that it usually allows the PCs to bring equipment along (avoiding the issue of where to store it, and the tedium of long "shopping trips" upon arrival), requires no extra record-keeping for the "real" self and "spirit" self, and leaves no vulnerable body behind to worry about. It has the disadvantages of being low on mystery, of allowing PCs to completely escape the consequences of their actions, and of permitting them to ruin the economies of worlds. A GM who is pondering this kind of travel should ensure that some adversaries can always follow the PCs wherever they go. It is also wise to consider technological or mystical limits on what kinds of items or how much weight can be moved around this way.

Conversely, some planes can only be reached in thought, mind or spirit. This is usually the case with those that are reached though dreaming, astral travel or even jacking into cyberspace. Generally, the body lies helpless while the consciousness wanders. In some cases, one's "projection" or "avatar" takes on a physical form when it reaches its destination, although this is not usually the same as one's "true" physical self. In other cases, one remains a spirit or spectre, or takes on some truly alien form.

The advantage of this form of travel is that the power of being able to go elsewhere is balanced by the fact that the travelers' bodies are vulnerable and unconscious. It allows the plot device of the PCs being separated from their equipment for a while, and it is a more traditional form of plane travel, with a mysterious feel. The main disadvantage is that, unless the PCs have at least a pseudo-physical form at the end of their journey, many of their physical skills and abilities will be useless, which can frustrate players. Another disadvantage is the increased paperwork: records must be kept for both the PCs' physical selves and their projections.

Modes of Travel

Finally, how does one get to these other planes? During the previous discussion, many means were touched upon. They fall into a few broad categories:

Artifacts: Some planes can be reached only through the use of an artifact of some kind. Generally, a different artifact is required to travel to each plane. This could be a mystical device, a mysterious alien gadget or simply a mundane tool. Possibilities include cyberdecks, hollow hills, hyperdrives, magical gates and parachronic conveyors. Sometimes, the artifact is portable, and goes with the traveler to the other side; this is more often the case for physical travel than for projection. Other artifacts are fixed in place, and may send the traveler on a one-way trip.

In some ways, this form of travel is preferable when PCs are involved, because these artifacts are generally powerful and expensive enough to be made rare, or to be put into the control of wealthy Patrons, and often have built-in limitations (e.g., hyperdrive does not work in a gravity well; a magical Gate can only be opened with certain rituals). This lets the GM control when and where travel occurs, and ensure that everyone goes along for the ride.

Special Powers: Other planes can only be reached through paranormal powers. The explorer must use certain magic spells, Magick Spheres, psionic powers, super abilities or even the World Jumper advantage (p. CI48) to make the trip. This type of travel works best when projection is preferred over physical travel, but either is possible. The GM should realize that since the power to travel is tied to the character, only certain members of the party may be able to cross to other planes. This can have profound effects upon campaign balance and continuity.

Right Time, Right Place: Still other planes can be reached by *anyone*, but only under certain conditions. For instance, certain realms could be reachable by dreaming, or at certain times and places when "the veil between the worlds is thin" or "the stars are right," or by religious rites or other mundane rituals that require belief as opposed to magical power. This type of travel is most appropriate for campaigns which are openly mystical, and which will involve a lot of interplanar travel. Still, you can't beat it for atmosphere.

Other Planes in *GURPS*

Below is a partial listing of alternate planes of existence that can be found, either in detailed form or in passing, in the ***GURPS*** system. Each one is described in the terms discussed above.

Astral plane (pp. P51): The *outer astral plane* is a simultaneous "spirit" reality superimposed upon the physical one, while the *inner astral plane* is more like a void between worlds. Each physical reality has its own outer astral plane, which touches the unique inner one, allowing travel between worlds. There are also some purely astral realms (*constructs*) within the inner plane. Travel in the astral plane is time-consuming, although there is a 10:1 ratio between subjective and objective time on the inner plane. Only a psi with the Astral Projection skill can enter the astral plane, and he must leave his physical body behind to do so, traveling in his astral form.

Cyberspace (pp. CY72): This is a virtual reality that can be used in futuristic campaigns that otherwise lacks interplanar travel. It can be reached instantly, by jacking-in, but actually getting anywhere takes time (measured in milliseconds). This is an example of projection using a technological artifact: the netrunner's mind wanders cyberspace, and he can generate a "body" in cyberspace that other netrunners can see, but his real body does not move from in front of his cyberdeck. The netrunner also requires special abilities to travel: a Neural Interface and the Cyberdeck Operation skill.

Dreamlands (pp. CT18): This is an alien alternate reality – perhaps one of many, perhaps not – that can only be reached through a journey made by the sleeping mind. The body of the traveler is left behind, asleep, while the mind is "astrally" projected into the Dreamlands. There, the dreamer manifests himself in a *different* physical body, and months may pass for every hour of dreaming. Anyone can travel to the Dreamlands (not always consciously), but some people are better at it than others, and possess a special psionic talent called *Dream Travel*.

Dream world (p. VO20): Another alien alternate reality reached by dreaming, the dream world is reachable from both the *spirit world* and mundane world in the ***Voodoo*** setting. Dreamers take on a different body while there, and their real body is left behind, asleep. Only those skilled in the appropriate rituals of the Path of Dreams can enter the dream world at will and affect things there.

Ethereal plane (pp. M72, SU42): An example of an alternate dimension or phase, the ethereal plane may or may not form part of

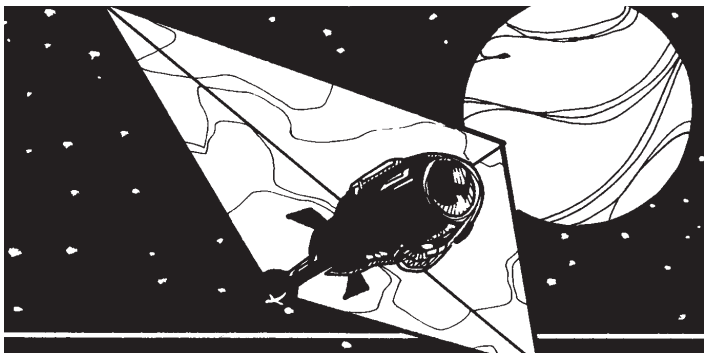
a greater planar cosmology. It exists completely "within" the physical world, but allows travelers to walk through solid objects as if they were not there. Entering the ethereal plane is quick and easy: you just cast a spell or turn on a super advantage. The physical body of the traveler becomes ethereal for the duration – this is not the same as the *astral plane.* Generally, only mages with the appropriate spells or supers with the appropriate powers can enter the ethereal plane.

Hyperspace (p. S22): This is another example of an alternate dimension or phase. In a "hard" science-fiction campaign, it is probably the only alternate plane of existence (unless cyberspace also exists, in which case the two are totally unrelated). Hyperspace is entered using a technological device called a *hyperdrive*. Physical objects can be moved into hyperspace by the drive virtually instantaneously, but a hyperdrive-equipped ship may travel for some time before leaving hyperspace at a different, distant location. In most cases, hyperspace cannot be reached in a gravity well, but is accessible to anyone who has a hyperdrive-equipped ship.

Infinite Worlds (p. TT83); This setting contains multiple physical realities. Some, called *echoes*, are very similar to *Homeline* (the "real world"), while other *parallels* are less similar; all are essentially alternate timelines. They are spread out in 8-dimensional space, and are grouped in different *Quantums,* not all of which can be reached. Travel is physical and instantaneous, and involves the use of a technological contrivances called *parachronic conveyors* and *projectors.* In theory, anyone who has access to such a device can travel between worlds; however, some lucky individuals can do so naturally, using the *World-Jumper* advantage (p. CI48).

