GURPS Fourth Edition

Lois McMaster Bujold's Vorkosigan™ Saga

Sourcebook and Roleplaying Game

By Genevieve Cogman

Steve Jackson Games

FORWARD MOMENTUM!

From the award-winning science-fiction stories of Lois McMaster Bujold comes the Vorkosigan Saga, set in a future universe of honor and betrayal, war and intrigue, great victories and great defeats. Miles Vorkosigan is brilliant, charismatic, the heir to a noble house on a warrior planet . . . and hopelessly crippled.

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This book includes a complete roleplaying system, ***GURPS Lite****, plus separate sections on spaceship design and spaceship combat. The setting presented in* the ***Vorkosigan Saga*** *can be used with* ***any*** *game system.*

By **Genevieve Cogman** Edited by **Steve Jackson** and **Sean Punch**
Cover and Illustrations by **Bob Stevlic**

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GURPS® Fourth Edition

Lois McMaster Bujold's Vorkosigan™ Saga

Sourcebook and Roleplaying Game

Written by GENEVIEVE COGMAN

Based on the books by LOIS McMASTER BUJOLD

Additional material by PHIL MASTERS, DAVID L. PULVER, and THOMAS WEIGEL

Edited by STEVE JACKSON and SEAN PUNCH

Cover and illustrations by BOB STEVLIC

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Technology Consultation by Walter Milliken
Copy Editing and Continuity Checking by Monica Stephens and Elizabeth McCoy

Introduction

In the future as imagined by Lois McMaster Bujold, human beings are still human – but new worlds have evolved widely different cultures. Cloning, interstellar travel, plasma rifles, and genetic design are now commonplace. The Vorkosigans' universe can hold space opera and gutter politics, high romance and low farce . . . every kind of human behavior, and the adventure and danger that make roleplaying so much fun.

Your heroes can sacrifice themselves to save empires, fight to preserve their family honor, intrigue to extend their personal power, gamble in dingy spaceports, research the scientific advance that could save their planet, or navigate strange cultures to investigate crimes and find the guilty. It's a big universe, and it's still evolving. The players may be the ones who will shape its future.

What Else You Will Need

The ***Vorkosigan Saga Sourcebook and Roleplaying Game*** is both a game book and a sourcebook. If you're a lover of the stories of House Vorkosigan, we think you will enjoy this book, whether or not you are a roleplayer.

As a ***GURPS*** sourcebook, this is a self-contained roleplaying guide. Along with pencils, paper, and three six-sided dice, this book is all you need to play. If you want more detail, you can find it in the ***GURPS Basic Set.*** Game Masters may also find ***GURPS Bio-Tech*** and ***GURPS Ultra-Tech*** useful in modeling some of the devices and weaponry that adventurers may encounter.

Some Warnings

Spoiler Alert: This book gives away the broad strokes, and some of the details, of most of the Vorkosigan books. (Given the impact that Miles Vorkosigan and his family have had on the universe, it could hardly be otherwise!) Plot twists are revealed here; you have been warned.

Miles Vorkosigan

However, this is not an attempt to recount the entire history of the Vorkosigan universe. Nor does it presume to create canon; if something here is contradicted by past or future Bujold fiction, then the Bujoldiana is definitive. (GMs, of course, will do as they wish in their private campaigns . . .)

About the Authors

Genevieve Cogman has been roleplaying for more than half her 36 years, and has no intention of stopping any time soon. She is the author of ***You Are Here: Around the World in 666 Days*** and ***In Nomine Anime,*** and has also written for White Wolf's ***Exalted*** game, among others. She lives in England, where she spends far too much time on the Internet.

Lois McMaster Bujold is the author of the Vorkosigan series (see the *Bibliography*, p. 234) and the fantasy novels *The Spirit Ring, The Curse of Chalion, Paladin of Souls, The Hallowed Hunt,* and *The Sharing Knife* tetralogy. She co-edited the anthology *Women at War* with Roland Green from Tor Books. She has won five Hugo awards, three Nebulas, three Locus awards, the Mythopoeic Award, a Minnesota Book Award, the Ohioana Library Career Award, and has been nominated for several more. In 2008, she was Writer Guest of Honor at the World Science Fiction Convention. Her works have been translated into more than 20 languages so far.

Editor's Acknowledgements

My first acknowledgement as editor is that this book is about five years late, and it's my fault. When a project goes particularly well, we say, "Everything just fell together." Well, in this case, everything seemed to fall *apart*. Genevieve Cogman's final draft appeared on time and was approved . . . and then staff changes, business issues, other demands on my time, and the ***GURPS*** change to *Fourth Edition* all miraculously came exactly when they could cause the greatest amount of delay, dismay, and wasted work *on this particular book*. Over and over. It was my job to deal with these things, and I dealt with them poorly. I'm sorry.

Still, every time I came back to it, I would start by "checking a couple of details" and end by rereading several of the books cover to cover. The setting still "had" me; even when I lost my footing on the project, I didn't lose my enthusiasm. To me, this speaks volumes about the characters and stories of the Vorkosigan universe. One doesn't get tired of these books. they'll be read for a long, long time.

My second acknowledgement, and the most important one, is to Lois McMaster Bujold for her incredible patience and support. Her feedback was always precise, quick, and cheerful, despite the repeated delays at our end. A particular concern of mine was the character art. I find it deeply annoying that writers, in general, have so little say in the way their characters are drawn. Every character illustration in this book was approved by Bujold . . . and if the first version wasn't good enough, we kept correcting until she said it was "in spec." No illustration will ever completely match the picture in the author's mind, or in any reader's, but I think this was worth the effort, and not just for the principle of the thing. I'm very appreciative . . . both to Bujold for her feedback on each iteration of the art, and to Bob Stevlic for his patience and dedication in rendering those iterations until that spec was met.

My thanks also go out to the many people who helped bring off a complex project, most notably Thomas Weigel for the spaceship appendices, Phil Masters for the customized ***GURPS Lite,*** Walter Milliken and Beth McCoy for tech writeups and attendant number-crunching, Sean Punch for character-stat cleanup, Beth McCoy again for quick and acute criticism of the final-really-no-kidding-we-think draft, and Phil Reed and Monica Stephens for catching the ball when it fell to the floor, many times, many ways.

And, finally, thanks to Genevieve Cogman. Long ago and far away, she wrote an excellent manuscript. Then at no time during the ensuing half-decade did she stoop across the wide Atlantic, brilliant as avenging Athena, to strike down her dilatory publisher in righteous wrath. See? It's really out now!

– *Steve Jackson*

About *GURPS*

Steve Jackson Games is committed to full support of ***GURPS*** players. Our address is SJ Games, P.O. Box 18957, Austin, TX 78760. Please include a self-addressed, stamped envelope (SASE) any time you write us! We can also be reached by e-mail: **info@sjgames.com**. Resources include:

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Bibliographies. Many of our books have extensive bibliographies, and we're putting them online – with links to let you buy the resources that interest you! Go to each book's web page and look for the "Bibliography" link.

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

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

Chapter One
The Universe

. . . science is not separate from us. It's something ***people*** *do . . . I don't see SF as "about" science, but rather as about human response to science-driven change.*

– Lois McMaster Bujold, ***Dreamweaver's Dilemma***

"It's a delicate situation." The small man looked from one member of the group to another, holding their eyes for a crucial moment until he was certain of their comprehension. "The accountants have traced all the purchases to this branch of the Toscane family; while they aren't the only stockholders in Galactic Exports, they have 90% of the shares. Our experts say the only use they can think of for some of those components is in gravitic-pulse direction. Given the associations with the cell in Serifosa, we need to be certain. You have been selected either for your scientific expertise," he made a small, precise nod toward the vague-looking lanky man in the corner, "or for the fact that you have never visited Komarr, and are good physical fits for a couple of civilian identities that ImpSec has been maintaining. There are known Cetagandan and Jacksonian agents in Equinox. What worries me are the ones we don't know about."

The stiff-backed young captain with ImpSec silver eyes on his collar broke silence for the first time. "Are we to assume we can trust the local ImpSec office there, my lord?"

The small man in brown and silver smiled cheerfully. "With everything except the nature of your investigation, the possible links to the Toscane family, and the possibility of another wormhole-collapser. Clear?"

"As crystal, my lord," muttered the young officer.

In the universe of Miles Vorkosigan, humanity has colonized hundreds of worlds. Some are divided into squabbling principalities, others are united under a single government, and some are members of multi-world empires. The variety of cultures and governments is immense, and there is no central authority. Earth itself (p. 45) remains important but by no means dominant.

Miles' own world of Barrayar, lost for generations, has been rediscovered by the rest of mankind, and is struggling to find and protect its place. Some of its neighbors are friendlier than others. In the Cetagandan Empire, the military ghem-clans plot to expand their empire, while their masters, the haut, redesign their own genes. On Jackson's Whole, where nothing is illegal and everything and everyone has a price, the Houses Major and Minor scheme and dicker, alternating alliances with betrayals, while providing ethics-free services to all comers. Beta Colony and Escobar offer scientific advances and democracy taken to the extreme. The modified humans of Quaddiespace settle their asteroid belts and shun planets and gravity. Earth endures, still a center of cultural and historical importance. The people of hundreds of other worlds trade, explore, and fight – wherever there are people, there are opportunities for peaceful profit, for less peaceful profit, and for roleplaying.

One reason this universe is so interesting is because it starts with common science-fiction clichés and tropes, follows them to logical large-scale consequences, and examines the personal effects on the protagonists. For example, consider cloning. If you *can* clone, and ethics aren't an issue, the possibilities are nearly infinite. A cloned slave, grown to your specific instructions, and indoctrinated for loyalty from birth? Routine. Genetically modified "super-soldiers," engineered for maximum bloodthirstiness and reflexes? Certainly – it's merely a technical problem. A clone of yourself, so you can have your brain transplanted into it to prolong your life? Just put down the cash – if you don't care what happens to the brain that came with that new body. And what legal rights does a clone have? (It depends on where you are. On Jackson's Whole, none. On Beta Colony, as many as any other child.)

What sort of cultural changes will new technology bring? The uterine replicator allows women to have children without the hazards of pregnancy – weakening many of the traditional justifications for discrimination between the sexes. Planets such as Beta Colony have embraced the changes. As the use of the uterine replicator spreads, it will become more and more difficult for other planets to justify sex-linked discrimination on purely biological grounds. (Tradition is, of course, a different matter.) How long will it take for some people to claim that replicator-born babies are

superior to body-born ones – or vice versa? And biology is just the start. What effects will other new technologies bring?

Through all of this, human beings are still capable of the same acts of good, evil, kindness, cruelty, or blind obstinacy that they always have been. Everyone is shaped to some degree by the cultures in which they were raised, but everyone has potential for growth and change. Nature is just as much a factor as nurture. Nobody has to be trapped in cultural stereotypes. If a player wants to be a heroic Jacksonian, an anarchic Cetagandan, a democratic Barrayaran, or an antisocial Betan, the universe is wide enough to allow it, and the stories are human enough to recognize that there is more to a person than his origin and occupation. Your characters can – and will – become the heroes and villains that your story demands.

So, while this universe contains standard science-fiction elements – spaceships, death rays, stunners, clones, wormhole jumps, and strange new worlds – the stories are not about gadgets. Ultimately, *people* drive the action. Individual people can – and do – affect the worlds around them.

Character vs. Culture

Stories are driven by conflicts. One of the key aspects of the Vorkosigan saga is the conflict between character and culture. What will a handicapped man, or a very able woman, do on a patriarchal world where soldiering is the only truly respected trade? On a world based on democracy and openness, how will a ship captain remain sane when she has a military secret that she can't reveal? What happens to a clone bred on Jackson's Whole and trained for murder when he tries to be an ethical hero?

Whether a hero wants to work with the prevailing power structures or against them, there is plenty of scope for role-playing. Laws, customs, beliefs, and traditions have evolved in very different ways on different places. Barrayar is an extreme example – it spent several centuries isolated from the rest of the galaxy, fighting a cruel environment with failing technology. Barrayar's people survived and grew strong, but their culture is full of unspoken expectations and prejudices that frequently shock outsiders. A native of Barrayar will have grown up with these beliefs, and will have to decide whether to maintain or reject them . . . once he realizes he has the option! A galactic outsider who deals with Barrayarans must deal with both their strengths and their prejudices.

Wormholes

The characteristics of space travel and space combat shape the social, economic, and political structure of galactic society. Star travel in the Vorkosigan setting is reasonably easy, but fairly slow and constrained to a few routes. This makes star systems defensible, but control of large regions is difficult. Relationships among the worlds . . . travel, colonization, commerce, and war . . . are all governed by the "wormholes" that allow space travel.

Wormholes, or "jump points," are weak points in the fabric of space. In our normal three-dimensional space, each wormhole appears to be in two places at once, so (for instance), a ship can go from Barrayar to Komarr, or vice versa, instantly.

Most systems have no useful planets, so wormholes leading there are useless – unless other wormholes can be found near the exit point. In that case, it may be possible to trace a multi-jump route to somewhere worth visiting. Most jump routes involve multiple wormhole passages, one after another, as quickly as a ship can move from one exit to the next entrance point.

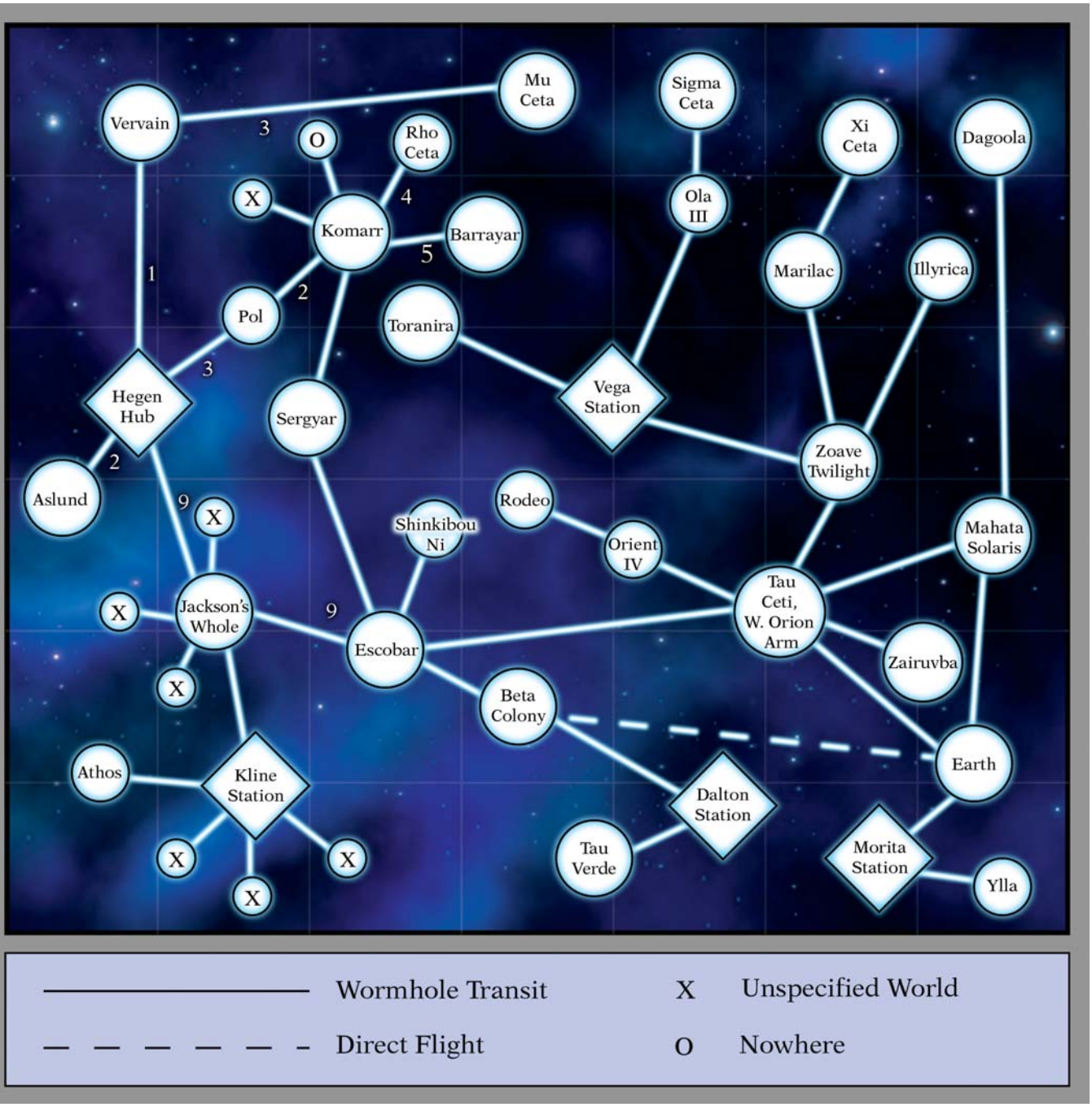
Travelers can visit only those systems connected by wormholes. Who can say how many habitable planets might lie off the wormhole routes, never to be discovered? Wormholes are the highways that tie the worlds together.

Should the discovery of a new wormhole connect two formerly distant areas, the whole shape of galactic commerce will change! A link between rivals could mean instant war, or a new alliance. Even a link between allies will reroute trade; it might be an economic boon on the whole, but worlds on the "old" route will still suffer from lost traffic. See p. 138 for more about newly discovered wormholes.

A dead-end wormhole route (such as the Komarr-Barrayar passage) might seem less important than one between two heavily populated areas, but it is vital to the world on the far end!

Some groups, such as the Founding Fathers of Athos (p. 46), *prefer* a location on the far end of a wormhole route, out of touch with the rest of the galaxy. If such a world has the resources to be self-sufficient, it can be extremely attractive to a group who wants to avoid contact with the rest of the galaxy, whatever their reasons.

A "map" of known wormholes (see p. 10) shows no relationship to the galaxy we know. Most of the planets linked by wormholes are so far away from each other that nobody has ever attempted to make the trip by normal space travel. Beta Colony, originally reached by sub-lightspeed ships from Earth, is very much the exception rather than the rule.



Wormhole map by Crystal Carroll and Suford Lewis, used by permission of Baen Books.

Trade Routes

It's rare for a system to hold more than two or three wormholes that lead to useful destinations. A planet at the junction of several wormhole routes, such as Escobar or the Hegen Hub, will become immensely important. In the early days of interstellar exploration, hub worlds were rapidly developed to serve as jumping-off points for further missions. This gave them strong economies to start with . . . and, nourished by trade through the wormholes, those economies grew stronger. In the long run, a world's location in the wormhole nexus is as important as its own resources. If a system has important wormholes but no usable planet, governments or commercial interests often create an artificial world – a "station" (such as Kline Station, p. 48) – to serve as a transit point.

Important hub worlds, each connecting several wormhole routes, include Jackson's Whole, the Hegen Hub, Kline Station, Escobar, Komarr, Vega Station, Zoave Twilight, and Tau Ceti.

Most of these hubs prosper by taking the fair profits earned by any trade nexus – repair, resupplying, R&R. Stretch your legs, try a few games of chance, meet some friendly natives . . . Some have evolved unique strategies

for profit. Jackson's Whole attracts trade by openly offering services that can't be found elsewhere in the galaxy. Some, like the former Komarran government, add little value, but pile on taxes, tariffs, and trade duties. Unless their neighbors are very peaceful indeed, hubs plow some of those profits back into defense.

Communications

The only way that communications can exceed the speed of light is to be recorded and physically taken through a wormhole. Within systems, and between systems not connected by wormholes, messages travel only at the speed of light.

Most wormholes have dedicated communications ships, which jump back and forth on a regular schedule to carry messages both ways. On less-traveled routes, though, communications have to wait for the next ship to pass by. Truly vital data is rarely entrusted to any public system; it usually travels by fast courier.

Disputed Wormholes

Wormholes may lead to disputes between the planets they connect – and third parties as well, advancing their own interests. Each wormhole exits onto a fixed point in space; that point can be garrisoned to halt or destroy all ships coming through. Thus, it has a stranglehold on commerce, and presents a serious obstacle to unfriendly visitors. Forcing a passage through a defended wormhole is costly and chancy, but it's possible. It's far better to control *both* sides of the wormhole, where anything that comes at you must travel through normal space.

Even a minor planetary power such as Vervain, located between the Hegen Hub and the Cetagandan Empire, could hope to thwart Cetagandan invasions, just because they controlled the Cetagandan point of entry into the Vervani system. But the Cetagandans, of course, wanted to own both sides of that point.

In a situation like that, either power or both may send spies to investigate the rival's defenses. They may use trading ships to smuggle weapons, troops, or agents, or disguise warships as traders. They may embargo trade, lobby other powers to bring political pressure on their rivals, and hire mercenaries to beef up their own strength.

Other worlds, or even powerful corporations, may get involved to protect their own interests – especially if *both* sides are financing their disagreement by charging tolls on passage through the wormhole! This may lead to third-, fourth-, and fifth-party spies and mercenaries infesting any disputed area. These agents may not even know who they are working for . . .

Blocking a Wormhole

Wormhole volumes are tiny on an astronomical scale, and can easily be blockaded or defended with fleets or stations. Attackers cannot come through in large groups . . . ships jumping in close succession can intersect on arrival, with highly explosive results. Thirty seconds between arrivals is considered the minimum safe spacing, so ships clear out of the arrival volume as fast as possible. The nexus also needs to be kept free of debris, or similar problems will occur. Just seeding a wormhole area with junk will make it riskier for attackers to jump in.

If you control one end of a wormhole, it is possible to close it temporarily by having a pilot sacrifice himself and his ship mid-jump. However, the disruption damps out in a matter of weeks, and the wormhole is once again traversable. Wormholes also open, close, and shift due to physical events in 3- and 5-space, but these are beyond the control of human technology . . . so far. See p. 139.

5-Space Tracking

Ships traversing wormholes leave behind a 5-space "trail," which can be detected for some time after passage. The equipment required to detect this trail, the amount of information that can be gleaned from it, and the time that it persists, are highly classified . . . meaning that the GM is free to use them as plot points.

Brooding, Illyan shook his head. "If the Jackson's Whole jump were cut, everyone would have to reroute through the Cetagandan Empire . . . profit, there . . .

"Or through us," Miles pointed out. "Why should Cetaganda do us that favor?"

"I have thought of one possibility. Actually, I've thought of nine, but this one's for you, Miles. What's the best way to capture a jump point?"

"From both ends at once," Miles recited automatically.

– The Vor Game

Basic Galactic History

In the 21st and 22nd centuries, Earth began a push toward interstellar colonization. Colony ships were built – not generation ships, but vessels that would take 20 years or more to reach their destinations. A couple of nearby stars were chosen – nearby, in this case, meaning within 40 light-years of Earth. The first was Alpha Colony. The world seemed promising, but the colony failed utterly. Traces were found by later expeditions, but there were no signs of what had happened. But the second attempt, Beta Colony (p. 34), survived and grew.

Global disasters on Earth put a temporary halt to interstellar colonization. The details are never specified, but radioactivity was involved, and the aftermath included some really nasty mutant mosquitoes. Perhaps they have been exterminated by Miles' time. Perhaps not.

This disaster wiped out Cleveland, and maybe some other cities I dislike . . .

– Lois McMaster Bujold, ***Dreamweaver's Dilemma***

After the hiatus, the wormhole jump drive was discovered, and exploration began explosively in all directions. However, America had been particularly hard hit; the new colonies came mainly from other Earth societies. One promising new world was called Barrayar . . . but, shortly after the first colonists landed, the Barrayar wormhole closed, and it dropped out of galactic history. For a while . . .

Beta Colony invented the uterine replicator, resulting in an immediate surge of interest in genetic engineering. At this time, various new human types, including hermaphrodites (p. 74) and quaddies (p. 75) were created – hermaphrodites as a social experiment on Beta Colony, and quaddies as a zero-gravity labor force. Galactic opinion eventually turned against this, especially after the Nuovo Brasilian cloning fiasco. The Jacksonians (p. 42) continue building servants and slaves to order, but no new races of human are being created. The exception is the Cetagandans' self-improvement project (p. 41), and most of the changes they are making in their own genome are not obvious to the casual observer.

Beta Colony's invention of artificial gravity increased the speed of sublight space travel, and made large-scale space stations more feasible. No longer did personnel in zero gravity need to visit planetside regularly, or spend several hours exercising each day, to prevent physical degeneration. Space stations were promptly built at important wormhole junctions which lacked habitable planets nearby, such as Kline Station and Dalton Station. Subcultures began to develop on these stations, as permanent populations grew up and new generations spent their entire lives without seeing a planet.

What Lies Ahead

At the moment, the galaxy is a relatively peaceful place. So what could possibly go wrong? Everything. The Vorkosigan universe is constantly expanding and evolving. Even if its heroes win peace for a time, the next generation will encounter its own problems. New discoveries will bring both opportunities and ethical issues. Human beings are human beings – that, in itself, is enough to create as many interesting situations as any GM could possibly want. See Chapter 8 (p. 132) for a number of ways that things could go interestingly wrong.

Chapter Two

Barrayar and Imperium

"Why the tourist thing?" Captain Solone asked. Away from the Auditor's presence, he had allowed himself to relax, and was cradling a bulb of black coffee between his hands. "Every holo-novel spy pretends to be a tourist. Why not emigrants? A lot of Barrayarans are moving to Komarr these days."

"Yes, but none of us are women," pointed out the bland analyst, removing his attention from his computer for a moment. "And only one of us is a scientist. There go two of our biggest reasons for emigrating. Better to be tourists."

The lanky Dr. Waverd raised a hand thoughtfully. "Tourists going to visit the Solstice Massacre shrine. That gives us an excuse to be wandering around generally."

"You're sure you won't be recognized?" Solone queried. "Lieutenant Danseur and I are traveling under fake identities. You're going as yourself, and you're an expert on wormholes. If someone spots you, it could give the whole game away."

Waverd sighed. "We all make our contribution to the Imperium, Captain. Mine happens to be three papers that ImpSec suppressed before publication, an offer of tenure that ImpSec requested I turn down, and having to miss every damn interesting conference. Even my academic record at ISI has been sanitized. I'm carried on the university payroll as a technical librarian. I ***am*** *a fake identity."*

Solone took that in. More than either of the young officers with their proud silver eyes, this rumpled civilian had given himself to Barrayar.

The Barrayaran Imperium includes three planets: Barrayar itself, Komarr, and, most recently, Sergyar. It has a violent and bloody history, but is currently a peaceful galactic power under Emperor Gregor – though its neighbors are well aware that its ruling caste remains military and its space fleet is large and modern.

Barrayar

Control Rating: 3

That's the metaphorical aspect of it. Barrayar is us. It is a culture which has undergone wrenching changes in a very short time, which is, of course, the story of the twentieth century.

– Lois McMaster Bujold, ***Dreamweaver's Dilemma***

Barrayar is a world in the throes of change, trying to cope with new technology and attitudes while maintaining its traditional social structure and values. It was rediscovered after being isolated from the rest of the galaxy for several centuries . . . and promptly invaded by the Cetagandans. This reinforced the warrior ethos of Barrayaran culture, and resulted, after the Cetagandans had been driven off, in the aggressive conquest of Komarr and a later attack on Escobar. More recently, galactic influence on the current Emperor (in the person of the Betan-born Countess Cordelia Vorkosigan) has resulted in a progressive policy of peaceful expansion.

Even so, the Vor warrior caste still rules through a feudal system of an Emperor and a council of 60 Counts. The Service, which comprises all Barrayar's military forces, is considered the best possible career for a Barrayaran man, but is almost totally closed to women. Other planets, such as the profoundly democratic Beta Colony or the rationalist Escobar, don't understand how Barrayar can survive, let alone function. Many galactics see Barrayar as a world of jackbooted thugs, led by an ornately decorated aristocracy barely above barbarism. Emperor Gregor's task is to integrate the best features of Barrayar's traditions with galactic advances that can improve the quality of life for everyone . . . without either provoking the conservative Vor to revolt or diluting the Barrayaran virtues of honor, service, and loyalty.

Geography and Climate

Barrayar has arctic, temperate, and tropical zones like those of Earth. It has two moons, and a longer day than Earth's (26.7 hours). There are two main continents; a few scattered islands are also inhabited.

The North Continent is the heart of Barrayar. It is divided into 60 Districts, each governed by a Count. To the south lie the Dendarii Mountains, which form part of Vorkosigan's District (and contribute to the traditional Vorkosigan poverty – mountains are poor farmland). Farther north lie the lowlands, green where they have been terraformed with Earth plants, red-brown where native vegetation still flourishes. The occasional irradiated area, a relic of the Cetagandan invasion, mars the landscape. Road networks outside the cities are still poor. Travelers without their own lightflyers usually find it easier to use the monorail system that passes through most Districts.

> *The only Barrayaran vegetation he could identify and name offhand was that to which he was violently allergic.*
>
> ***– Komarr***

Vegetation and Terraforming

Much of the native Barrayaran vegetation is poisonous to Earth-descended life. It is usually various shades of red-brown, ranging from scarlet to chestnut. The original settlers' affection for their new plant life can be seen in some of the names that they bestowed: bloody puffwad (from the South Continent, on the western slopes of the Black Escarpment), deerslayer vine, skellytum (five meters tall, with tendrils, and an ugly brown, though bright red when raised as bonsai), love-lies-itching (a low carmine mass), razor-grass (tall and billowing blond), strangle-vines (a major problem for South Continent farmers), scrubwire, chuffgrass, zipweed, damnweed, henbloat, goatbane . . .

For a long time, the only way to terraform the soil on Barrayar was by burning and composting. The native scrub was burned off when the wind would blow the poisonous smoke away from settled areas. The soil was treated with organic waste of Earth-DNA origin, and Earth stock was planted. There was never enough Earth-life-based compost to keep old ground fertile and still break in new lands During the Time of Isolation, there was actually a minor war over horse manure – an admirable fertilizer – when a financially pressed Emperor started charging for the "product" of the Imperial cavalry stables.

Modern technology has made great strides with chemicals and tailored bacteria to speed the process, but backcountry people still follow the old ways.

History

Several hundred years ago, a group of 50,000 colonists – now referred to as the Firsters – reached Barrayar via a chain of wormhole jumps from Earth. They discovered that the planet was usable, but the ecology was hostile. The Firsters, composed mainly of Russian, Greek, French, and British settlers, were meant to be the first of many waves in Barrayar's colonization. Then, without warning, the Barrayar wormhole collapsed, trapping the Firsters and bathing the world in radiation. The colonists, cut off from all support, lowered their priorities to simple survival.

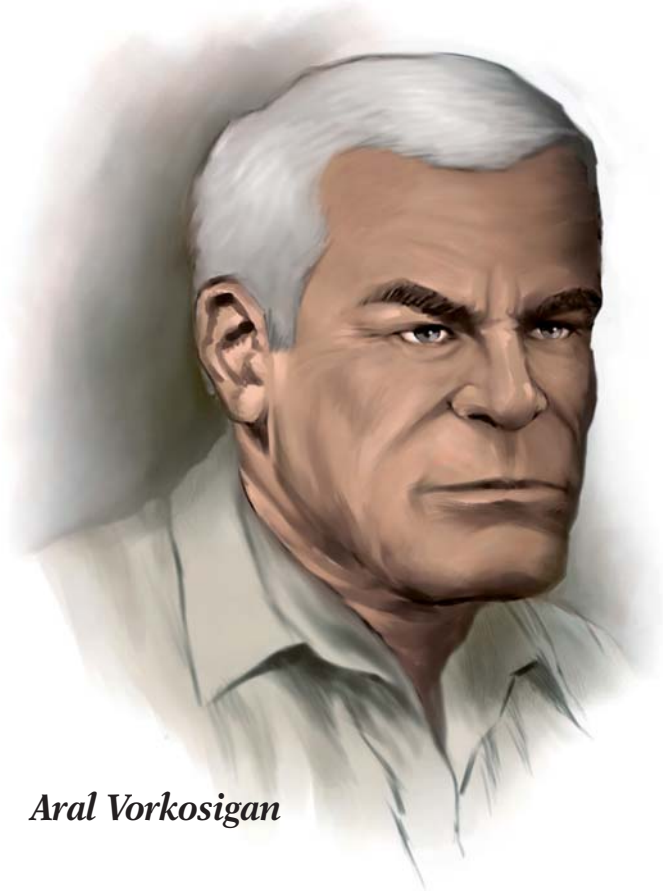
Thus began the Time of Isolation. Almost all the Firsters were on the North Continent. Even there, society rapidly degenerated to the feudal level. Technological items wore out or were destroyed. The battle with the native plants dropped to the most basic and tedious level: slash, burn, fertilize, and replant. Mutations appeared, caused by the radiation from the wormhole's closing and from other biological insults, especially plant toxins. Medical technology declined too quickly for the colonists to be able to perform genetic corrections. Infanticide, usually by the mother or a female relative, became the customary way of dealing with misshapen children. "Mutie" became a deadly insult.

The first Counts emerged during the Time of Isolation. They were in fact *accountants*, tax collectors for Varadar Tau, who started as a bandit and became a ruler by force of arms. Auditors (p. 21) were appointed to keep track of the flow of the money – and, ultimately, of the loyalty of the Counts. The military Vor caste also appeared during this period. A family could only be raised to Vor rank by the

Lord Vorlopulous and the 2,000 Cooks

At the end of the Time of Isolation, Emperor Dorca Vorbarra was centralizing the government and ending the independent rule of the Counts. Lord Vorlopulous was feuding with several neighbors, and found his new allotment of 20 Armsmen quite inadequate for his needs. He therefore hired 2,000 "cooks" and sent them out to carve up his enemies. In an attempt to stick to the letter of the law, he was most ingenious about arming them with butcher knives instead of swords, and so on. The Emperor, however, was not amused, and arrested Vorlopulous for treason – for which the penalty was (and remains) public exposure and death by starvation. The man with 2,000 cooks was condemned to starve to death in the Great Square of Vorbarr Sultana.

In Barrayaran terms, the story has a happy ending, because it was at just that point that the Cetagandans invaded. Vorlopulous' sentence was suspended so he could lead his District's forces, and he died honorably on the battlefield.



Aral Vorkosigan

We must be sure he gets a thorough grounding in the history of the mutagen disasters, so he'll understand where the violence is coming from. How deeply the agony and the fear are embedded, which drive the visible anxieties, and, ah, as you Betans would see it, bad manners.

– Aral Vorkosigan,
Mirror Dance

Emperor's decree; usually this was a reward for military service. Naturally, the Counts were all Vor.

Once the North Continent was unified, the Emperor was theoretically the world's supreme authority, but in practice the Counts held a great deal of independent power, and could ignore his orders in proportion to the size of their armies. Dorca Vorbarra the Just was the first Emperor to gain true and absolute control over Barrayar. He is a key figure in history. Not only did he break the power of the independent Counts; he also oversaw the end of the Time of Isolation and the beginning of Barrayar's transition into galactic society. With the aid of his trusted right-hand man (or, according to some, chief thug), Count Pierre "Le Sanguinaire" Vorrutyer, he wiped out the Counts' private armies. Counts were limited to 20 armed followers, the Armsmen (see p. 68).