Otherworld (p. CM65): This is a mirror world, much like the "real" one, but inhabited by the magical *Sidhe* instead of man. The Otherworld is probably not the only alternate plane of existence in the ***Celtic Myth*** setting; since magic works, any realm that can be reached magically might also exist and be reachable from the Otherworld as well. Travel to the Otherworld is an instantaneous, physical process, usually facilitated by either an existing magical gate, which anyone can use, or by creating a new magical gate with powerful magic spells. Note that at certain times, in certain places, the Otherworld is very near to the "real" one, and one can travel between the two without realizing it!

Spirit world (p. VO8): The spirit world is in some ways an alternate "physical" reality and in other ways a simultaneous, superimposed one. Many beings can exist and travel in both the mundane and spirit worlds; humans usually cannot enter the spirit world except by dying, but Initiates can often perceive and control events in the spirit world. Anyone can die and travel to the spirit world, but this is definitely a one-way trip and *not* a form of physical travel! On the other hand, certain malign entities can travel freely between the two worlds using their innate powers.



Yrth (see ***GURPS Fantasy***): This is an alien physical reality. Yrth is like Earth in some ways, but not others: the land masses, native species and laws of magic are all very different. There are species on Yrth from multiple worlds, so there definitely are other physical realities besides Earth and Yrth, and in view of the way magic works there, Yrth clearly has astral and ethereal planes as well. Yrth is normally reached by physically traveling through an erratic magical gate called the *Banestorm*, which was created by a magical backfire. Anyone can be sucked through the Banestorm if they are in the wrong place at the wrong time, but it is a one-way trip. Mages with certain powerful spells may be able to travel back and forth, however.

SOCIETY

The following sections deal with issues of society within the game.

Tech Levels

Each people, culture, nation or world in the campaign has a tech level from 0 up. Most societies will have the same TL as the campaign, but exceptions may exist, including:

Regional TLs: A particular society may have a different TL. For instance, in a TL7 campaign, one country might be TL6 – its advanced technology must be imported, and cannot even be repaired locally. A society or world may be given a "split TL" to show this: TL7/6 means that TL7 gear is available but not produced locally.

Colonies: A new colony is generally at least one TL lower than the society that colonized it. It may have the use of advanced technology, but the devices cannot be repaired or replaced locally.

Backward Societies: A low-tech culture newly introduced to a high-tech one will have a TL between its level when discovered and the more advanced society's TL. Cultures resistant to change (such as 17th-century China) may advance slowly, while ambitious cultures (19th-century Japan) might leap several TLs in a century. Some societies might enforce non-interference or stable-growth regulations, controlling the spread of advanced technology. Again, a split TL is possible: barbarians with stolen blasters might be TL 8/4.

Regressed Societies: In these cultures, a high technology is being (or has been) lost. This may be due to philosophy (a religious movement that rejects "mechanical brains," for instance), isolation (a colony cut off from its mother country, unable to replace its aging high-tech devices) or loss of the tech-educated segment of society through war or disease.

Advanced Societies: For game balance, GMs should be cautious about cultures with a higher TL than the campaign. One option is to have a few societies that are advanced in a single field, perhaps balanced by retardation in another. Advanced societies might also restrict the spread of their knowledge.

Societies with an overall TL above that of the campaign should not be introduced at random; any that exist should be created by the GM for a specific reason!

Random Tech Levels

This table was originally intended for generating entire *worlds* at random, usually for a TL8+ ***Space*** campaign. However, with a little tweaking it can also be used in other types of campaigns – to determine the TL of the world on the other side of a dimensional gate in a ***Fantasy*** campaign, for example. Tech level is based on the TL determined for the campaign by the GM. To determine relative tech level randomly, roll 3 dice.

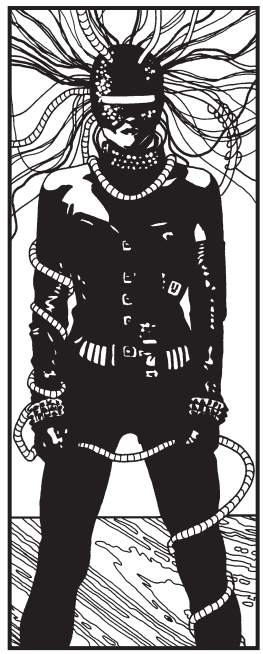
3 – *Anomalous*. Roll 1d+1 to determine TL. In a space campaign, they have star travel. Somehow, the barbarians got some starships – now they have advanced weapons, and perhaps a hostage world or two doing manufacture and repair.
4, 5 – *Retarded in a science.* Same TL as the campaign, but retarded in technology in one field – see the *Sciences Table,* below.
6, 7 – *Retarded in an art.* As above, but see the *Arts Table.*
8, 9 – *Primitive.* Roll one die to determine the world's TL.
10 – *Developing.* TL is (one die) lower than the TL of the campaign.
11 – *Slightly retarded.* Same TL as the campaign, though manufactured items tend to be larger, heavier, costlier (+10%) or less user-friendly.
12 – *Modern.* TL of the campaign.
13 – *Slightly advanced.* Campaign's TL, but products are beautifully-styled, compact, inexpensive or easier to use.
14-16 – *Advanced in an art.* Same TL as the campaign, but this society is advanced in one of the arts – see the *Arts Table.*
17, 18 – *Advanced in a science.* As above, but see the *Sciences Table.*

Sciences Table (roll two dice):

2-4 – Biology and medicine
5 – Weaponry
6 – Sublight space travel
7 – Power generation
8 – Communications or sensors
9 – Computers or robotics
10, 11 – Air or surface transportation
12 – FTL travel

Arts Table (roll two dice):

2, 3 – Games and diversions
4 – Social science and/or history
5 – Mathematics
6 – Visual arts
7 – Finance and commerce
8 – Performing arts
9, 10 – Music
11, 12 – Other arts



An advance might mean:

(1) The society has a *breakthrough* in the field. Its equipment – though still campaign TL – is noticeably improved.

(2) The society can construct a specific device from an advanced TL, though no other items from that TL are available.

(3) The society has advanced an extra TL throughout the field.

In a retarded society, the opposites apply.

Society and Government Types

Mankind has lived under dozens of different societies; some possibilities are listed below. Note that worldwide societies are likely only at TL8 and above. At TL6 and 7, a world may harbor several different societies; at TL5 and below, there are likely to be hundreds.

Anarchy

There are no laws. Order is maintained by the social conscience, or the strength and weaponry, of the population. An anarchy may be a lawless mob, or a crew of clear-eyed, strong-backed pioneers. Control Rating (see p. 188) is usually 0 – but if all your gun-toting neighbors disapprove of what you're doing, it is effectively illegal!

Athenian Democracy

Every citizen (the definition of "citizen," of course, can vary) votes on every action the society takes. In a low-tech society, this works only for groups under 10,000. In a high-tech society, any number can discuss and vote, electronically. Usually CR 2 to 4.

Representative Democracy

Elected representatives form a congress or parliament. If the citizens are vigilant and informed, this is a benevolent government. If the citizens are badly-educated, government policies will be bad but popular (bread and circuses!). If citizens are apathetic, government may be dominated by factions or special interest groups. In all cases, secret conspiracies may operate to control the society. Usually CR 2 to 4.

Clan/Tribal

The society is one large interlocking family, made up of cooperating clans or tribes. Rule is usually by the clan elders. Customs and tradition are very important. Younger clansfolk may feel forced to conform, or may be rebellious about their lack of influence; seniors may channel this energy by encouraging sports, recreational combat or adventuring. Usually CR 3 to 5.

Caste

As for Clan/Tribal, but each clan has a set profession – for instance, if a family is a warrior clan, then all members of the family are soldiers of some sort. Those who don't follow their clan profession become Clanless (a social stigma) unless there is a system for adoption into a new clan. Clans are often arranged in a social hierarchy – Administrators outrank Warriors, who outrank Street Sweepers, and so on. Individuals are expected to associate only with those of equivalent status. There may also be rivalries among clans of the same type (different Warrior families, for instance). Usually CR 3 to 6.