The end of the Time of Isolation came when the Komarrans discovered a wormhole route leading from their system to Barrayar. They were, naturally, astonished to discover this lost colony – and somewhat stunned by what Barrayaran culture had become. Unfortunately, the Komarrans then permitted the Cetagandans to take a fleet through the wormhole to invade Barrayar.

The Cetagandans began with nuclear strikes, taking out several of the recently built shuttleport fields. Later targets included Vorkosigan Vashnoi, the capital of Vorkosigan's District. The radiation increased the incidence of mutations, leading to more infanticide. This goes a long way to explain the utter hatred felt by the Barrayarans toward Cetaganda – a hatred unabated to this day. Conquest, to the Barrayaran mind, is perfectly reasonable, but these invaders were *mutating their babies*.

The Barrayarans fought back with surprising effectiveness. They took to the mountains and wilderness, launching commando strikes on the invaders, and practicing guerrilla warfare from the shadows. Count Pierre "Le Sanguinaire" died during the Cetagandan Invasion, selling himself dearly in defense of a Resistance enclave. His name is still a byword for ruthless violence. The young Count Piotr Vorkosigan was another notable figure in the resistance, adept at mastering modern technology – at least as far as it related to killing Cetagandans.

The pressure of war led to an important social change – talent, not birth, became most important for promotion in the Service. It was now possible for a non-Vor with suitable abilities and skills to train and serve as an officer, to earn enough honor and respect that he could be accepted among Vor and in society, and even to achieve high command.

Eventually, the resistance made the war too costly for the Cetagandans. After 20 years, they retreated back past Komarr. They left behind much of their equipment and infrastructure, which helped Barrayar bootstrap itself to higher levels of technology, particularly in weapons and spaceflight. And Barrayar now realized that it couldn't trust Komarr to guard the wormhole that led to the rest of the universe.

Cetagandan Motives

It has never been established why the Cetagandans attacked Barrayar. The newly rediscovered world would certainly have *looked* like an easy conquest: little technology, only partly colonized, and with no galactic allies. But why bother? Its population was suitable for little more than manual labor. Its resources are unspectacular. And Barrayar is a galactic dead end, with its only wormhole access being via Komarr. Its strategic worth is almost nil.

Could the Cetagandans have been leading up to a two-pronged attack on the *Komarrans*? Or did they hope for a reappearance of the original wormhole? There is also the possibility that the geneticists at the heart of the Cetagandan Empire (see p. 37) had an interest in the Barrayaran bloodlines, which came directly from Earth and had been completely isolated for the last few hundred years.

Did the Cetagandans pull out because their interstellar priorities had changed, because they had given up on their Barrayaran objective . . . or, perhaps, because they had *achieved* it?

The Cetagandans are not interested in explaining themselves, and the ghem-generals who led the invasion have all expiated their failure by heroic death or suicide.

But internal Barrayaran affairs rapidly took precedence. Dorca was succeeded by Emperor Yuri Vorbarra, generally referred to in later years as "Yuri the Mad." Yuri was paranoid, dangerous, and even worse than historians give him credit for. The climax of his rule was "Yuri Vorbarra's Massacre." To wipe out possible rivals for the throne, he sent death squads against all his relatives in the same night. One of the victims was Yuri's niece by his brother Prince Xav (who had married a Betan diplomat). Yuri's murderers also killed two of his niece's three children, but they missed young Aral Vorkosigan – and the mad Emperor had failed to tell his men to dispose of his niece's husband, Count Piotr.

That night, Count Piotr Vorkosigan and Prince Xav met with Ezar Vorbarra, who had also survived Mad Yuri's Massacre . . . and who had a claim on the throne. (Whether it was the *best* claim is arguable. Aral Vorkosigan had some right to the throne by descent; so did several others. There are enough contradictory laws in the Barrayaran canon to raise half a dozen rebellions for different "true heirs.") Count Piotr and Prince Xav offered their support to Ezar, and in doing so, began Yuri Vorbarra's Civil War. The fighting ended two years later, when Yuri was captured. He was quickly (and brutally) executed in Vorhartung Castle. His cured scalp is still exhibited there.

Ezar, the new Emperor, had to balance the Vor warrior aristocrats against the rising new men of the bureaucracy. He tried to strengthen the ministries at the expense of the Counts, but he went too far; the Counts were severely weakened, and the ministries became corrupt. The Ministry of Political Education became a powerful and oppressive force. Its head, Minister Grishnov, was the third most powerful man on Barrayar, after the Emperor and Captain Negri (the head of ImpSec, the Barrayaran secret service). And offworld trouble was brewing – the Komarran oligarchs were charging 25% tariffs on trade through their wormholes, crippling the Barrayaran economy. And, of course, Barrayar had not forgotten that Komarr had permitted the Cetagandan attack. The Komarran War (p. 31) was brief, and Komarr was conquered and added to the Imperium.

Unfortunately, Prince Serg, the heir to Emperor Ezar, was a weak, perverse character, with no motivation except his own amusement. Serg was encouraged by the licentious Admiral Ges Vorrutyer, who himself was a pawn of Minister Grishnov. Serg was patently unfit to take power after Ezar's death; he is known to have directed more than one assassination plot against his own father. He and the Princess Kareen had one son – a child only a few years old, named Gregor.

Old and sick, Emperor Ezar knew he had only a few years left to save Barrayar from his son. But Prince Serg could not simply be disinherited. He was too powerful, too well entrenched . . . and Barrayar was not stable enough to survive an open split within House Vorbarra. Even if Serg were somehow removed peacefully, Grishnov and his party would slide into the power vacuum when Ezar died. So Ezar decided to destroy the whole war party so thoroughly that it would not trouble his baby grandson's generation.

The planet that would become Sergyar had recently been discovered by Barrayaran Service explorers, via a wormhole jump from Komarr; it proved to be linked by another wormhole to Escobar. A Betan Astronomical Survey ship, led by Captain Cordelia Naismith, had also discovered the planet, but the Barrayarans were quick to use force to back their claim. They *had* been first, and Beta didn't press the

I can't imagine what old Yuri thought he was about, to kill my mother and leave my father alive. That was when my father threw his corps behind Ezar Vorbarra, in the civil war that followed.

– Aral Vorkosigan, ***Shards of Honor***

issue. Now Prince Serg and Admiral Vorrutyer, supported by the militarist faction of the Council of Counts and the Ministries, were clamoring to use the Sergyar wormhole for an invasion of wealthy, high-tech Escobar.

Ezar's solution was horrible in both its simplicity and its cost. He knew, through intelligence reports, that the Betans had recently developed a device which obsoleted Barrayaran weaponry (see p. 94). And Beta was allied with Escobar. But Ezar did not share this information. Instead, while seeming to oppose the invasion, he let Prince Serg and the war party have their way. Only a few officers on the invasion fleet, including Admiral Aral Vorkosigan, knew what was about to happen.

Ezar's plan worked perfectly. Prince Serg died nobly leading the attack, his ship destroyed by its own reflected fire. The Barrayaran fleet retreated in haste, though Admiral Vorkosigan took command and was able to minimize losses. Conveniently timed riots burned down the Ministry of Political Education when news of the defeat reached Barrayar. When Ezar died, he left Admiral Vorkosigan as Regent for the infant Gregor, with the war party thoroughly crushed.

Secrets

Few of the true reasons behind the Escobar War are generally known. The public record shows that Prince Serg was a hero who died for the Empire; the planet Sergyar received its name in his glorious memory. Only a handful of those still alive know the truth – Count Aral and Countess Cordelia Vorkosigan, Simon Illyan, and a few other high Vor or ImpSec personnel who were involved in Ezar's plot. Some who knew Serg or Admiral Vorrutyer may doubt that they suddenly became brave heroes, but it is one of the best-kept secrets on Barrayar that Emperor Ezar permitted the doomed attack on Escobar, sacrificing thousands of his own men, in order to eliminate his own son.

. . . the Emperor said that if it wasn't done now, we would all be trying to do it ourselves, five or ten years down the road, and probably botching the job and getting all our friends killed, in a full-scale planet-wide civil war. He's seen two, in his lifetime. That was the nightmare that haunted him.

– ***Shards of Honor***

Aral Vorkosigan's Regency did not remain peaceful for long. The next year, Count Vidal Vordarian, a rejected candidate for the Regency, made a bid for power. Vordarian's Pretendership was eventually put down, with Princess Kareen one of its many casualties. The young Emperor became a ward of Regent Vorkosigan and his wife. (Naturally, Countess Cordelia took the opportunity to expose him to Betan and galactic thinking, giving him a far broader perspective than the average Vor.)

Between justice and genocide there is, in the long run, no middle ground.

– Aral Vorkosigan, quoted by Miles Vorkosigan in ***Brothers in Arms***

Three years later came the Komarran Revolt (p. 31). Its military action was confined to Komarr, but the repercussions were felt on Barrayar in terms of public prejudice toward Komarr and increased tension from the Conservative party. There were two further disputes with the Cetagandans, which Barrayar calls the Second and Third Cetagandan Wars, and Cetaganda records, if at all, as brief, unauthorized ghem-adventures. After that, matters continued more or less on an even keel until Gregor reached maturity and the Regent handed over the reins of power.

Naturally, powerful men immediately sought to gain influence over the young Emperor. This came to a head when Count Vordrozda and Admiral Hessman accused young Lord Miles Vorkosigan of treason for hiring 5,000 offworld mercenaries in violation of Vorloupulous' Law (see p. 14). The charges were disproved, the plotters were executed, and the Dendarii Mercenaries became a Crown Troop.

Shortly afterward, Emperor Gregor temporarily abandoned his position, after discovering what sort of person his father had really been. He eluded his own security and fled Barrayar, ending up in the Hegen Hub. Fortunately, he ran into Miles Vorkosigan, who was investigating the area as an ImpSec agent. Between them, the two dealt with a Cetagandan attack on the planet Vervain. Miles held the Cetagandans off with the Dendarii Mercenaries while Gregor brought in Barrayaran backup. The whole affair put a temporary stop to Cetagandan aggression, improving relations between Barrayar and the Hub worlds.

As matters on Barrayar stabilized, the Emperor became more settled in his role, finding a balance between self-assertion and attention to his Counts. Even the affair of the broken Komarran soletta (p. 31) did little to disturb Barrayaran tranquility. What *did* come as a shock to the planet was the Emperor's love for a well-born Komarran woman – Dr. Laisa Toscane. Their marriage was the occasion for planetwide festivities, and many hope that it will augur better relations between Barrayar and Komarr.

Vorbarr Sultana

Vorbarr Sultana is the capital of Barrayar. It lies on the eastern shore of the North Continent, at the head of a river that flows under a set of famous bridges (there's a song about them in four languages) and out to sea. The rapids and falls upstream are checked by dams and locks, to allow boat transport.

The city straddled a broad silver river, with the oldest government buildings, ancient converted fortresses most of them, hugging the bluffs and high points commanding the river's edge. The modern city spilled back from them to the north and south.

– Shards of Honor

The weather here – and in the nearby Vorkosigan's District – is generally temperate, but violent snowstorms have been known to make Winterfair memorable.

The capital is slowly adapting to modern technology and transport. Streets built for horse-drawn traffic are not necessarily suited for fast-moving groundcars. The municipal government is working to implement traffic-control schemes and automated air systems for lightflyers; the air system has priority, due to the increasing number of fatal lightflyer accidents. A shuttleport is located just outside the city.

Vorbarr Sultana has two faces: the old and the new. The old district shows its age, despite recent improvements. The streets are warrens, underlain by at least three different sets of old sewage and transport tunnels. The buildings are short and old-fashioned. The caravanserai area that used to be the center of the Old Town slums has been cleaned up in recent years, and even attracts a certain amount of tourist trade – but its maze of alleys is no place for unwary strangers.

In the newer parts of Vorbarr Sultana, most buildings are in the utilitarian style of the boom that followed Emperor Ezar's rise. Tall modern towers rise among the more classical buildings.

Notable locations in Vorbarr Sultana include the following places.

The Imperial Residence

This is an ancient architectural pile; parts date back to very early in the Time of Isolation, and it has been growing ever since. Sprawling wings rise two to four stories high, accented by occasional towers that appear to have been dropped randomly around the building. Additions of different ages crisscross each other, creating both large and small courtyards. Ancient basements and tunnels, many known only to Imperial Security, connect in unexpected ways.

After part of the Residence burned down during the Vordarian Pretendership, it was rebuilt in a more modern style, with technological conveniences such as lift-tubes. Gregor's private office is in the rebuilt north wing.

Naturally, as the home of the Emperor, the Residence seethes with bureaucrats, random Vor, and trained ImpSec bodyguards thinly disguised as servants.

Vorhartung Castle

The equally ancient seat of Barrayar's government is perched on a bluff above the river rapids that divide Vorbarr Sultana. The Emperor Gregor has a private office here, which he often uses for working meetings. The Council of Counts meets in the huge wood-paneled Council chamber; spectators may observe from an ornate, railed gallery. It's a gaudy sight; most Counts dress either in their house colors or in Service parade uniform of red-and-blue.

Vorhartung Castle also contains a museum of Barrayar's history, which is open to the public when the Council is not in session. It occupies a whole wing of the castle, and is devoted to the arms and armor of the Vor from the Time of Isolation. (Servicemen in uniform are admitted free, as are Vor.) The exhibit also includes the tanned scalp of Mad Emperor Yuri, on loan from a private collection.

Vorbretten House

The new townhouse of the Counts Vorbretten is across the river from Vorhartung Castle. The famous Star Bridge connects the two shores. The old Vorbretten mansion having been wrecked in the War of Vordarian's Pretendership, Count Vorbretten rebuilt in a more modern style, with force fields replacing stone walls.

Vorkosigan House

The residence of the Vorkosigans is in the old part of the city. It is a typical Count's residence; in fact, the Vorkosigans are not wealthy compared to many Counts, so Vorkosigan House is a fairly *modest* example . . . except in its security, which was upgraded to the highest standard while Count Aral was Regent.

The huge stone house was designed and built in the pre-electric Time of Isolation, but every original window has been replaced with modern, high-grade armor-glass and fitted with automatic shutters. It is surrounded by a stone wall topped with black wrought-iron spikes, with a force screen just inside the wall, scanner beams, and a tanglefield. A concrete kiosk beside the gate houses the ImpSec gate guards. The great entry hall, with its black-and-white paved floor, opens onto drawing rooms, libraries, and conference rooms. The building also contains a large garage (occupying the whole eastern wing's sub-basement), a huge kitchen on the lower level, a lift-tube (a comparatively recent installation, ordered by the Countess), plenty of bedrooms, and attics filled with curios, mementos, and historical items. Next to the house, Lady Ekaterin Vorkosigan has created a garden of native Barrayaran vegetation, open for everyone to enjoy.

Vorrutyer House

Even older than Vorkosigan House and definitely more fortress-like, seemingly straight out of the Bloody Centuries. The ground floor has a few gunslits, but no windows at all. The double doors into the courtyard are thick iron-bound planks, undecorated. Even the floor plan is designed for crossfire and control of the surrounding ground, from a day when black powder was the height of technology.

The Imperial University at Vorbarr Sultana

Barrayar's preeminent institution of higher education; when a Barrayaran refers to "the" University, this is it. Much of its faculty is from offworld, and its Barrayaran professors are of equal quality and are often invited to lecture on other planets.

The campus is located between the old and new parts of the city, and often finds itself used as a traffic shortcut. The old residential streets behind it house families of senior professors and staff. These homes represent the architecture of the last unelectrified decade before the end of the Time of Isolation, and have only in the last decade been reclaimed from urban decay.

The Vorbarra District Agricultural and Engineering Institute

The largest and busiest school in the capital, dedicated to turning out the professionals that Barrayar will need to continue its development.

The Imperial Science Institute

A think tank, heavily research-oriented, with close and unpublicized connections to the Service's R&D division.

The Imperial Military Academy

Service officers are trained here. See p. 26.

Imperial Security Headquarters

A hideous, windowless block of concrete which has become a tourist attraction for its spectacular ugliness. See p. 27.

The Imperial Military Hospital

"ImpMil" is rapidly coming up to galactic standards, especially with regard to treatment of combat injuries.

The Vorbarr Sultana Company Hall

A prestigious concert venue.

Siegling's

One of the top weaponry shops on all Barrayar, Siegling's caters to the upper-class trade. They sell hunting weapons, stunners for self-defense, and traditional arms such as sabers, knives, and swordsticks. At Siegling's one can find the very finest weapons . . . as well as items of merely ordinary quality embellished with expensive decorations.

Estelle

The premier couturier in Vorbarr Sultana, which is to say in all Barrayar. Madame Estelle does not advertise. Her patrons are the cream of Vor society, and they know perfectly well where to find her discreet second-floor location. Each creation by Estelle will be individual, perfectly fitted to both the buyer and the occasion, and of the best quality and workmanship.

Elsewhere on Barrayar

Among the other locations on Barrayar which have been described are:

Vorkosigan's District

This is a historically important District on the east side of the North Continent, with a Count and his heir in notably high positions. It is also notorious for its rustic, ignorant Dendarii back-country hillmen, and for producing maple mead, "the deadliest alcoholic beverage ever brewed by man." The District itself is a squashed, irregular parallelogram, some 350 kilometers from the northern strip of lowland to the southern mountain passes, and about 500 kilometers east to west, skirting the Dendarii mountain chain along its highest ranges. It has always been agricultural, and is landlocked, so it has no coastal trade. Only about the northern fifth is flat fertile plains, and of that, only about half is usable – the rest either awaits terraforming or is still radioactive because of Cetagandan bombing. The District has lagged behind many others in development.

Going south from Vorbarr Sultana in a lightflyer, one enters Vorkosigan's District when the Dendarii Mountains are in sight. Hassadar, the new capital, lies in the fertile area. Because most of it has been built in the last 30 years, it is laid out like a developed galactic city, relying on newer methods of transport than horse-carts. To the southeast, downwind and downstream, are the irradiated remains of Vorkosigan Vashnoi, the old capital; the surrounding country is wild and lovely, and should be safe for humans in 50 years or so. A few squatters and bandits live there, desperate men who don't expect to live long enough to have cancer or children – they are regularly rounded up and run off by the District rangers.

South and west of the irradiated lands, in the foothills and on the lower mountain slopes, is a forested area. It was planted by General Piotr Vorkosigan about 50 years ago and has been carefully cultivated since, with an eye to a future wood trade. It contains many Earth trees, including oak, maple, elm, hickory, vesper-birch, and a new strain of winter-hardy ebony.

Another product of the District is wine; there are a number of vineyards and a fairly modern winery, and some of the Vorkosigan estate vintages are very fine. There is also a "meadery," sponsored by Lord Miles himself; the formidable Dendarii maple mead is no longer just a cottage product, but a growing industry.

In the west of the District are the lake and village of Vorkosigan Surleau, the favorite retreat of the Vorkosigan Counts for centuries. The lake is cold and deep, fine for fishing and boating. While the castle is ruined and burned out – again, by the Cetagandans – the old stone barracks have been converted into the Vorkosigan summer residence. (The new guard barracks are concealed in the trees downslope.) There has been a minor population explosion in the area, with up to a hundred new families from Hassadar or Vorbarr Sultana moving there each year or buying summer homes; the village prospers accordingly. The Vorkosigan graveyard for family and retainers is next to the residence, and is the final resting place of both General Piotr Vorkosigan and Sergeant Konstantin Bothari.

While many parts of the Dendarii Mountains are still primitive when compared to the rest of Barrayar, the whole District is moving slowly toward greater industrialization and education, with several villages collaborating to build local hydroelectric dams or to arrange education for their children. The medical network in Vorkosigan's District is one of Countess Cordelia's pet projects; half the personnel there are oath-sworn to serve her in exchange for their schooling. Villages in the mountains include Silvy Vale, Seligrad, and Dos'tovar. The caves in the mountains have played a strategic part in the District's defense more than once – they were used as shelter during the Cetagandan invasion, and again during Mad Yuri's War and the Vordarian Pretendership.

One thing the District still lacks is convenient space access. The closest full-scale shuttleport is the Service's Tanery Base, two Districts away, to the south of the Dendarii Mountains.

Bonsanklar

On the east coast of North Continent, south of the Dendarii range, are a number of beach resorts; one of the more famous is Bonsanklar, an upper-class resort seaside town. To its north is a large virgin forest, leading up to the mountains.

South Continent

Smaller than the North Continent and only partly terraformed, this continent was almost empty until the Time of Isolation ended. South Continent is generally level country, with the notable exception of the Black Escarpment, the highest mountain range on Barrayar. It runs north to south, with snow, murderous terrain, and bone-dry air. Cadet officers are sent there for training in winter maneuvers, while the enlisted men suffer on Kyril Island (below).

Settled after the age when the Counts were carving out their Districts, South Continent is not part of that system; its administrative chain bypasses the Counts and leads to the Emperor.

Much of South Continent is still empty; it vies with the new world of Sergyar (p. 33) for settlers. Most of the people there now are farmers and terraformers, but in towns like Vandeville one can find technology, modern transport to the North Continent, and Vor who are considerably less high-flown than their cousins in Vorbarr Sultana.

Kyril Island

Near the arctic circle lies the uninviting Kyril Island, which houses Lazkowski Base – a winter training base for infantry, referred to as "Camp Permafrost" by those unlucky enough to have anything to do with it. Camp Permafrost is a frequent posting for officers who have managed to get onto someone's blacklist. It's 500 kilometers from anywhere and anyone, including the nearest women. The water will freeze a swimmer in minutes, the bogs are lethal, and the winds can blow away groundcars. The trainees come and go, but the permanent staff is stuck there.

> *But it was one of the zoological high points of the Council's varied political history, right up there with the infamous Incendiary Cat Plot.*
>
> *– Count Aral Vorkosigan,* ***Mirror Dance***

Government

Theoretically, ultimate power is held by the Emperor, and descends from him to the 60 Counts, who administer their Districts in his name. The Council of Counts is not merely a rubber stamp for the Emperor, though. Most votes are settled by a simple majority, though certain extraordinary actions require more. The Emperor may cast a vote in his capacity as Count Vorbarra; he also has the right to veto petitions or refuse to hear appeals.

Each Count has the right to run his District as he sees fit, unless reined in by the Emperor or his brother Counts. He can create local laws, structure District government to suit himself, impose taxes, provide public services, and so forth. One of Count Aral Vorkosigan's reforms, as Regent, was to institute uniform rules for subjects who wished to move between Districts. (Since every Count hoped to attract immigrants from other Districts, this measure easily passed through the Council.) Every Imperial subject now has the right to vote with his feet; if he dislikes his current Count, he can move.

Districts vary from the modern, such as Vorbarra's District around the capital, to those with large backcountry populations, such as Vorkosigan's District. Some provide modern social services, such as medical care and education; others are more restrictive or old-fashioned. The degree of industrialization also varies widely. Some Districts got a boost from the Cetagandans, who built infrastructure during their occupation and left much of it intact. Almost every District has a shuttleport.

Rights of Succession

A Count names his successor, who is usually his eldest living son. The chosen heir must be formally presented to the Council of Counts and approved by a simple majority. If the Count fails to name an heir, or some dispute over the named heir surfaces after the Count's death, the Council will settle the matter. In one famous case, Count Vortala quarreled with his son, disinherited him, and maneuvered the Council into approving his horse, Midnight, as the new heir. The Count claimed that "Lord Midnight" was just as bright as his son, and had never betrayed him. Given that the horse's confirmation as heir was later revoked, this precedent is brought up on *both sides* of any case where a Count's choice is questioned.

A Count's heir speaks with his Voice and, in the absence of the Count, can vote in the Council of Counts. He may also pronounce justice in the Count's District. A woman cannot be named a Count's heir, though she may act as guardian (with voting rights) for an infant heir, if there are *no* other male relations to do so.

The heir to a Count – or his eldest child, if an heir has not been named – is addressed as Lord or Lady Vorwhoever, while younger children are titled Lord or Lady (Name) Vorwhoever. Thus Miles, as the named heir to Count Aral Vorkosigan, is Lord Vorkosigan, while his younger brother is Lord Mark Vorkosigan, and "Lord Mark" is a proper formal address, just as a medieval knight was called by "Sir" and his first name.

Emperor Gregor

The present Emperor blends traditional Barrayaran and modern galactic ideals. He was raised on Barrayar, and went through the standard Vor schools and the Imperial Military Academy . . . but he is also a product of Betan culture, thanks to Cordelia Vorkosigan, his guardian from age five. He makes no secret that he favors the Progressive Party, but he also works to keep the Conservatives reasonably happy and cooperative, and he certainly wants to protect the best traditions of Barrayar. In this modern age, galactic innovations and new attitudes appear with every ship that lands. Gregor has to persuade his Council – and his world – to accept the better ones, while guarding against ideas that aren't as good as they seem at first. If a Count imports fertilizers that improve the harvest but pollutes the rivers, for instance, the Emperor and his appointees must handle the issue.

Gregor has been through great psychological trauma – losing his father at an early age, a rebellion that killed his mother when he was five, the discovery of his father's madness, the fear of hereditary insanity, and all the stress of ruling the Imperium. His marriage to an off-planet woman, besides being a true love match, was also prompted by an urge to avoid further Vor inbreeding. He is a genuine progressive; he has tolerated such innovations as Lady Donna Vorrutyer's Betan surgical transformation into the male Lord Dono to claim the title of Count Vorrutyer. Gregor is a tall, quiet man with the typical Vor dark hair and eyes. His catchphrase, familiar to all who work with him, is, "Let's see what happens." He is an intelligent, decisive ruler who wields near-absolute power with a precise touch.

The Imperial Auditors

The Auditors hold a special place in Barrayaran government – they are the Emperor's personal agents. Their name comes from the fact that the original Counts were tax collectors – thus, the Emperor appointed Auditors to police the Counts. There are traditionally nine Auditors, but usually only eight hold office at a time, with the ninth position being kept open for appointments on a case-by-case basis.

During their investigations, they speak with the Emperor's Voice. They may command anything, up to and including forcible fast-penta, arrests, and executions. An Auditor's token of office is a heavy golden chain, chased with the Vorbarra arms and bearing an electronic seal that can open any Barrayaran security system.

Auditors can only be removed by the Emperor himself, or by a three-quarters vote of impeachment by the Council of Counts and the Council of Ministers in full joint session. For an Auditor to investigate something is proof of the Emperor's personal interest – which is likely to unnerve everyone in the neighborhood.

Gregor had grown so neutral as to seem almost gray. So, thought Miles, that's what rage looks like on him.

– Memory

Culture

Barrayar is a patriarchal culture with samurai warrior values, in which the Vor are born to serve the Imperium and where war is the highest career to which a man can aspire. It is a world where women are barred from most legal oaths, most positions of power, and, until very recently, all official military service. The world is far from fully tamed – farmers spend their lives slowly transforming the land, seeding it with Earth DNA. Its culture is likewise being seeded by galactic attitudes, but just as slowly.

> *Anything done twice on Barrayar is a tradition.*
>
> *– Simon Illyan,* ***Memory***

What It Means To Be Vor

The Vor families have ruled Barrayar for hundreds of years. Ancient rulers honored loyalty or zeal on the field of battle by granting Vor status, much as old Earth kings created knights and added "Sir" to their names. A newly minted Vor simply added the syllable "Vor" to his surname. No new Vor families have been created for a very long time.

Historically, the Vor are a warrior caste. In practical terms, the Vor are the aristocracy of Barrayaran society – all Counts are Vor, as are a substantial majority of ranking military officers and Ministers. The Vor are described in certain high-flown laws and histories as "The Sinews of the Imperium, the Emperor's Right Arm."

Socially, things are changing. Strictures on the Vor class are becoming less absolute. Arranged marriages, common in Aral Vorkosigan's youth 50 years ago, are no longer the rule – although many of the more old-fashioned families still feel it proper to send a Baba (p. 24) to negotiate details. Certainly it is no longer the case that, as in the Time of Isolation, a man taking a Vor woman as a lover is regarded as stealing her honor – or that a Vor woman is expected to choose suicide before rape, or "guard the genome" by killing imperfect babies at birth. But it is still illegal for anyone but Vor to own weapons – although non-Vor can *carry* weapons in the service of their liege lord or the Emperor.

The traditional obligations of the Vor involve honor, duty, and responsibility. A true Vor – male or female – remembers the duty owed to the Emperor, to family, and to liegemen, and preserves certain standards of courage, decorum, and style. Nowadays, some families have cast aside the Vor codes of behavior. Some take up more modern galactic principles, while others display no principles at all. However, many Vor still serve as their forefathers did. Ideally, the Vor are the backbone of the Imperium, wearing their chains of responsibility and duty, prepared to sacrifice themselves if necessary for the good of Barrayar.

The Non-Vor

As more non-Vor enter the higher levels of society and fill top positions in the Service, the advantage of having a name that starts with "Vor" becomes less.

As it stands, though a non-Vor man should not aspire to join the Council of Counts, military talent will see him promoted past Vor of lesser skill. Scientists, industrialists, academics, and financiers can now gain great status and personal power, though the old Vor and the Conservatives may consider them upstarts. A non-Vor may even become an Auditor (p. 21) or a Minister, with the ear of the Emperor himself.

Non-Vor women can have careers, though they are legally unable to take certain oaths by reason of their gender. Despite the handicaps imposed by Barrayaran society, they can be self-supporting and even prestigious in their fields.

Languages

An occasional factor in Barrayaran politics is the language issue. The original colonists spoke four different tongues. Although the population has become well mixed after several hundred years, unassimilated enclaves still

Vor Names

There are 60 Counts, and therefore 60 "High Vor" family names. Counts or Lords who have been named in the books include Vorbarra (the Imperial line), Voraronberg, Vorbohn, Vorbretten, Vordarian, Vordrozda, Vorfolse, Vorgarin, Vorgustafson, Vorhalas, Vorharopulos, Vorhartung, Vorhovis, Vorinnis, Vorkalloner, Vorkeres, Vorkosigan, Vorlakial, Vorlightly, Vorloupulous, Vormoncrief, Vormuir, Vormurtos, Vorob'yev, Vorpatril, Vorpinski, Vorreedi, Vorrutyer, Vorsmythe, Vortaine, Vortala, Vortashpula, Vortienne, Vortrifrani, Vortugalov, Vorvayne, Vorville, Vorvolk, Vorvolynkin, and Vorwyn. A "Captain Vortalon," the son of Lord Vortalon, is the action hero of a popular historical series, but this family may be imaginary.

Of course, there are many, many Vor families other than those of the Counts. Other Vor names which have appeared in the books include Vorberg, Vorgier, Vorgorov, Vorkraft, Vorlaisner, Vorparadijs, Vorsoisson, Vorthalia, Vorthys, Vortorren, Vorvane, Vorventa, and Vorzohn.

To create a new Vor name, do what the old Emperors did, and tack the syllable Vor onto any family name. For extra authenticity, start with an English, French, Russian, or Greek name.

"I'm glad for the sake of the Vor that you haven't just abandoned your father's liegeman. There's not many of us left who care enough to, enough to . . . I don't know how to say it."

"Who care enough to make Vor real," suggested Miles.

"Yes," said Vorberg gratefully. "That's right."

– Memory

exist, most of them in backcountry poverty. English is the language of business and government, but there are separatist parties for each of the minority groups – the Russian faction is led by Count Vortugalov, and the French-speaking party head is Count Vorville. These parties have little real power, but there have been riots over particularly public cases of racial prejudice, and cultural cliques do form in unexpected places – even in the Service.

Death-Offerings

While there is little religion on Barrayar, some traditions have religious overtones. One of the most important is the death-offering, burned on the grave of the departed, or on the site where he died, by his children or close friends. Most families have a metal brazier and tripod for such offerings. The person performing the rite always burns a lock of his hair, and often adds some juniper bark, locks of hair from other people concerned, or other meaningful items, such as a document or a piece of clothing. It is customary to fast before burning death-offerings, so they are often dawn events.

While it is usual to perform an offering on the anniversary of the honoree's death, the ceremony may take place whenever someone feels a need to remember their departed. It is usually private, but the death of a prominent person may be followed by a public death-offering at which anyone may pay his respects.

Public Festivals

The two main holidays in the Barrayaran year are Winterfair and the Emperor's Birthday. Winterfair is celebrated at midwinter, with parties, balls, fireworks, bonfires, and gifts to friends and family from the mythical "Father Frost." It is customary to wear shades of red and green to Winterfair parties. There may also be celebrations on Midsummer Day, especially if the Emperor's Birthday is nowhere near summer, because no one should go too long between parties!

The Emperor's Birthday is a day of celebration through the Imperium. It is also the end of the fiscal year, and tax day for the Counts. However, officially calling it that would imply too subordinate a relationship. Instead, at a ceremony at the Palace, they "give the Emperor a birthday present" – a few gold coins in a pouch with their colors and symbol. The actual funds, assessed from each District, are sent by electronic transfer.

Clothing

Barrayaran men wear shirt and trousers; for city or formal wear they add a jacket. Women may wear dresses, or skirt and blouse, often adding a bolero. At balls and parties, it is usual for women to wear flowers in their hair. Uniform is appropriate wear for any member of the Service at any social occasion.

Among Vor men, pseudo-military ornamentation such as braid, frogging, and even epaulets are popular, along with boots or half-boots which suggest military footgear. Trousers often have a stripe up the side.

Since non-Vor may not carry arms except those issued by a liege lord or commanding officer, a weapon is a status indicator. It is not unusual for a Vor to wear a knife at his belt, or a sword when dressing up, and military Vor wear *two* swords when in parade uniform. Vor women, even now, often carry the "Vorfemme blade." A practical self-defense weapon during the Days of Isolation, it's a fashion accessory today.

It is always appropriate for a Vor, male or female, to wear the colors of his or her House. (Known colors include Vorbarra's black and silver, Vordarian's gold and scarlet, Vorkosigan's brown and silver, Vorpatril's dark blue and gold, Vorbretten's dark green and orange, Vormuir's carmine and green, Vorob'yev's wine-red and black, Vorrutyer's blue and gray, and Vorharopulos' chartreuse and scarlet.)

For ceremonial occasions or important social functions, Counts and their heirs wear elaborate, individually styled "uniforms" in their house colors.

Proper full mourning is black, with decorations embroidered in black silk, although this depth of ceremony is only expected from Vor, and only on state occasions or for a recent widow. Very dark shades of the House colors are appropriate as less formal mourning wear.

Gender Roles

In Barrayaran tradition, a woman's duties are to bear heirs, to preserve the genetic purity of her bloodline, and to obey her husband. Most galactics view the position of women on Barrayar with horrified disbelief. Women are legally unable to make most oaths, or to hold official posts. Until a few years ago they could not join the Service in any capacity; even now they are only "auxiliary" members (see p. 27). A woman's rights over her sons extend only so far as her husband (or her male relations, in the case of widowhood or divorce) permit – if they want to take her sons from her, she has *no* legal recourse, short of a personal appeal to the Count of her District. Curiously, however, a woman or the woman's family normally has custody rights to daughters, subtly important in the underpopulated Time of Isolation.

A Countess lacks the powers of a Count; the only situation under which she might exercise such powers would be as a temporary regent for a young heir.

> *The Vor dances seemed to tend to the formal and slow, with couples arranged in complex groups rather than couples alone, and with far too many precise moves to memorize. Mark found it vaguely allegorical of how things were done here.*
>
> ***– Mirror Dance***

Of course, women have a great deal of unspoken power in their influence on the men around them. The concept of "guardian of the genome" has, in many cases, broadened to authority over social customs. If the female "Old Vor" accept something, such as the Emperor's marriage to a Komarran, the men will often follow suit. A man's female relatives are unlikely to react well if he makes unreasonable custody claims. It is mainly the women who network and introduce young people, arrange marriages, and keep up the links between families.

Slowly, matters are changing – women can obtain an education, hold professional positions (scientists, professors, attorneys, teachers), and leave Barrayar for Komarr, Sergyar, or even more distant planets. The increasing popularity of the uterine replicator is helping to drive this change. As women no longer need to bear children in their own bodies, other traditional "women's duties" are being questioned.

Marriage, Love, and Sex

The time of arranged marriages is (mostly) past, though many of today's younger generation might be horrified to know how many of their parents had their marriages negotiated by *their* parents, and how little love came into it. However, those who respect the traditions, whether they are Vor or non-Vor, still consider it proper to hire a *Baba,* or go-between, to arrange matters. (Of course, in these degenerate modern times, either the man *or* the woman can just skip the formalities and propose.) The suitor hires the Baba – typically an elderly woman, experienced in such matters – to present his proposal to his prospective wife's parents, or to her oldest male relative if her parents are dead. She may not be aware she is being courted until her parents tell her the Baba has visited! As the negotiations progress, the Baba will present evidence of the suitor's prospects and character, placing him in the best light possible. She may also chaperone private meetings between the couple.

In modern times, though a woman may reject a proposal, her family may pressure her to accept. Should she refuse, it's up to the Baba to present the answer diplomatically.

Once the woman has accepted the proposal, matters are put in train for the wedding. Again, the Baba may arrange all the technical aspects, including finding a location, organizing the guest lists, checking the text of the marriage vows, and so forth. The bride and groom need only show up on the day and repeat the vows.

In some cases, especially among the High Vor families, an official betrothal may take place before the wedding. The bride and groom are escorted by their parents and Seconds, and the Baba stands between the two groups. Symbolic gifts are exchanged: money from the bride's parents, food from the groom's, and other traditional presents. (It is no longer customary for the bride's mother to present a small blunted knife as pledge of her daughter's genetic cleanliness, as was the case during the Time of Isolation.) The groom's Second then reads the traditional Admonishments to the Bride – although these days, they will probably be somewhat edited from their ancient form. Finally, both bride and groom clasp the go-between's hands, and exchange betrothal vows.

The traditional wedding ceremony is a civil procedure, requiring neither priest nor magistrate. The couple make their own marriage official simply by exchanging vows. For all that, it's an elaborate and traditional ceremony. Groats, the common Barrayaran grain (for this occasion, often colored), are used to form patterns on the floor. There is a small central circle for the couple, surrounded by a star with a point for each of the principal witnesses (parents for both sides, both Seconds, and possibly the couple's liege lords), and a series of concentric rings for guests. The bride and groom's Seconds pour more groats to close the circles after the bride and groom have entered. The Coach stands outside the circle and reads the vows for

the two to repeat, since no one expects the excited couple to recall the proper words. (Except in certain rural communities, they are no longer required to strip naked to demonstrate that they have no hidden mutations.) The senior witness then breaks the circle of groats to release the happy couple, and the partying starts. Guests often keep a handful of the groats after the wedding, as a souvenir – or use them to fill the bridal bed.

Childbirth is becoming less hazardous, as more and more couples have begun to use uterine replicators. However, the poor and the lower middle class are unlikely to be able to afford them, even if they have access to modern hospitals. Especially among the traditionalists, the "Old Vor," many still believe that natural childbirth is the proper order of things.

A divorce can be obtained by an appeal to the ruling Count of the District. This may be a mere formality, if both partners want to separate and the Count (or his Voice) is prepared to make matters easy – or it can be an awkward, tangled matter. Sons from the marriage stay with the father, while daughters go with the mother. A divorced wife still has rights to her dower properties and goods, but otherwise she is dependent on the generosity of her husband in the settlement, unless the Count adjudicating the matter decides to intervene to her benefit. Both husband and wife are free to marry again.

Although premarital sex is frowned upon, the availability of modern contraceptives – or traditional herbal ones, in backcountry villages – means that it happens. It's quite accepted for a dashing young Vor lord to have a string of affairs, a steady mistress, and a romantic history. (A Vor lady can get away with this too, if she carries it off with panache, but the gossip will be less friendly.) A couple who is to be married may well get away with quiet liaisons, assuming that their families haven't arranged for their meetings to be chaperoned. Extramarital affairs will cause a scandal, if word gets out. As recently as a generation ago, a cuckolded husband was considered to have grounds for a duel . . . dueling was illegal even then, but considered honorable!

A galactic innovation that has shaken Vor society is the ability to choose the sex of a child. When this reached Barrayar in the last generation, there was a sudden proliferation of male births, especially among the upper classes . . . who could best afford it and were most concerned with male heirs. The bill is now coming due – there aren't nearly enough Vor women for all the Vor men to marry! And Vor women who wed galactics or non-Vor men, or who emigrate to cultures where they have more opportunity, reduce the odds even further.

This is making it more common for Vor men to propose marriage to women from outside the Vor clans. Vor women may also marry outside the Vor, but the woman takes her husband's name and their children are not considered Vor. Such a couple may still move in upper-class society, but a man gets much less social boost than a woman by marrying into the Vor.

It remains to be seen whether the Emperor's example will set off a flurry of Barrayaran-Komarran marriages.

Honor and Obligation

In addition to its laws, and more central to its culture, Barrayar has a structure of honor and obligation which both high and low rely on.

Honor binds liege lord and liegeman in a chain of obligation that ties society together and runs all the way to the top. Barrayar holds together as long as these chains remain intact. This is a culture where a man's word on his name is accepted as truth, and where Counts give justice in return for service.

Oath-bound relationships are integral to Barrayaran society. An Armsman takes an oath to his Count, a Count to his Emperor, and every subject gives an oath of loyalty to the Count of his District. In the most basic oath, that of "armsman simple," the liegeman pledges his loyalty and service to the Count, agreeing to obey his every order. In return, the liege lord owes a duty of protection, justice, and support. (Traditionally, it is the Count's right to strike off his liegeman's head if he disobeys the Count in the heat of battle, though such a situation – or attitude – is unlikely these days.) The liegeman must also ask permission for such life-changing activities as marriage; the traditional formula includes the phrase "that my sons may serve you."

The Counts, in turn, owe fealty to their lord. They place their hands between the Emperor's and swear allegiance to him. And, despite the gaudy treacheries that highlight Barrayaran history, most of them have always honored their oaths. Most still do.

But is there a place for honor in a changing world, where new technologies threaten to make old customs seem unnecessary, or even futile? Those conservatives who want to see Barrayar remain as it has always been (or as they remember it) cling desperately to the old structures. Sometimes, however, they betray the spirit of honor while holding firm to their word . . .

Others seek to take advantage of situations where technology has outpaced law. For example, Count Vormuir recently attempted to increase the female population of his District using leftover frozen eggs from the local clinic, his own sperm, and scores of uterine replicators. While this contravened no Barrayaran law or precedent, it was clearly against the spirit of a lord's relationship with his liegemen. In the end, Emperor Gregor ordered him to pay a dowry for every female child. It is unlikely that any Count will try *that* trick again.

The true human infrastructure of Barrayar, for both Vor and non-Vor, is the network of people who hold to their obligations, whether or not they were born into them. These people – from Emperor Gregor and Lord Miles Vorkosigan, all the way to the hillmen in Silvy Vale in Vorkosigan's District – try to incorporate new advances without losing the best aspects of the old culture. They imagine a Barrayar with modern technology, schooling, life outside the military (and even some advances for women) but where each man still has honor, able to give his name's word – and mean it. They want a Barrayar where mutual obligation helps support society, where it means improving the quality of life for all those fealty-bound to you. They believe in a Barrayar where the words *honor* and *obligation* still mean something . . . and always will.

The Imperial Military Academy

Many academies train Imperial officers; the most prestigious is the Imperial Military Academy in Vorbarr Sultana. The entrance examinations take a solid week: five days of written and oral exams, and two days of physical tests (including a 100-kilometer run). While the youngest age at which a cadet can enter the Academy is 17, there is technically no upper limit – any man with sufficient ability can be accepted. Duv Galeni (p. 122) is a good example – he was in his thirties, with a Ph.D. from the Imperial University at Vorbarr Sultana and a faculty position at the College of Belgravia, but he left his academic career to apply to the Service.

The standard training period is three years. Cadets study a wide variety of subjects, including 5-space math, xenobotany, geology, terrain evaluation, aviation weather, chemical and biological warfare, and a lot more . . . They also, naturally, get full training in the use of weapons, groundcars and lightflyers, and everything else that the upper ranks think could be useful.

During a cadet's last year comes the famous seminar – instituted by the Regent Aral Vorkosigan, and frequently taught by him personally – on what constitutes a criminal order, and when and how to disobey one. It includes vid evidence from various historical cases, including the infamous Solstice Massacre (p. 31). The staff hate Vorkosigan's Day, as it leaves the students distracted for weeks afterward.

Join the Service!

The Service includes all the military forces of Barrayar, from its space warships, to its aircraft and sea patrol, down to the foot infantry. It does not include the civil service or local constabulary (which inspire rather less respect than the military). However, the post office, which descends from military couriers, is part of the Service.

Thousands of young men throng the recruiting offices every year. Any male who can pass the physical exam, and convince the recruiter that he's over 18, can enlist. For those born into the underclass (such as the children of prostitutes, criminals, and peasants), the Service can be a lifeline. When a man leaves – unless he's physically disabled or has acquired a criminal record – he will be entitled to respect. It's a tough life, and quite possibly lethal for those serving on the front lines, but it's the life that many Barrayaran boys (and not a few girls) idolize and dream about as they grow up. Soldiers are, after all, *real* men . . .

Likewise, officer's training is felt in many circles to be the only *proper* path for a young Vor, or any upwardly mobile young man.

> *I could take over the universe with this army if I could ever get all their weapons pointed in the same direction.*
>
> *– Aral Vorkosigan,*
> ***Shards of Honor***

Sergyarans are of course eligible to join the Service, and some of the settlers' children are doing so. Recently the Service was opened to Komarrans, both as enlisted men and as officers. Naturally, the first few have suffered prejudice, but the example set by men like Duv Galeni (p. 122) has done a great deal to open the way for others.

Advancement

In the old days, only Vor became officers, but now promotion is by merit, though when merit is equal, Vor officers generally get the first promotion. Among the enlisted men, length of service provides status. Experience does not strictly equate to rank, but a 20-year man (let alone a twice- or three-times-20-years man) will have significant authority and influence among his peers. He may also look forward to a comfortable career as a private guard after leaving the Service, and the very best may become Count's Armsmen.

All officers start as ensigns, fresh out of one of the Service Academies and hoping for assignment to ship duty – although most of them end up posted planetside, by sheer weight of numbers. Most ensigns get a lieutenancy, sooner or later, unless they are truly unfit for command. Officers can dream of reaching the dizzy heights of colonel, general, or admiral – or maybe just comfortable positions as majors or captains, with postings somewhere interesting and a generous pension. Non-Vor officers know that if they serve honorably and well, they will have earned status in society (see p. 61), and may even hope to marry into Vor families.

Rank

Admirals and vice-admirals usually command spaceships, while generals and colonels are planet-based. It is possible for officers to jump from one "track" to another – an ensign may earn a lieutenancy in space, then be assigned to a captaincy with ground-based forces, be promoted to major there, and then transfer back and receive the captaincy of his own ship on the naval track. Outsiders frequently have trouble understanding the intricacies of Service officer grades. Some of the confusion can be blamed on the speed with which the Barrayarans were forced to assemble a space fleet and integrate it into their traditional military. Fortunately, the Political Officers of Emperor Ezar's later years, the spies and hatchetmen of the old Ministry of Political Education, are no longer part of the system.

Unusual juxtapositions of rank can exist within Service organizations such as ImpSec, which has staff from both

the army and the fleet. The head of ImpSec has authority over all agents, whatever their rank. This meant that during the tenures of Captain Negri and Captain Illyan, admirals and generals were reporting to a mere captain . . .

Fleet Ranks	*Army Ranks*
Admiral	General
Vice-Admiral	–
Commodore	Colonel
Captain	Major
Commander	Ground-Captain
Lieutenant	Lieutenant
Ensign	Ensign
Sergeant	Sergeant
Yeoman	Corporal
Enlisted Man	Enlisted Man

The ordinary Barrayaran Service uniform is a plain shade of green, with short, laced boots; fatigues are black. Dress uniform is also green, but more elegant, with riding boots (a relic of the days of horse cavalry). Parade uniform is scarlet and blue. Academy cadets wear white cloth rectangles on their collars. Ensigns show their rank with light blue plastic rectangles, lieutenants sport red rectangles, captains wear dark blue, and vice-admirals yellow. Officers in higher positions have more exotic marks of rank. Members of ImpSec wear silver Eye-of-Horus pins on their collars while officers serving in Ops have bronze collar pins.

Social Recognition

On Barrayar, everyone respects a soldier, even an enemy. Conversely, a fit man is liable to attract curiosity and disdain from old-fashioned Vor (or even non-Vor) if he's *not* in the Service. It's understood that the economy needs scientists, farmers, professionals, clerks, and other tradesfolk, but *real* men on Barrayar are soldiers. That is how it's been for hundreds of years, and even under the progressive Emperor Gregor, change is slow.

Women in the Service

The Service has a small, but growing, cadre of uniformed women in noncombatant positions: medical positions, some military police (for handling female subjects in awkward situations, such as fast-penta interrogations), intelligence work, and a growing number of technical specialists. They are kept well out of the main chain of command; rather than being integrated into regular units, they have their own branch, the Barrayaran Imperial Service Women's Auxiliary, with its own uniform. But this still represents a highly liberal trend . . . two generations ago, the Service was completely closed to women.

Imperial Security

Imperial Security – commonly called ImpSec – is a vital part of the Service, but usually it stays in the background. However, everyone near the Emperor, or any of his Counts, will perforce be familiar with ImpSec . . . and Security is involved with every planetary or interplanetary intrigue, if only to pick up the pieces. ImpSec is both respected and dreaded. Its members are identified by the silver Eye-of-Horus pins for their collar; each soldier only gets one set of these "silver eyes," with his name and serial number engraved on the back. They are as hard to counterfeit as money, and more powerful.

The Head of ImpSec (until recently Captain Simon Illyan, currently General Guy Allegre) reports directly to the Emperor. He is responsible for assembling and filtering information from throughout the Empire, and everywhere else in the galaxy that Barrayar's agents can reach.

ImpSec has several divisions. Domestic Affairs watches for treason and espionage on Barrayar. Komarran Affairs (headed by Commodore Duv Galeni) and Sergyaran Affairs (headed by Colonel Olshansky) deal with the other Barrayaran planets. The ever-growing Galactic Affairs handles matters outside the Empire. ImpSec Communications is responsible for all Imperial Couriers; they report to Commodore Boothe, the head of the department, who is stationed on Komarr. Other departments include Cryptography, Finance, Forensics, Housekeeping and Physical Plant (whose janitors have higher security clearances than some colonels), and Analysis. ImpSec analysts (see p. 69) deal with huge amounts of information, looking for patterns – or changes in patterns. Their reports go directly to the highest levels of ImpSec.

The most important of all ImpSec's duties is the safety of the Emperor's person. ImpSec provides a multitude of covert, discreet bodyguards that surround Gregor wherever he goes. It also trains his ceremonial guards to be effective rather than merely decorative.

ImpSec Headquarters (or Cockroach Central to insiders) is one of the ugliest buildings in Vorbarr Sultana. Tourists from the backcountry, who might be expected to avoid the place, drive by just to look at it. The building is windowless, a vast utilitarian concrete block with enormous gates and doors, and stylized granite monsters carved in low relief on the door lintels. There is a front entrance with oversized steps, but those who know the place use a small side door at ground level.

Inside the entrance is a security area, where IDs are checked, and a cloakroom. (*Everyone* leaves his coat, except the Emperor or his Auditors.) Inside, the building is a maze of corridors and lift-tubes; outsiders can expect to be assigned an escort, both for security and navigation. The analysts work in long, bare corridors lined with tiny cubicles, dotted by coffee dispensers. Forensic laboratories and a clinic occupy a full floor. There is also an infirmary, small but complete, with a couple of examining rooms, private rooms, cells for treating prisoners and guarded witnesses, a surgery, and an interrogation-chemistry lab. The detention area is located in an inner quadrant of the second floor; elsewhere are small but comfortable secured apartments for protected witnesses.

In the sub-sub-basement lie the Evidence Rooms, occupying the chambers of the old prison. Mad Emperor Yuri used the dungeons freely, and Emperor Ezar used them sparingly, for political prisoners; Regent Aral Vorkosigan had them converted into evidence-storage rooms. They are packed with documentation, weapons, drugs, and even more bizarre items – artifacts confiscated from the evil and the unlucky, now awaiting prosecutions, further investigation, or reclassification and disposal. Some of these items are very dangerous, and any of them might be important, so all visitors get a palm and retina scan at the entrance, and the date and time of their visit is recorded. A physical inventory is taken once a month.

The entire building was designed by a paranoid – *well* designed – and has had the benefit of security-conscious ImpSec heads ever since. Many walls and floors are steel-reinforced. Every room has its own biolab-grade filtration system. Even the janitorial staff is made up of serving soldiers, veterans of at least 10 years standing. Vid monitors watch all the ducts and piping. The computer file system is super-secure, and data can't be copied out wirelessly; a physical connection is required, with a special cable.

Barrayaran Characters

The most obvious distinction for a Barrayaran character is whether he is Vor. Vor men and women have Status of at least 3. A Vor who does not take the disadvantage Code of Honor (Vor) (p. 59) should have a character story to explain why, and probably some other disadvantages to go with it.

Other Barrayarans will have a status of 3 or less unless they have some Military Rank, which grants Status of 2 levels less than the Rank, even for non-Vor (see p. 61).

Women suffer from a -5-point Social Stigma (Second-Class Citizen). They *cannot* take Military Rank higher than 3, and any Military Rank at all will be in the Auxiliary (p. 27). (A woman of Barrayaran birth might gain Military Rank in an offworld group, but at that point she's a *former* Barrayaran.)

For a campaign set on Barrayar, many interesting character types are possible, including "slum thief," "country boy from the hills," or "Vor brat too smart for her own good." For a campaign set offworld, or moving between many worlds, a Barrayaran might be in the Service (especially ImpSec), a businessman (or nowadays a businesswoman), or a student in almost any subject.

Many older Barrayarans suffer from Intolerance (Cetagandans), and backcountry immigrants may have Low TL (though not more than -10 points). Fanaticism (Barrayar) and Overconfidence are common among officers in the Service – particularly young ones. However, Longevity is a frequent advantage among Barrayarans, possibly a result of the Darwinian selection of the Time of Isolation.

Future Prospects

Barrayar is building up its population and economy, but not through conquest. Instead, it is spreading peacefully across Sergyar and its own South Continent. Enthusiastic settlers and terraformers are needed – as are miners, surveyors, bureaucrats to manage them, scientists to analyze the results, the Service to guard them all, and ImpSec to report back to the Emperor. Gregor is trying to maintain this growth – he wants peace and peaceful growth, rather than the wars of previous generations. He is supported in this by his Auditors and by the Counts of the Progressive party. He is resisted by the isolationists and Conservatives, who are currently led by Count Boriz Vormoncrief, after the fall of the treasonous Count Vortrifrani.

Barrayar offers more opportunities to young careerists than ever before. The Service is still needed, both for defense and administration. ImpSec is busier than ever as Barrayar steps onto the galactic stage. Science is blossoming – though Barrayar doesn't yet produce innovators of Betan or Escobaran quality, research and educational institutions are being founded and improved for later generations. Young students are encouraged to get a galactic education and return to help their worlds. Industrialization proceeds apace, with new monorail lines, new road systems for intercity groundcar traffic, and new factories and power plants to help the more remote areas of Barrayar emerge from peasantry. Women can get as good an education as any man (except in the military arts) and can hold professional jobs. A woman's legal rights are still limited, but she can hope, these days, to find a husband who will respect and treat her as an equal. Barrayar is moving toward a future that will be profoundly different from the centuries of the Time of Isolation; it is up to those alive today to decide what that future will be.

The driver took Miles past the daunting façade, and around to the discreet side entrance reserved for couriers, spies, informers, analysts, secretaries, janitors, and others with real business in the place.

– Memory

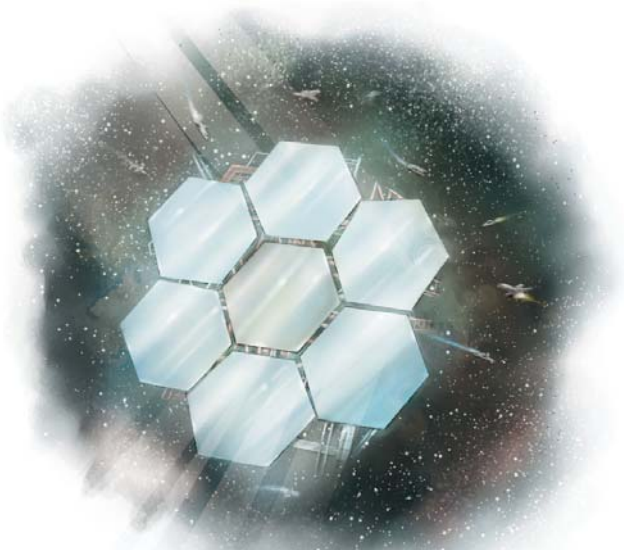
The Cetagandans are quiescent for the first time in a decade. Pol is not aggressive, and anyway, we're in good odor in the whole Hegen Hub these days. Jackson's Whole is nasty enough, but they're too disunited to be a military threat at this distance. The worst menace in the neighborhood is us, and Sergyar is absorbing our energies . . .

– Miles Vorkosigan, ***Memory***

Komarr

Control Rating: 3

Komarr is the trade gateway to the Barrayaran Imperium. It was annexed by force. Now, some 40 years later, Komarrans and Barrayarans have intermarried, much of the civil administration has passed back into Komarran hands, Barrayaran warships protect Komarran trade fleets, and most Komarrans are, if not wildly enthusiastic about the situation, resigned to it – and even, occasionally, happy with it. While the odd rebellion or conspiracy may occur, things are generally stable . . . most of the time.



The Komarran Soletta

Geography and Climate

Proud owner of six usable wormholes, Komarr itself is a cold, nearly oxygen-free lump of rock. The gravity is almost 0.9 G, close enough to the norm to be comfortable for most visitors. Originally lifeless, it still needs centuries of terraforming before human beings can live outside its domes. A hexagonal soletta of seven huge solar mirrors orbits with the planet, providing additional solar power and heat. It is to be doubled in size soon, a gift to the people of Komarr to celebrate the wedding of the Emperor Gregor and Dr. Laisa Toscane.

Since the atmosphere of Komarr is not yet capable of supporting human life, the planet is studded with transparent domes, their geometric symmetries marred by random spurts of architectural improvement added over the last 400 years. Komarr is divided into Sectors, neat geometric slices dividing the globe. Each Sector has a domed city; many also have several smaller domes for terraforming work. The main city in each Sector has the same name as the Sector (Solstice City in Solstice Sector, for instance). Sectors include Solstice (the planetary capital, with both Solstice University and the Komarran campus of the Imperial Science Institute), Equinox, and Serifosa (known for excellent gardens and political apathy). A city is also often called a dome – thus Serifosa City may also be called Serifosa Dome or simply Serifosa, if the context of City rather than Sector is obvious.

The atmosphere of Komarr is, quite literally, unbreathable. While the air pressure is adequate, the air itself has too much carbon dioxide, too little oxygen, and various toxic trace elements. In 300 years or so, it should be safe to go outside the domes without breath masks. A number of lakes dot the southern hemisphere, the results of ice comets directed at their own world by the earliest Komarrans to get more water for terraforming.

The space around Komarr is busy. The soletta has a regular six-man crew and hosts occasional VIP tours. After the domes, it was the greatest technical achievement of the early Komarrans, and Admiral Vorkosigan's capture of it during the conquest of Komarr had a huge psychological impact on the defenders. It has only recently been returned to Komarran civilian control. A dozen transfer stations circle the planet and three more orbit the star, while each of the six traveled wormhole exits has both a military and a commercial station. The wormholes include routes to Barrayar, Sergyar (which opens onto the Escobar nexus), Pol (which allows access to the Hegen Hub), and Rho Ceta (and thence to the rest of Cetagandan Empire). There are several other wormholes; extensive exploration has turned up no habitable planets or rich resources . . . yet.

The last gleaming silver of Komarr's true-sun melted out of sight beyond the low hills on the western horizon. Lagging behind it in the vault of the heavens, the reflected fire of the solar mirror sprang out in brilliant contrast to the darkening, purple-tinged blue.

– Komarr

The Domes

The domes are transparent, to let in solar energy. This means, given the lack of cloud cover, that the Komarrans can always see the stars at night, and the sun and soletta by day. Living spaces are small for all except the oligarchy. The domes offer wide public parks and small woodlands. Of course, these also contribute to terraforming and the nascent ecosystem, as do the market gardens that provide a wide variety of vegetables, fruits, and flowers. There is animal life, too, and not just in the parks. Most notable among the feral animals are the rats, hamsters, and gerbils that live in the dome tunnels. Komarran children often catch these rodents for pets. (There are also numerous varieties of roaches, but these are less appealing.) Equinox Dome also has wild cockatoos – a couple of pairs escaped, or were released, and a breeding population has formed. The sanitation crews would very much like to get rid of the birds, but the dome shareholders voted to keep them.

Vent shafts across the domes take in Komarr's air, filter out the excess carbon dioxide and trace poisons, and concentrate the oxygen to a breathable level. There is a pressure differential between the interior and exterior of the dome, but not as dramatic as air-to-vacuum; some atmosphere would be lost to a small hole in the dome wall, but the dome itself would not be endangered. A large breach, of course, could still kill a lot of people.

The usual form of transport inside the dome is bubble-cars, hired from public stations. A traveler programs his destination and the computer network takes him there by the fastest route. At peak hours, though, overloads in the system cause delays of 20 to 40 minutes. The government is currently pushing a "Share the Ride" campaign to mitigate the problem. Between the domes, transport is by monorail, private lightflyers (which can be easily hired) for short distances, or shuttlecraft.

Each dome has its own civilian security force, which of course must cooperate with Barrayaran ImpSec, when required. (The reverse, to the frustration of the security groups, is not true.) Civilian security ranks are prefaced with "Group" – a cop on the beat is a "Group-Patroller," while a Station security chief is a "Group-Commander."

Terraforming

The Komarrans are proud of what they have accomplished, to the point of techno-snobbery. Lesser terraforming, such as Barrayar's slow Earth-vegetation development, is viewed as mere "soil conditioning." But true terraforming is a lifelong occupation – it takes 10 years to learn the basics, and another 10 years as an intern to have any practical idea what's going on.

The primary aim of the terraformers is to bring heat and light to Komarr and *keep* it there. The soletta provides enough heat to create liquid water (rather than icecaps) and to permit the beginnings of vegetation. Artificial greenhouse gases have been released into the upper atmosphere to help trap energy, and waste heat from the domes is used to encourage plant growth outside. By now, every type of Earth bacteria has been imported – or has arrived and escaped.

The terraformers need to grow more vegetation, which will provide compounds that will, in turn, enable the growth of bigger plants. Their greatest success so far is with hardy peat bogs, which acclimate to cold, low-oxygen situations. These bogs, placed around areas with liquid water, will provide suitable environments for larger plants down the road. Eventually, these plants will release enough oxygen to make the atmosphere breathable. As matters stand, terraforming is a job for patient people who are prepared to wait a few hundred years for results.

Unchecked, the recent damage to the soletta would harm the new ecology within a year, and become catastrophic in five. Fortunately, the new soletta will be in place before significant damage is done, and in time it will dramatically speed the project.

Breath Masks

Breath masks (p. 96) are necessary outside the domes. Everyone with regular business outside owns a mask, typically engraved with his name. As a precaution, boxes of breath masks are available in most public places. Komarran mask-check procedures are ingrained by the time children are three years old – no Komarran would ever imagine going outside the domes with deficient equipment. Visitors to Komarr are subjected to a vid on breath-mask procedures as soon as they arrive, no matter how many times they may have seen it. Many Komarrans are so conditioned to their domes that they actively dislike the open air, even when it is breathable, and develop psychosomatic asthma symptoms.

History

Komarr was discovered approximately 400 years ago; while the planet was not especially promising, it was the best candidate for terraforming in a system full of important wormholes. Its near-standard gravity, plentiful supply of gaseous nitrogen, and sufficient amount of water ice

made the project feasible . . . just expensive and slow. The early Komarrans built the domes, crashed ice comets into the planet to provide more water, built the soletta, and began the long process of terraforming. They also built the space stations next to the wormholes, charging a 25% fee on all passage. A number of wealthy and powerful families formed the ruling Council.

Nearly a century ago, fresh explorations through one of the Komarran wormholes led to the rediscovery of Barrayar. The lost colony, mired for centuries in its Time of Isolation, was found at the end of a five-jump route entirely different from the original one to Earth. Shortly after this, Komarr granted the ghem-lords of Cetaganda passage to Barrayar in exchange for massive trade concessions throughout the Cetagandan Empire and a slice of the projected profits of the conquest.

A relatively short while after *that* came the Barrayaran invasion of Komarr, led by Admiral Aral Vorkosigan. It was a brilliant and nearly bloodless campaign, frequently cited in military histories, and marred only by the Solstice Massacre (below). Admiral Vorkosigan announced that Barrayar would drop the Komarrans' 25% tariffs to 15%, and the galactic powers decided not to interfere. Komarr soon fell, becoming a subject world of the Barrayaran Imperium.

In the fourth year of Aral Vorkosigan's Regency of Barrayar, a minor revolution took place on Komarr. The Komarran Revolt was not overly violent – though parts were certainly bloody – but it lasted for several years. Solstice University in particular was shut down for two years because of so many students were involved. (About half the younger population of Komarr was part of some protest or revolutionary group, and still have it on their records today.) The Revolt was treated as a civil crime by Regent Vorkosigan, not an act of war; there was an amnesty afterward. Nevertheless, organizations such as the Imperial Science Institute have been known to refuse jobs to people involved in the Revolt.

The two most recent major events for Komarr have been the accident to the great soletta – which damaged four of the seven mirrors – and the marriage of Laisa Toscane to Emperor Gregor Vorbarra. Laisa is the principal heiress of the Toscane family, which began cooperating with the Barrayaran conquerors sooner, rather than later. Their trade fleet is now one of the wealthiest. Some Komarrans object to the marriage on idealistic or political grounds, while others find it romantic. But the general view is that it's sharp business practice on the Emperor's part – which, coming from a Komarran, is a compliment.

The Solstice Massacre

The most bitterly remembered incident of the conquest of Komarr is the Solstice Massacre. Two hundred Komarran Councilors, the ruling senate, had surrendered on terms, but were gunned down in a gymnasium in Solstice. The killers were ImpSec troops; the Komarrans assumed it was by the command of Admiral Vorkosigan, and awarded him the sobriquet "the Butcher of Komarr." In fact, the fleet's chief Political Officer had ordered the massacre – against Vorkosigan's wishes – and the Admiral, in a rage, killed the man with his own hands.

Today, the Massacre Shrine in Solstice, on the site of the gymnasium, is an important pilgrimage destination for both Komarrans and Barrayarans. Many Barrayarans burn offerings there in apology to the victims.

Without the value-added, from our trade, labor, transport, banking, and remanufacturing, Komarr would dwindle again to the desperate subsistence – and less-than-subsistence – level from which it rose. And seven out of ten of us would die, one way or another.

– Laisa Toscane, ***Memory***

Komarran Culture

Komarrans have two priorities: trade and terraforming. The first pays for the second. While not as coldly mercenary as Jackson's Whole, Komarr is oriented around money – even the humblest citizen has shares in the trade fleets, and the wealthiest families rule as oligarchs. There are no specific gender roles on Komarr, which can come as quite a shock to Barrayaran visitors. Male and female Komarrans are addressed as Ser and Madame respectively.

Much of Komarran society is structured in terms of committees and the division of shares. The residents call themselves the "shareholders" of Komarr, not "citizens." Even a revolutionary conspiracy may have its course decided by the person judged to hold the most "stock" in it. Barrayarans, used to their feudal system of authority, can find this unsettling.

Attitudes Toward Barrayar

Most Komarrans accept the current situation, if grudgingly. There have been many Barrayaran-Komarran marriages, and the Komarran traders are doing good business with Barrayaran warships to guard them.

With the Emperor's marriage to Laisa, Komarr may finally start to believe that Barrayaran intentions are honorable . . . apart from the cynics, of course, who see it as another example of Barrayar carrying away Komarr's best.

Barrayaran Trade Escorts

Every Komarran trade fleet is accompanied by Barrayaran warships. The official reason is to defend against pirates and hijackers and to keep the Barrayaran crews in readiness. The strategic reason is to keep some Barrayaran warships past the Komarran wormhole nexus. Fleet units might legitimately be anywhere the Komarrans trade, buying valuable time and flexibility if hostilities threaten.

Of course, this also offers the opportunity for all sorts of intelligence-gathering. It's easy to attach ImpSec personnel to a fleet, and the regular crews are carefully debriefed after each escort mission. Escort duty also gives young Barrayarans some exposure to wider galactic culture, as well as to the Komarrans, their fellow Imperial subjects.

Each Komarran ship carries a Barrayaran officer as security liaison. He is responsible for internal ship's security and serves as a "political officer," watching for disaffection among the Komarrans. In an emergency, he will coordinate with the escorting warships for any aid required.

Anti-Barrayaran feeling is mostly confined to snide remarks and bad jokes . . . though rudeness by a Barrayaran in the rougher areas of the domes would be a mistake. What is left of the actual Komarran underground has been losing momentum. The children of expatriates have grown up as citizens of other planets. The surviving old revolutionaries are divided into several radical splinters, which don't cooperate well. Anti-Barrayaran plots – which do crop up from time to time, as shown by the recent attempt to close the wormhole to Barrayar – are likely to involve only a small group. While this reduces the danger, it also makes them harder for ImpSec to spot.