Corporate State

The state is ruled by corporate officers, usually chosen by a board of directors; most citizens are employees of the corporation. Society runs smoothly – it has to, or it won't be profitable. Usually CR 4 to 6.

Dictatorship

All government is in the hands of a single ruler – king, dictator or warlord. Successors may be chosen by inheritance, single combat, election, or any number of other means. If the ruler is a king, this is a *monarchy.* This sort of government can act faster, for good or evil, than most representative governments. Usually CR 3 to 6.

Many dictatorships and other totalitarian states, if they endure long enough, develop a "balance wheel" in the form of custom. Though the ruler's will is law, there will be unwritten laws which even he may not violate with impunity.

Feudal

Similar to monarchy (see *Dictatorship,* above), but subsidiary lords retain power. The ruler, therefore, must be careful to maintain the support of the lesser lords, or be overthrown. Each lord rules his own territory, so laws and personal freedom vary from dominion to dominion. If the lord's rule is harsh, he will restrict ownership of high-tech items to protect himself! Usually CR 4 to 6 for commoners.

Technocracy

Engineers and computer programmers rule in the name of efficiency. Everything is carefully planned; of course, plans can go wrong. The better the technocrats are at running things, the less oppressive they will be; if they're incompetent, they will also be dictatorial. CR can range from 3 to 6.

Theocracy

A theocracy is ruled by a religious group or leader; freedom of religion is unlikely, and there is no distinction between religious and civil law. Theocracies range from totalitarian religious dictatorships to benign Utopian societies. In either case, the leaders may or may not believe in their own religion; "miracles" may be faked or *genuine.* Usually CR 3 to 6.

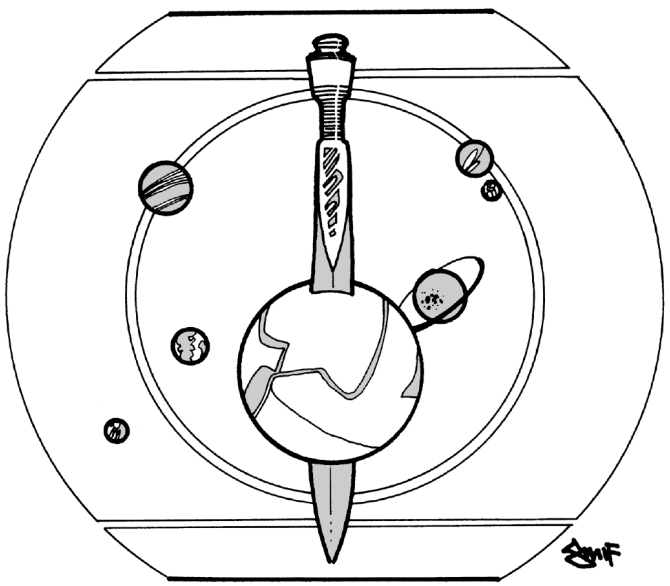
Multiple Societies

When there is no world government (common below TL8), the worldwide political situation may be:

Diffuse: There are dozens, if not hundreds, of clans, nations and groups; no one can make any claim to world domination.

Factionalized: GMs may roll 3 dice to determine the number of major governments – which may be of wildly varying types. Anyone can flee justice by jumping the nearest border. Mercenaries may be welcome. Everything from scheming to warfare is going on, as factions strive for control.

Coalition: The world is dominated by a few of the larger societies, which may bicker among themselves but usually present a united front to outsiders. GMs may roll one die to determine the number of major governments.



Special Variations

These situations may apply to most society types listed above.

Bureaucracy: Government has fallen to a self-perpetuating bureaucracy. The bureaucrats, not elected, are insulated from public pressure. Government seems to run very smoothly – or if there are difficulties, you aren't told about them. But there are high taxes, many laws and lots of red tape. The government is unresponsive to citizens. There may not be a free press. CR 4 or higher.

Colony: A dependent member of a larger society. It is ruled by the mother society, usually through a governor. The colonists may have an elected council (through which they influence the governor) and/or an elected representative to the mother government (with non-voting power), but they have no direct say in their own government as long as their society is a colony. Colonies become *territories,* receiving more self-government, when they reach a set population or development level; territories eventually become full-fledged members of the society. Colonial government will be patterned after that of the mother society.

Colonies tend to be less regimented – rebels and outcasts are welcome if they have useful skills, and laws are loose. There is less government – no welfare bureaucracy, few police outside of major communities, and the TL is lower.

Cybercracy: Administration, and perhaps actual legislation, is controlled by a state-wide computer system. Impossible below TL8, and unlikely below TL9. Government may be efficient, or inhuman, or both. CR 3 and up; the system is only as good as its programmers and technicians. Trust the Computer . . .

Meritocracy: No one may enter the government without passing a series of tests. A good meritocracy is likely to have (mostly) competent leaders . . . but this can lead to a rigid caste system. CR 3 and up.

Military Government: All administration is by the military. If led by a single commander-in-chief, the society is totalitarian; if the commander is responsible to a council or junta of officers, the society is feudal. Military governments can be strong and honest, but most become dictatorships. CR 4 and up.

Oligarchy: Regardless of the nominal form of government, leadership is in the hands of a small, self-perpetuating clique. CR 3 and up.

Patriarchy: Positions of authority are open only to males. In a *matriarchy,* all the rulers are female. Other than that, any CR is possible.

Sanctuary: A sanctuary does not extradite criminals who may be hunted elsewhere, whether they be criminals, or religious or political fugitives (or there may be a Sanctuary Tribunal to decide each petitioner's fate). Lawmen or bounty hunters from elsewhere are outlaws here. A sanctuary risks eventual takeover by the criminal element. CR rarely over 4.

Slave state: Slavery may be economic – if you can't pay your debts, you are sold into slavery. The length of the slavery might be pre-set, or economic slaves may have the chance to earn a wage and eventually buy freedom. Economic slaves are often used as colonists or soldiers. Racial slavery – in which a race or caste is held in slavery – is sometimes practiced by xenophobic races. In campaigns with multiple races, mentally-inferior (or intelligent but passive) species may be enslaved by a dominant race or even have a low-IQ slave sub-race. Martial slavery exists when a militant nation raids foes for slaves.

CR can vary; possibly everyone but the slaves is free.

For the GM, this is a way to get impoverished PCs involved in adventure. Characters might also fight a repressive state by fostering a slave revolt.

Socialist: Citizens are very heavily taxed, but government provides free education, entertainment, medical care, utilities and so

on. Quality varies . . . Visitors will usually get these same services free, but if they stay more than a month, they will be taxed 1d+3% of their monthly income. If they don't pay, they may find it impossible to get the desired services at all.

Subjugated: This world is under outside control, which may be military (an occupying army or garrison) or economic (perhaps with a "puppet government," subservient to foreign masters). CR always 4 or more.

Utopia: A utopia is a perfect society, in which all citizens are satisfied. CR always seems low . . . but is it? Real utopias are rare. More often, seeming utopias have some dark secret – a hidden technocracy ruling by mind control, for instance. For sophisticated roleplaying, a sinister utopia is a real challenge. Real utopias make excellent "good guy" societies, to be saved from conquest or other threats. But real utopias, unless threatened by destruction, are boring.

Restrictions

In a ***Space*** campaign, or in a lower-TL campaign during a period of heavy colonization, a world (or lesser region) may be placed on "restricted" status by outside societies. The degrees of restriction are:

Hazardous: This may be a navigation hazard, unusually vicious native life, or a poisonous atmosphere or ecosystem. Warnings (such as buoys, or – at lower TLs – signs or flags) may be posted to alert travelers to the hazard. A region may also be posted as hazardous due to danger to visitors – the political climate may be extreme, or a local religion or culture may be easily offended.