Barrayaran Presence

From the Barrayaran point of view, Komarr had to be conquered for the safety of the Imperium. That having been accomplished, its people are to be treated honorably, not enslaved. The Viceroy of Komarr is styled "The Imperial Counsellor." He is the Emperor's Voice on the world; the "Counsellor" title is a diplomatic attempt to downplay this near-absolute authority.

Barrayaran administrators, especially Vor, hold senior positions throughout Komarr, but as assimilation continues, Komarrans are moving back into more and more top jobs.

ImpSec has a presence in every dome, with staff size depending on the local reputation for trouble-making. ImpSec doesn't keep files on every Komarran citizen, but its search programs can quickly pull records from the public-information net. General Rathjens is the current Chief of Imperial Security on Komarr. He reports directly to Duv Galeni on Barrayar. ImpSec also has men on each of the military stations in local space, and can call upon both the Service and the local Komarran civilian security for assistance. Most local ImpSec offices also have a budget for Komarran informers – tactfully referred to as "civilian analysts."

Private (and expensive) schools and shops are available for those Barrayarans who have come to Komarr in the line of duty and do not want to mingle with the locals – or who would rather do their social networking with resident Vor. Barrayarans attuned to the wishes of their Emperor, though, will learn to mix amicably with the Komarrans.

Komarran Characters

All Komarrans are urban; there's no "country" in the domes. Almost all have some education, because young Komarrans all want to make money, and there are few opportunities for the unschooled.

Two obvious professions for young Komarrans are trader and terraformer, but there are plenty of labor and government jobs available (engineer, technician, shipworker, Dome Patroller, customs official, clerk). Komarran scientists might be found elsewhere, hired for expertise in terraforming. Those who want a career in the military may join the Service. Young Komarrans might ship out to see the galaxy, to visit friends and relatives on other planets, and to experience atmospheres that aren't bounded by domes.

Any Komarran might have been involved in the Revolt, or even the original fight against the Barrayaran invasion. For most, that will all be history now, just part of the back story, whether they carried guns or merely chanted slogans. At their angriest, they'll merely be cold toward Barrayarans. But there are still a few active revolutionaries, some on the run from ImpSec, others as yet unsuspected.

Fleet Shares

The Komarran trade fleets are famous throughout the galaxy. Some are closely linked to family corporations, while others sell shares on the public market to anyone who wants to place a bet. Almost all Komarrans have a few shares riding on the fleets. Lucky shareholders can double their money, and one fleet in the last century is famous for having returned 100 times its investment . . . though the average is closer to 10%. Sometimes there's no profit at all. Wormhole mishaps, delays, piracy, unexpected taxes, or simple changes in the market can lead to ruin. Brokerages such as the Rialto Sharemarket Agency are ready to aid with transactions, lend money to buy shares, and collect the debts should the fleet fail to pay off.

Future Prospects

Komarr's civilian facilities, like the soletta, are gradually being returned to local control. Komarr is also benefiting from an influx of Barrayaran immigrants. Barrayaran women, in particular, are taking the opportunity to study off-planet – and half the Barrayaran women who come to study on Komarr never return. In a similar vein, Komarrans are starting to get important jobs on Barrayar, especially in the Service or ImpSec, where talent is more important than planetary origin.

As long as no one does anything dramatically stupid, and nothing happens to Emperor Gregor, Komarr's integration into the Imperium should continue peacefully. Trade through the local wormholes has increased since Barrayar lowered the tariffs, and Barrayaran protection makes the trade fleets more profitable. With luck, the next generation of Komarrans will see themselves as "the Barrayarans with business sense," rather than as a conquered people.

Sergyar

Control Rating: 3

Sergyar is Barrayar's newest acquisition, a vigorous frontier planet named for the late Prince Serg. It is governed by Viceroy Aral Vorkosigan and Vicereine Cordelia Vorkosigan. There are two known wormholes in the Sergyaran system; one leads to Komarr (a journey of about three days) and the other to Escobar.

Geography and Climate

Sergyar has a full range of Earthlike climates. The relatively small settled area has weather like that of East Africa on Earth, with dry and rainy seasons. It is a land of mountains and rocky badlands, with red-soiled plains cut and channeled by watercourses. In the dry season, the plains are near-desert, the spindly trees bare and leafless. When the rains return, it is a verdant and beautiful world, with turquoise skies and golden grasslands.

Animal Life

Many of Sergyar's creatures display radial symmetry; others are bilateral, and usually six-legged. They include browser hexapeds that range from the size of large dogs to that cows, pig-sized "fuzzy crabs" that are scavenger carnivores with razor-sharp beaks, and floating jellyfish with hydrogen sacs and acidic tendrils to drain blood from their victims. Some of the browsers are edible; the settlers may some day farm them for food. Also common are the local equivalent of fire ants – small radial "insects" with an irritating bite, whose nests are distinctive light yellow cones of sand. (Sergyaran locals can often be distinguished from visitors by their skill in noticing and avoiding these nests.)

History

The first scientific surveys of Sergyar were performed 33 years ago by a team from Beta Colony, led by then-Commander Cordelia Naismith. However, the Barrayarans had gotten there first and made their claim stick. Barrayar later used the world as a staging post for their attack on Escobar, and then for a POW camp. After the war, the planet was formally named in honor of the dead Prince, and colonization began.

The settlers encountered unexpected hazards, such as the infamous "worm plague" (a nasty though nonlethal parasite problem), as well as the mundane hardships of frontier life. When Aral Vorkosigan resigned from his position as Prime Minister of Barrayar after his near-fatal heart attack, the Emperor offered him the Viceroyalty of Sergyar. Since then, with the help of his wife, the Viceroy has been governing a growing world. Many new colonists come from Vorkosigan's District on Barrayar, having chosen to follow their Count to his new home.

Future Prospects

Sergyar is a thriving colony, but for the next few decades it will do little more than establish an infrastructure and build its economy. While the planet is already Earthlike enough that "terraforming" will be a comparatively easy job, there is much to do . . . starting with further research on the existing ecology, a matter which interests the Vicereine in particular. Hazards worse than the worm plague may be waiting in the wings. It is also possible that Sergyar has as-yet-unsuspected mineral or biological wealth. This would interest both the Barrayaran authorities and unsanctioned would-be exploiters . . .

However, between the Viceroy's competence in administration, the Vicereine's scientific experience, and the personal honor and integrity of the two, Sergyar is in good hands for the moment.

Sergyaran Characters

Colonists on Sergyar are likely to have backgrounds in farming, basic engineering, ecology, or administration. Most Sergyarans are immigrants from Barrayar or Komarr, but the children born to the first wave of colonists are now young adults. Some are helping their parents build a world, while others are anxious to see the galaxy. The Vicereine is doing her best to establish adequate schooling and medical facilities, and she makes sure that really talented youths have the opportunity to study offworld; a character might be, or have been, such a student. And the Viceroy, of course, makes sure that his young Sergyaran men have fair opportunities in the Service.

Chapter Three
Other Worlds

Solone tried to eke out his coffee a little longer, waiting for Lieutenant Danseur to return from his mission into the offices opposite. "So tell me," he asked the woman sitting next to him, "is this very much like Beta? You have domed cities there as well, don't you?"

The woman raised her delicate eyebrows at his apparent ignorance and swept the long hair from her face with a pale hand. "No, it's rather different. The old sandbox is much more, well, homey than here, and much more underground. We have domes, but they were built over cavern cities. Here on Komarr, the city ***is*** *the dome. But I fear I'm boring you."*

"Not at all," Solone lied, and let a hint of a yawn slip through. ***Let her classify me as a typical skirt-chaser and forget about me.*** *"Though actually, I was wondering if you were doing anything this evening. There's this very nice little club I know . . ."*

She smiled a sweet and glassy smile with an edge sharp enough to cut through a tanglefield. "Why, how cosmopolitan you are! Most Barrayarans get all nervous and twitchy when I tell them I'm a herm."

Solone spilled his coffee.

There are no aliens to be found in the Vorkosigan universe – only the varied cultures humanity has created, evolving in their separate ways with every passing year. Some are major galactic powers; others are backwaters, known only to historians and particularly wide-ranging traders. Some worlds brought their culture and traditions wholesale from Earth, while others – such as the Cetagandan Empire – invented their own. Lost colonies may await rediscovery. Maps are constantly being updated, political situations recalculated, and accurate intelligence is vital . . .

Beta Colony

Control Rating: 2 (Weapons: 4)

> *Progressive, high-tech, glittering Beta Colony, or corrupt, dangerous, sinister Beta Colony, take your pick of political views.*
>
> ***– Komarr***

Beta Colony is the second, and oldest surviving, Earth colony. It is famous (if not notorious) galaxy-wide for its liberal attitudes toward sex and democracy, and creates cutting-edge technology ranging from weaponry to the uterine replicator. It is a world of deserts, domes, and underground cities, where social courtesy and government control are central to society. Democracy is also fundamental to Betan thinking – to an unrealistic degree, according to some outsiders – and the phrase "a Betan vote" is slang for a debate over orders. Beta is a haven for liberty and freedom of choice . . . with certain hidden strictures.

Beta Colony has a TL of 9, with bits of TL10 and a few flashes of superscience that the "peaceable" Betans are surprisingly adept at weaponizing. It is likely to be the first planet in the Vorkosigan universe to advance to higher levels of technology.

Geography and Climate

On Beta Colony, the geography is either covered by domes or safely underground, and the climate is to be avoided. Cheerfully referred to by locals as "the old sandbox," Beta is a desert planet, with dry air, endless flat distances, and saline puddles that pass for lakes. It is possible to travel outside with the use of nose filters, rebreathers, and heat shields; desert-trekking is a popular sport among the young. Sandstorms are frequent, and all Betans are trained from childhood in emergency procedures – everyone knows where to go in case of a sandstorm alert or a power outage. The shuttleports are shielded during storms, which can delay shuttle arrival or departure.

Although Beta has domes now, most of every city is deep underground, many-layered and complex, cozy and safe. Beta Colony does not have architecture so much as interior design. Public gardens provide general enjoyment – and increase oxygen production – but seem palpably artificial to visiting galactics. For Betans who want indoor greenery, a common choice is bonsai, using mesquites or acacias.

Two major cities are Quartz and Silica. Quartz houses Beta Colony's principal hermaphrodite community. Silica has the main shuttleport and the highly-regarded Silica University.

Beta Colony has two known wormholes. One leads to Escobar, an ally which handles half of Beta Colony's interstellar trade. The other goes to an area of space served by Dalton Station, which gives access to Tau Ceti and the West Orion arm of the galaxy.

The Orb of Unearthly Delights

The Orb is one of Beta Colony's most famous – or notorious – pleasure domes, with a galactic reputation. A wide range of licensed, medically supervised, basically harmless entertainment can be purchased at the Orb . . . enough to astonish most Betans, let alone offworlders. (Those with viler enthusiasms visit Jackson's Whole, where *everything* is available – for a price.) Patients undergoing sexual therapy at Betan clinics often receive a discount for certain Orb services. The Orb also offers instruction and therapy to improve, in a very practical way, one's sex life. A client may opt for a complete psychological workup, but the deep diagnostic procedure is not recommended for a one-time visitor, as follow-up therapy may be required to help the client deal with that much unexpected truth about him/her/itself.

The Orb also serves as a meeting place for wheelers and dealers, mercenaries, not-quite-legal traders, and other interesting characters.

History

Beta was mankind's second attempt at interstellar colonization. In 3-D space, Beta Colony is relatively close to Earth. The first colonists arrived at sublight speed, but it took them many subjective years . . . and many more objective years.

Their new world was a near-fatal disappointment. No one could live on the surface of Beta. Food had to be created artificially; the only possible places to live were deep caverns. The colonists survived through technology and absolute cooperation. Most of them were scientists and professionals from the United States, carefully chosen for the ability to live and work together. The harsh physical conditions, the lack of space to expand, and the tolerant idealism of the original colonists led to modern Betan law. Babies would only be born to loving parents, who could be relied upon to raise them properly and sanely. Children would be taught from birth to respect the freedoms of others, to act democratically, to hold no prejudice on the grounds of sex or race, and to fully inform themselves about any situation before acting. The first article in the new Betan constitution was "Access to information shall not be abridged."

Eventually, the Betans won their struggle with the environment. Their society remained free and liberal, and soon became a source of technological innovation. Shortly after the wormhole drive opened the galaxy, a path was found to Beta Colony. Beta now creates humanity's most advanced technology. Betans were responsible for artificial gravity systems, uterine replicators, plasma mirror fields, and many other groundbreaking inventions.

Beta Colony became rich and famous. Sensibly, the Betans only advertised their second- or third-latest inventions, thus staying several steps ahead of everyone else. The Betans are peaceful, but they're also practical. They are as advanced in weapons research as in other fields, and when their ally Escobar was attacked (see p. 16), the Betans sent a fleet to the rescue, armed with a new secret weapon, the plasma mirror shield. The invaders were routed, and Beta established itself further as a sleeping tiger, best not trifled with.

Beta excels in medical research, as well. Thanks to its high standard of care, most Betans live to 120 years or more. This has led to stories of a secret Betan rejuvenation treatment. The barons of Jackson's Whole would like to investigate these attractive rumors more closely . . .

The Thin Blue Line

"How could they permit such horrible slanders on Admiral Vorkosigan, and Prince Serg, and our forces? I think the producer should be taken out and shot! And the actors – and the scriptwriter – we would at home, by God . . ."

– Elena Bothari, ***The Warrior's Apprentice***

After the Escobar war, Captain Cordelia Naismith of the Betan Astronomical Survey became a popular heroine, credited with assassinating a Barrayaran admiral after her capture. The whole story was immortalized in the famous docudrama *The Thin Blue Line.* Naturally, it describes the events from the Betan point of view, so Prince Serg and Admiral Vorrutyer are portrayed as sadistic, vicious, and thoroughly insane, rather than the heroes they are in the Barrayaran histories. This tends to upset Barrayaran viewers.

Betan Culture

Beta Colony is a wealthy world. The people at the top are very rich indeed, and almost everyone is comfortable by galactic standards. Real poverty is hard for most Betans even to envisage . . . it's completely outside their experience.

Beta offers employment to all residents, even newcomers. All an unemployed immigrant has to do is report to a Shelter and get Carded. This will entitle him to free food (even if it's from the protein vats) and work opportunities. (In practical terms, it puts you in the Betan System; all your details go into the computers, including blood samples, retinal prints, fingerprints . . .)

Men, women, and hermaphrodites serve in all areas of society and the armed forces, assigned strictly by aptitude test. Physically demanding jobs are skewed to men (slightly embarrassing those Betans who believe in total equality) but bring no additional status. There is also a strong tradition of "affirmative action" even toward outsiders – for instance, there are quotas for non-Betans in the Betan Survey ranks, from scientist to commander.

Betan clothing is influenced by the temperature (hot, even inside the domes and underground) and by the culture's relaxed attitude about sex. Sarongs (usually worn waist-high), along with body paint, are popular. Security and military forces wear conventional uniforms.

Vat-grown protein is a common food. Given this convenience, many Betans find the concept of killing animals for meat to be utterly foreign, even repugnant. When visiting other planets, if vat-grown protein is unavailable, Betans often resort to vegetarianism.

Living at the pinnacle of technology has caused some Betans to develop a certain snobbery. It has also given rise to the common attitude that, with enough technology, common sense, and open-mindedness, *anything* can be fixed.

> *Beta Colony . . . very politically correct, very liberal, but with certain hidden illiberalities.*
>
> *– Lois McMaster Bujold,* ***Dreamweaver's Dilemma***

The Mental Health Board

Betan culture appears completely liberal to the outside observer. In fact, Beta is built on institutional idealism and enforced cooperation. Citizens who don't wish to behave in a liberal and cooperative manner may find they have no choice.

Every Betan citizen is at total liberty to do as he wishes, without hindrance or constraint, as long as his actions cause no physical or psychological damage to other citizens. To insure this freedom, the Mental Health Board and the administration have the authority to take away a citizen's rights over his own body and actions, for the public good. Citizens judged to be a danger to the public safety can be detained against their will for psychological treatment. While this is technically illegal, it is considered ethical so long as permission is eventually obtained from the patient . . . usually after his treatment. Most Betans cannot even perceive a possible contradiction here.

Betan psychotherapy is famous across the galaxy, and is a common reason for offworlders to visit Beta Colony. Therapists are *extremely* well-trained, non-prejudiced, and willing to spend a lot of time and effort on their patients; some work for private groups, others for public hospitals and clinics. With a keen understanding of psychology, potent drugs, and brain-computer interfaces, they can restore buried memories, suppress traumatic ones (see p. 83), and reconcile split personalities. According to popular rumor, skilled therapists can also brainwash, brainwipe, and sculpt personality . . . not that anyone would ever do something like that here on Beta. Of course not.

In fact, some of the best therapists on the planet work for the Mental Health Board. Few Betans think much about the MHB, assuming that it only deals with people who *need* help. The fringes of society, and immigrants down on their luck, actively fear the MHB patrols with their stun-nets and dart guns. They whisper, "You're always smiling after they get done with you . . ." But the MHB does more than pick up lonely, unhappy people and turn them into content citizens. It can be aggressive in "helping" anyone who rocks the Betan boat too much. (When Cordelia Naismith returned from the Escobar war, her stressed behavior and the unlikely details of her story led the MHB to believe that she had become a brainwashed agent of Barrayar. She chose to flee the world of her birth rather than submit to their attentions.)

Social Controls

Beta is not an armed society. All weapons must be surrendered at the shuttleport on arrival, and Customs checks involve high-tech scans. Stunners may be carried, if the wearer has obtained a license. Any other weapons are strictly illegal, grounds for instant arrest.

On Beta, almost all pursuits which affect others – having children, carrying weapons, offering medical services, driving a lightflyer, and many more – require a license. Some are nearly automatic; others require specific education and proof of competence. However, Beta Colony has one of the greatest achievements in the entire galaxy – a bureaucracy that works. When a Betan files a government form, he can confidently expect a quick, reasonable result. The occasional error or delay annoys the victims to a level that non-Betans, used to incompetent bureaucrats, find astonishing.

Betans expect democracy as a natural condition, and complain loudly in its absence. Since the Betan system clearly works, Betans can't understand why the rest of the galaxy doesn't follow suit. (The typical Betan attitude of horrified pity toward non-democratic galactics can be extremely annoying.)

Of course, idealists who vote in a democracy feel morally bound to abide by the outcome. The typical Betan is no rebel; he will support a group decision even if he disagrees personally. Beta Colony is quite capable of having a President whom much of the planet despises . . . but if he was the democratic choice, they'll live with him . . . until the next election.

Marriage and Children

A Betan marriage can involve any number of adults, though the most frequent grouping is two (of any sex, whether male, female, or hermaphrodite). Having children does not require a formal marriage, but it does require a *license!* Would-be parents must take a course, and meet physical, psychological, and economic qualifications, to qualify for parentage license. Clinics will not remove a con-

The Paper Chase

When Barrayaran subjects run into trouble on Beta, the Barrayaran embassy takes advantage of the Betan trust in bureaucracy. The very competent embassy staff processes complaints by demanding dozens of forms, including some particularly complex ones which must be returned to Barrayar for processing. These are almost guaranteed to be sent back several times for minor errors in execution, taking three months for each round trip. This develops into an endless loop of reports. As the Betans being run through this maze believe they are accomplishing something, everyone is happy. (Of course, for a complaint justified by *Barrayaran* standards, the embassy might take real action. For the standard case of "Barrayaran assaults Betan due to Betan making an approach which the Barrayaran takes as an insult," however . . .)

traceptive implant, or lease a uterine replicator, to someone without a valid license. On Beta Colony, the term "bastard" has no objective meaning; unlicensed children are so rare that they're dealt with on a case-by-case basis.

Qualification to become a parent grants two half-licenses for children; if a child has more than two parents, it's up to the parents to determine who contributes the required half-licenses. If a citizen has himself cloned, he has used up both halves. Additional permissions are tightly regulated. The Population Control Board issues further licenses yearly, as population pressure and societal needs permit, by several methods; some are granted as rewards for special achievements, but most are assigned randomly. If a citizen does not wish to use a lottery-acquired license (or if he does not qualify as a parent, or otherwise cannot use it), he may give it away or sell it. The PCB itself never sells licenses.

Betan laws had to be rewritten to address its biological advances. Children could now be cloned from cell samples taken with or without the owner's consent. It was also possible for a child to be "born" from two parents of the same sex, and for creations such as hermaphrodites to be brought to term. Beta now boasts the most modern legal code in the galaxy, covering almost all conceivable results of cloning technology and uterine replicators. Less advanced worlds, such as Barrayar, generally haven't had to formulate legal codes to handle such things. (Importing the Betan laws wholesale is unlikely to work, given how closely they are based on Betan morality.)

Under Betan law, if a citizen orders a clone created from his own genetic material (assuming he's obtained a license, of course!), the clone is his child. The progenitor has all the obligations of a parent, and the clone has inheritance rights. If he has a clone made using a sample from his child's tissues, then the clone is also his child, and is a brother or sister of the original. If an adult orders a clone of himself created, the adult's parents have the claims and obligations of grandparents toward the clone. The clone himself is in every way a full human being, by Betan law and opinion, and has full rights under the law, and full independence at 21, the age of maturity.

Sexuality

Betan law and custom draw a definite line between sexuality and procreation. Every female (or hermaphrodite) Betan has her hymen cut, and receives a contraceptive implant, at puberty. They also customarily have their ears pierced and throw a coming-out party. After that, anything goes; any liaison between consenting adults, whatever the sex of the parties involved, is acceptable. Betans view this as a sensible and practical approach to sexuality and personal freedom. They see more restrictive galactic cultures as pitifully ignorant at best, if not positively insane. A double standard of sexual behavior is, from the Betan point of view, a logical impossibility. (Other galactics, particularly those from cultures such as Barrayar or Athos, use terms such as "exotic degenerates" for the Betans.)

Betans can usually avoid unwanted romantic approaches through the "earring code" – there are a dozen or more different styles of earrings, each of which conveys a message about the wearer. One style, for instance, means: *Yes, I'm a consenting and contraceptive-protected adult, but I am presently in an exclusive relationship, so please do not embarrass us both by asking.* While it would be easy to falsify signals by wearing an inappropriate earring, most Betans would never consider it. After all, the whole idea is to eliminate guessing games and avoid embarrassment.

Licensed Practicing Sexuality Therapists are available for personal assistance; they can provide marriage counseling, lessons in the erotic arts, sexual therapy for the traumatized, and similar services. It's a lower-middle-class job that offers personal service with a touch of style, much like a hairdresser or masseur. Practitioners require a license from the government and at least an associate degree in psychotherapy. Many hermaphrodites work as LPSTs, and are extremely popular with offworlders.

Some Betans like to hang around the shuttleports, "trolling for galactics," but this is really only common among the younger, immature set.

Organizations

The Betan Astronomical Survey

Upholding the colony's scientific tradition, the Survey, in its baggy tan fatigues, is one of the best-known and most-respected faces of Beta. The Survey is a very, very loosely paramilitary organization which investigates new wormholes – mostly by going through them to see what was on the other side – and searching for habitable planets and other resources.

Few Betans are used to military discipline. Careful psych profiling is required to assemble a crew. Even so, the captain of a Survey ship can expect to shepherd a group of intellectual prima donnas ready to argue his every decision. Any Betan leader must be able to persuade as well as command.

Planetary Security

Betan Security is under the control of the Betan State Department. Its officers wear dark blue uniforms and work closely with the Mental Health Board (p. 36) to maintain social stability. Most Betans never see a real Security officer, though they are common holovid heroes, often arresting sinister Barrayaran spies.

The Betan Expeditionary Force

The Betan military is strong but defense-oriented; Beta projects its force politically and economically, not with space fleets. The one time Beta went on the offensive was to aid Escobar when Barrayar invaded (p. 16). The Betan Expeditionary Force was organized for that mission. Members wore light blue uniforms (which didn't even get into full production until after the war ended) and black leather boots. Shortly after the war, the B.E.F. was folded back into the colony's regular forces.

Betan Characters

Betans aren't all scientists, psychologists, and Survey members. Any sort of urban, technological skill set is reasonable. However, few Betans will have less than normal wealth.

Beta Colony has embraced basic gengineering to provide children with useful, non-controversial abilities. Many Betans have the advantages of Common Sense, Empathy, Longevity, and Mathematical Ability. Rarer talents may include Lightning Calculator, Rapid Healing, Contacts (in the scientific world), and Unfazeable.

Betan society, though, leaves many of its citizens prone to the Odious Personal Habit of giving unwanted psychotherapy to everyone around them, and insisting that "Betan common sense" should be applied to every situation.

Betans may also have a Reputation with other cultures (as techo-snobs or sexual perverts, depending upon the situation). A Delusion is possible, ranging from the optimistic "Anything can be fixed with technology if we'll just be reasonable about it" to the cynical "All non-Betans are prejudiced barbarians." Gullibility and Honesty are likely disadvantages, given Betan views on freedom of information. Pacifism is common, but usually as Self-Defense Only; Curious is *very* common.

Cetaganda

Control Rating: 4

The nightside glittered appallingly. The continents were awash in a fairy dust of lights. Miles swore he might read by the glow of the civilization, as if from a full moon. His homeworld of Barrayar seemed suddenly a dull vast swatch of rural darkness, with only a few sparks of cities here and there.

– Cetaganda

The Cetagandan Empire is an expansionist power which, two generations ago, invaded and occupied Barrayar. With eight developed planets and an equal number of allied and puppet dependencies, the empire is ruled by an aristocracy. The upper *haut* caste controls government; the racially separate *ghem* caste commands the fleets and armies.

Ten years ago, the Cetagandans attacked Vervain, but were foiled by a coalition of Barrayaran and Vervani forces and the Dendarii Mercenaries. Shortly after that, they invaded Marilac, but were eventually forced to withdraw due to a spirited local resistance that received covert Barrayaran aid. Since then, the Cetagandans have been relatively quiet; however, their neighbors – especially the Barrayarans – have not relaxed their vigilance.

Geography and Climate

Eta Ceta IV, the capital of the empire, has been fully urbanized; all surface features have been resculpted by the haut or ghem. The "wilderness areas" are carefully maintained landscapes rather than genuine unexplored territory. Of course, given the ghem-ladies' penchant for genetic manipulation, it is not impossible that experimental "works of art" might have escaped into those wilderness parks, offering interesting surprises for visitors.

There are several jump-point stations around Eta Ceta, and an orbital station above the planet itself, through which visitors must pass when going to the surface. Off-planet legations are concentrated in one section of Eta Ceta's capital city.

Eta Ceta itself is home to the Imperial residence, the Celestial Garden (also known to galactic visitors as Xanadu). It is contained in a force dome six kilometers across, which draws the power of an entire generating plant. The central towers of the Celestial Garden are elaborate paragons of Cetagandan architecture, and the surrounding gardens are amazing, containing some of the finest genetically sculpted animals and plants from ghem-ladies across the planet. Wide jade pathways wind through arboretums and botanical gardens, and scattered low pavilions nestle like secrets among the trees and valleys. Outside the Celestial Garden's dome, a kilometer-wide park with trees is surrounded by a silver street, then another park, and then eight boulevards radiating outward, with kilometer-high buildings ringing the garden and looking down on the dome.

The Celestial Garden is the center of the city and the heart of the planet. It is home to the Celestial Emperor, Fletchir Giaja, and his household. This includes the Emperor's personal servants, the *ba* (p. 41). Born sexless and genderless, they are unobtrusive and quiet, rarely speaking to outsiders. Most of the older ba are also completely hairless, due to a whim of the previous Emperor.

Other Cetagandan Empire worlds include Rho Ceta (near the wormhole to Komarr), Mu Ceta (source of the failed move against Vervain), Sigma Ceta (which borders the Vega Station group), Tau Ceta, and Xi Ceta (which has the wormhole to Marilac). They are also terraformed and industrialized, though not to the degree of the homeworld.

History

The Cetagandan Empire's recent history, as far as the rest of the galaxy is concerned, consists of attempts to intimidate neighbors into alliances or conquer them by force. Eta Ceta was one of the earliest colonies settled from Earth, and the nascent empire rapidly spread through its jump points, colonizing and developing the seven subsidiary worlds. The haut-ghem structure has been in place almost since the inception of Cetagandan culture, although it has evolved and elaborated over the centuries.

Internal Cetagandan affairs are kept hidden from the rest of the galaxy. Although bloody wars between haut constellations and ghem-lord factions have taken place, they frequently ended in quiet suicides or "accidents," and find little mention in galactic history texts. (It is risky for a haut-lord to attempt to usurp the Emperor, but not socially "wrong," and the rewards for success are great.) A native Cetagandan would have a firm grasp of the history of his constellation or house – especially its feuds with other constellations or houses. Galactics, on the other hand, rarely even know exactly what struggle lies behind the latest rumor of bloodshed.

Cetagandan Culture

The Cetagandan Empire is a highly stratified society with three tiers: haut, ghem, and servitor classes. The haut rule Cetaganda; the males as planetary leaders, the females through the Star Crèche. Haut not in government positions often pursue artistic careers – indeed, even rulers are frequently known for their artistic and aesthetic skills.

The leader of the Empire is Fletchir Giaja, the Emperor of Cetaganda, the Celestial Master. Each of the eight Cetagandan worlds is ruled by a satrap-governor who is a close male relative of the Emperor. Each rules his satrapy for five years, then must leave it (sometimes for permanent retirement on Eta Ceta, and sometimes to another satrapy).

Each Cetagandan world also has a Planetary Consort. She is the representative of the Star Crèche (see p. 41). Despite the title "consort," her relationship with the satrap-governor is purely political, and she holds her position for life unless she is dismissed by the Celestial Lady herself.

The ghem-lords are the military caste, characterized by their aggressive, forceful attitude. (It is surprising to the rest of the galaxy that the ghem-lords have not seized power from the seemingly effete haut.) Each world has a ghem-general assigned by the Emperor. Ghem customs are formal, but many are savage, with such rituals as "swearing to a hunt," where the oath-taker vows not to rest until he has captured or killed his target. Currently, one of the most powerful ghem-lords is Ghem-Admiral Har, who commands half the Cetagandan fleet. His clan-colors are orange and green.

The Cetagandan Empire has an overall TL of 9. The ghem-lords have access to the full range of weapons technology. The haut-ladies (and to a lesser extent, the ghem-ladies) specialize in medical and biological technology. Young haut- and ghem-lords with pretensions to art may create their works with equipment put together by better-educated servitors, defining the results they desire and leaving it to the "mere technicians" to assemble the tools to accomplish it.

Haut technology is elegant, subtle, and artistic. Their knowledge of biotechnology is greatly feared; some suspect this is the true hold that the haut have over the ghem. However, their bioweapons – deadly viruses, engineered parasites, and so on – are only used in their own power games; it is unheard-of for such weapons to be used in conflicts against outsiders. Making war is the ghem-lords' job.

Public order is kept by the Cetagandan Civil Police, known as "the Civils." The servitor class is not encouraged to carry weapons. They're not illegal, but anyone who draws the Civils' attention and is carrying anything heavier than a stunner is liable to have it confiscated, at the very least. Cetagandan Imperial Security is an autonomous force, distinct from the Civils, with sweeping powers of arrest and detention. They provide the guards for the Celestial Garden.

Female Occupations

The Vorkosigan books have not shown the occupations of ordinary Cetagandan women, but they may be assumed to cover the same range as any other high-tech galactic society. Ghem-ladies manage their households and pursue civil or commercial careers. The highest form of art among ghem-ladies is the genetic manipulation of plants or animals. They demonstrate their art at regular exhibitions, and the greatest honor is to have their creations placed in the Celestial Garden.

Haut-women are rarely seen outside their private quarters; when they do go out in public, they ride personal float-chairs (see p. 96). A chair's force field is opaque – indeed, few know what weapons might penetrate it – but the haut-lady can see out.

Haut-ladies are not openly involved in the politics of the Empire, but pursue private careers in science and art. Very occasionally, a haut-woman is given as a wife to a particularly successful ghem-general; for him, this is the ultimate social and political coup. She automatically outranks any previous wives he may have (polygamy is legal for ghem), and her children become the family heirs. The haut-wife is no longer permitted a float-chair, but if she is encountered outside her home, it is polite to look away from her and address all questions to her through her husband, as though she were still within her concealing force-bubble.

Family and Marriage

Family structure is an important part of Cetagandan life and politics. Ghem-lords belong to clans, each of which has a distinctive face-paint pattern. There are more than 50 clans, but some are far more powerful than others. Before marriage, young ghem-lords and ghem-ladies are free to pursue liaisons as they wish, as long as their clans are not currently hostile.

Haut belong to kin-groups known as constellations, and would state that a relative is "of the same genomic constellation." Young haut (less than 50 years old) live with their parent's constellation. Known constellations include the Degtiar (to which the current Celestial Lady, Rian, belongs), Rond, Giaja (the Emperor's constellation), Kety, and Navarr.

Haut do not marry, but engage in several types of legal contract to produce offspring. The simplest is for one-time usage of the genome, resulting in a single child registered with the male parent's constellation. The other extreme is a lifetime monopoly, which may or may not be mutual. Most arrangements fall somewhere in between. A contract with the Emperor himself is exclusive. The mother of a potential Imperial heir must never have contracted before, and may never do so again; she becomes an Empress of Cetaganda and goes to live in the Celestial Garden for the rest of her life. Senior among the Empresses is the Celestial Lady, the mistress of the Star Crèche. She is the mother of the current Emperor, the "Dowager Empress" – or, if the Dowager is no longer alive, the mother of the declared heir.

Once contracted, a haut birth does not involve random genetic mixing between the parents. The genes from both constellations are carefully screened and combined, and outside genes – or even artificial genetic material – may be introduced. This is performed in the laboratories of the Star Crèche (p. 41). The child will then be raised by its constellation.

Procreation among the haut has nothing to do with personal relationships. A child's parents may never meet face to face. Liaisons between the haut are mostly social play, intensely bounded by etiquette, though there are some long-lasting partnerships that an outsider would perceive as close to marriage.

Clothing and Fashion

Ghem-lords paint their faces, obscuring their own features with a design showing their position. Junior officers wear the colors of their rank while on duty, while senior officers wear colors and patterns denoting both rank and clan. The Imperial pattern, worn by ghem assigned to the Celestial Garden, is a white base with black curves and red accents. Recent avant-garde fashion has the color-design worn as a decal on one cheekbone, instead of full facepaint (this would not be tolerated in the military, of course). Ghem-ladies do not paint their faces like the men, but often wear some decoration in their clan-colors. Neither haut-lords nor haut-ladies wear face paint. Haut-women *never* cut their hair.