Reserved: Reservations have been prohibited from colonization or development at the current time.

Embargoed: All trade with this world or nation is prohibited. Unless the society doing the embargoing is very weak, this embargo will be enforced by military means. Visitors are carefully searched to prevent smuggling.

Prohibited: No contact is allowed except by special government permission. Prohibited ratings may be given because a region is very hazardous (or if visitors might help spread the hazardous item) or harbors a technological or military secret. Developing sentients may be protected by declaring their home world prohibited. Or society may protect itself from dangerous cultures by declaring them off-limits. Prohibited worlds are usually patrolled by the military. Depending on the danger, trespassers may be forcibly removed, prevented from leaving or destroyed on sight.

Protected: Contact is permitted, but strictly limited, in order to protect local life or native culture. Depending on the danger, visitors may undergo medical quarantine, be prohibited from carrying equipment above a certain TL, and/or required to disguise themselves as natives.

random societies

The society type(s) of a world can be generated randomly using the following tables:

World Government

To determine the general nature of world government, roll two dice. Subtract 4 from the roll if the world's prevailing TL is 6 or less.

5 or less – No world government; diffuse.
6 – No world government; factionalized.
7 – No world government; coalition.
8 – World government with a special condition; roll on the *Society Type* table below, and then on the *Special Conditions* table.
9 or better – World government with no special conditions; roll on the *Society Type* table below.

Society Type

To determine a society type, roll 3 dice and add the world's TL, treating any TL over 10 as 10:

3-6 – Anarchy: no government!
7, 8 – Clan/Tribal
9, 10 – Caste
11 – Feudal
12 – Theocracy
13, 14 – Dictatorship (details vary widely)
15-17 – Representative Democracy
18-20 – Athenian Democracy
21, 22 – Corporate State
23-25 – Technocracy
26 – Caste
27+ – Anarchy: no government!

Special Conditions

Roll 3 dice on this table only if the *World Government* table indicated that a special condition exists.

3, 4 – Subjugated*
5, 6 – Slave State
7 – Sanctuary
8 – Military Government
9 – Socialist*
10 – Bureaucracy*
11 – Colony
12 – Oligarchy*
13 – Restricted; Hazardous*
14 – Meritocracy*
15 – Restricted; Embargoed*
16 – Patriarchy/Matriarchy (flip a coin)
17 – Utopia
18 – Cybercracy (roll again if TL is less than 8)

* Roll one die. On a result of 1 to 3, roll for a second special condition.

Society Control Ratings

The Control Rating (CR) is a general measure of the control which a government exercises. The lower the CR, the more freedom the people have and the less restrictive the government is. Government type does not *absolutely* determine CR; it is possible (and interesting) to have a very free monarchy, or an Athenian democracy where the voters have saddled themselves with thousands of strict rules. The GM can assign the CR as he pleases, or just roll one die.

CR also affects what weapons can be carried (see *Weapon Legality,* below), but especially violent or nonviolent societies will have a separate, modified CR for weapon laws.

If any question of legality arises, or to determine how severely the government will check and harass newcomers, roll one die. If the result is lower than the CR, the act is illegal or the PCs are harassed, delayed or even arrested (see *You and the Law,* below). If it is higher, they escape trouble, either because the act is legal or the authorities overlook it. If the CR is rolled exactly, the situation could go either way; play out an encounter or make a reaction roll.

Control Ratings are as follows:

0. Anarchy. There are no laws or taxes.

1. Very free. Nothing is illegal except (perhaps) use of force or intimidation against other citizens. Ownership of all but military weapons is unrestricted. Taxes are light or voluntary.

2. Free. Some laws exist; most benefit the individual. Hunting weaponry is legal. Taxes are light.

3. Moderate. There are many laws, but most benefit the individual. Hunting weaponry is allowed by registration. Taxes are moderate and fair.

4. Controlled. Many laws exist; most are for the convenience of the state. Only light weaponry may be owned, and licenses are required. Broadcast communications are regulated; private broadcasts (like CB) and printing may be restricted. Taxation is often heavy and sometimes unfair.

5. Repressive. There are many laws and regulations, strictly enforced. Taxation is heavy and often unfair. What civilian weapons are allowed are strictly controlled and licensed and may not be carried in public. There is strict regulation of home computers, photocopiers, broadcasters and other means of information distribution and access.

6. Total control. Laws are numerous and complex. Taxation is crushing, taking most of an ordinary citizen's income. Censorship is common. The individual exists to serve the state. Private ownership of weaponry, broadcasting or duplication equipment is prohibited. The death penalty is common for offenses, and trials – if conducted at all – are a mockery.

You and the Law

If you should find yourself in trouble with the law in the modern day world, there are a few things to remember.

First, *get a lawyer.* A trial is a contest of Law skills, and the prosecution *won't* be working from a default value – you shouldn't either. Of course any character, especially a lawyer, may elect to defend himself. If he chooses to do so, the GM may assess a -1 to -3 penalty to his Law skill, due to his emotional involvement in the case. The saying, "The lawyer who defends himself has a fool for a client," is often true.

Second, bribery is usually a bad idea. Under most conditions, attempted bribery will only increase suspicion about your activities, cast doubt on your innocence, and open you up to further charges.

Third, there is a chance that a procedural error will work in your favor. When the arrest is made, the GM secretly rolls against the arresting officer's Law Enforcement professional skill. Most cops have about IQ+4 with this skill – they spend a lot of time using it. If the cop fails the roll, he has made a mistake that the defense may be able to exploit. A critical failure means the arrest is bungled so badly that the D.A.'s office lets the accused go, knowing they don't stand a chance in court.

A defense lawyer gets one chance to spot any procedural errors. A successful Law skill roll means the lawyer has identified the error, and the charges are dropped; otherwise, the trial proceeds normally. Note that *only* a character with Law skill gets a chance to notice an error in arrest procedure; non-lawyers do not get a default roll. This is another good reason to hire counsel.

The time between arrest and trial is highly variable. In smaller towns, or for lesser charges, you may only have to wait a few days before you come up before a judge. Trials in big cities or for major felonies often take six months to a year to arrange. Bail is set by the GM, depending on the severity of the charge, the defendant's reputation and legal record, and the judge's reaction to the defendant. You can always jump bail, but if you're caught, there will be additional charges, and a -2 on your trial roll.

In Court

The courtroom proceedings are represented by a Quick Contest of Law skills between the prosecuting attorney and defense. A reaction roll is then made by the jury towards the defendant to determine the verdict.

Modifiers to the jury's reaction might include:

Player roleplayed a compelling defense: +2 (or more).
Solid evidence: +1 or -1.
A plausible alibi: +1.
Eye witness: -3.
Negative publicity: -1.
The defendant's Reputation.
+/- the difference in the contest of Law skills.
+/-1 if either lawyer rolls a critical success or failure.

The jury's reaction *is* the verdict; a negative reaction means guilty, a positive reaction means not guilty. Neutral reactions go to the side which won the contest of Law, above. If that was a tie as well, you're acquitted.

Punishment, in the case of a conviction, is left up to the GM, roleplaying the judge.

Don't be afraid to lock up characters who break the law. The other characters may go looking for new evidence to free their comrade, or even try a jailbreak. Prison doesn't end an adventure – it opens up new opportunities for drama.

Weapon Legality

Some cultures are very permissive about weapons; others regulate them tightly. Adventurers entering a new society often ask "What weapons can we carry?" If they *don't* ask that, they may be in for a surprise.