Casual wear for both sexes is a simple bodysuit and calf-length robes. For formal occasions, up to a dozen over-robes may be worn in layers. These are usually colorful; white is the color of mourning. Clothing is a code on Cetaganda; natives learn its intricacies from birth, but it is difficult for outsiders to move among the ghem-lords without committing error, and they cannot mingle with the haut without *some* technical impropriety. Uniforms are almost always a safe choice for offworlders.

Cetagandan Characters

Templates for haut and ghem characters appear in Chapter 5.

Most of the subjects of the Cetagandan Empire are ordinary people doing ordinary jobs; as characters, they can be designed as ordinary members of a high-tech society. Of course, some of these "ordinary" people may be highly competent, even if they are not lab-designed supermen. A template for a well-trained and able Cetagandan of the servitor class appears on p. 72.

> *. . . the ghem-commanders' loose and shifting relationship to the assorted secret haut-lord factions lends an unusual degree of deniability to their operations . . .*
>
> **– *Cetaganda***

Haut and Ghem

When outsiders see the artistic haut-lords and military ghem-commanders, they often fail to understand how Cetagandan society functions – and, in particular, how the haut manage to keep control of the aggressive, expansionistic ghem. The ghem intrigue among themselves for positions

as commanders, but almost never do they challenge the haut in any way. Likewise, the haut-lords leave the military to the ghem, indulging in their own plots for the satrapies and throne.

What It Means To Be Haut

The haut aren't just a social stratum – they're a long-term genetic project, run by the Star Crèche (see below). The haut are usually tall, unnaturally handsome or beautiful, very long-lived (to them, youth lasts until 50), and have other genetic advantages. At some point, it is likely that they will no longer be what the rest of the galaxy considers human – or they will no longer consider the rest of the galaxy to be human.

The ghem are unusually attractive, healthy, and talented, but much closer to the human "norm." They are also a genetic project, but a less tightly controlled one. The haut-ladies and the Star Crèche watch the ghem carefully, permitting them to breed as they wish, in order to identify any useful genetic complexes that may appear. Such genes are later incorporated into the haut genome, after testing among the ba. The haut-wives granted to prominent ghem, in turn, introduce selected haut genetics into the ghem bloodlines.

The Star Crèche

In genomic matters among the haut, the Star Crèche rules absolutely. The Star Crèche is many things: government body, genetics lab, futurist study group, and more. It is the power base of the Empresses and the haut-women. It is led by the Celestial Lady and the Council of Consorts. The Planetary Consorts also serve as the Star Crèche representatives on their respective worlds. The Star Crèche's administrator bears the title of "Handmaid of the Star Crèche."

The Star Crèche designs each generation, directing the evolution of the haut. This is kept secret from all non-haut, and certainly from all galactics. While Barrayar's ImpSec has recently become aware of part of this, they are probably the only non-haut to be so well-informed.

Every genetic contract must have the approval of the Star Crèche, and the Crèche will perform (or at least oversee) the work that creates the new child. The children are produced in the laboratory from genetic samples kept on Eta Ceta. Every year, each Planetary Consort travels to Eta Ceta to collect the uterine replicators containing the haut-children for her world.

The haut's gene bank is indexed by the Great Key, a small rod with the Star Crèche's symbol (a clawed, screaming bird) embossed on one end. The Key itself can only be activated by a seal-ring held by the senior Empress. Since the gene bank includes hundreds of thousands of samples, loss of this index would be catastrophic; there is no backup.

The Key and Seal, and other symbols of the Star Crèche, are held by the Celestial Lady. On her death, the Seal and other regalia are held by the Handmaid, and turned over to the new Celestial Lady on the last day of the funeral.

The Star Crèche does not rule the Empire – in certain matters, it can be overruled by the Emperor. The relationship is complex, and not considered the business of outsiders. The Emperor is the interface between the haut and the Empire; it is his duty to ensure that the political sphere remains secondary to the development of the haut-genome, as supervised by the haut-women. Individual ambitions are not permitted to interfere with the evolution of the haut.

The Ba

The ba are the cutting-edge experiments of the Star Crèche, given human form. Certain genomic changes are complex enough that they cannot be evaluated without actually bringing an infant, not just to term, but through adulthood. The ba are those tests, genderless so they cannot give away the Crèche's secrets by reproducing. The haut, even the Emperor himself, share most of their genetic structure with the ba. This is never acknowledged publicly; as far as anyone but the haut know, the ba are merely domestic servitors, trustworthy minions of the haut-ladies and the Emperor. Haut even refer to them as slaves when dealing with outsiders. This is misdirection.

There are probably not more than a thousand ba at any one time. They are servitors of the Celestial Garden, but in no sense do they have a slave mentality. They do not display a haut's individualism and will to dominate; in other ways, they are as near-superhuman as the haut. They realize their importance to the haut project. Though a ba cannot have children of its own, it knows that if it excels – if it proves itself to be a successful experiment – its genes will become part of the haut race.

The Emperor Fletchir Giaja

The Emperor Fletchir Giaja is typically haut in appearance: dark-haired, hawk-faced and tall. He took the throne at an extremely young age for a haut-lord – less than 30 – and is now some 70 years old, still on the young side of middle age. He is subtle and brilliant, with vast experience at managing the political factions of his Empire.

It is unlikely that visitors will come into casual contact with the haut Giaja. However, haut or ghem on an important mission (military or otherwise) might well be given briefings that involve the Emperor, or require his presence – and certainly any ambitious young Cetagandan would be anxious to attract Imperial attention.

Jackson's Whole

Control Rating: 0 (Weapons: 3)

Jackson's Whole . . . must have been settled by libertarian space pirates . . . Everybody says they want a world with no government. Well, here's a world with no government. How do you like it?

– Lois McMaster Bujold, ***Dreamweaver's Dilemma***

Jackson's Whole was founded – or, rather, grew – as the base of a conglomeration of hijackers, pirates, and assorted criminals. It is widely known as a place where anything, legal or illegal, can be purchased. It has no central government; each of its independent and competing Great Houses deals as it wishes with the rest of the galaxy. It has no centralized fleet, but the ships belonging to the various Houses are enough of a deterrent to invasion that even the Cetagandans haven't bothered trying to take the place over. Besides, the helpful Jacksonians sell their services to anyone with money . . .

All the Houses Major and many of the Houses Minor have holdings on the surface, some highly fortified. Every space facility is the property of an individual House or a consortium.

Jackson's Whole has a general TL of 8; some specialist Houses have partial TL9 medical knowledge, particularly concerning gene design and cloning.

Geography and Climate

Jackson's Whole is a mountainous and rather cold planet, temperate only at the equator, but highly industrialized. There are five orbital-transfer stations around the planet and five jump-point stations, one for each jump point. The largest of the orbital stations is owned by House Fell, and serves as their headquarters and home city. House Fell also owns Jump Point Five, the largest jump-point station, which guards a wormhole leading to the Hegen Hub. The station on the route to Escobar belongs to a consortium dominated by House Bharaputra. Another jump-point station is owned by the Hargraves-Dyne Consortium (composed of the two Major Houses Hargraves and Dyne). Barrayar maintains a consulate there. Hargraves-Dyne's business includes hiring out mercenaries.

History

Many sources describe the evolution of Jackson's Whole from a motley crowd of criminal gangs . . . but since those records were kept by different Houses, each with its own perspective, their accuracy is debatable. Also, while inter-House feuds are deep, bitter, and lasting, there are few inhabitants of the Whole who wouldn't put aside a multi-generation-vendetta for the sake of profit. For a while, at least.

What is definitely known is that Jackson's Whole, conveniently situated at the junction of five wormholes, was a base for several groups of pirates and criminals. It became a nexus for fencing stolen goods, black marketing, and the (frequently illegal) scientific research necessary for further profit. Slowly the gangs evolved into distinct families, and the system of Houses appeared. Each House evolved different (and not always criminal) specialties. Jackson's Whole became a place that sold everything – weapons, false identities, mercenaries, clones, slaves, and even a form of immortality.

Jacksonian Culture

Jackson's Whole obeys the golden rule – whoever has the gold makes the rules. There are no laws, no automatic rights, no protection for the weak, and no government. Nothing is sacred, but money talks and the Deal is respected. Only the Deal can set boundaries and establish rules. Without a Deal, everyone is alone and no one can be trusted. Once a Deal is established, both parties must keep their bargain . . .

Unless the Deal gets broken later, for an even greater profit. But then, this is Jackson's Whole. Nothing personal; it's just business.

A Deal usually begins with the recognition that each party has something which interests the other, and the phrase "Let's deal." When a conclusion is reached, both sides may repeat that "It's a Deal." Hedging and short-changing are common afterward, if someone thinks he can get away with it, but immediate betrayal is unusual. Not unknown, but unusual. No matter how powerful the House, it is bad to have a reputation for *casually* breaking Deals.

Law

There is no such thing as actual law on Jackson's Whole – a House makes whatever rules it can enforce, on whatever territory it can claim. Some areas are entirely controlled by one House. Other areas are a hodgepodge of overlapping interest, often with one House providing the equivalent of "municipal services" for a fee paid by other Houses who have facilities there.

In their dealings on other worlds, the Houses will respect local law, and keep their agreements with individuals,

companies, and governments, to the exact extent that they think they have to. No House has ever taken another world by force (a bit of piracy on undefended colonies isn't actually conquest). But the corruption and control of a world government would be very profitable. Perhaps it's already happened.

A Jacksonian "consulate" on another planet will be a for-profit operation of one or more major Houses. Its services will be available to members of any House requiring them (or anyone else, of course). They will be as fast, reliable, and confidential as the customer can afford.

Arrest Orders

Jacksonians often clothe their thuggery in the language of law. For instance, a basic service offered by many Houses, both on Jackson's Whole and on worlds and stations where they have a strong presence, is kidnapping, with a quasi-legal justification. "Arrest orders" can be purchased by anyone who (for instance) wants to collect a debt. The cost depends on the expected ease of "arrest." This is simply a "muscle for hire" service, offered to crooks who don't have their own enforcers to terrorize poor nobodies. Even the leader of a street gang would be dangerous to "arrest," let alone a ghem-lord or a mercenary officer. The repercussions could be fatal.

The subject will be invited to pay *not* to be arrested . . . if not before he's captured, then after. If he fails to do so, he will be held helpless and handed over to the "complainant." The minions sent to perform the arrest usually carry shock-sticks, stunners, and tangle-fields, and if the victim "resists arrest," he'll be "fined" a beating and the contents of his pockets.

Houses

A House on Jackson's Whole is something between a business corporation and a 20th-century Mafia family. Like corporations, they may split, merge, or conduct takeovers. Like Mafia families, they may war bloodily over turf. The Whole is currently home to 116 recognized Great Houses (or Houses Major), and countless Houses Minor. There is no hard rule for what makes a Great House; huge power and huge wealth are the starting point. Houses more than a few generations old will earn extra respect, as will leaders with a bit of style.

Houses generally have a single ruler, who holds power through a combination of ability and cold-blooded ruthlessness; there are often half a dozen rivals who would be delighted to replace him. Small Houses usually specialize, either in a particular job or in general enforcement and management for an area. Larger Houses may have a specialty, but as they grow, they will acquire various sidelines, leading to an assortment of subdivisions and departments, which cooperate with varying degrees of effectiveness.

Among the most prominent of the Great Houses are House Dyne, which got its start in banking and money laundering; House Fell, which deals in weapons, both technological and biological; House Bharaputra, which makes most of its money from banking and loan-sharking, but has a profitable sideline in biological services (see p. 44); and House Hargraves, a galactic fence and middleman for ransom deals. House Ryoval (procurers and specialists in producing unusual human bioconstructs) recently dissolved, due to the death of Baron Ryoval at the hands of Mark Vorkosigan; most of its properties and facilities were taken over by House Fell.

The Durona Group

The Durona Group is an example of a sub-organization inside a Great House. Lilly Durona was a scientist, bred by House Ryoval, well-educated but powerless. When House Ryoval changed bosses, she found her position intolerable, and fled to House Fell. She came to a better Deal there, and cloned herself 36 times as the years went by, creating what became known as the Durona Group. These extremely talented scientists served House Fell, specializing in military poisons and antidotes, becoming quietly famous in their field. The group was extremely close-knit while part of Fell, with the only known defector being Lotus Durona, who left for co-control of House Bharaputra.

The family recently gained its independence from House Fell and now operates a clinic on Escobar. Duronas are easily identifiable: tall and striking with Eurasian features, straight black hair, and brown eyes. Women are named after flowers; men are named after birds. Lilly Durona is a tough survivor, and in many ways a typical Jacksonian, but she is not without ethical constraints. She does not perform clone-brain transplants, for instance, nor will she permit her clone-children to do so.

The Underclass

Any connection with a House, however menial, is preferable to being alone, with no Deal at all. Of course, outsiders can band together, but such gangs rarely have the chance to do more than oppress their fellows.

The best hope for an outsider is to find a way to provide some skill or service to a House, earning its protection . . . and perhaps someday some status. Those with no connection eke out an existence as a cheap labor pool for the Houses. They have no chance to improve their lot. There are no governments or organizations to care for the poor; nobody is interested in them except as cheap labor, toys, and possibly experimental subjects. Few ever get the chance to trade some bit of knowledge or service for a berth on a starship, and the Deal that gets them that berth often turns out to be worse than life in the Jacksonian slums.

Services and Exports

Buyers of both legal and illegal goods and services flock to Jackson's Whole. Ethical laboratories or hospitals can get cloned organs and biological samples for perfectly respectable projects. Legitimate governments buy weapons by the shipload. Jackson's Whole products are typically cheaper than Betan, and *sometimes* just as good, though they're rarely as advanced.

A Clone of Your Own

Representatives of House Bharaputra will be happy to create a customized Life Extension Package for any potential transplant customer.

The cost to grow a clone to infancy in a replicator is minimal: $20,000. The clone must then be raised to a usable age. A typical caretaking charge is $15,000 a month, for which the clone will be kept in good health and good spirits. Customers with political or business enemies will want especially high security for their bodies-to-be, and House Bharaputra believes in giving the paying customer what he needs!

Bharaputra's representatives will point out that, if the customer wants body modifications or enhancements, either cosmetic or functional, there's no reason for him to personally suffer the pain and inconvenience. The work can be done in advance. Of course, this raises the price.

The transplant itself will cost at least $500,000, and no guarantees are offered (though of course House Bharaputra will do its best to keep you around for repeat business). In game terms, a brain transplant requires a roll against Surgery-5, though the surgeon will be highly motivated and will have a skill of at least 19. If the old body is near death, there will be a further penalty to the Surgery roll. Failure means damage to the brain (permanent loss of 1d points of IQ); critical failure results in brain death.

Clones can also be used as a source of parts for organ transplants. This is more expensive than growing individual organs as needed (p. 81), but puts off that risky brain transplant, possibly for many decades. The number of parts that can be harvested from any given clone, of course, depends on how vital they are! At some point, it makes more sense to discard what's left of the old clone and grow a new one, and your friends at House Bharaputra will certainly discuss a discount on second and later units.

Meanwhile, mercenaries, corrupt governments, rebel conspiracies, and plutocrats can buy whatever they want, unhindered by ethics or law: weapons, smuggling services, computer codes and viruses . . .

There are services for individuals, too, such as false identities. (A fully documented past, with IDs, is easily obtained. Many show their bearer to be from Frost IV, a world wrecked by tectonic disaster a few decades ago. Careful buyers should be aware that most of the galaxy's security organizations know this, and give particular scrutiny to anyone claiming to be a Froster.) The First Bank of Jackson's Whole is famous for its numbered accounts and discreet services . . . it has investments in gambling rackets, industrial espionage, and the slave trade, from one end of the wormhole nexus to the other. The Houses provide everything anyone could want . . . and most of them keep meticulous records, the better to sell the information later.

Information

Information itself is one of the most valuable things the Whole has to offer. Information – economic forecasts, trade secrets, military intelligence, blackmail photos – is currency. No sensible visitor gives away information, and every sensible visitor expects to be spied on. No transaction on Jackson's Whole should ever be considered completely confidential; in particular, it is well-known that the jump-courier services are riddled with spies.

> *Business is emperor, here. Laissez-faire capitalism gone completely over the edge.*
>
> *– Admiral Miles Naismith,* ***Borders of Infinity***

Cloning and Bioengineering

A lot of cutting-edge research takes place on Jackson's Whole, but it's geared toward profit and often toward subjects that would be forbidden or tightly controlled elsewhere. This gives rise to investigation into military toxins and antidotes, weapons and defenses, medicine, aphrodisiacs, the creation of super-soldiers or ideal concubines, and so forth. Of all the fruits of this research, the one that upsets galactics the most is the clone business.

Clones have no rights on Jackson's Whole; of course, *nobody* has any rights on Jackson's Whole, but a clone is merely property. A clone is grown and shaped for a purpose – to be an assassin, slave, prostitute, guard, curiosity, or organ donor. He belongs to the House that made him until he's sold, abandoned, or – if he's very lucky – offered a Deal, perhaps to spy for another House.

One of the services for which the Whole is best known is the clone-brain transplant. As a chance to cheat death, it is attractive to the rich and amoral, though the procedure is risky and there is no guarantee of success. House Bharaputra is the best-known provider, though if others have not stolen its secrets, they soon will.

Clones are prepared from the buyer's own tissue, and raised for 10 years or so. Growth accelerators give them the bodies of teenagers, and they may also be given other cosmetic or body-shaping treatment. (It is not necessary to transfer into a body *precisely* similar to one's own young form; a clone of the opposite sex, or with some unusual enhancement, can be used.)

Raised together in the cynically named "Life House," the clones are told that they are noble heirs, living in a special school for security reasons. They are taught just enough to make them socialized and controllable. Following a raid by the Dendarii Mercenaries a few years ago, the compound is extremely well-defended.

When a clone is old enough, he is put to sleep, and his brain is scooped out and discarded. In its place goes the buyer's brain, to enjoy a new youth. Many House leaders have done this, some of them multiple times. House Bharaputra performs an average of one transplant a week.

Jacksonian Characters

Characters may be members in good standing of a House, trained in some specialty. They will have a Duty to the House. If encountered offworld, they'll be doing their jobs, with a purpose that may or may not be ethical.

Or they may be in flight from their pasts . . . from underclass poverty, from more powerful foes, or from their own House after they betrayed it. Exiles or fugitives from a House certainly have that House as an Enemy. If they were at all important, or took something worthwhile when they left, they should expect assassins or kidnappers to trail them. Escaping clones may be in perfect physical condition (if intended for brain-transplanting) or have unusual modifications (see Sergeant Taura, p. 126), and may know nothing of the worlds outside Jackson's Whole. They are also *extremely* likely to have a House as an Enemy, and to have representatives of that House hunting them. A common disadvantage for this kind of character is Paranoia, though this may be bought off with time.

A Jacksonian upbringing can all too easily lead to Callousness, Selfishness, and/or Greed. Just being a Jacksonian is usually good for a -1 Reputation when offworld.

However, it would be a mistake to assume that all Jacksonians are evil, or even that they are cynical about their system. Laissez-faire capitalism may be upsetting to other galactics, but it is internally consistent. Most of what the Houses do on their home world is ordinary and necessary business; their gaudy criminal services are only relevant from the outside. Many Jacksonians grow up doing some mundane and necessary job for their House, work hard, are respected by those around them, and raise happy families, often to serve the same House. Those who aren't privy to House secrets will even be free to look for a better Deal elsewhere if they can find it. If middle-class Jacksonians think about galactic affairs at all, they think they live in the galaxy's one true meritocracy, and other cultures are hypocritical dictatorships that hem their people in with laws and won't let you make an honest Deal.

Earth

Control Rating: 3

Earth was still the largest, richest, most varied and populous planet in scattered humanity's entire wormhole nexus of explored space.

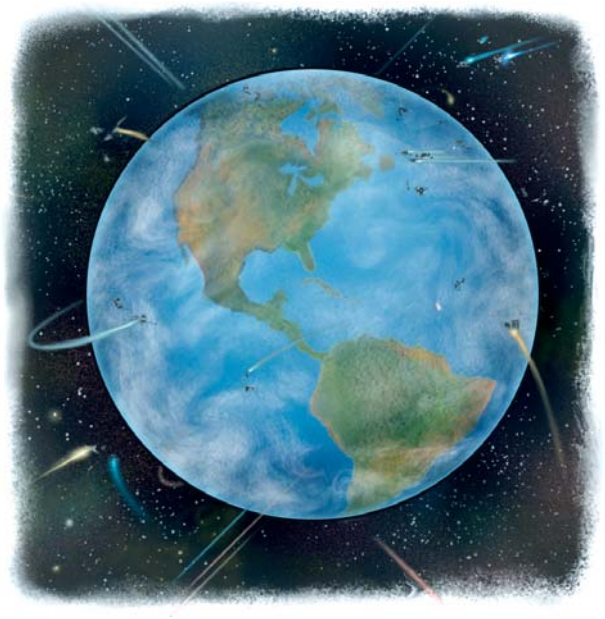
– Brothers in Arms

Geographically, Earth is much as it was in the 20th century; the most noticeable differences are a rise in sea level and the occasional radioactive area. Global warming has taken its toll. London, for instance, now has miles of barriers across the mouth of the Thames to prevent the city from being flooded. Los Angeles is a lake, and New York shelters behind great dikes. Many cities are jigsaws of historical architecture, displaying their age in comparison to the colonies. Even such worlds as Barrayar, with hundreds of years of vivid history, cannot compare with Earth's sheer antiquity or layered depths of culture.

Earth takes little part in galactic power politics, due both to a shortage of good wormholes and to political disunity. There are still dozens of governments, although most are part of the Eurolaw group, which provides a regular system of laws and finance. America suffered significant destruction in the late 21st and early 22nd centuries. Today, many spaceflight industries are based in Europe; South America is also a major economic and cultural powerhouse.

This does not, however, diminish Earth's importance in science and culture. Earth remains the cradle of mankind; it is rich, populous, advanced, and a good place to live. Nor is it vulnerable. The Solar Navy is well-equipped, though it seldom has cause to go far afield, given Earth's peripheral location in the wormhole nexus. It protects Earth's interests by protecting Earth, and it does that quite competently.

Earth is at TL8 (with a weapon TL of 9, occasionally 10) and of the same general scientific standard as Beta Colony, though not as innovative. Most societies are open and democratic. Euronews Network employs a small army of reporters, and its broadcasts cover most of the world, providing up-to-date and reasonably unbiased coverage of recent events. Public transport is provided by tubeway networks under and between major cities; for longer jaunts, flyers are available.



Overall, Earth is a peaceful place. The Eurolaw Network enforces the law within Europe. Weapon control is strict (weapons CR5); anything more than a stunner is strictly illegal, and even a stunner requires a license. Getting caught with an unregistered stunner results in a fine, and the punishment is more severe if the subject has a criminal record. Heavier weaponry or harmful use of the stunner can easily lead to imprisonment. Eurolaw's work is assisted by the fact that Earth's financial network is totally integrated. Earth citizens – and visitors – must carry a credit card. Visitors' money is converted into Eurocreds or GSA (Great South America) Federal Credits. This allows easy tracking of financial transactions, and since there is no time lag during monetary transfers, there are fewer opportunities for fraud.

Come to Earth! See the Unicorns!

Much of Earth's business is tourism. Visitors to Earth are likely to begin at London – it remains a major historical site, has the planet's biggest shuttleport, and enjoys good transport links to the rest of the world. Visitors can also hire personal cars or lightflyers.

There are many other attractions. The Unicorn and Wild Animal Park (a division of GalacTech Bioengineering) is located in Wooton, Surrey. In addition to its "real" animals, it exhibits a variety of imaginary beasts made flesh. (GalacTech also produces many other bioengineered products, such as living furs that serve as both pets and blankets.) Further afield, many cultural sites and natural areas have been preserved or restored. There are a world's worth of attractions – mountain climbing, sailing, even water skiing on the Amazon. But avoid the mutant piranhas . . .

Embassies

London hosts the embassies for the major galactic powers. Confined to a single district, they are only a few kilometers apart at best, creating a healthy atmosphere of politics and paranoia. Galactics assigned to embassy duty can look forward to days of paperwork and nights of receptions and partying. The experienced diplomats all know each other – and know who does the spying, and where. Open foes (such as the Barrayaran and Cetagandan embassies, only two kilometers apart) watch each others' movements carefully. Mercenaries and freelance criminals are sometimes hired for spying, kidnapping, and worse . . .

ATHOS

Control Rating: 3

Athos is an all-male society whose forbears deliberately chose isolation to avoid contamination by galactic culture – specifically, by women. No women are permitted to land on the planet, no communications from women are accepted, and no women are ever born there. This world of men is – to the surprise of many – socially stable. Athos is a world of farms and small towns, with a few moderately sized cities. It is quite self-sufficient, with no interest in outside culture and no native cultural resources of interest to the galaxy. Athos has almost no commerce; it depends on a yearly galactic census ship for contact with the rest of the galaxy. With a TL of 8, the Athosians could build their own jump ships, but have no inclination to do so.

The star of Athos has only a single wormhole, at the end of a chain of otherwise worthless connections leading eventually to Kline Station – two months' travel. An occasional immigrant arrives on the annual census ship.

Two hundred years ago, the Founding Fathers of Athos settled the world and began terraforming it (a process still underway). They founded a society that avoids the "taint" of women and depends on the uterine replicator for reproduction.

Athos is divided into nine Districts. The civilized parts of the planet are well-kept: pleasant cities, ordered farm communes, beautiful seas, and patchwork terraformed farmlands. On the edges are the Outlands, vast desolate wastes

with extreme climates. These are havens for misfits, frequented by outlaws, holy but dirty contemplative hermits, and young men who have temporarily fled society and its restrictions.

Over half the population works in terraforming or on one of the large farming communes. Two years of military service is compulsory for all citizens, and many men choose to collect extra social-duty credits by serving a few more years in the army. The General Council of Athos can reactivate any citizen's Reserve status at any time, even after discharge, and issue him orders via the military system. This, however, occurs only in cases of dire emergency, when some particular set of skills or talents is required and no volunteers are found.

Since there are no women on Athos, children are created by uterine replicator. A sperm sample from the prospective father is used to fertilize an egg from a collection of ovaries brought to the planet by the Founding Fathers, *in vitro*. Some of the ovarian cultures (identified by strings of letters and numbers; even the medical technicians who work with them don't think of them as being connected to individual women) are believed to produce sons with particular talents, such as medical skills. These cultures are often requested by prospective fathers.

This is costly; the Reproduction Centers are the second-biggest item in the planetary budget, frequently causing squabbles over funding with the military (the third-biggest item, even though Athos has had no enemies in 200 years) and terraforming (the biggest). Each District has its own Reproduction Center (or Rep Center), and the Directors of the Rep Centers all have seats on the Population Council, which ultimately controls the Rep Centers.

In order to have a child, potential fathers must have a "designated alternate" – a co-parent – and adequate social-duty credits. These are earned by road repair, army service, government duties, park maintenance, care for the elderly or orphans – any sort of work for the good of Athos as a whole. The fastest way to accumulate credits toward paternity is to act as a Primary Nurturer for someone else's sons. Normally, it would take more than three years of dedicated effort to earn enough social-duty credits for a single son.

Most would-be fathers enter into a mutual arrangement with someone else to become each others' "designated alternates." The alternate may be anyone willing and able to become a parent, such as an uncle, a parent, or a friend, but it is most often a relationship between lovers. It is common for designated alternates to grow mustaches, and for actual fathers to grow beards. Sexual relationships between men are the norm; however, celibacy is also a valid lifestyle choice, and many communes, strict interpreters of the Founding Fathers, take vows of chastity and are highly respected for it.

Religion is an important part of an Athosian's life. During his childhood classes, he is taught the values of the Founding Fathers – most notably that sin and women are linked (though precise details are omitted). Athosian ethics are inextricably interwoven with religion and biology. Cloning, for instance, is not allowed on Athos because it is a sin of vanity. All creatures that have free will are human, and therefore brothers, answerable to God the Father according to their abilities. Women are theoretically human, but having been taught that they are founts of sin and corruption, no right-thinking Athosian would *want* to associate with one. To help the men of Athos avoid corruption, all incoming galactic material is automatically censored to remove mention of women. Only Athosians with Clearance Level A (very high-level leaders and administrators) are allowed to handle uncensored galactic publications.

The Telepathy Gene

Recent events, as recounted in *Ethan of Athos,* have led to the new ovarian cultures in the planet's Rep Centers having a recessive genetic complex for telepathic ability (see p. 77). Therefore, the next generation of Athosians will carry that genetic complex as a recessive trait. The generation after that will see the first true telepaths. Future generations can be expected to produce more and perhaps stronger telepaths, until the entire population becomes telepathic. This may not come to the attention of the rest of the galaxy for a while, given Athos' isolation. Elli Quinn of the Dendarii Mercenaries (p. 125) was aware that the special ovarian cultures existed, but she believes they were destroyed. The Cetagandan Star Crèche originated the telepathy gene complex and tried to recover it, but their agents did not make it home. Their last report traced the cultures only as far as Kline Station, and also reported their destruction. Right now, no one *off* Athos, and only two men *on* Athos, know that the future holds a world full of mind-readers.

He was not sure if they were supposed to be inciters to sin, or sin was inherent in them, like juice in an orange, or sin was caught from them like a virus. He should have paid more attention during his boyhood religious instruction, not that the subject had ever been anything but mysteriously talked around.

– Ethan of Athos

Athosian Characters

PCs from Athos could be career military, farmers, doctors, engineers, government representatives, or young students; any Athosian encountered offworld is likely to be either on a mission for the General Council or fleeing Athos and its traditions. All Athosians offworld, however enlightened they consider themselves, must start with the disadvantage of Intolerance (Women) for -5 points, and quite possibly a Phobia (Women) for -5/-10 points as well. Athosians working for the government will have a Duty (Athos) of -5 points, and those who strongly respect the traditions of the Founding Fathers will also have a Vow (Chastity) for another -5 points.

In an adventure set on Athos, the Intolerance/Phobia (Women) should not come into play or be figured into NPC characteristics unless female heroes are directly involved – which will require some explanation.

Escobar

Control Rating: 3

Escobar is large, old, rich, and temperate. It is a major hub in the wormhole network, with routes to Beta Colony, Sergyar (one jump from Komarr), Jackson's Whole, Kline Station, and Tau Ceti V.

The world is also a center of excellence for various forms of scientific training, and medicine in particular, though its hospitals, hampered by ethics, do not provide all the services found on Jackson's Whole. It is a reasonably democratic society where both sexes have equal rights.

The most dramatic event in recent Escobaran history was the war with Barrayar, called the "120-Day War" on Escobar. An unprovoked assault by Barrayar, led by the late Prince Serg himself, was repulsed with help from Beta Colony, who contributed their latest scientific development – plasma mirror fields (p. 94). This, coupled with the fortuitous assassination of Admiral Ges Vorrutyer, forced the Barrayarans to retreat. The general opinion on Escobar is that Barrayar is still in the middle of the Time of Isolation, a benighted world of spaceship-riding savages.

Children of War

When prisoners were exchanged after the war, 17 female Escobaran POWs were found to be pregnant, having been assaulted by Barrayaran soldiers. The Escobaran authorities removed the unborn children, placed them in uterine replicators, and sent them to Admiral Vorkosigan, much to his chagrin. Players wanting an extremely Unusual Background might take the role of one of these children, who grew up in the Imperial Orphanage on Barrayar.

The main shuttleport is at Beauchene, one of Escobar's biggest cities. Beauchene also hosts several clinics which may interest the galactic traveler, including the Life Center (cryo-therapy is a specialty). Elsewhere on Escobar, one can find the Durona Group's new clinic (in which Lord Mark Vorkosigan is a secret partner), recently relocated from House Fell and Jackson's Whole (p. 42). Another location likely to be of interest to visitors – or to take an interest in *them* – is the Investigatif Federale headquarters. This 45-story glass structure is considered one of the most beautiful police buildings in the galaxy (unwilling visitors are, of course, free to disagree). The legal system is controlled by the Cortes Planetaris de Escobar.

Escobar has a healthy (and, after the Barrayaran invasion, rather paranoid) military presence in local space. Mercenary fleets are a particular concern. They must seal their weapons at the jump-point station by which they enter Escobaran space, and submit proof of purely commercial intentions before being allowed to pass. The Escobarans may also insist on a complete inspection. These precautions are repeated for any mercenary ships wishing to enter Escobaran orbit.

Kline Station

Control Rating: 4

Kline Station sits at the junction of six wormhole routes. It is a nexus for trade, repairs, refueling, and business in general. The residents grow up with Kline Station as their world, learning disaster drills and station regulations just as "dirtsuckers" learn a planet's climate and geography. More than 100,000 people live on the station, rising to 120,000 from transients during peak periods of traffic.

Kline Station was built 300 years ago to serve the jump routes, there being no habitable planet at its star. With access to Jackson's Whole, Escobar, and other worlds (including Athos, though that planet is commercially unimportant), it was able to service a lot of trade. It changed hands several times, continually expanding and upgrading. Kline Station was one of the first space stations to be equipped with artificial gravity generators from Beta Colony. It still tries to stay at the forefront of technology – particularly with respect to biological control. The station operates under incredibly strict biocontrol rules to protect

A poor fortress, but a great place to do business . . .

– Ethan of Athos

its fragile ecosystem from contamination from passing transients and cargo.

The station is currently independent, due to a combination of bribery, determination, supple business practices, and internal loyalty. But this is no Jackson's Whole. The station is basically lawful and usually quiet. While the authorities don't spend much time hunting for illegal business, they don't encourage it, and there is zero tolerance for anything that might threaten the Station itself.

Kline Station is composed of pieces from every era, stitched together in whatever way seemed best at the time. The glittering wheels of the earliest sections, from the days before anti-gravity generators, still spin to maintain centrifugal gravity. More recent parts are linked through and around them. No section is ever truly abandoned; some are put to different uses, while others are half-dismantled for salvage.

Inside the station, there is a distinct divide between the parts used by tourists and the Stationers' own sections. Tourist areas contain cafes and restaurants, theaters, parks, feelie-dream booths, embassies, an arcade offering 85 different established religions, and accommodations ranging from Economy Cabins to Imperial Lounges. Each visitor is issued a tiny holo-projector map on arrival, without which he will certainly become lost.

The Stationers' own areas are much more staid, with the equipment and functions that keep Kline Station operational, from power sources to oxygen exchange to waste reclamation. Housing and dining in the Stationer areas are practical, unlike the glittering tourist traps. There are cheap hostels reserved for transients with Stationer work permits, who work as clerks, housekeepers, porters, paid companions, and so on. Stationer staff wear color-coded outfits. Docks and Locks has bright red coveralls. Security personnel wear orange-and-black uniforms – the lower Security ranks wear orange picked out with black, while the highest sport black with orange piping. The Biocontrol staff (or "ecocops") wear pine green uniforms slashed with sky blue, and frequently wear utility belts with a variety of tools and detectors.