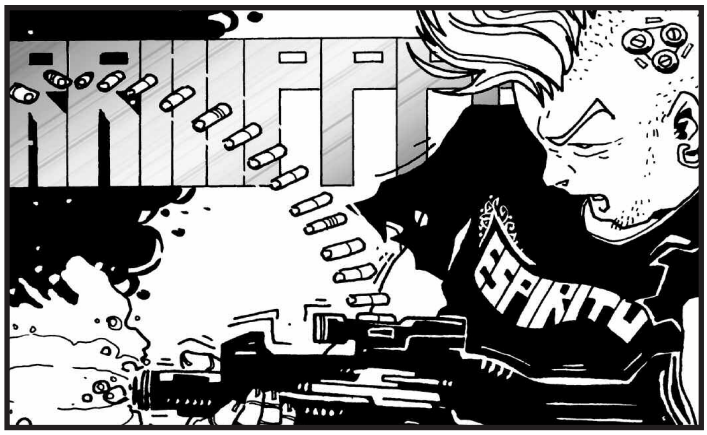
Each weapon has a *Legality Class* (LC). In general, the more lethal the weapon, the lower the LC.

Class 6: Wholly nonlethal items, like short-range stunners.

Class 5: More powerful nonlethal weapons, like stun rifles, and low-tech armor.

Class 4: Hunting weapons, like single-shot laser rifles, shotguns and rifles. Knives and other low-tech weapons.

Class 3: Light concealable weapons, like most pistols, and light body armor.



Class 2: Medium weapons, such as single-shot elephant guns or disruptors.

Class 1: Military hand weapons, like automatic rifles. Light, nonlethal vehicular weapons, such as oil jets, smokescreens, vehicular stunners and water cannon.

Class 0: Heavy personal weapons, like hand grenades, and squad-level military weapons. Most lethal vehicular weaponry, such as heavy machine guns, rocket launchers, etc.

Class -1: Heavy military weapons, such as guided missiles, tank guns and naval cannon. Strategic weapons such as nerve gas and nuclear warheads.

The class of weapons and armor that will be *legal* in any given locale will generally depend on the local government's Control Rating (see above). However, effective Control Rating for weaponry may be reduced in some societies (e.g., 20th-century USA) where the citizens insist on the right to bear arms. It may be increased in others (e.g., early 20th-century England, where the cop on the beat isn't allowed a gun). The effective CR determines who will be allowed to have what kind of weapon. A very violent society may have a *negative* CR with respect to weapons!

Note also that airline or starship passengers aren't likely to be permitted any weapons at all.

Legality interacts with Control Rating as follows:

Legality = CR+2 or more: Any citizen may carry the item.

Legality = CR+1: May be carried by anyone except a convicted criminal or the equivalent. Registration is required, but there is no permit fee.

Legality = CR: A license is required to own or carry the item. To get a license, one must show a legitimate need. Generally, a license costs 1d×10% of the price of the item itself.

Legality = CR-1: Prohibited except to government agents, police and bonded security troops.

Legality = CR-2: Prohibited except to police SWAT teams, military units and perhaps secret intelligence agencies.

Legality = CR-3 or worse: Only permitted to the military.

So, for instance, in a futuristic society with Control Rating 4, anybody could carry a stun pistol (LC 6); registration would be required for a stun rifle (LC 5); permits would be required for hunting weapons (LC 4); and ordinary citizens could own nothing heavier.

Legality of Other Devices

Items other than weapons may also have a Legality Class, based on how dangerous the authorities perceive them to be to public safety or to their monopoly of power. The ratings follow the same pattern:

Class 6: A very clever person might find a way to use this item for self-defense or crime. *Example:* A low-powered home computer.

Class 5: The device could conceivably be used for crime (or for defense against intrusive police or government agents), but it would be unlikely. *Example:* A mid-range home computer.

Class 4: While the device has many legitimate uses, it can also make some types of crime easier. *Example:* a high-speed modem, a data-encryption program.

Class 3: The device is easy to misuse, or against government interests. *Examples:* A computer security program, an ordinary "cyberdeck."

Class 2: Government agents would recognize very few legitimate civilian purposes for this device. *Example:* Most surveillance equipment.

Class 1: Designed purely for illegal or covert purposes. *Examples:* Lockpicks, a Worm program (see p. 14).

Class 0: Very powerful and dangerous. *Examples:* Military-style intrusion software, superspeed "cyberdecks," and so on.

Spell Legality

Societies where magic is common may also regulate spell use or even knowledge of certain spells – the Control Rating for magic may even be different than that for weapons. Most damage-dealing spells would be on par with light concealable weapons (LC 3), while most other spells would be LC 4 or 5. Many variations are possible: societies that place a high value on privacy would put Knowledge spells in a lower Class, otherwise tolerant societies might take exception to Necromantic spells, and all "witchcraft" might be LC 0 or even -1 in a puritanical society.

Cultural Familiarity: Advantages and Skills

Any character entering a different culture will suffer a substantial penalty on many of his skills until he becomes used to the culture. This also applies to Empathy rolls dealing with foreigners.

Affected skills include (but aren't limited to) Criminology, History, Literature, Occultism, Psychology, Savoir-Faire and Streetwise, plus the ability to appreciate the other culture's art (see *Appreciate Beauty,* p. CI129).

Newcomers start at a base -3. After a month's residence, this penalty becomes -2. After 3 months, it is -1; after a year, there is no penalty. This assumes that anyone interested in (for instance) History will be interested enough to learn about local history while he is living in a new area. If (for instance) a character were jailed upon arriving, he might increase some of his skills in jail, but not those requiring socializing, travelling or intellectual conversation.

When attempting a skill not found in one's own culture (e.g., an European trying Origami), the listed default does not apply. New skills are learned at the usual cost in time and points. There may even be an additional difficulty because of the language difference (see below).

Language Limitations

Some skills depend on speech and may never exceed the speaker's (or translator's) skill level in a foreign language. These include (but aren't limited to) Bard, Detect Lies, Diplomacy, Fast-Talk, Hypnotism, Interrogation, Lip-Reading, Savoir-Faire and Ventriloquism. For instance, someone with Fast-Talk at 14 whose speech is translated at skill 12 will fail his Fast-Talk roll on 13 or higher. Gesture communication is done at a flat -4 penalty (different cultures ascribe different meanings to gestures).

APPENDICES

A few short (but useful) points that did not fit anywhere else.

APPENDIX 1 – RULES OF N

There are several "magic numbers" in ***GURPS*** that appear as limits on skill levels or attribute rolls. Since a GM must always keep these rules in mind, here they all are in one place:

The Rule of 12 – Racial Advantages

If evolution or the creator provides a certain advantage, then that advantage generally works. Consequently, *racial* advantages that require an attribute roll will often work more efficiently than the attribute suggests, as follows:

For advantages that require an attribute roll, members of a race with an average of less than 12 in that attribute will roll at 12 or the individual's actual attribute, whichever is ***higher.*** *For races with an average attribute of 12 or more, always use the individual's actual attribute, even if that is* ***less*** *than 12!*

The Rule of 14 – Fright Checks and Resisting Disadvantages

When a character is called upon the make a Fright Check, or to make a roll against HT, IQ or Will to resist the effects of one of his disadvantages, the following rule applies:

After all modifications, the roll is limited to a maximum of 13; a roll of ***14 or more*** *is always a failure.*

Note that this does *not* affect IQ or Will rolls made to resist distraction when taking an Aim or Concentrate maneuver, IQ rolls made to "shake off" mental stun, resistance rolls (even those rolled against Will), or HT rolls to stay conscious at 0 or fewer hit points.

The Rule of 16 – Resistance Rolls

When a character is using a paranormal ability (such as a psi skill, super power, magic spell or cinematic martial arts skill) that is *resisted,* the following rule applies:

If the subject is a living being, the attacker's effective skill cannot exceed the higher of 16 or the subject's actual resistance, thus eliminating "automatic victory."

The Rule of 20 – Super Attributes

When a character with very high attribute calculates his skill defaults, the following limitation applies:

Skill defaults to attributes of 20 or more are calculated as if the attribute were at 20; everything else is ignored.