The station's air comes from a carbon-dioxide exchange system using huge tanks of algae, bioengineered for maximum oxygen generation and carbon-dioxide absorption. Since it would be impractical to constantly empty the tanks to cut back the algae, large specially-bred newts live in the tanks to eat it. The newts, in turn, are harvested for food, to the extent that most Stationers are utterly sick of newt recipes. However, they appear as Premium Fresh Frog Legs on menus in the tourist restaurants.

Everything is recycled on the station, and nothing is wasted. Even human bodies are recovered, becoming plant food. Of course, every such transaction is logged on the Ecobranch Recycling computer system. Unrecyclable waste matter is tethered in bags to the outside of the station – some of it has been there since Year One, 300 years ago. Today's trash might be tomorrow's natural resource bonanza . . .

Kline Station has draconian laws to protect its structural and ecological integrity. Most of these are biocontrol-related (see below). Fire is another deadly hazard. Fire-control systems can seal a room if there is a report of fire inside – or if triggered by someone with authority, such as an ecocop – and pump out all the air, strangling the fire. Blocking the emergency-override door-locking circuitry for any reason is grossly illegal.

Biocontrol

Because disease or pests could spread so quickly and completely in a confined environment, one of the greatest fears of Stationers is biological contamination. While Kline Station has stricter biocontrol laws than most, it is a reasonable template for other space stations with contained ecosystems. Kline Station Customs takes no particular interest in guns, drugs, or politics, but has extremely thorough microbiological inspections and control procedures, and a visitor will find that Customs is only the beginning.

The Biocontrol Department (also known as Ecobranch) has unlimited powers to enter any apartment, perform any search, and seize any goods (even ignoring diplomatic

*"Now that's a violation of fire-safety regulations," said the burly Security man happily . . . "You Biocontrol guys may be able to barge over every Transient civil rights guarantee on hearsay evidence but **I** gotta have documented justification or my tail goes on the line." He sighed envy.*

– Ethan of Athos

immunity) if there is any suspicion of disease or infestation. Biocontrol staff, the "ecocops," are seen throughout Kline Station, posted in Customs, Recycling, and practically everywhere else.

Their task is vital, given the fragile nature of a space station's ecology, but they are not widely loved by other Stationers, as they tend to be arrogant in their privileged status. Station Security, in particular, has far more limited powers than Biocontrol, and is a far smaller department; they like nothing better than arresting an ecocop.

Ecobranch has a hotline to report diseases and vectors. (Lodging a false report is subject to heavy fines.) Anyone accused of harboring infection, or in some way connected to a possible infection, is required to submit to whatever tests Biocontrol may demand, with no discussion of civil rights or diplomatic immunity. Contamination is a much more serious charge than mere murder.

The ecocops constantly patrol every part of the station, looking for physical signs of infestation. Cockroaches are particularly feared, as they have been known to eat the insulation off electrical wiring.

Kline Station Characters

Native Stationers are likely to have been trained in the sciences or as part of the station administration, ranging from ecocops to pilots, clerks to cargo haulers. Some have a strong contempt for downsiders ("dirtsuckers," if one is not being polite), but quite a few desperately want to live on a planet rather than in a space station. Free Fall skill is common, as are Phobias about dirt and contamination.

Immigrants may have a background in trade or piloting, if they are on the right side of the law, or smuggling and mercenary work, if not.

Characters for an adventure here might also be agents from Jackson's Whole, Escobar, Barrayar, Cetaganda, or dozens of other places. Because the only real "security" concern is biocontrol, Kline Station is a place for discreet rendezvous, deniable payoffs, and quiet hiding out.

Other Planets

Galactic travelers will encounter a variety of worlds and societies. Humanity now lives on hundreds of planets, each unique and each full of potential adventures.

Dagoola IV

Dagoola IV has no strategic value or useful resources, and is unsuited to colonization. It's controlled by the Cetagandans, who use it as a prison world and hazardous-waste dump. It is most notable for having been the location of the third biggest prison breakout in history, when the Dendarii Mercenaries helped 10,000 Marilacan prisoners of war escape. Despite its seeming unimportance, the Cetagandans discourage casual visitors. (If there are any useful mineral resources there, or interesting discards in the waste dumps, nobody has yet publicized them.)

Graf Station

Graf Station is the oldest of a group of stations known as the Union of Free Habitats, which is home to most quaddies (p. 75). The UFH system has no usable planets, making it less attractive to the original form of humanity – but its two rich asteroid belts make it ideal for the quaddies. Spreading from Graf Station, the quaddies have built many daughter colonies. They are in no danger of running out of space, energy, or materials. Their technology is modern and their culture is vital.

At the heart of Graf Station are the remains of the huge, improvised jump ship in which the initial quaddie pioneers traveled. The station also features productive zero-g agriculture and a famous free-fall ballet, the Menchenko Memorial Troupe.

Graf Station has a population of 50,000; most of the Union habitats are significantly smaller. Only a handful of the biggest ones maintain areas with artificial gravity for normal humans (visitors *or* residents) or deal with outsiders at all. These are Graf Station itself, and Metropolitan, Sanctuary, Menchenko, and Union Stations. Trade is important to the Union, but commerce with galactic ships is tightly controlled. It is very hard to pass through customs and immigration areas without leaving some record, and there are vid monitors in most areas. In-system travel is less strictly regulated, so it is quite feasible to pass from Graf Station to another Union habitat without notice – if one is a quaddie. A normal human, however, would stand out in the crowd.

Union Station is the seat of quaddie government, a representative democracy with the work gang as its primary unit. The governing body is the Board of Directors. The Union's society has no discrimination related to gender or the presence or absence of legs, and a small percentage of its citizens are "walkers." However, most quaddies remain a bit cautious with visitors from elsewhere.

The Hegen Hub

The Hegen Hub is not a world – it's a set of four space stations in a planetless system with four wormholes. Each of the neighboring planetary systems (Aslund, Jackson's Whole, Pol, and Vervain) owns one of the stations. Since Komarran trade passes through Pol, and Cetagandan trade passes through Vervain, the Hegen Hub is a busy trade nexus. Each of the four space stations offers slightly different services. The Jacksonian station is maintained by a syndicate of several Houses, providing a wide range of services and pleasures; it is run in Jacksonian style (p. 42). The Pol station focuses mainly on handling trade and servicing trade vessels. The Vervani and Aslund stations are more military in nature, but both have trade-handling capacities as well. The "Hegen Alliance Treaty," confirming friendship, commerce, tariff reduction, and mutual defense between Barrayar, Vervain, Aslund, and Pol, was signed shortly after the attempted Cetagandan invasion of Vervain.

Illyrica

Illyrica is famous for the design and construction of spaceships and jump implants. An Illyrican ship is easily recognizable, and the world does its best to stay on the cutting edge of space-travel technology, rivaling even Beta Colony. The planet itself is situated off one of the Zoave Twilight wormholes, and its shipyards serve customers from across the galaxy. Visitors may be buying a ship, seeking to have one built to their personal specifications – or hoping to steal one.

Lairouba

Lairouba is a desert world connected by a jump route to Tau Ceti. It has a strong Islamic influence, and women follow strict Islamic rules of dress, though they may converse with men in diplomatic situations. The head of state, the Baba, rules the planet by hereditary right.

Lairouba has strong ties with Earth, and many Lairoubans travel there to make the traditional pilgrimage to Mecca. Lairouba has its own language, but many of its inhabitants are also fluent in Arabic.

Marilac

Marilac is uncomfortably located between the Cetagandan Empire and the rest of the galaxy. It commands only two wormholes, but one leads to Xi Ceta in the Cetagandan Empire, the other to Zoave Twilight, a very important wormhole nexus. Marilac is a moderately sophisticated galactic democracy, though it cannot match Beta Colony's technology.

Foolishly, Marilac took a great deal of aid and money from Cetaganda, leaving it at a disadvantage when the Cetagandans invaded seven years ago. Most of the Marilacan troops who were captured were placed in a massive prison camp on Dagoola IV – 10,000 prisoners of war under a single force dome, ignored and unsupplied except for a daily feeding, conforming to the letter of the Interstellar Judiciary Commission rules while violating their spirit.

Fortunately, before the imprisoned troops could fall too deeply into barbarism and apathy, Miles Vorkosigan and the Dendarii Mercenaries staged a mass breakout. The freed prisoners mounted a resistance on and around Marilac, eventually forcing the Cetagandans to abandon their outposts there. Marilac is building more relationships with the non-Cetagandan part of the galaxy, in hopes of keeping the invaders from returning.

Nuovo Brasil

This militaristic world was once aggressively expansive but has become much less active in recent decades. During the early days of genetic experimentation, after the invention of the uterine replicator, Nuovo Brasil attempted to produce the perfect soldier and clone the perfect army. The results were disastrous enough to inhibit both large-scale cloning and "super-soldier" experimentation for hundreds of years.

Nuovo Brasil is definitely not a tourist spot, but may be of interest to intelligence agents, mercenaries, arms dealers, and conspirators.

During the early days of genetic experimentation, Nuovo Brasil attempted to clone the perfect army. The results were disastrous . . .

Shinkibou Ni

This world carries the practice of cryo-suspension to an extreme. Normal death is unusual. Citizens often choose to be preserved when their health begins to fail, or even because they are bored with the present day or curious to see the future. Those in cryonic storage are not considered legally dead. The planetary government is structured as a democracy, but the management of each "cryocorp" casts the votes of its frozen patients, making them politically powerful. The cryopreserved are now in the majority in many places, and an underground movement has formed to prevent – as they see it – the cold hands of the dead from ruling the affairs of the living.

The name "Shinkibou Ni" translates to "New Hope II." English-speakers sometimes call it by that name.

Tau Ceti

Tau Ceti is the planetary hub of the Western Orion Arm group of wormholes. It is extremely busy, with jump points to Zoave Twilight, Orion IV, Escobar, Mahata Solaris, Lairouba, Dalton Station, and Earth. Most of the major powers have embassies there, with secure communications to their home planets.

Little has been revealed so far about the Tau Ceti side of the galaxy. It's big and bustling. Tau Ceti does a lot of business through Escobar, so if its technology isn't first-rate, it's close. Things may be going on which will affect other worlds soon enough: wars, rebellions, religions, new worlds and wormholes, scientific discoveries, new ship designs, music, games, assassinations . . .

Tau Verde IV

Tau Verde IV is a planetary cul-de-sac, only accessible through a single wormhole leading to Dalton Station. While it is a fertile world, it is industrially backward (TL 8) though it has an excellent rail system. The local nation-states, two of which are Felice and Pelia, are frequently at war, and both sides look for mercenaries with modern equipment. The system has a rich asteroid belt, with a number of rare-metals refineries. These are among the first targets whenever war breaks out.

Vega Station

Vega Station is a small power just outside one of the Cetagandan Empire's back doors, at an awkward junction in the wormhole nexus. It commands three jump points: one leads to the Cetagandan satrapy Ola Three (and from there to Sigma Ceta), one to Toranira (a sometimes-ally, sometimes-enemy of Cetaganda), and the third to Zoave Twilight, which is politically neutral toward Cetaganda, but wary of the Empire. Cetaganda, interested in gaining influence over Vega Station, blockaded it two years ago, through Ola Three and Toranira, against the import of any kind of major space-based offensive or defensive weapons system. (Zoave Twilight cooperated reluctantly with the blockade, under military and economic pressure.) Barrayaran ImpSec covertly provided Vega Station with three entire warships, using the Dendarii Mercenaries as go-betweens. If the blockade is still in progress, Vega Station is likely to need more help soon.

Vervain

Vervain is a barely terraformed agricultural world, situated between wormhole jumps to the Hegen Hub and Mu Ceta. It profited by trade between the Hub and the Cetagandan Empire, and was recently the target of a takeover attempt by the Cetagandans. The conquest was only halted by the combined force of the Dendarii Mercenaries, Cavilo's Rangers, the Vervani fleet, and warships from Barrayar which "happened" – with Emperor Gregor – to be in the area. The Cetagandans later declared that the whole invasion had been an unauthorized gamble by certain ghem-officers; the alleged leader, ghem-General Estanis, conveniently suicided. Since then, Vervain has had an extremely good relationship with Barrayar, as well as its thriving trade with its Hub neighbors. Business with Cetaganda continues as before the invasion, though more guardedly.

No Fixed Abode

Whether through choice or necessity, not everyone has a fixed planetary (or even station) base or mailing address. There are many opportunities open to people willing to travel, whether they are mercenaries, entertainers, or scientific consultants. Many spacers, like Admiral Elli Quinn (p. 125), willingly choose this way of life over "dirtside" existence.

Mercenaries

A typical company of mercenaries is *organized* – it has a book of regulations, fixed pay scales, insurance packages, paid vacations, pensions, and retirement plans – and, of course, medical care. The better companies arrange cryo-revival for their troops where possible, and dispose of the fallen with dignity. A mercenary fleet is often a free coalition, composed of a number of ships, where the captains own their ships, serving under an elected commander. The commander negotiates with would-be employers and pays the fleet's wages. The mercenaries on each ship have signed contracts with their captains or with the commander of the fleet.

Certain aspects of mercenary behavior are regulated by interstellar law and custom, as interpreted by the great powers for their own convenience. A mercenary fleet is required to post warning buoys on merchant shipping lanes in its area of activity. Of course, not all mercenaries abide by this – but their employers may insist that they do so, if only to retain popular goodwill in a private dispute. If a planet is engaged in civil war, both sides will probably insist that their mercs keep strictly to the law. After all, annoying the galactic powers might push them to support the other side . . .

The great powers will take action against mercenary fleets that become a nuisance. The fleet of "Admiral" LaVarr had an interesting business plan: its warships would arrive in orbit around a world, and stay there until they were paid to go away quietly. When the Cetagandan fleet caught up with them, LaVarr was executed. Similarly, after the Dendarii assisted the mass Marilacan escape from Dagoola IV, Cetagandan assassins were promptly sent after Admiral Naismith. (The problems of acquiring a reputation . . .)

Particularly good (or spectacularly bad) mercenary companies acquire a reputation among planetary powers and merchant traders.

The Dendarii Mercenaries

The Dendarii Mercenaries (once the Oseran Mercenaries) are currently led by Admiral Elli Quinn. The Dendarii were invented by Miles Vorkosigan in a moment of panic, but have become one of the galaxy's most famous and effective mercenary fleets. They are an elite and relatively small force, specializing in daring rescues, covert operations, intelligence gathering, and hit-and-run raids. The Dendarii also serve as a private, deniable strike force for Barrayaran ImpSec, though this is currently only known to Admiral Quinn, Master Sergeant Taura, and certain people on Barrayar.

Miles Vorkosigan founded the Dendarii while attempting to smuggle a shipload of weapons onto Tau Verde IV during a civil war. To impress the crew of an Oseran Mercenary ship he had just captured, he claimed to represent an elite force called the "Dendarii Mercenaries." He had to keep accepting new recruits in order to keep his head above water; by the time the war was over, the Oseran Mercenaries had *become* the Dendarii Mercenaries. To avoid breaking Vorloupulous' Law (p. 14), Miles persuaded Emperor Gregor to take the Dendarii as a personal Crown Troop. Three years later, Miles used the Dendarii to investigate the situation around the Hegen Hub, and led them in defense of Vervain against the Cetagandan assault. After that, his role as "Admiral Naismith" was formalized with ImpSec, and for the next 10 years, he directed the Dendarii on private missions for ImpSec between more normal mercenary contracts. After his death, cryo-revival, and ensuing seizure disorder, Miles was forced to allow Admiral Naismith to "retire." Admiral Elli Quinn took command of the Dendarii in his place.

Then another voice from the back popped up. "What kind of insurance package does the, the Dendariis have? Do we get a paid vacation?"

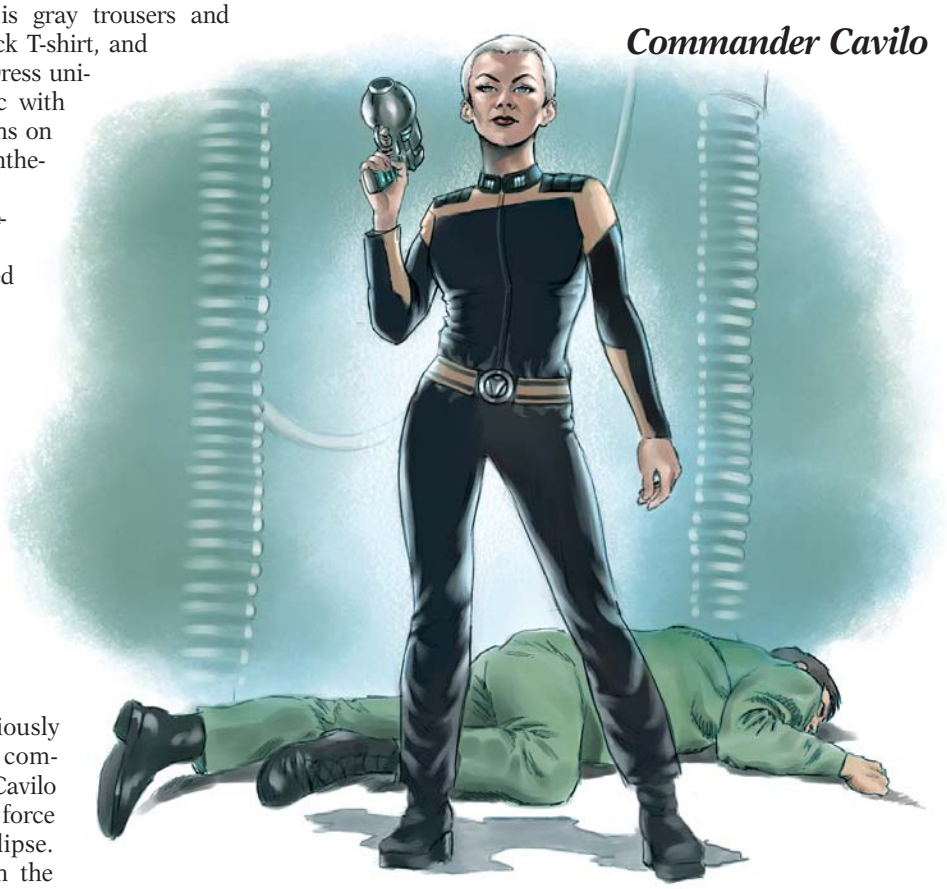
And another: "Do we get any perqs? What's the pay scale?"

And yet another: "Will our pensions carry over from our old contracts? Is there a retirement plan?"

– The Warrior's Apprentice

The Dendarii uniform is gray trousers and jacket with white trim, black T-shirt, and gray ankle-topping boots. Dress uniform is a gray velvet tunic with white trim and silver buttons on the shoulders, and gray synthesuede boots.

The Dendarii Free Mercenary Fleet is now an established corporation, registered out of Jackson's Whole. Its military ranks are Ensign, Trooper, Sergeant, Lieutenant, Commander, Captain, Commodore, and Admiral. It is comparatively easy for would-be employers to contact the Dendarii, but Admiral Quinn clears all assignments with ImpSec before accepting them.



Commander Cavilo

Cavilo's Rangers

Cavilo's Rangers, previously Randall's Rangers, are commanded by Commander Cavilo (p. 130). The Rangers are a force recently fallen into eclipse. Although they took part in the triumphant defeat of the Cetagandans at Vervain 11 years ago, they took significant losses in troops and ships, and have kept a low profile of late.

The Rangers uniform is tan with black tabs and trim, and short black boots.

Other Mercenary Organizations

- Selby Fleet, which was active during the Komarran Invasion.
- LaVarr's fleet, mentioned above, formerly notable for planetary blackmail.
- The Kshatryan Imperial Mercenaries, a "Foreign Legion" force which Kshatrya hires out.
- Hargraves-Dyne, two closely allied Jacksonian houses that offer troops for hire. Hargraves-Dyne has a competent cadre, but for most jobs, they'll collect able-bodied rabble from Jackson's Whole, put them in uniforms, give them whatever weapons the client has paid for, and ship them out as cannon fodder.

Merchants

While the Komarran trade fleets are famous throughout the galaxy, almost every world requires exports and imports, and there is always work for free traders – legal or otherwise. Galactic merchants range from Komarran-style fleets to miserable little freighters with obsolete, barely operating jump drives and underpaid crews looking for a chance to desert. In between these extremes, one finds specialist freelancers, small family traders, young hopefuls trying to make a quick fortune, hard-bitten professionals running the regular trade routes, and the occasional anonymous Vor lordling out in the galaxy for the first time, yearning for adventure. One of the most important people on any merchant crew is the accountant – the trip must be budgeted for, with full allowances for fuel, food, oxygen, maintenance for cargo, and shipping charges on either end. Factoring this in with the ability to identify profitable markets and future needs, a good accountant and analyst can make or break a merchant venture.

Some merchants only carry cargo when the deal has already been set up on both sides. Others are prepared to be more adventurous, and to risk the current market, by taking the goods where they think – or hope – they can find buyers. Most regular traders practice a bit of both, often at the same time, accepting a definite contract (from Beta Colony to Komarr, say) and picking up a few of the latest terraforming inventions in the hope of finding a good market for them along the way. Naturally, this requires a near-encyclopedic knowledge of trading opportunities. Older traders have learned through experience; younger ones are likely to spend days going through local computer nets and news files, trying to find the perfect opportunity. (This can lead to potentially drastic errors – someone wanting to quietly ship arms into the middle of a civil war may well describe it as "agricultural equipment" in his advertisement . . .)

Smuggling 101

The busy captain who doesn't want to explain his cargo to Customs has several options. A ship's bulkheads can be remodeled to create hiding places, or other cargo can be used to conceal the illegal freight. Betan technology provides the extremely useful mass-detector jammers, which can be run off a ship's artificial-gravity system in order to foil weight checks. Rigorous sterilization can, to some extent, hide any evidence of illegal biological goods, but a really thorough check is likely to show anomalies. Bribes to customs officials vary in reliability, and to a large extent depend on the severity of the smuggling that the official *believes* is taking place, as well as the personality of the official. Blackmail is also a useful tool. Once a customs agent has accepted a bribe, he is as guilty as the smuggler, and even more vulnerable to exposure . . .

Cargoes

High technology doesn't make itself, and it requires almost equally high technology to manufacture – which means that there's always going to be an opportunity for someone to ship the latest Betan gadgets across the galaxy. These might be entire ground vehicles, or even bigger devices . . . or small gear such as weaponry, spying devices, or engineered creatures. This is an excellent business opportunity for single traders with a suitcase full of samples, trying to make a deal for later, larger shipments. High technology is also a good target for pirates, as are rare ores; it helps a great deal that both will usually survive the ventilation of the spacecraft they're carried on.

Not everything is worth shipping. Very few planets or stations depend on trade for the necessities, such as food, water, and oxygen; they have natural resources or protein vats. The fact that animal protein can be copied cheaply from recycled organics has largely destroyed the food trade, except in totally isolated organic-low areas (such as asteroid belts or military bases), or for the rich who enjoy rare cuisine just because it's rare. Gems were once precious trade goods, but they became near-worthless when it became possible to synthesize them. (This caused several bankruptcies on Barrayar for those who had unwisely invested in them.)

Trade Opportunities

One opportunity that never goes away is the arms trade. Armies, mercenaries, planetary governments, rebel forces, or space stations wanting to defend themselves . . . everyone wants to buy the latest in weapons technology. This can range from imploder lances for spaceships to nerve disruptors (and shields to protect against them) for personal use. Of course, some planetary governments legislate against the arms trade, or tax it heavily. Beta Colony disapproves of arms deals taking place on their planet, though the Orb of Unearthly Delights (p. 35) hosts a lot of wheeling and dealing. Both Barrayar and Cetaganda object to weapons passing through their systems except for the government. Various Jackson's Whole Houses will gladly work with weapons dealers – in return for a share of the profits, a share of the weapons, or possibly the whole thing if the Deal changes.

Other trade opportunities include vegetation and seeds for space stations that want to improve their hydroponics, settlers engaged in terraforming, and individual gardeners. Live vegetation requires care, so the traders may need to hire horticulturalists – or take some rapid courses in basic gardening.

Finally, one way to earn some cash is to transport *people* . . . legally or illegally. If a world doesn't have regular passenger traffic, anyone who wants to get there will look first for a trading ship going that way. Some travelers will pay well . . . sometimes, suspiciously well. Others hope to work off their passage. Some are on the run from the law and can't risk regular passenger ships. It is up to each captain how much he wishes to charge such travelers, whether he will risk the law on their behalf, and whether he will keep his side of the bargain at all. Jackson's Whole is not the only world where a traveler can be trapped by confusing customs or regulations and reduced to near-slavery before he realizes his position . . .

Getting Through Customs

It's a rare world that has no restrictions or duties on imports. The wise freighter captain will attempt to make a smooth passage through Customs, whether that involves opening his holds and paying his fees, bribery, or being very efficient at hiding contraband. Some planets, such as Beta Colony, enforce rigid ethical standards in what they'll allow through their space. Others have empirical standards, such as Cetaganda or Barrayar; items that could prove dangerous to the Empire and its servants are illegal, whatever the written regulations may say. Some places have strict biological quarantine laws, such as Kline Station with its ecocops (p. 49), where a load of the latest technological weapons wouldn't be blinked at, but a single cockroach could cause your ship to be impounded for a full search and fumigation. Others have no laws at all, save that money talks.

(For those interested in a trading campaign, ***GURPS Traveller: Far Trader*** discusses the subject extensively.)

. . . a single cockroach could cause your ship to be impounded for a full search and fumigation.

Chapter Four
Character Opportunities

"I'd like to offer you an incredible opportunity," the Jacksonian told Danseur. "Now, most of my friends would have just pulled the trigger and gotten this whole conversation over with a lot faster, but I think you have potential. I think we could work together."

Danseur frowned vaguely, assessing the man's accent and build, and the fact that he had a green scarf tucked into the neck of his jumpsuit. ***Evidence suggests House Fell.*** *He shifted his weight against the handcuffs from which he was dangling. "Of course, if I weren't fast-penta-allergic, you wouldn't have to make this offer."*

"You're a bright one," the Jacksonian said approvingly. "So shall we talk for a while?"

The ImpSec analyst mentally reviewed the latest report he'd seen about current affairs in the Whole, and sighed, lowering his head. "I figured you'd catch up with me sooner or later. Yes. Okay, what's your Deal? Things fell apart when Ryoval died, and I, well . . ."

The Jacksonian blinked, mouth working for a moment in shock. "You were one of Ryoval's? On ***Barrayar!*** *" He brought his voice back under control. "Yes, well, we knew that he had people everywhere, but not that far. Fine. Let's deal."*

Character Point Levels

The first question in any campaign is "What kind of heroes is the story about?" They might be unskilled novices, highly talented experts, acquaintances caught in an emergency, or out-of-work mercenaries in the corner of a Jackson's Whole spaceport.

75-125 Points: Just Getting Started

Most of the main characters in the Vorkosigan universe are highly able (to say the least), but none of them started out that way. A 75- to 100-point character can still be moderately competent, possibly with a talent or two above the average, and might be a big fish in a small pond (such as, perhaps, his home village in the Dendarii Mountains). Heroes like this get thrown into positions where they have to learn fast, or where those skills that they have turn out to be useful – for example, Miles Vorkosigan and Elena Bothari at the beginning of *The Warrior's Apprentice*.

> *The devil's bargain part about being Vor, which a lot of people including some Vor overlook, is that our lives are made for sacrifice.*
>
> *– Miles Vorkosigan,* ***Komarr***

Adventurers in this mold might include an ensign in his first term at the Academy, a Barrayaran peasant who has just arrived in the city from the mountains, or a young Betan with no off-planet experience.

An option is to allow the PCs to take substantial disadvantages (e.g., a Jackson's Whole escaped clone, Komarran rebel, or runaway Cetagandan genetic experiment) to compensate for higher levels of competence. However, players in such a game should expect to *work* for the points – life will be exciting, dangerous, and quite possibly short.

100-200 Points: Competent Ladies and Gentlemen

This level, at least at its top end, fits Cordelia Naismith and Aral Vorkosigan in *Shards of Honor* – competent professionals, whatever their career. They are quite capable of taking care of themselves under most circumstances, and even taking care of others. When a situation arises that truly challenges them, that makes a good story . . .

Characters at this level may not be winning wars or shaping the destiny of worlds, but they can find themselves in the position to make a real difference. Military officers may think they're on a routine embassy or trade-escort assignment, and suddenly find themselves embroiled in off-world civil war. Scientists might get questionable, but fascinating, offers from Jacksonian Houses. Students or professors might discover that their school's academic politics conceal dangerous political agendas.

200-300 Points: Movers and Shakers

At this level, characters begin to make a real difference in the world about them. They have special backgrounds, special skills, or both. If they're professionals, they're experienced and expert professionals, whether they're diplomats, scientists, secret agents, military officers, entertainers, or traders. By now, they have Duties and Dependents as well as Allies and Patrons.

Here, the challenge for the GM is to provide a campaign which will test the players' ingenuity and keep them interested, ideally without bringing the galaxy to the brink of war more than once a week. However, by now, the party should have a network of allies, dependents, students, friends, and armies, which the GM can use to drag them into social and political problems that will be challenging but not world-shaking. Rank and Status have their liabilities as well as their advantages.

With characters at this level, especially if their backgrounds differ, the GM will need to give a certain amount of thought to why they are together – and why they *remain* together. The political tensions that make the Vorkosigan universe so interesting shouldn't be disregarded; a Cetagandan haut-lady in regular contact with a Vor lord will need an extremely good reason for it, and both sides will have to face the prejudices of their respective cultures.

300 Points and Up: Making History

This is the level of most of the characters described in Chapter 7. Imperial Auditors, mercenary fleet commanders, arbiters of society, planetary regents . . . It may not be easy for the GM to come up with a fitting challenge for a character at this level, let alone a whole party of them, but used as NPCs, they can be great patrons, foes, and story hooks.

Advantages, Disadvantages, and Skills

This section discusses advantages, disadvantages, and skills appropriate for the Vorkosigan books. Most are drawn directly from the ***GURPS Lite*** appendix, perhaps with slight modifications, but some need a fuller definition and explanation here.

Advantages

Clerical Investment

see p. 147, p. B43

Religious practices vary wildly between worlds in the Vorkosigan universe. On Barrayar, superstition is strong but actual religious practice, other than the memorials burned to the dead, seems rare. On a jump station, dozens of different faiths may have small chapels for visitors. Some faiths, such as the Church of Athos, encourage distrust of outsiders.

Eidetic Memory

see p. 151, p. B51

The 5-point version of this advantage may be acquired normally, either through natural talent or by training. The 10-point version can be gained by installing an Illyrican memory-chip (p. 80), though this brings its own dangers.

Heir

see p. 21, p. B33

A Barrayaran Vor may be the heir to a Countship, or even to the Imperial throne. Likewise, a Komarran may be heir to a block of shares in a consortium. (Heirs on Jackson's Whole, however, are advised not to depend purely on the wishes of the deceased when it comes to claiming their theoretical rights.)

The point value of an heirship is equal to half the advantages that the inheritance will bring; the character must pay the other half when he inherits. In the meantime, the points spent for Heir "pay for" any advantages that his presumptive inheritance grants. These need not be completely specified in advance. Modest social connections – a 1-point Claim to Hospitality here, a 2-point Contact there, a 3-point Reputation in the next place, and so on – can emerge in play, provided the total point value doesn't exceed the points paid for Heir.

As a worked example: Count Aral, in his person as Count Vorkosigan, has Status 6 [30], is Very Wealthy [20], has Legal Enforcement Powers [15], and Emperor Gregor as a Patron [30]. He also has a Duty [-15] to the Emperor and his District. So the net point cost of being Count Vorkosigan is 80 points.

Half of that is 40 points. For Miles as a teenager, this covers the Status of a Barrayaran count's heir (Status 3 [15]), his Wealth level (Comfortable [10]), and his bodyguard Sergeant Bothari, a 6-point Ally. That's only 31 points, but those are the only point-worthy advantages that young Miles sees from his heirship. Furthermore, Miles, as his father's son, has the same -15-point Duty that his father does, so the 40 points his heirship cost him given him only a net 16 points of immediate benefits. Therefore, the GM could allow up to 24 points of social benefits to arise in play – most likely things like Claim to Hospitality advantages and regional Reputations that become important abroad.

Gender Roles

"On Beta Colony, I scarcely noticed a thing. By the time I got to Komarr, well, the personal space people gave me had approximately doubled, and their response time to me had been cut in half. By the time I hit the Vorbarr Sultana Shuttleport, the change was phenomenal. Somehow, I don't think I got all that result just from my exercise program."

– Lord Dono Vorrutyer, on his change of sex from female to male, ***A Civil Campaign***

Very few cultures in the Vorkosigan universe have genuine equality between the sexes. Some worlds, such as Barrayar, are thoroughly male-dominated; there may be others run by women. Cetaganda has a rigid structure which gives strict roles to each sex, though neither is clearly superior. Curiously enough, two of the worlds which display the least gender prejudice do so for opposite reasons. On Beta Colony, positive affirmation is a way of life. On Jackson's Whole, all sexes are equally exploited. On both planets, gender is irrelevant to power!

The way characters deal with gender prejudice (or display it!) can offer opportunities for character backstories and adventure hooks. When people with one set of assumptions visit a world with different assumptions, interesting stories can happen.

And cultures do slowly evolve. The uterine replicator is now a fixture on Barrayar. The Auditors are still all male; so are the Counts . . . but one of the Counts *used* to be female. Things are changing! One of the themes of the Vorkosigan saga is that individuals can make a difference. History has made the worlds what they are; what is done today (possibly by player characters) can create a new future.

Independent Income

see p. 147, p. B26

A Count or his heir may have a high income, but if he is dutiful, he will work very hard indeed for his Emperor and his District; this is not Independent Income. But some scions of wealthy Vor families do nothing at all and live quite well. Some worlds are wealthy enough to provide their citizens a guaranteed income whether they choose to work or not – others are like Jackson's Whole, where everyone is free to starve with the mockery of the well-off in his ears.

Languages

see p. 147, pp. B23-25

English has become the generally accepted universal language. However, some planets have their own languages, which are learned by locals in addition to English. The Cetagandan Empire has a private dialect, which is used by its soldiers in combat situations outside the Empire and for ceremonies inside the Empire.

Barrayar is unusual in having four local languages – English, French, Russian, and Greek – though all save English drifted from the original Earth forms during the Time of Isolation, and would be difficult for a native-Earth speaker to comprehend (-2 penalty to rolls). However, most Barrayarans are fluent only in English, unless they come from an ethnic enclave, or had parents or grandparents who considered another language part of their heritage. Imperial officers are given basic training in all four languages.

Literacy is almost universal on civilized worlds – only *very* backward areas, such as some of the more remote corners of Barrayar or the depths of Jacksonian slums, harbor illiterate peasants or beggars.