Note that this does *not* apply to defaults calculated from other skills; learning a skill at a very high level will always help you with other, related skills.

APPENDIX 2 – METRIC CONVERSIONS

All ***GURPS*** books use the old imperial units of measurement, rather than metric, because most of our readers are Americans who use the old system. But not all! Every year, more and more people in the rest of the world start ***GURPS*** campaigns. And outside the U.S., people think in metric.

Our authorized French, Spanish, Portuguese, etc., translations use metric units. But many people want the English versions. And we can't afford to do two editions of everything. So . . . here's a conversion table.

Note that there are two conversion columns. The first column is an approximation, easy to do in your head, and plenty good enough for gaming. The second column is the *real* metric equivalent, just in case you ever need to be exact.

Imperial	*Game Metric*	*Real Metric*
1 foot (ft.)	30 cm	30.48 cm
1 yard (yd.)	1 meter	0.914 meters
1 mile (mi.)	1.5 km	1.609 km
1 inch (in.)	2.5 cm	2.54 cm
1 pound (lb.)	1/2 kg	0.454 kg
1 ton	1 metric ton	0.907 metric tons
1 gallon (gal.)	4 liters	3.785 liters
1 quart (qt.)	1 liter	0.946 liters
1 ounce (oz.)	30 grams	28.349 grams
1 cubic inch (ci)	16 cu. cm	16.387 cu. cm
1 cubic yard (cy)	0.75 cubic m	0.765 cubic m

Temperature: When dealing with changes in temperature, one Fahrenheit degree is 5/9 the size of a degree Celsius. So a change of 45° F is equal to a change of 25° C. To convert actual thermometer readings, subtract 32 from the Fahrenheit temperature and multiply the result by 5/9. So 95° F is 5/9 of (95-32), or 5/9 of 63, or 35° C.

APPENDIX 3 – SIZE OF AREA AFFECTED

Sometimes, it is useful to know the number of hexes in an area of a certain radius (r). The formula is 3r(r-1)+1. Size of the areas up to radius 10:

Radius 1: area 1
Radius 2: area 7
Radius 3: area 19
Radius 4: area 37
Radius 5: area 61
Radius 6: area 91
Radius 7: area 127
Radius 8: area 169
Radius 9: area 217
Radius 10: area 271

INDEX

Aging, *and medicine,* 160, 161.
Aliens, 120; *artifacts,* 8; *realities,* 181; *technology,* 7, 8.
All-out *attacks, and Chambara,* 73; *charges,* 56; *defenses,* 79.
Alternate planes, 180-184.
Altitude, 132-133; *sickness,* 133.
Ambushes, *naval,* 95.
Ammunition, 37; *blow-through,* 62; *buck-and-ball,* 59; *bullet size,* 56; *bullet type,* 55; *damage,* 55-57; *infinite,* 78; *multi-bullet loads,* 58; *rifled slugs,* 38; *shot,* 58, 59; *size,* 56; *type,* 55.
Anaesthesia, 158, 164.
Archery equipment, 27-30.
Armies, 113-114; *building and feeding,* 116-117; *examples,* 125-128.
Armor, 9, 40, 91, 100, 119; *arms and legs,* 45; *flexible and blunt trauma,* 57; *hands and feet,* 46; *head,* 40; *horse,* 41; *improvements in,* 9; *other materials for low-tech,* 42; *quality,* 43; *torso,* 41.
Arrows, 27, 28; *flaming,* 29.
Artifacts, alien, 8; *magical,* 8.
Artillery, 119; *pre-gunpowder,* 37-39.
Astral planes, *alternate plane,* 183.
Atmospheres, 136-138.
Attacks, *all-out,* 51, 56, 73; *basic melee,* 89; *Chambara,* 72; *computing ship,* 102; *kamikaze, in space-opera combat,* 111; *multiple,* 72; *opponents,* 74.
Axe/Mace skill, *weapons for,* 19.
Axe Throwing skill, *weapons for,* 20.

Banisters, 77-78.
Battles, *example,* 128-129.
"Bends," 132, 144, 149.
Bionic transplants, 160.
Bleeding, 156.
Blowpipe skill, *weapons for,* 20, 21.
Boarding, *naval,* 98-99.
Bow skill, *weapons for,* 21.
Braintaping, 160-161.
Brawling skill, *weapons for,* 23.
Breakdowns, 6, 7, 68.
Broadsword skill, *weapons for,* 21-22.
Buck fever, 65.
Bullet shyness, 66.

Campaigns, *cinematic,* 73, 177; *high-powered,* 178-180.
Catapults, 37, 38, 121.
Catastrophes, 117-118, 120, 124.
Cavalry, 115, 119, 120, 122, 123.
Character points, *in high-powered campaigns,* 179.
Cinematic campaigns, 177; *and injury,* 151-152; *combat rules,* 71-79; *roleplaying,* 176-177; *swashbuckling,* 74-79.
Climbing, 78, 134.
Cloak skill, *weapons for,* 22.
Cold, *extreme,* 139-140; *deep water,* 139, 144; *space,* 140.
Combat, *abstract vehicular,* 94-111; *advanced,* 48-51; *animals,* 57; *basic melee,* 89; *Chambara,* 71; *checklist,* 48; *cinematic,* 72, 177; *close,* 57; *cover in,* 54, 63, 91; *cutter and ship of line,* 109; *explosives,* 64; *faster,* 73; *fighter, 1* 09; *firearm,* 66; *flying beings in,* 74; *how it works,* 48; *maneuvers,* 48, 51; *mass,* 112, 113; *naval,* 94-99; *non-lethal,* 81; *pacing,* 81-88; *ranged,* 60; *realistic,* 56-70; *ritualized,* 81-93; *rounds in space,* 101; *silly,* 76-78; *space,* 100-106; *space opera,* 106-111; *sports,* 92-93; *turns,* 48, 50; *vehicular,* 94; *very basic melees,* 89-92.
Communicators, 11, 13.
Computers, 11, 12-19; *Complexity ratings,* 12, 13, 15; *hacking,* 11; *hardware,* 13; *options,* 14; *peripherals,* 16; *program types,* 12; *security,* 11-14, 17; *sentient,* 14; *software,* 14, 16-19; *storage devices,* 16; *terminals,* 15; *using,* 12; *virus programs,* 14.
Control Ratings, 188.
Conversions, metric, 190.
Courtrooms, 188.
Cover, 54, 90, 91.
Critical failures, 6.
Critical Healing spell, 156.
Critical hits/misses, 59, 91; *hit tables: vehicles,* 61-62; *miss tables: animal,* 59; *unarmed combat,* 59-61.
Critical successes, 73.
Crossbow skill, 23.
Cryptography, 11-14.
Cyberspace, *as alternate plane,* 183.

Damage, 89; *acceleration,* 131; *acid,* 132; *animals,* 57; *applying modifiers,* 57; *atmosphere,* 136; *basic melee,* 89; *blow-through,* 57, 62; *bullet,* 55; *bullet modifiers,* 57; *cold,* 139; *collisions,* 135; *concussion,* 64; *control,* 105; *crippling,* 152; *decompression,* 149; *deep water,* 139; *different types,* 152; *electrical,* 138; *fragmentation,* 65; *from shot loads,* 60; *heat,* 140; *high-G,* 132; *naval,* 96-99; *poison,* 137, 152; *pressure,* 137, 144; *radiation,* 145; *reduction,* 151-152; *resistance,* 54, 64, 65, 135; *ship,* 96; *space combat,* 103-105; *space opera,* 107-108; *stun,* 151.
Darkness, 70.
Databases, 12, 19.
Death, 153, 177; *instant,* 139, 153.
Decompression, 149.
Defense, 89; *all-out,* 56, 73, 79, 85, 91; *basic melee,* 89; *Chambara,* 71; *concentrated,* 62-63; *factors, space combat,* 100; *flying,* 74; *vs. concussion,* 64; *vs. fragmentation,* 65.
Defensive positions, 119.
Destiny, 177.
Dexterity (DX), 69, 132, 140, 141, 142, 143; and gravity, 141-142; *weapons for,* 23.
Disease, 168-169. *See also Illness.*
Dodge, 63, 173.
Dodging, 54.
Dream world, *alternate plane,* 183.
Dreamlands, *alternate plane,* 183.
Drinking, 162-168; *hangovers,* 167; *sobering up,* 167.
Drugs, *addictive,* 162-166. *See also Medicine.*
Duelling, 85-87.