Jacksonian practices have no relationship to Betan laws, Barrayaran customs are different from both, and certainly none of the three agree with Cetaganda about the precise definition of piracy or war crimes.

Legal Enforcement Powers

see p. 148, p. B65

Most planets give their own legal officers at least the 10-point version of these powers. Komarr is a notable exception; their local Security officers have the 5-point version, while Barrayaran ImpSec forces have the 15-point version. (This is highly annoying to the Komarrans!) Very few planets are willing to give foreign agents that degree of autonomy, but Komarr has no choice. Most civilized worlds do try to cooperate, but differing legal codes can cause problems. For instance, Jacksonian practices have no relationship to Betan laws, Barrayaran customs are different from both, and certainly none of the three agree with Cetaganda about the precise definition of piracy or war crimes.

While the Interstellar Judiciary has established guidelines about the treatment of prisoners of war, definitions of crime are left to separate planets, and questions of jurisdiction must be hammered out as individual cases. Agents with supra-legal authority will usually find that it is only effective in their own world's sphere of influence, and that their parent organization may not appreciate being dragged into awkward situations.

Longevity

see p. 152, p. B66

On some worlds, such as Beta Colony and Barrayar, the Longevity advantage is common. TL9 medical technology (see p. 79) gives most galactics a longer life expectancy even without Longevity.

Resistant to Disease

see p. 153, p. B80

This does not *always* protect a victim against a new laboratory-designed disease – especially if he has managed to offend Cetagandan haut-ladies or Jacksonian scientists! Diseases built as Affliction attacks with the Armor Divisor (p. B102) modifier can reduce a victim's resistance; treat someone with Immunity to Disease as having a +10 bonus to HT before the Armor Divisor is applied.

Wealth

see p. 147, p. B25

Most planets have their own currency, though the Betan dollar is most respected. However, wealth on one planet usually equates to wealth anywhere; it is generally easy to convert money from one currency to another. If you're using a Jacksonian money-changing service, keep a careful eye on the transfer fees.

Perks

Two new perks are available in the Vorkosigan setting:

Immunity to Fast-Penta

1 point

Fast-penta, the standard galactic truth drug (p. 83), has no effect on you.

Jump Pilot Aptitude

1 point

This perk is required to be a jump pilot; it often manifests in the untrained as hallucinations or mental time distortions during jumps. There are no normal-space effects.

Disadvantages

Addiction

p. B122

It's a big galaxy, and new addictive drugs are discovered every year. Even comparatively backward worlds, such as Barrayar, are up-to-date enough to import such vices, and have people with the wherewithal to indulge in them. They also indulge more old-fashioned habits, such as alcoholism. The legality of addictive drugs varies between worlds – some have reasonably stringent laws (assuming that the drug in question has been identified as harmful), while others, like Jackson's Whole, have none.

Code of Honor

see p. 154, p. B127

Games on Barrayar, or that involve Barrayaran PCs, will involve the traditional Vor code of honor, which is still held to by most, though not all, Vor.

Vor Code of Honor: A Vor man's first duty is to the Emperor, and a Vor woman's first duty is to her husband. An unmarried Vor woman's first duty is to her father, or to the male head of her family if her father is dead. Should all the men in her family be dead, she has a duty to protect her children, and to marry again to preserve the family line. A Vor of either sex is a servant of the Imperium and will sacrifice himself for it, or willingly be sacrificed.

No Vor should ever break his word once given, whatever the circumstances. The *spoken* word, partaking as it does of the Vor's very breath, is even more binding than the written. A Vor man or woman owes a duty of care to all those oathsworn to him. He shelters them in illness, protects their dependents, and sees them properly buried.

A proper Vor brings up his children in the way of the Vor, tends the graves of his ancestors, and burns their death-offerings. *-15 points.*

Medical Care and Aging

Aging rolls (p. 181) are modified by the character's current medical TL, minus 3. Since galactic medical science is TL9 (see p. 79), this means that aging rolls are made at +6, and most galactics will live long and healthy lives. However, poor or backward areas on some worlds, including Barrayar or Jackson's Whole, have a lower TL than the galactic norm. This results in faster aging and earlier deaths.

Sense of Duty

see p. 157, p. B153

On Barrayar, a Sense of Duty applies toward people to whom the character is *not* oathbound (if he is oathbound to them, either as a liege lord or liegeman, then he has an actual Duty). Thus, a Vor man will have a Duty to the Emperor, to his Count (if he is sworn to him), to military superiors, and to any liegemen sworn in his service. He could have a Sense of Duty toward his family, his colleagues, or anyone else he felt strongly about.

Social Stigma

see p. 148, p. B155

Social Stigmas vary wildly between cultures in the Vorkosigan universe – to be unprofitable on Jackson's Whole is as bad as being a woman on Barrayar. However, there are practically no groups that are stigmatized on *all* worlds; if someone is prepared to leave his homeworld and native people, he may be able to leave the Stigma behind. (He may acquire other disadvantages by doing so, but that's a different story.) On Barrayar, to be crippled (even if it occurred in the line of duty) is a -5-point Social Stigma. Showing signs of a mutation or birth defect (or looking significantly nonhuman, if an offworlder) is a -15-point Social Stigma. Being a woman on Barrayar is a -5-point Social Stigma, as a second-class citizen – though any man of breeding, and certainly any Vor, would be polite about it . . .

Susceptible (Fast-Penta Allergy)

p. B158, or *GURPS Bio-Tech,* p. 213

The character has a fatal allergy to the drug fast-penta (p. 83), whether natural or chemically induced. A full dose will cause a massive heart seizure, and almost certainly a quick death. Fortunately, using a patch test to check for allergy is a standard part of fast-penta interrogation routines. A subject who is allergic will quickly show a hard white welt surrounded by angry red weals at the location of the patch. (There will be no further ill effects for a small dose, but the welt will take a day to subside, and will be extremely itchy.)

Intelligence services often induce this allergy in agents who are at risk of being captured and interrogated. It doesn't protect the agent from being forced to talk in some other way, but it does keep him from spilling everything he knows in a fast-penta-induced babble.

Anyone suffering from this condition, if injected with fast-penta, must roll against HT-4. Failure means an immediate heart attack (p. B429). An immediate injection of epinephrine gives the victim a second roll to avoid the heart attack, at HT-2. Success means the victim "merely" goes into aortic fibrillation, falls unconscious, and suffers 4d injury. Either way, the fast-penta will get nothing out of him.

In terms of game mechanics, fast-penta allergy is five levels of Susceptible to an "occasional" hazard, with base cost tripled because it causes a heart attack, and a "special effect" for those lucky enough to survive the HT roll. This is normally a physical quirk (-1 point); most people in the Vorkosigan universe never encounter fast-penta. If the GM's campaign plans include espionage and frequent interrogation, however, then PCs with this problem will often face a choice between betrayal and either torture or death, making the fair value more like -15 points.

New Disadvantages

Jumpsickness

-10 points

Most people never notice when a starship makes a jump through a wormhole. A few, however, suffer nausea or other effects; in most cases, this is identical to the disadvantage Timesickness (p. 158, p. B158). Anybody who experiences more severe effects would probably be considered unfit for duty on board a starship.

Features

Though it costs nothing, this feature is important in the Vorkosigan setting:

Hermaphrodite

0 points

A Betan "herm" is a fully functioning hermaphrodite, with both male and female organs. While only fertile with other hermaphrodites, it is capable of both siring and bearing children. It usually lacks facial hair, and may appear either male or female to the casual glance. Given suitable clothing and cosmetics, a herm may pass for a member of either traditional gender.

Skills

Interplanetary travelers unfamiliar with their destination world will suffer penalties to many useful skills. These are cumulative, where applicable, and can put would-be diplomats and explorers at a *severe* disadvantage.

First, each world requires its own Cultural Familiarity. This costs 1 point for each culture. Anyone without Cultural Familiarity has -3 to use the skills listed under *Culture* (p. B23). The GM may vary the penalty if he feels that the visitor's culture and the local one are especially similar or different.

Voyagers to faraway planets often encounter foreign tongues, too. Those with less-than-Native comprehension of the local tongue suffer penalties on skills that rely heavily on speech or writing. Accented comprehension gives -1, while Broken gives -3. The penalties double to -2 and -6 for artistic use. For details, see *Comprehension Levels* (p. B24).

Yet another problem is that certain skills are peculiar to a world or its peoples. Area Knowledge, Current Affairs, Geography, History, and Law require specialization by *region* (with exceptions noted in their descriptions). Defaults between specialties particular to different worlds are at least -4. *Geographical and Temporal Scope* (p. B176) often applies.

Biology, Geology, and Meteorology require specialization by *planet type* (see *Planet Types,* p. B180). Defaults between types are at -4. Naturalist and Survival are specialized by *planet,* and only planets of the same type offer a default, also at -4.

For the time needed to assimilate cultures and languages, see *Learnable Advantages* (p. B294). To buy skills up from default, see *Improving Skills from Default* (p. B173).

Skill names followed by a † require specialization in the full ***GURPS*** rules.

Heraldry

see p. 162, p. B199

On Barrayar or Cetaganda, the "general knowledge" aspects of this skill are covered by Savoir-Faire at no default penalty. A member of the upper class, be he Vor, ghem-lord, or haut-lord, is supposed to know the House liveries and symbols automatically. Actual design of new symbols or liveries, however, requires Heraldry skill.

Mathematics/TL9†

see p. 163, p. B207

There is a new specialty of this skill in the Vorkosigan universe:

5-Space Mathematics: This esoteric specialty is most common among theoretical mathematicians and physicists, but is of very practical value to pilots and navigators who need to plot courses around and through wormholes.

Melee Weapon Skills

see p. 163, p. B208

Fencing is still taught on Barrayar. The traditional Barrayaran Vor style uses a longer sword in the fencer's strong hand, and a shorter one (usually used to parry) in the off hand, a variant on the classic Florentine style from Earth's Renaissance period. Thus, Vor-trained fencers have both the Saber skill and the Main-Gauche skill. Note that dueling with two swords is illegal, and carries the death penalty!

Non-Vor who learn a fencing form will learn with a single sword, not two. *Any* weapon carried by a non-Vor on Barrayar is technically the property of his lord, and must be worn in his service (or that of the Emperor) to be legal.

Navigation/TL9†

see p. 164, p. B211

This skill has two specialties for space travel:

Hyperspace: This specialty is used for navigation through and around wormholes. In the Vorkosigan setting, this skill defaults to Mathematics (5-Space)-4, not Mathematics (Applied).

Space: This specialty is used for navigation through normal space.

Piloting/TL9†

see p. 164, p. B214

Four specialties of Piloting skill are important in the Vorkosigan setting:

Contragravity: This skill is used to fly a lightflyer (p. 96). Whatever young Vor may think, Piloting (Contragravity) does *not* default to Driving (Groundcar).

Float-Bike: This skill is used to fly a float-bike (p. 95). It defaults to Piloting (Contragravity) at -4, and vice versa.

High-Performance Spacecraft: This is the specialty required in the Vorkosigan universe to pilot both civilian and military spaceships through regular space.

Starship: This skill is required to "jump" a ship through a wormhole. All jump pilots are also "regular" pilots with the High-Performance Spacecraft skill, but some spaceship pilots are not jump pilots. This specialty defaults to Piloting (High-Performance Spacecraft) at -2.

Survival†

see p. 165, p. B223

Survival skill takes a penalty on any unfamiliar planet. The basic survival techniques will still be useful, but strange, alien fauna and flora can come as a nasty surprise to the best-prepared explorers. ("It looked like typical dry plains country. Nobody warned me about the flying blood-sucking jellyfish . . .")

Unless otherwise noted, characters with Survival are assumed to have specialized on their home worlds, and are at -4 when using the skill on a different planet.

Status and Rank

Barrayar has a deeply military culture. The Barrayaran Imperial Service includes both military and police, as well as firemen and similar cadres. Any Barrayaran in active service will be treated, on Barrayar, as having a Status two levels lower than his military rank, unless he already has higher Status by birth or otherwise. (This replaces the standard Status bonus for Rank on p. B29.) So, for instance, an Admiral with no family connections will be, for all practical purposes, the social equal of a Count with no military experience. (Even a generation ago, of course, only a Vor would be likely to advance past Colonel, but Barrayar is changing.)

Barrayarans show great respect for retired military as well. Many men enter other branches of the Service after they leave the military, reaching a second or even third 20-year mark in honorable positions as guardsmen, emergency workers, or even postmen. Barrayaran characters who are no longer in active service are entitled to buy Status up to (Original Rank-2), but must pay points for it in the usual way.

Barrayaran Imperial Service Ranks

0 – Private; rookie city guard or fireman
1 – Tech Specialist, Corporal (any force); experienced city guard or fireman
2 – Sergeant (any force), senior city guard or fireman.
3 – Any top-ranking NCO; any lieutenant; Count's Armsman
4 – Ground force Captain, senior Count's Armsman
5 – Major; Guard Commander of a city; junior Fleet captain
6 – Colonel; Guard Commander of a district capital; senior Fleet captain; chief of an ImpSec division
7 – General or Admiral; Head of ImpSec (regardless of his official rank)
8 – The Emperor

Comparative Status

In the Vorkosigan universe, Status commands proper respect only in the type of culture that it comes from. A caste-based or feudalistic society will acknowledge – at least to some extent – the grades of other caste-based, feudalistic societies. A democracy, on the other hand, will have little understanding of a feudal society's precise levels of aristocracy (even though some people will have a vague and imprecise admiration for the fact that it *has* an aristocracy). Likewise, a stratified society will look for equivalent strata in democratic societies . . . whether or not they exist. A Vor lady visiting Beta will find it difficult to accept that she's not socially superior to the local Licensed Practicing Sexual Therapist . . .

In general, within or between socially stratified or feudal cultures, the full gradation of Status will apply, as long as characters understand the general outlines of Status in each other's cultures. For instance, a Barrayaran would easily understand how much respect to show an admiral from Cetaganda. A character from a feudal or stratified society meeting someone from a democracy or other loosely graded system will try to classify him according to the levels of the feudal society, and react to him accordingly. ("Sexual therapist? I know what *that* means . . .") Betans and similar democrats, on the other hand, will have far less respect for feudal graduations. If they are even aware of the nuances of other societies' social strata, they will take only half the relevant bonus or penalty on reaction rolls.

The table below is a general guideline. GMs who wish to apply social modifiers strictly, in societies such as Barrayar or Cetaganda, should remember that Military Rank will cover a multitude of sins on Barrayar, and that the Cetagandans don't expect other cultures to understand their rules anyway.

The Status granted by nobility varies from place to place and time to time. Ancient titles may bring respect, but power brings even more. During the Time of Isolation, before Emperor Dorca brought the Counts under control and established Vorloupulous' Law (p. 14), most Barrayaran Counts would have had Status 7 – just below the Emperor.

Status Table

Level	*Examples*
8	Emperor of Cetaganda or Barrayar
7	President of Beta, haut-lord planetary governor or consort, Viceroys of Sergyar and Komarr
6	Barrayaran Count with office or military rank, Head of House Major on Jackson's Whole, head of haut constellation or ghem-clan, Barrayaran Auditor
5	Barrayaran Count with no other rank or office, Head of a significant House Minor on Jackson's Whole, Barrayaran admiral or Minister, Komarran oligarchic family head, haut-lord or haut-lady, high ghem-lord
4	Barrayaran Count's heir, top Betan or Escobaran scientist, Barrayaran colonel or ship captain, ghem-lord officer, Head of an undistinguished Jacksonian House Minor
3	Cetagandan ba, Barrayaran Vor, Barrayaran ImpSec officer, unemployed ghem-lord, interstellar mercenary admiral, Betan Survey Captain
2	Barrayaran ensign, scientist, or skilled craftsman, Jacksonian head of department
1	Cetagandan skilled servitor, Barrayaran clerical staff, interstellar mercenary, Betan LPST, Barrayaran common soldier
0	The default social level galaxy-wide. Barrayaran peasant, Cetagandan servitor class
-1	Barrayaran thief, Houseless Jacksonian, unemployed Betan
-2	Barrayaran prostitute or unacknowledged bastard

Jobs and Wealth

Most jobs have a fairly standard rate of remuneration, comparable across different planets. A ceremonial guard gets one level of pay, a skilled scientist gets another, and so on. Unfortunately, the difference in rates of exchange between the worlds makes it hard to give precise figures. At the high levels, they become irrelevant: Counts and Ministers hire accountants to balance their income and expenses, tot up the annual tribute to the Emperor, and make sure they're safe from an ImpSec audit. At the very low end, in places such as the Dendarii Mountains (or other backward parts of Barrayar) or the Jacksonian slums, the economy is more barter than financial – though both peasants and street-rats can display unexpected financial acumen.

Some positions may not involve a regular allowance at all. A haut-lady's constellation gives her everything she needs for her research or for her position in society, but she doesn't draw a regular salary and doesn't need a bank account. The pet scientist of a Jacksonian Major House can probably obtain any equipment he wants for his experiments, and any luxuries that he asks for – but he may have trouble getting his hands on any cash. If he had independent funds, he might be tempted to take himself – and his research – elsewhere . . .

Jobs

Below are guidelines to assist GMs and players with basic details on jobs and comparable wealth. The GM should feel free to alter PC Wealth levels to fit the plot and to dictate the results of die rolls. He should also remember that anyone might fall outside the usual guidelines – a Count may be unusually poor, or a cook unusually well-paid.

For a regular job, an ordinary failure on the job roll has no bad consequences. An asterisk after a job name indicates that it is freelance in nature, making its pay more variable; a failure will reduce the amount earned. Note that a *critical* failure on any job indicates no income for the month, as well as any other listed consequences. However, the GM can always elect to play out any critical-failure situation to give the character a chance to deal with the disaster. See pp. B516-517 for complete rules on jobs, earnings, and failures on job rolls.

Wealth Levels

Average starting wealth for a Barrayaran character is 30,000 Betan dollars (120,000 Barrayaran marks). See p. 166. For GMs who don't want to play out every dollar . . . let alone translate it into marks and back . . . here is a brief summary of relative economic levels.

Poor: The character is lucky to have a roof over his head. Every month is a struggle to keep body and soul together. Clothes are worn until they fall to pieces, and then sewn to hold together a little longer. Nothing is ever thrown out if it can be reused or traded. Higher education is nearly impossible, as is any sort of training in skills or science. He can afford to buy cheap clothing, poor quality hand-to-hand weapons, and basic food.

Struggling: The character rents modest quarters, or owns a sturdy shack that is unlikely to fall down for the next year or two. His job gives him enough money to live on, plus a little extra. He can afford a couple of cheap luxuries every month, and is able to save up to afford higher education or training. If he needs them, he can afford decent quality hand-to-hand weapons or cheap beam weapons (legal or not), though this would take most of his pay for a month or two. It would take years of saving for him to be able to afford even a cheap short passage on a spaceship.

Average: The character has a small to medium house or apartment, regular good-quality meals, and clothing and possessions of decent quality. He can afford to dress neatly, if not elegantly, and has enough spare cash for a vacation once or twice a year at a cheap resort. If he wants to, he has enough savings to afford higher education or skilled training, and can indulge a hobby. Should he need them, he can afford good-quality hand or beam weapons, or he can hire some cheap, temporary muscle. Several months' savings are sufficient to buy a cheap passage on a spaceship.

Comfortable: The character has a good-sized house and sufficient savings to handle "normal" emergencies. He can afford to eat at expensive restaurants frequently, to buy minor luxuries, to take vacations once or twice a year in prime resorts, and to buy passage on decent spaceships on the rare occasions he visits other planets. If he needs weapons, he can get good-quality ones – even antiques or specialty items.

Wealthy: The character has a large house, and – depending on the culture – may have hired help or servants. If he has a hobby or particular interest, he can afford to buy the best. He can afford to vacation on other planets, and travels first-class.

Very Wealthy: The character has a very large house, and possibly a vacation home in the country. He has servants whose job is to supervise other servants. He can spend more money on his hobbies than most people have to live on. He travels in luxury. Shopkeepers know his name and court his business.

Filthy Rich: The character has multiple houses, including an urban mansion and a country estate. He probably has servants he's never even met. Should he be so inclined, he can afford custom-designed servitors from Jackson's Whole. Where others have hobbies, he can buy whole businesses if they seem interesting. He might very well have his own space-yacht with a full-time crew. If he is not part of the local power structure, it's only due to lack of interest.

Poor Jobs (support Status -2)

Beggar*

This assumes a society that tolerates beggars; in areas where begging is illegal, this "job" is not available! In some places, begging is tolerated only in the poorer quarters; in that case, it will be more dangerous. Subtract 1 or more from the job roll.

Prerequisites: None.

Job Roll: IQ or Panhandling, whichever is better. On a critical failure, mugged for 2d injury. On a natural 18, take 4d injury.

Monthly Pay: $600.

Homeless Planetside Drifter*

Prerequisites: None.

Job Roll: ST or IQ, whichever is better. On a critical failure, take 1d injury from a bar fight or similar mishap and lose a month's income. On a natural 18, take 2d injury and go to jail.

Monthly Pay: $750.

Peasant

Prerequisites: Farming 10+, live in agricultural region.

Job Roll: ST or Farming, whichever is better. On a critical failure, take 1d injury. On a natural 18, take 1d injury and lose the job.

Monthly Pay: $750.

Prostitute*

Prerequisites: Sex Appeal 10+ or Fast-Talk 12+, and Appearance no worse than Unattractive.

Job Roll: Best prerequisite skill. On a critical failure, attacked by a client for 2d injury. On a natural 18, take 3d injury and go to jail.

Monthly Pay: $800.

Manual Laborer

Prerequisites: ST 10+.

Job Roll: ST. On a critical failure, injured on the job for 3d injury. On a natural 18, lose the job as well.

Monthly Pay: $800.

Struggling Jobs (support Status -1)

Bartender or Waiter*

This is considered a freelance job because much of the pay will come in the form of tips . . . which is why reaction modifiers are so important.

Prerequisites: HT 10+ and DX 9+, or Handsome/Beautiful or better Appearance.
Job Roll: IQ, plus all reaction modifiers. On a critical failure, lose the job.
Monthly Pay: $900.

Bouncer

This is honest, if violent, work, suitable for a discharged soldier with no better prospects. It can lead to very interesting contacts on both sides of the law.

Prerequisites: ST 13+ and any combat skill or Intimidation at 14+.
Job Roll: Best prerequisite -1. On a critical failure, take 2d injury. On a natural 18, take 3d injury and lose the job.
Monthly Pay: $1,100.

Craftsman's Assistant

Prerequisites: Any craft skill at 14+.
Job Roll: Best craft skill -1. On a critical failure, take 1d injury. On a natural 18, you also lose the job.
Monthly Pay: $1,000.

Kitchen Servant

Prerequisites: DX 9+.
Job Roll: IQ. On a critical failure, lose the job.
Monthly Pay: $800.

Scientific or Technical Assistant

It would not be unusual to find a highly skilled person in this job, perhaps one with far higher skills than the prerequisite, who cannot find a higher position due to academic (or other) politics. It is also not unusual for such jobs to involve dangerous or experimental equipment. In that case, the pay will be a bit higher, the job roll will be made at a penalty, and critical failures will involve injury.

Prerequisites: Any scientific or technical skill at 15+.
Job Roll: Best scientific/technical skill. On a critical failure, lose the job.
Monthly Pay: $1,000.

Spaceport Drifter*

Spaceports attract a slightly higher class of casual laborer, with a few technological skills. Some of these drifters are on the way up, some are just passing time, and some are on the way down.

Prerequisites: At least one technical or vehicle skill at 11+, and DX and IQ both 9+.
Job Roll: IQ or best technical/vehicle skill. On a critical failure, take 1d injury. On a natural 18, you are also arrested.
Monthly Pay: $950.

Student

This assumes a full-time student receiving a minimal allowance from home or a scholarship. Students have many circumstances, of course. Some get very good allowances, while others must work a full-time job to support themselves and study in whatever time they have left.

Prerequisites: IQ 10+ and at least one IQ-based skill at 10+.
Job Roll: Best prerequisite -1. On a critical failure, suspended from school – in effect, the "job" is lost, and you must go home to your family or find a real job.
Monthly Pay: $900.

Thug

This can be treated either as freelance work (street mugging and the occasional shakedown) or as a regular job, as muscle for a crime boss or Jacksonian House.

Prerequisites: ST and Intimidation at 13+.
Job Roll: Best prerequisite -1, or best combat skill if you have one (your choice). On a critical failure, beaten for 3d injury and left for dead. On a natural 18, beaten for 5d injury and arrested.
Monthly Pay: $1,200.

Average Jobs (support Status 0)

Clerk

Prerequisites: Administration 13+.
Job Roll: Administration. On a critical failure, lose the job.
Monthly Pay: $3,000.

Cook

Prerequisites: Cooking 14+.
Job Roll: Cooking. On a critical failure, lose the job.
Monthly Pay: $3,000.

Craftsman

A craftsman may be self-employed, in which case he is treated as a freelancer and cannot lose the job. Critical failures that cost extra income are due to spoiled work that must be replaced.

Prerequisites: Any craft skill at 15+.
Job Roll: Best craft skill -1. On a critical failure, lose the job. On a natural 18, lose an extra month's income.
Monthly Pay: $3,600.

Enlisted Soldier

This assumes a peacetime soldier; the job of an enlisted man becomes much more hazardous when the beams and needles start to fly.

Prerequisites: At least three combat or technical skills at 13+.
Job Roll: Best combat/technical skill. On a critical failure, take 2d injury. On a natural 18, court-martialed, which is the equivalent of "lost job" unless the GM elects to roleplay the situation.

Monthly Pay: $1,000. All costs of living are covered by the service.

Police

The description below is very generic. The GM should modify it to fit the requirements for police, guardsmen, or peacekeepers in the particular society.

Prerequisites: Legal Enforcement Powers, Law (Police), Streetwise, an appropriate Driving or Piloting skill, and at least two combat skills at 12+.

Job Roll: Worst prerequisite skill. On a critical failure, take 2d injury. On a natural 18, take 4d injury and suffer an internal investigation, which is the equivalent of "lost job" unless the GM elects to roleplay the situation.

Monthly Pay: $3,600.

Secretary

Prerequisites: Administration 13+ and Savoir-Faire 11+.

Job Roll: Administration or IQ, whichever is better. On a critical failure, lose the job.

Monthly Pay: $3,800.

Sexual Therapist

A professional position on Beta Colony and similarly socially advanced worlds.

Prerequisites: Psychology 14+ and Sex Appeal (including all reaction modifiers) 12+.

Job Roll: Psychology. On a critical failure, lose the job. (The GM may treat a critical failure as "become inappropriately involved with a patient" or "accidentally learn state secrets from a too-confiding patient," and roleplay the consequences.)

Monthly Pay: $4,000.

Shopkeeper

This may be treated either as a freelance or regular job.

Prerequisites: Merchant 13+.

Job Roll: Merchant -1. On a critical failure, lose an extra month's income. On a natural 18, you also lose the job.

Monthly Pay: $3,500.

Teacher

This job varies a great deal. In some places, the students are dangerous enough that a critical failure will involve injury . . . though that's unlikely to make a teacher's job pay any better.

Prerequisites: Teaching 14+.

Job Roll: Teaching. On a natural 18, lose the job.

Monthly Pay: $3,600.

Comfortable Jobs (support Status 1)

Admiral or General (Barrayaran)

Prerequisites: Military Rank 6+, Status 5+, and Administration, Politics, Leadership, and Tactics totaling at least 60.

Job Roll: Leadership. On a critical failure, intrigue occurs (see note under *Wealthy Jobs,* below). On a natural 18, court-martialed, which is the equivalent of "lost job" unless the GM elects to roleplay the situation.

Monthly Pay: $12,000. However, in most postings, the service covers enough additional costs of living to keep him at the very top of the "comfortable" lifestyle.

Barrayaran Armsman

Prerequisites: Three combat skills at 15+, one Driving or Piloting skill at 14+, and Savoir-Faire 12+.

Job Roll: Best prerequisite skill. On a critical failure, take 2d injury. On a natural 18, take 4d injury.

Monthly Pay: $7,000.

Baba*

An old-style Barrayaran marriage broker, hired by the husband or his family to speak on his behalf to the prospective wife (see p. 24). Using a Baba as go-between was once the right and proper thing to do for Barrayarans of any class, not just the Vor, and the custom has not entirely been abandoned.

Prerequisites: Be female. Professional Skill (Baba) 14+ and Diplomacy 14+.

Job Roll: PS (Baba). On a critical failure, become involved in intrigue related to Vor dynastic politics.

Monthly Pay: $6,500.

> *"I shall send the Baba."*
>
> *He flipped the scarf into a triangle and tied it around his head. Leaning on an imaginary cane, he hobbled arthritically over to Elena's side of the table, muttering in a cracked falsetto.*
>
> *– Miles plays Baba in* ***The Warrior's Apprentice***

Court Functionary

Prerequisites: Administration 14+ and Savoir-Faire 14+.

Job Roll: Best prerequisite skill. On a critical failure, become involved in court intrigue with the potential of a lost job and worse. On a natural 18, the same, and discover that the leader of your faction at court is involved with something unsavory.

Monthly Pay: $8,000.

Galactic Currencies

Almost every world has its own currency, and some are much stronger than others. Anyone doing interstellar business will prefer to be paid in hard currencies such as the Betan dollar, which is accepted throughout the wormhole network. The Betan economy is considered stable enough that other currencies are traded in terms of Betan dollars.

The Jacksonian dollar is also widely accepted, but unstable. It's backed by a consortium of the major Houses, who manipulate its value to their own benefit. Investors can make short-term killings – or lose a fortune.

The less prominent a world is, the less its currency will trade for, and the harder it will be to get someone offworld to accept it. Money issued by individual nation-states, rather than planetary governments, will be worth even less on the galactic exchanges.

The Barrayaran mark has gained both value and respect over the last generation. A few years ago, one Betan dollar was worth five Barrayaran Imperial marks, but the mark has strengthened as Barrayar has modernized, absorbed Komarr, and avoided major conflicts. Recently, the rate of exchange stood at one dollar to four marks. While the rate may fluctuate slightly, one to four is standard, and it should not change rapidly . . . unless something interesting happens.

Doctor

May be a freelance job (that is, a self-employed physician) or a regular job for a hospital or clinic. Doctors may also be part of the Service. A doctor with added skills, such as Surgery, commands more money.

Prerequisites: IQ 12+, Diagnosis 14+, and Physician 14+.

Job Roll: Best prerequisite. On a critical failure, lose an extra month's income. On a natural 18, an important patient dies or complains of malpractice.

Monthly Pay: $10,000.

Ghem-Lady*

Prerequisites: IQ 13+, Genetics 11+, and Savoir-Faire 11+.

Job Roll: Worst prerequisite. On a critical failure, you are blamed for a debacle that hurts your clan's position in Cetagandan society.

Monthly Pay: $12,000.

ImpSec Analyst

Prerequisites: Military Rank 5+, IQ 13+, Intelligence Analysis 15+, and Research 15+. (Military Rank 4 would be allowable if the candidate had some other relevant ability at a high level.)

Job Roll: Best prerequisite skill. On a critical failure, you are responsible for an error that costs the lives of fellow servicemen.

Monthly Pay: $8,000.

ImpSec Colonel

Prerequisites: Status 3+, Military Rank 5+, IQ 13+, Administration 15+, Intelligence Analysis 15+, and Research 15+.

Job Roll: Intelligence Analysis. On a critical failure, you are responsible for an error that costs the lives of fellow servicemen. On a natural 18, intrigue occurs (see note under *Wealthy Jobs,* below).

Monthly Pay: $10,000.

Landlord*

Prerequisites: Merchant 13+ and own an establishment.

Job Roll: The lower of Merchant and IQ. On a critical failure, lose two months' income. On a natural 18, lose four months' income.

Monthly Pay: $7,200.

Master Craftsman

This may be either a freelance or regular job.

Prerequisites: Administration 13+ and one craft skill at 16+.

Job Roll: Worst prerequisite skill. On a critical failure, lose two months' income. On a natural 18, lose five months' income.

Monthly Pay: $9,000.

Mercenary Officer

For the leader of a mercenary company, this is a freelance job. The officers serving under him are employees. Depending on the organization of the company, individual ship captains may be employees or may be treated as freelancers. See p. 53.

Prerequisites: Military Rank 4+, and weapon skills, Leadership, Strategy, and Tactics totaling at least 60.

Job Roll: The better of Strategy and Tactics. On a critical failure, lose two months' income. On a natural 18, lose four months' income and take 2d injury.

Monthly Pay: $8,000. Increase by 20% for each level of Military Rank above 4.

Merchant Trader*

Prerequisites: Merchant 14+ and Administration 14+.

Job Roll: Worst prerequisite skill. On a critical failure, lose two months' income. On a natural 18, lose five months' income.

Monthly Pay: $8,500.

Military Officer (regular military)

Prerequisites: Military Rank 5+, and weapon skills, Leadership, Strategy, and Tactics totaling at least 70.

Job Roll: The better of Strategy and Tactics. On a critical failure, take 2d injury. On a natural 18, court-martialed, which is the equivalent of "lost job" unless the GM elects to roleplay the situation.

Monthly Pay: $8,000. Increase by 20% for each level of Military Rank above 5.

Scientist

This is an endowed or salaried research position. A "freelance scientist" is essentially a self-funded tech startup, which is a risky proposition indeed.

Prerequisites: Science skills totaling at least 40, and Reputation +2 or better. Savoir-Faire is not a prerequisite but is a *very* good idea for an academic scientist who expects to stay in his job for long.

Job Roll: Best science skill or Savoir-Faire. On a critical failure, lose an extra month's income. On a natural 18, lose funding, which is the equivalent of losing the job unless the GM chooses to roleplay the academic politics.

Monthly Pay: $3,000.

Starship Pilot

This is usually a regular job, but it can be a freelance job if the pilot owns his own starship. Some pilots are qualified for normal space only; a *jump pilot* can also take a ship through a wormhole.

Prerequisites: Piloting (High-Performance Spacecraft) at 14+. A jump pilot must also have the Jump Pilot Aptitude perk, jump implants, and Piloting (Starship) at 14+.

Job Roll: Worst prerequisite skill. On a critical failure, lose an extra month's income in fines. On a natural 18, your starship is damaged.

Monthly Pay: $12,000, or $15,000 for a jump pilot.

Wealthy Jobs (support Status 2)

All these jobs – and most others at this Wealth level – will occasionally involve planetary politics. Any critical failure may, at the GM's option, be roleplayed as an adventure of intrigue, betrayal, and possibly plasma-arc fire. If the character is already involved in intrigue, something goes wrong. If the character is living a blameless and uncomplicated life, either someone close to him is not . . . or he is set up as a scapegoat by the real conspirators.