Electromagnetic pulses, 148.
Energy banks, 18.
Engagements, *breaking off naval,* 98; *naval,* 95; *space,* 101.
Environments, *extreme,* 139-140, 144, 149; *and equipment failures,* 6; *arctic,* 133-135.
Equipment, *alien,* 7; *archery,* 27-30; *experimental,* 8; *failures,* 6; *horse,* 41; *improvements,*8-9; *leaks,* 137-138; *ultra-tech,* 7.
Ethereal plane, *alternate plane,* 183.
Exceptional Strength, 123-124.
Explosions, 7, 9, 54, 64, 76, 138; *cinematic,* 76; *dodging,* 54.
Extra effort, 171-173.

Falling, 135.
Fast-Draw, 87, 89.
Fast-Talk, 78.
Fatigue, 93, 173-174; *and arctic weather,* 134; *and power cells,* 19; *and vacuum,* 149; *in sport tournaments,* 93.
Feinting, 69, 73.
Fencing skill, *weapons for,* 24.
Firepower, 95, 100, 107.
Flail skill, *weapons for,* 25.
Flamethrowers, *low-tech,* 38; *Greek fire,* 39.
Flinches, 64, 78.
Flying, *in combat,* 74.
Fright Checks, 190.
Frostbite, 134.

Gadgets, 9, 10, 11; *improvements in,* 9.
Garrote skill, *weapons for,* 25.
Glory rolls, 95-96, 118, 122; *example,* 129; *in mass combat,* 118.
Government types, 185-187.
Grappling, 69.
Gravity, 140-143; *and climbing,* 134; *and falling,* 135; *and gunfire,* 133; *and throwing,* 135; *high,* 141; *low,* 142; *micro,* 142; *varying,*133, 134, 135; *zero,* 143.
"Greek fire," 38, 39.
Guns, 133; *accuracy,* 66; *aiming,* 67, 91;*automatic weapons,* 66; *duelling,* 87; *failure of,* 6; *malfunctions,* 68; *recoil,* 67.

Harpoon skill, *weapons for,* 25.
Heal Burns spell, 156.
Healing, 124, 168-169; *advanced,* 155-157; *herbal,* 169; *magical,* 156; *psionic,* 157.
Health vs. hit points, 152-154.
Heat, extreme, 140.
Herbs, 168-170.
Heroism, 122; *in space combat,*106.

Hit locations, 40, 53, 56, 148; *and grappling,* 69; *for animals,* 54-55; *for humanoids,* 52-53; *for vehicles,* 55-56.
Hit points, vs. Health, 152-154.
Hull integrity rolls, *space combat,* 104-105.
Hyperspace, *alternate plane,* 184.
Hypothermia, 135, 139.

Illness, 133, 136, 167-174.
Indirect fire, 60.
Infinite worlds, *alternate planes,* 184.
Initiative, 71.
Injuries, 55, 89, 96; *in showdowns,* 89; *partial,* 157-158; *recovery,* 153-154; *specific,* 154-155.
Intoxication, 162-168; *table,* 163-165.
Inventions, 8.
Invisibility, 70.

Jitte/Sai skill, *weapons for,* 26.
Jousts, 81-85.
Jumping, 77, 172.

Karate skill, *weapons for,* 23.
Katana skill, *weapons for,* 26.
Knife skill, *weapons for,* 27.
Knife Throwing skill, *weapons for,* 28.
Knockback, 58, 63, 76.
Kusari skill, *weapons for,* 28.

Lance skill, *weapons for,* 29, 83.
Language limitations, 189.
Laws, 188.
Legality Class, 188-189.

Magic, 117, 120, 123, 183; *and fatigue,* 19; *and herbs,* 169; *and interplanar travel,* 182; *and technology,* 10; *and the law,* 189; *healing,* 189, 156.
Main-Gauche skill, *weapons for,* 29.
Maintenance, 6.
Maneuvers, 51, 63, 85; *cinematic swashbuckling,* 74-79; *high-G,* 131; *in shootouts,* 90; *in space-opera combat,* 109, 111; *non-combat,* 92.
Martial artists, in silly combat, 78.
Mass combat, 113; *casualties,* 122; *quick and dirty,* 123; *turn sequence,* 113.
Medicine, 155-157; *by tech level,* 158-161.
Mercenaries, 123.
Metric conversions, 190.
Missile fire, 98; *in space,* 61, 102; *naval,* 98-99; *underwater,* 61.
Monowire, 25.
Monowire Whip skill, *weapons for,* 29.
Morale, 116, 121, 122; *modifiers,* 121, 124.
Move, 48, 68, 71, 72, 140, 142.

Napalm, 39. *See also "Greek fire."*
Net skill, *weapons for,* 29.
Nonhumans, 115; *in combat,* 75.
Nudity, *bulletproof,* 76.

Otherworld, *alternate plane,* 184.

Parries, 73, 173; *animal attacks,* 59; *sweeping counter,* 79.
PD, 57, 23, 65, 64, 70.
Planes, *alien,* 181; *astral,* 183; *parallel,* 181.
Poisons, 132, 137-146, 147, 168; *atmospheres as,* 136-137.
Polearm skill, *weapons for,* 29.
Power cells, 15-19; *improvements in,* 9.
Pressure, extreme, 144.
Prosthetics, 159.
Protection Factors, 145-146.
Psionics, 117, 123; *healing,* 157; *travel to alternate planes by,* 181.

Quick Contests, 46, 73, 79, 87, 96.

Racial advantages, 190.
Radiation, 145-148; *treatment for exposure,* 152.
Recovery, 154; *of Fatigue,* 173-174.
Repairs, 7.
Resistance rolls, 190.
Retreating, 68, 71, 122, 123.
Risk modifiers, 118, 122.
Robot brains, 14; *skill programs for,* 17.
Roleplayer magazine, 62, 81, 84, 89, 112, 154, 171.
Rule of 12, 190; *of 14,* 190; *of 16,* 190; *of 20,* 190.

Scouting, 120, 124.
Seasickness, 136.
Security, 120.
Shadowing, *in space combat,* 101.
Shields, 43, 45, 70; *advanced breaking and blocking rules,* 46.
Ships, 94; *in space-opera combat,* 106-107.
Shock, 153.
Shootouts, 87, 90-91.
Short Staff skill, *weapons for,* 30.
Shortsword skill, *weapons for,* 30.
Showdowns, 87-89.
Shuriken skill, *weapons for,* 31.
Siege towers, 39.
Sieges, 121.
Sights, *bow,* 27; *high-tech,* 31.
Silencers, 33-34.
Skills, *limits on, in high-powered campaigns,* 179.
Slams, 58.
Sleep, 173-174.
Society, 184-189.
Software, 16; *copy protection,* 17; *databases,* 19; *sample programs,* 17.
Space sickness, 136.
Space opera, 176.
Spacecraft, 100.
Spear skill, *weapons for,* 32.
Spear Thrower skill, *weapons for,* 34.
Spear Throwing skill, *weapons for,* 34.
Speed, *Increased,* 48.
Spells, *new,* 156.
Spirit world, *alternate plane,* 184.
Starting points, *in high-powered campaigns,* 179.
Starting wealth, 8.
Staff skill, *weapons for,* 34.
Step, *increased, for high Move,* 72.
Strategy modifiers, *in mass combat,* 119-120.
Strength, *and gravity,* 141.
Stun, 64, 151; *points,* 151-152.
Super attributes, 190; *powers,* 117, 123.
Superhumans, 115, 178; *strength, nonhuman,* 75.
Surprise, *in mass combat,* 120.
Survival, 101, 105, 106, 118; *arctic,* 131; 133; *rolls,* 95, 122; *rolls, example,* 129; *rolls, in mass combat,* 118; *rolls, naval,* 98; *rolls, space,* 105.
Swashbucklers, 176; *cinematic,* 74-79.

Tables, *acceleration effects,* 131; *alcohol content,* 162; *animal critical miss,* 59; *body parts for quadrupeds,* 54; *casualty,* 122; *catastrophe roll,* 117; *computer,* 15; *computer terminal,* 16; *cover,* 54; *damage for chain shot,* 97; *damage for round shot,* 97; *death,* 153; *energy bank,* 18; *enigmatic alien device button-pushing,* 9; *first aid,* 155; *force commander's experience,* 116; *guaranteed play-balance,* 10; *intoxication,* 163; *metallic cartridge weight,* 38; *metric conversion,* 190; *naval battle outcome,* 96; *radiation effects,* 146; *random side-effect,* 11; *REF,* 64; *ship damage,* 96, 103; *shock,* 153; *space combat results,* 103; *random societies,* 187; *random tech levels,* 185; *troop quality,* 116; *typical troop skill,* 116; *unarmed critical miss,* 60-61; *vehicle critical hit,* 62; *vehicle hit location,* 55; *wind chill,* 133.
Tech levels, 10, 11, 13, 17; *and armor,* 40; *and EMPs,* 148; *and equipment improvements,* 8-9; *and society,* 184-185; *and surprise,* 120; *differences in mass combat,* 115.
Technology, *and magic,* 10.
Temperatures, *extreme,* 139-140; *metric,* 190.
Throwing, 20, 28, 73, 78, 135, 172; *furniture,* 76.
Throwing Stick skill, *weapons for,* 35.
Tonfa skill, *weapons for,* 35.
Tournaments, 83, 84, 92; *quick rules,* 84-85; *sport,* 92-93.
Traps, 39-41.
Troops, *examples,* 125-127; *irregular,* 114, 126; *morale,* 116; *paying and maintaining,* 117; *quality,* 116; *raising,* 116-117; *relative strengths,* 119; *strength,* 113, 114-117; *types,* 114-115, 124.
Two-Handed Axe/Mace skill, *weapons for,* 35.
Two-Handed Sword skill, *weapons for,* 36.

Ultra-tech, *and alternate planes,* 181, 182; *equipment,* 7; *medicine,* 153-161; *swords,* 25.
Umbra, *alternate plane,* 184.

Vacuum, 149.
Vehicles, 10; *breakdowns of,* 6, 7.
Venom, 145; *types,* 147.
Vital points, 75, 151.

Wealth, *starting,* 8.
Weapon quality, 20; *armor,* 43; *blades,* 24; *firearm,* 39.
Weapons, *accessories for firearms,* 31-36; *blunt,* 81; *bronze,* 21; *duelling,* 86; *experimental,* 115; *force,* 26; *high-tech materials for,* 24; *improvements,* 9; *iron,* 21; *legality,* 188-189; *low-tech,* 22-23; *malfunctions,* 68-69; *missile,* 119; *missile, cinematic,* 73; *monowire,* 25; *muscle-powered,* 19-36; *non-metal,*20-21; *readying, cinematic,* 74; *reduced hit probability,* 67; *shaped-charge,* 66; *silver,* 21; *sonic,* 26, 31; *stone,* 20; *ultra-tech,* 25-26; *wrestling for,* 71.
Weather hazards, *arctic,* 133-135.
Weird gadgets, 8; *technology,* 11.
Whip skill, *weapons for,* 36.
Wounds, 55, 154-157; *flesh,* 151.
Wrestling, *for weapons,* 71.

Yrth, *alternate plane,* 184.

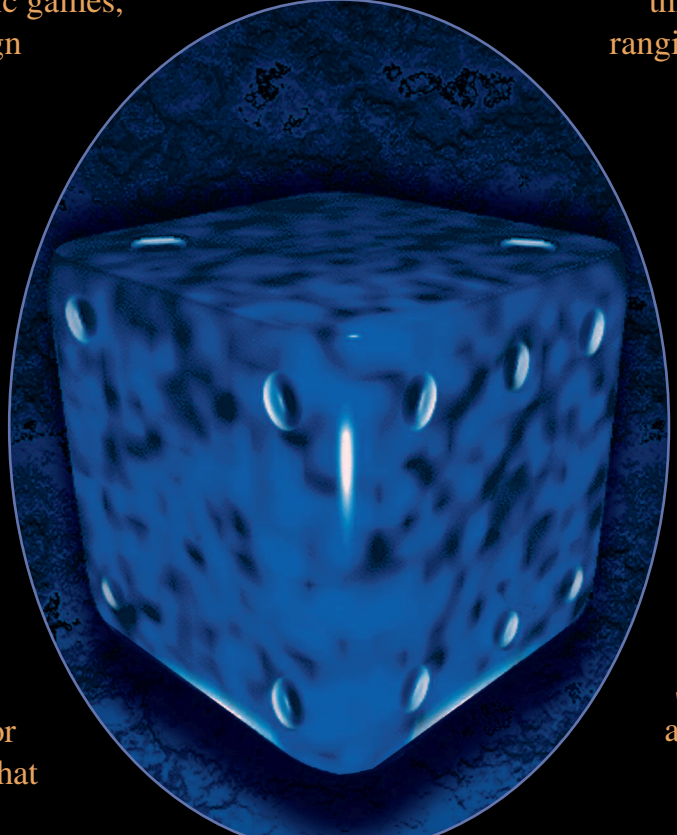
THE BEST OF ALL WORLDS!

***Compendium II* is 192 pages of the best articles and the most-requested new expanded/optional rules for *GURPS*! We've chosen the most useful GM resources from over 14,000 pages of *GURPS* material (much of it no longer in print) and added new material written by experienced *GURPS* gurus. *Compendium II* is a must-have for Game Masters (no more digging through a stack of books to find the optional rule you want) and a valuable aid for any *GURPS* player.**

• **CAMPAIGNING** – Game mastering and campaign design, cinematic games, other dimensions, campaign power level and designing believable societies.

• **COMBAT** – Optional rules galore for both realistic and cinematic combat! Also includes rules for non-lethal contests and tournaments, and systems for space combat and naval combat.

• **EQUIPMENT** – Including rules for day-to-day maintenance . . . and for operating bizarre artifacts that are *not* day-to-day at all!



• **DANGEROUS STUFF!** – Pages of things to scare players with, ranging from cold weather and seasickness to altitude sickness, decompression and radiation.

• **INJURY & FATIGUE** – Detailed optional rules that build upon the existing systems for injury, healing, missed sleep and extra effort.

• **MASS COMBAT** – Yes, the much-requested Mass Combat System is back in print, in an up-to-date, all-inclusive format that includes new, optional rules.

This book is designed for use with *GURPS Compendium I* and *GURPS Basic Set, Third Edition,* and includes rules that appear in the appendix of *Basic Set, Third Edition Revised.*

Compiled and Edited by Sean Punch
Cover by Jeff Koke
Illustrated by Dan Smith

STEVE JACKSON GAMES

ISBN 1-55634-327-2
52395
9 781556 343278
SJG02195 **6522**
Printed in the U.S.A.

GURPS COMPENDIUM II
STEVE JACKSON GAMES