Note that any of these jobs might support a higher wealth level than merely Wealthy. Some Barrayaran counts are certainly Very Wealthy; some may be Filthy Rich. A really successful Jacksonian boss would have multiple levels of Multimillionaire (see p. B25).

Count (Barrayaran)

This is not normally a job that you can apply for, though readers of the Vorkosigan stories will know about an exception!

Prerequisites: Be male, Vor, the choice of the current Count, and acceptable to the Council of Counts (see p. 20). There are no actual requirements for skill or even sanity, though the Council of Counts would certainly refuse to confirm a *dramatically* unsuitable heir.

Job Roll: Worst of Administration, Politics, and Savoir-Faire. On a critical failure, lose an extra month's income. On a natural 18, lose two month's income. Intrigue should *always* be a consequence of a failed job roll for a Count, even if the only result is a loss of face before his brother Counts.

Monthly Pay: $180,000.

Haut-Lady

Prerequisites: IQ 13+, Status 5+, Genetics 16+, and Administration 13+.

Job Roll: IQ. Any critical failure results in intrigue.

Monthly Pay: $50,000, but all adult haut share in the wealth of the Cetagandan Empire and live a lifestyle that cannot adequately be described by a mere "wealthy."

All adult haut share in the wealth of the Cetagandan Empire and live a lifestyle that cannot adequately be described by a mere "wealthy."

Haut-Lord

Prerequisites: IQ 13+ and Status 5+.

Job Roll: IQ or Leadership. Any critical failure results in intrigue.

Monthly Pay: $50,000, but all adult haut share in the wealth of the Cetagandan Empire and live a lifestyle that cannot adequately be described by a mere "wealthy."

Jacksonian Head of House*

Prerequisites: Status 4+ and Administration, Fast-Talk, Leadership, Merchant, and Politics skills totaling at least 60.

Job Roll: Worst prerequisite skill. On a critical failure, lose two months' income. On a natural 18, lose four months' income. Any critical failure results in potentially fatal intrigue.

Monthly Pay: $250,000 (and up; for the head of a House Major, it will be much more)

Mercenary Admiral*

Prerequisites: Status 4+, Military Rank 5+, and Administration, Leadership, Politics, and Tactics skills totaling at least 60.

Job Roll: Roll randomly each month to see which of the four prerequisite skills will be tested! On a critical failure, lose two months' income. On a natural 18, lose four months' income and some of the troops under your command.

Monthly Pay: $150,000.

Character Types

This section presents templates for character types who might be expected to appear in a Vorkosigan adventure, either as PCs or NPCs. As always, these are only suggestions, not rules. Adjustments are always possible, and in the case of a player wanting an Unusual Background for his character, desirable. A powerful hero (such as a very experienced ImpSec Analyst, a ghem-colonel, or a Barrayaran admiral) should certainly have skills and abilities beyond those suggested here.

Barrayaran Armsman

140 points

Barrayar has had some bad experiences with private armies. Vorloupulous' Law (p. 14) allows no significant military forces except those of the Emperor. Even a Count is allowed only 20 armed retainers to guard his person, his offices, and his home and family. Therefore, he picks the very best.

An Armsman must have been born in the Count's own District. He must have an exemplary record, decorations for valor, or the personal interest of the Count himself – preferably all three. Armsmen take a formal Oath to their Count, though he may assign a few individual Armsmen to the service of others of his House, especially his heir.

A typical Armsman is a veteran with 20 years or more in the Service. Most of Count Aral's men have a Security background. Other Counts may have different preferences, but none will be casual about their choices.

Armsmen wear their Count's livery (p. 23) while on duty. By definition, they must have their lord's complete trust. They must have utter discretion about his business, since they guard his most private meetings; they may also act as confidential couriers. An Armsman must be willing to die violently in the service of his Count. Historically, that was often their fate. Even today, no Armsman takes for granted that he will live to retirement age.

Attributes: ST 11 [10]; DX 12 [40]; IQ 11 [20]; HT 12 [20].

Secondary Characteristics: Damage 1d-1/1d+1; BL 24 lbs.; HP 11 [0]; Will 11 [0]; Per 11 [0]; FP 12 [0]; Basic Speed 6.00 [0]; Basic Move 6 [0].

Advantages: Patron (Count; 9 or less) [10] *and* Status 2 [10]. ● 20 points chosen from among Allies (Fellow Armsmen) [Varies], Combat Reflexes [15], Common Sense [10], Danger Sense [15], Longevity [2], or Reputation [Varies].

Disadvantages: Duty (Count; 9 or less) [-5]. ● -15 points chosen from among Alcoholism [-15], Bad Temper [-10*], Dependents [Varies], Flashbacks [Varies], Reputation [Varies], or Sense of Duty (Barrayar) [-10].

Primary Skills: Beam Weapons/TL9 (Pistol) (E) DX+2 [4]-14; Judo *or* Karate, both (H) DX+2 [12]-14; Soldier/TL9 (A) IQ+1 [4]-12.

Secondary Skills: Area Knowledge (The Count's estates) (E) IQ+1 [2]-12; Savoir-Faire (E) IQ+1 [2]-12.

Background Skills: 6 points chosen from among Beam Weapons/TL9 (Rifle) (E) DX+1 [2]-13; Free Fall or Stealth, both (A) DX [2]-12; Computer Operation/TL9 (E) IQ+1 [2]-12; or Administration, Explosives/TL9 (Demolition), Fast-Talk (A), or Interrogation, all (A) IQ [2]-11.

* Multiplied for self-control number; see p. B120.

Barrayaran Enlisted Man

109 points

This is a Barrayaran serviceman of ordinary birth, ranging from a just-enlisted 18-year-old to a veteran corporal or sergeant who's served his twice-twenty-years and is going for the triple term. These men are the backbone of the Barrayaran system; they will have the standard Barrayaran outlook on such unusual principles as democracy, female rights, and anything non-traditional. Some will distinguish themselves and be chosen for officer training, and an elite few will be tapped for Imperial Security and, perhaps, eventually become Armsmen. Most will serve out their career and retire to a quiet marriage and veteran's pay.

> *The guard was one of Imperial Security's best, trained to look for assassins in his own shadow.*
>
> ***– The Mountains of Mourning***

Attributes: ST 12 [20]; DX 12 [40]; IQ 10 [0]; HT 12 [20].

Secondary Characteristics: Damage 1d-1/1d+2; BL 29 lbs.; HP 12 [0]; Will 10 [0]; Per 10 [0]; FP 12 [0]; Basic Speed 6.00 [0]; Basic Move 6 [0].

Advantages: Fit [5]. ● 20 points chosen from among Allies (Fellow soldiers) [Varies], Combat Reflexes [15], Danger Sense [15], High Pain Threshold [10], or Military Rank [5/level].

Disadvantages: Duty (Barrayar; 9 or less) [-5]. ● -15 points chosen from among Alcoholism [-15], Bad Temper

[-10*], Berserk [-10*] Bloodlust [-10*], Flashbacks [Varies], Intolerance [Varies], or Sense of Duty (Barrayar) [-10].

Primary Skills: Beam Weapons/TL9 (Pistol) (E) DX+2 [4]-14; Brawling (E) DX+2 [4]-14; Soldier/TL9 (A) IQ+1 [4]-11.

Secondary Skills: Computer Operation/TL9 (E) IQ+1 [2]-11.

Background Skills: 10 points chosen from Beam Weapons/TL9 (Rifle) (E) DX+2 [4]-14; Battlesuit/TL9, Free Fall, or Stealth, all (A) DX [2]-12; Judo or Karate, both (H) DX [4]-12; Administration, Explosives/TL9 (Demolition), Fast-Talk, Interrogation, Leadership, or Navigation/TL9 (Space), all (A) IQ [2]-10; or Strategy (any) or Tactics, both (H) IQ [4]-10.

* Multiplied for self-control number; see p. B120.

Barrayaran Ensign

40 points

This character may be Vor-class or (increasingly, nowadays) a non-Vor attempting to rise through the Service. He has survived at least three years at the Imperial Academy or one of the other schools for Service officers, and probably hopes for assignment to starship duty. Unless he has a very unusual background (as did Duv Galeni, who enlisted after earning his Ph.D. at Vorbarr Sultana University), he will probably be young, enthusiastic, and thoroughly Barrayaran in opinions and prejudices. Any young Vor who wants a military career will have taken this route. He will (possibly for the first time) have mingled with talented non-Vor in the Academy and had to cope with the *reverse* class prejudice of men who assume that all Vor are slackers.

Attributes: ST 10 [0]; DX 10 [0]; IQ 10 [0]; HT 10 [0].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 10 [0]; Per 10 [0]; FP 10 [0]; Basic Speed 5.00 [0]; Basic Move 5 [0].

Advantages: Military Rank 1 [5]. ● 15 points chosen from among Allies (Fellow ensigns) [Varies], Ambidexterity [5], Charisma [5/level], Combat Reflexes [15], Danger Sense [15], Intuition [15], Luck [15], Patron [Varies], Status [5/level], or Wealth [Varies].

Disadvantages: Duty (Barrayar; 9 or less) [-5]. ● -15 points chosen from among Code of Honor (Vor) [-15], Fanaticism [-15], Gullibility [-10*], Impulsiveness [-10*], Intolerance [Varies], Overconfidence [-5*], or Wealth [Varies].

Primary Skills: Beam Weapons/TL9 (Pistol) (E) DX+2 [4]-12 *and* Soldier/TL9 (A) IQ+2 [8]-12. ● *One* of Brawling (E) DX+2 [4]-12, Judo (H) DX [4]-10, or Karate (H) DX [4]-10.

Secondary Skills: Computer Operation/TL9 (E) IQ+1 [2]-11 *and* Survival (any) (A) Per [2]-10. ● *Two* of Beam Weapons/TL9 (Rifle) (E) DX+2 [4]-12; Battlesuit/TL9, Driving/TL9 (Groundcar), Free Fall, or Piloting/TL9 (Contragravity), all (A) DX+1 [4]-11; Farming/TL9, Leadership, Meteorology/TL9 (any), or Navigation/TL9 (Space), all (A) IQ+1 [4]-11; or Biology/TL9 (Botany), Computer Programming/TL9, Geology/TL9 (any), History (Barrayar), Mathematics/TL9 (any, but 5-Space likely), Psychology, Strategy (any), or Tactics, all (H) IQ [4]-10.

Background Skills: 12 points chosen from among Dancing, Main-Gauche, Riding (Horse), or Saber, all (A) DX [2]-10; Savoir-Faire (E) IQ+2 [4]-12; or any secondary skill not taken above.

* Multiplied for self-control number; see p. B120.

Barrayaran ImpSec Analyst

207 points

ImpSec analysts are usually found behind desks; most of them are at ImpSec headquarters on Barrayar, though they may be assigned anywhere the Service wants to shorten its reaction time to locally collected data. Their role is to analyze incoming information, and to provide the results to the head of ImpSec – and, ultimately, to the Emperor. They are men of proven loyalty, often twenty-years or twice-twenty-years men, though an exception to length of service may be made for those with extraordinary talent. While most are fanatically loyal to the current chief of ImpSec and to the head of their department, they tend to acquire a somewhat casual attitude toward regular military customs and chain of command. (This is typified by the "analyst's salute," which is more of a wave.) Since analysts work with information from across the galaxy, they are less likely to be shocked by galactic cultures than most Barrayarans.

Some analysts are happy to stay at their desks; others had distinguished careers in the field, and will take any opportunity to go back, even if they are a bit rusty. ImpSec superiors may be tempted to call on their skills in an emergency . . . but analysts are valuable assets, not to be risked without a very good reason, and it would not do at all to have an analyst fall into unfriendly hands. They know far too much.

Attributes: ST 11 [10]; DX 12 [40]; IQ 13 [60]; HT 11 [10].

Secondary Characteristics: Damage 1d-1/1d+1; BL 24 lbs.; HP 11 [0]; Will 13 [0]; Per 13 [0]; FP 11 [0]; Basic Speed 5.75 [0]; Basic Move 5 [0].

Languages†: English (Native) [0]; French (Native) [6]; Greek (Native) [6]; Russian (Native) [6].

Advantages: Military Rank 3 [15] *and* Patron (ImpSec; 9 or less) [15]. ● 25 points chosen from among Combat Reflexes [15], Danger Sense [15], Eidetic Memory [5], Empathy [15], Intuition [15], Language Talent [10], Lightning Calculator [2], Luck [15], or further Military Rank [5/level].

Disadvantages: Duty (Barrayar; 9 or less) [-5]. ● -15 points chosen from among Fanaticism [-15], Overconfidence [-5], Sense of Duty [Varies], Reputation [Varies], or Susceptible (Fast-Penta Allergy) [-15‡].

Primary Skills: Intelligence Analysis/TL9 (H) IQ+1 [8]-14; Research/TL9 (A) IQ+1 [4]-14.

Secondary Skills: Area Knowledge (Barrayaran Imperium) (E) IQ+1 [2]-14; Computer Operation/TL9 (E) IQ+1 [2]-14; Detect Lies (H) Per-1 [2]-12.

Background Skills: 16 points chosen among from Beam Weapons/TL9 (Pistol) (E) DX+2 [4]-14; Battlesuit/TL9, Driving/TL9 (Groundcar), Free Fall, or Piloting/TL9 (Aeroplane or Contragravity), all (A) DX+1 [4]-13; Judo or Karate, both (H) DX [4]-12; First Aid/TL9 or Savoir-Faire, both (E) IQ+1 [2]-14; Administration (A) IQ-1 [1]-12; Politics (A) IQ [2]-13; Leadership or Navigation/TL9 (Space), both (A) IQ+1 [4]-14; Accounting (H) IQ-2 [1]-11; Law (any) (H) IQ-1 [2]-12; Computer Programming/TL9, History (Barrayar), Mathematics/TL9 (any), Psychology, Strategy (any), or Tactics, all (H) IQ [4]-13; or Survival (any) (A) Per [2]-13.

* Multiplied for self-control number; see p. B120.

† If English is not the character's primary language, shift points accordingly. Reduce each cost to 4 points if the PC has Language Talent.

‡ This value assumes that the analyst will be in the field frequently. If this is not the case, or if there are other circumstances that will make the use of fast-penta rare in your game, this disadvantage is worth only -1 point.

Barrayaran Officer

149 points

Whether stationed on a starship or serving planetside, an officer will be expected to uphold the proud traditions of the Barrayaran Imperium. Of course, officers with dubious records, such as those exiled to Camp Permafrost (p. 20), may be less enthusiastic. He may have spent most of his life planetside – or he may have had space duty, and become as cosmopolitan as any Barrayaran is likely to get.

Non-Vor officers will be accepted into "polite society" despite their birth; with their rank, experience, and service to the Emperor, they have paid their dues, and high officers with distinguished records are Vor in all but name. They may even have started to play the political game on their own account, allying themselves with the Progressive or Conservative factions, and doubtless have plans for future advancement.

Attributes: ST 11 [10]; DX 11 [20]; IQ 11 [20]; HT 11 [10].

Secondary Characteristics: Damage 1d-1/1d+1; BL 24 lbs.; HP 11 [0]; Will 11 [0]; Per 11 [0]; FP 11 [0]; Basic Speed 5.50 [0]; Basic Move 5 [0].

Advantages: Military Rank 3 [15]. ● 25 points chosen from among Allies (Fellow officers) [Varies], Ambidexterity [5], Charisma [5/level], Combat Reflexes [15], Danger Sense [15], Intuition [15], Luck [15], further Military Rank [5/level], Patron [Varies], Rapid Healing [5], Status [5/level], Voice [10], or Wealth [Varies].

Disadvantages: Duty (Barrayar; 9 or less) [-5]. ● -25 points chosen from among Addiction [Varies], Alcoholism [-15], Bad Temper [-10*], Bully [-10*], Code of Honor (Vor) [-15], Dependents [Varies], Fanaticism [-15], Impulsiveness [-10*], Intolerance [Varies], Overconfidence [-5*], Sense of Duty [Varies], Reputation [Varies], Unluckiness [-10], or Wealth [Varies].

Primary Skills: Battlesuit/TL9 (A) DX+1 [4]-12; Beam Weapons/TL9 (Pistol) (E) DX+2 [4]-13; Savoir-Faire (Military) (E) IQ+2 [4]-13; *and* Soldier/TL9 (A) IQ+3 [12]-14. ● *One* of Judo (H) DX+1 [8]-12 or Karate (H) DX+1 [8]-12.

Secondary Skills: Computer Operation/TL9 (E) IQ+1 [2]-12; First Aid/TL9 (E) IQ+1 [2]-12; History (Barrayar) (H) IQ [4]-11; Leadership (A) IQ+1 [4]-12; Strategy (any) (H) IQ [4]-11; Survival (any) (A) Per [2]-11; Tactics (H) IQ [4]-11.

Background Skills: 25 points chosen from among Beam Weapons/TL9 (Rifle) (E) DX+2 [4]-13; Dancing, Main-Gauche, Riding (Horse), or Saber, all (A) DX [2]-11; Driving/TL9 (Groundcar), Free Fall, or Piloting/TL9 (Aeroplane or Contragravity), all (A) DX+1 [4]-12; Savoir-Faire (E) IQ+2 [4]-13; Farming/TL9, Meteorology/TL9 (any), or Navigation/TL9 (Hyperspace or Space), all (A) IQ+1 [4]-12; or Biology/TL9 (Botany), Computer Programming/TL9, Geology/TL9 (any), Mathematics/TL9 (any, but 5-Space likely), or Psychology, all (H) IQ [4]-11.

* Multiplied for self-control number; see p. B120.

Barrayaran Vor Lord

45 points

The Vor, especially the high Vor, are children of privilege. Some live up to the ideals of their class, and some live down to the worst expectations of the people who must endure them.

The Idle Lordling: His family has money, and he spends it. He may never even have tried to enter the Service . . . or he may have failed the Academy examinations. He is now a man-about-town, an idle socialite, probably an object of scorn to the more conservative or military Vor. If he is ashamed of his failure to serve in the military, he may save face with deliberate flippancy.

The Solid Vor: Typically, he's a first son. He knows what's expected of him and tries to live up to it. He served earnestly, and perhaps even competently, as an officer in the Service. He's now an administrator, but retains his military connections; depending on his personality, he may be very well tied into the "old boy network." He sees Barrayar, and the Vor, as a society under siege. Perhaps he trusts in the Emperor to guide them through all this. And perhaps he would prefer different leadership . . .

The Progressive Vor: He hopes to move past the stereotypes of his class to seek a career in the arts or sciences, or even commerce. He might be sent to support family interests offworld – Komarr, Sergyar, or even further out – or he might have decided independently to emigrate to another planet. He could well be the second or third son of the family, with brothers and older relatives in more traditional "responsible" Vor posts in the military or administration.

Attributes: ST 10 [0]; DX 10 [0]; IQ 10 [0]; HT 10 [0].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 10 [0]; Per 10 [0]; FP 10 [0]; Basic Speed 5.00 [0]; Basic Move 5 [0].

Advantages: Status 3 [15]. ● 25 points chosen from among Allies [Varies], Charisma [5/level], Heir [Varies], Intuition [15], Luck [15], Patron [Varies], or Wealth [Varies].

Disadvantages: Code of Honor (Vor) [-15]. ● -20 points of other disadvantages:

1. For the idle lordling, appropriate choices include Addiction [Varies], Bad Temper [-10*], Cowardice [-10*], Laziness [-10], Lecherousness [-15*], Odious Personal Habits [Varies], Reputation [Varies], or Unluckiness [-10].
2. For more responsible Vor, the defining disadvantage is a Duty to Barrayar in the person of the Emperor, with the details depending on the character's position.

Primary Skills: Savoir-Faire (E) IQ+3 [8]-13.
Secondary Skills: Driving/TL9 (Groundcar) (A) DX [2]-10; Main-Gauche (A) DX [2]-10; Piloting/TL9 (Contragravity) (A) DX+1 [4]-11; Saber (A) DX+1 [4]-11.
Background Skills: 20 points chosen from among Dancing (A) DX+1 [4]-11; Area Knowledge (Vorbarr Sultana) (E) IQ+1 [2]-11; Public Speaking, Research/TL9, or Writing, all (A) IQ [2]-10; Artist (any), History (Barrayar), or Musical Instrument (any), all (H) IQ [4]-10; or Carousing (E) HT+2 [4]-12.

* Multiplied for self-control number; see p. B120.

Betan Psychotherapist

80 points

A Betan therapist will usually be a native of Beta Colony, brought up according to its principles of tolerance, understanding, open-mindedness, and democracy. He, she, or it will possess degrees in various types of psychology and psychotherapy and several certifications from the Mental Health Board. Not all therapists are *sexual* therapists, but any therapist will have some understanding of how a client's sexuality may affect the appropriate treatment. A therapist may travel off-planet to study (quite likely at Escobar), to treat patients, or to help staff a facility elsewhere.

Attributes: ST 10 [0]; DX 10 [0]; IQ 12 [40]; HT 10 [0].
Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 12 [0]; Per 12 [0]; FP 10 [0]; Basic Speed 5.00 [0]; Basic Move 5 [0].
Advantages: Empathy [15] *and* Patron (Mental Health Board; 9 or less) [8]. ● 15 points chosen from among Allies (Clinic staff) [Varies], Common Sense [10], Intuition [15], or Unfazeable [15].
Disadvantages: Duty (Mental Health Board; 6 or less) [-2] *and* Duty (Patients; 9 or less) [-5]. ● -15 points chosen from among Curious [-5*], Delusion ("Betan psychotherapy and mediation can resolve all problems") [-5], Duty (Clinic staff) [Varies], or Pacifism (Cannot Kill *or* Self-Defense Only) [-15].
Primary Skills: Diplomacy (H) IQ [4]-12; Psychology (H) IQ+4 [8]-16†.
Secondary Skills: Computer Operation/TL9 (E) IQ [1]-12; Detect Lies (H) Per+1 [1]-13†; Research/TL9 (A) IQ [2]-12.
Background Skills: 8 points chosen from among Diagnosis/TL9 (H) IQ-1 [2]-11, First Aid/TL9 (E) IQ+1 [2]-13, Physician/TL9 (H) IQ [4]-12, or Surgery/TL9 (VH) IQ-1 [4]-11.

* Multiplied for self-control number; see p. B120.
† Includes +3 for Empathy.

Cetagandan Ghem-Officer

189 points

A Cetagandan officer is a member of a ghem-clan, and was raised on one of the eight worlds of the Cetagandan Empire. Not every ghem is fit for military service, and only the best become officers, so whatever his rank, he knows himself to be elite. Naturally, he will be maneuvering for the advancement of his clan – and on his own behalf – in the hope of eventually rising to the rank of general or admiral, possibly even winning a haut-lady as his wife.

Attributes: ST 11 [10]; DX 12 [40]; IQ 11 [20]; HT 12 [20].
Secondary Characteristics: Damage 1d-1/1d+1; BL 24 lbs.; HP 11 [0]; Will 11 [0]; Per 11 [0]; FP 12 [0]; Basic Speed 6.00 [0]; Basic Move 6 [0].

He wore, of course, full formal face paint in the Imperial pattern rather than that of his clan, marking his primary allegiance; a white base with intricate black curves and red accents . . . a pattern that would command instant and profound respect and total, abject cooperation on eight planets.

– Cetaganda

Advantages: Status 3 [15]. • 40 points chosen from among Appearance (Very Handsome) [16], Charisma [5/level], Combat Reflexes [15], Common Sense [10], Hard to Kill [2/level], High Pain Threshold [10], Immunity to Disease [10], Intuition [15], Longevity [2], Luck [15], Military Rank [5/level], Musical Ability [5/level], Patron [Varies], Perfect Balance [15], Rapid Healing [5], or Reputation [Varies].

Disadvantages: Duty (Cetaganda; 9 or less) [-5]; Duty (His clan; 9 or less) [-5]; *and* Duty (His men; 9 or less) [-5]. • -20 points chosen from among Addiction [Varies], Bad Temper [-10*], Bully [-10*], Enemies [Varies], Fanaticism (Cetaganda) [-15], Intolerance (Barrayarans or other races) [-5], Sense of Duty [Varies], or Unluckiness [-10].

Primary Skills: Beam Weapons/TL9 (Pistol) (E) DX+2 [4]-14; Judo (H) DX+2 [12]-14; Karate (H) DX+2 [12]-14; Soldier/TL9 (A) IQ+1 [4]-12.

Secondary Skills: Battlesuit/TL9 (A) DX [2]-12; Computer Operation/TL9 (E) IQ [1]-11; Leadership (A) IQ+1 [4]-12; Strategy (any) (H) IQ+1 [8]-12; Tactics (H) IQ+1 [8]-12.

Background Skills: 24 points chosen from among Beam Weapons/TL9 (Rifle) (E) DX+2 [4]-14; Driving/TL9 (Groundcar), Free Fall, or Piloting/TL9 (Aerospace or Contragravity), all (A) DX [2]-12; Savoir-Faire (Military) (E) IQ+2 [4]-13; Farming/TL9 (A) IQ [2]-11; Navigation/TL9 (Hyperspace or Space) (A) IQ+1 [4]-12; Biology/TL9 (Botany), Engineer/TL9 (Electronics), Geology/TL9 (any), or Psychology, all (H) IQ [4]-11; or Computer Programming/TL9 or Mathematics/TL9 (5-Space), both (H) IQ+1 [8]-12.

* Multiplied for self-control number; see p. B120.

Cetagandan Servitor Expert

61 points

A member of the servitor classes. His skills have earned him patronage and possibly even some respect, but he will never achieve the status of the ghem, let alone the haut – and he knows it. He may try to leave the Cetagandan worlds (legally or illegally) with plans to make a new, more profitable life elsewhere. Alternatively, he may be faithful to the Cetagandan Empire but have to accompany his patron into the galactic wilds.

Attributes: ST 10 [0]; DX 10 [0]; IQ 12 [40]; HT 10 [0].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 12 [0]; Per 12 [0]; FP 10 [0]; Basic Speed 5.00 [0]; Basic Move 5 [0].

Advantages: Patron (Ghem or haut; 9 or less) [10].

Disadvantages: Duty (Patron; 9 or less) [-5].

Primary Skills: *One* of Administration (A) IQ+3 [12]-15, Biology/TL9 (any) (H) IQ+2 [12]-14, Chemistry/TL9 (H) IQ+2 [12]-14, Mathematics/TL9 (5-Space) (H) IQ+2 [12]-14, or Navigation/TL9 (Hyperspace or Space) (A) IQ+3 [12]-15.

Secondary Skills: Computer Operation/TL9 (E) IQ [1]-12; Savoir-Faire (E) IQ [1]-12.

Background Skills: *One* of Detect Lies (H) Per-1 [2]-11, Diplomacy (H) IQ-1 [2]-11, or Fast-Talk (A) IQ [2]-12.

Dendarii Mercenary

158 points

A member of the Dendarii ("Daring Rescues Our Specialty") can look forward to a career punctuated with infiltration, combat, and secret missions (though he'll probably never know it) for Barrayaran ImpSec. He should be competent – Admiral Quinn doesn't employ incompetents, any more than Admiral Naismith did. He may be a regular grunt, or have some particular specialty, such as demolitions, spy work, piloting, or even accounting. Since promotion is by ability, he may well hope to rise to command rank and captain his own ship some day. A mercenary may have private reasons for leaving his previous life and joining a spaceside organization: a criminal past, a pursuing enemy, or some other urgent need to get off-planet . . .

Attributes: ST 11 [10]; DX 12 [40]; IQ 11 [20]; HT 12 [20].

Secondary Characteristics: Damage 1d-1/1d+1; BL 24 lbs.; HP 11 [0]; Will 11 [0]; Per 11 [0]; FP 12 [0]; Basic Speed 6.00 [0]; Basic Move 6 [0].

Advantages: Allies (Fellow mercenaries; 9 or less) [30]. • 20 points chosen from among Absolute Direction [5], Absolute Timing [2], Ambidexterity [5], Combat Reflexes [15], Common Sense [10], Danger Sense [15], Intuition [15], Luck [15], Military Rank [5/level], Night Vision [1/level], Peripheral Vision [15], or Reputation [Varies].

A member of the Dendarii can look forward to a career punctuated with infiltration, combat, and secret missions (though he'll probably never know it) for Barrayaran ImpSec.

Disadvantages: Duty (Dendarii Mercenaries; 9 or less) [-5] *and* Sense of Duty (Fellow mercenaries) [-5]. ● -15 points chosen from among Addiction [Varies], Alcoholism [-15], Bad Temper [-10*], Code of Honor (Pirate's) [-5], Compulsive Behavior [Varies*], Dependents [Varies], Enemy [Varies], Greed [-15*], Impulsiveness [-10*], Intolerance [Varies], Overconfidence [-5*], Reputation [Varies], Sadism [-15*], Sense of Duty [Varies], or Unluckiness [-10].

Primary Skills: Battlesuit/TL9 (A) DX [2]-12; Beam Weapons/TL9 (Pistol) (E) DX+2 [4]-14; Free Fall (A) DX [2]-12; Soldier/TL9 (A) IQ+2 [8]-13.

Secondary Skills: Computer Operation/TL9 (E) IQ [1]-11; Piloting/TL9 (Contragravity) (A) DX [2]-12. ● *Two* of Brawling (E) DX+2 [4]-14; or Judo or Karate, both (H) DX [4]-12.

Background Skills: 16 points chosen from among Beam Weapons/TL9 (Rifle) (E) DX+2 [4]-14; Free Fall or Stealth, both (A) DX [2]-12; First Aid/TL9 (E) IQ+1 [2]-12; Savoir-Faire (Military) (E) IQ+2 [4]-13; Administration, Explosives/TL9 (Demolition), Fast-Talk, Interrogation, Navigation/TL9 (Space), Politics, Public Speaking, or Shadowing, all (A) IQ [2]-11; Leadership (A) IQ+1 [4]-12; Diplomacy (H) IQ-1 [2]-10; Diagnosis/TL9, Strategy (any), or Tactics, all (H) IQ [4]-11; or Detect Lies (H) Per-1 [2]-10.

* Multiplied for self-control number; see p. B120.

Jackson's Whole Scientist

100 points

A specialist employed by one of the Jacksonian Houses (Major or Minor). It provides him with bed, board, security, more luxuries than most Jacksonians ever see, and experimental facilities. It expects highly profitable returns. He may be the prima donna of a hidden laboratory, an expert in an unusual field, or one of a regular team of researchers employed in areas that interest the House. He is likely to be arrogant, obsessive, and probably somewhat amoral, and will be keenly aware of the political currents between the Houses. After all, he might need to look for a new position, at some point . . .

Attributes: ST 10 [0]; DX 10 [0]; IQ 13 [60]; HT 10 [0].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 13 [0]; Per 13 [0]; FP 10 [0]; Basic Speed 5.00 [0]; Basic Move 5 [0].

Advantages: Patron (Jacksonian House; 9 or less) [15] *and* Status 2 [10]. ● 15 points chosen from among Allies [Varies], Common Sense [10], Eidetic Memory [5], Intuition [15], Language Talent [10], Lightning Calculator [2], Longevity [2], Mathematical Ability 1 [10], Reputation [Varies], or Wealth [Varies].

Disadvantages: Duty (Jacksonian House; 12 or less) [-10]. ● -30 points chosen from among Absent-Mindedness [-15], Bad Temper [-10*], Cowardice [-10*], Dependents [Varies], Enemies [Varies], Fanaticism [-15], Greed [-15*], Gullibility [-10*], Intolerance [Varies], Megalomania [-10], Odious Personal Habits [Varies], Paranoia [-10], or Sadism [-15*].

Primary Skills: *One* of Farming/TL9 or Meteorology/TL9 (any), both (A) IQ+3 [12]-16; Biology/TL9 (any), Chemistry/TL9, Computer Programming/TL9, Engineer/TL9 (any), Geology/TL9 (any), Linguistics, Mathematics/TL9 (any), Physician/TL9, Physics/TL9 (any), or Psychology, all (H) IQ+2 [12]-15; or Surgery/TL9 (VH) IQ+1 [12]-14.

Secondary Skills: Research/TL9 (A) IQ+1 [4]-14.

Background Skills: 24 points chosen from among Diagnosis/TL9 (H) IQ [4]-13, Diplomacy (H) IQ-1 [2]-12, Driving/TL9 (Groundcar) (A) DX [2]-10, Free Fall (A) DX [2]-10, Judo (H) DX [4]-10, Piloting/TL9 (Contragravity) (A) DX [2]-10, or any primary skill not taken above.

* Multiplied for self-control number; see p. B120.

Komarran Rebel

7 points

He is either one of the original Komarrans who fought the Barrayarans, or he's descended from them – literally, ideologically, or both. He may be an aging rebel on the run, a wanted criminal of interest to ImpSec, or a young professional who dreams of a "free Komarr" no longer ruled and taxed by Barrayar. His parents may have fled offworld, raising him with stories of an independent Komarr. This template covers all types of Komarran rebels, from the idealistic freedom-fighter to the money-motivated businessman with an eye on Imperial taxes. It should leave players plenty of points to customize appropriately.

Attributes: ST 10 [0]; DX 10 [0]; IQ 10 [0]; HT 10 [0].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 10 [0]; Per 10 [0]; FP 10 [0]; Basic Speed 5.00 [0]; Basic Move 5 [0].

Advantages: 30 points chosen from among Allies [Varies], Charisma [5/level], Combat Reflexes [15], Longevity [2], Luck [15 or 30], Patron [Varies], Reputation [Varies], Status [5/level], or Wealth [Varies].

Disadvantages: Intolerance (Barrayar) [-5] *and* Sense of Duty (Komarr) [-10]. ● -20 points chosen from among Alcoholism [-15], Bad Temper [-10*], Bully [-10*], Delusions [Varies], Enemy [Varies], Fanaticism [-15], Flashbacks [Varies], Megalomania [-10], Paranoia [-10], Reputation [Varies], Secret [Varies], or Unluckiness [-10].

Primary Skills: Beam Weapons/TL9 (Pistol) (E) DX+2 [4]--12.

Secondary Skills: Stealth (A) DX [2]-10.

Background Skills: 6 points chosen from Disguise/TL9 (any), Explosives/TL9 (Demolition), Holdout, or Leadership, all (A) IQ [2]-10; or Strategy (any) or Tactics, both (H) IQ [4]-10.

* Multiplied for self-control number; see p. B120.

Chapter Five
Human and Posthuman

"For your information," Solone said frostily, "I was born from an uterine replicator. I'm as broad-minded as the next galactic."

"The next galactic is that dead Jacksonian over there," replied Danseur, smoothing antibiotic cream on the cuts around his wrists. "And he wasn't broad-minded at all."

"What were you telling him to keep him so preoccupied?" Waverd queried, coming in from the next room. The bag over his shoulder bulged with computer disks.

Danseur shrugged. "The full particulars of the recent ***secret*** *Council of Counts meeting, with details on the possible prosecution of Lord Auditor Miles Vorkosigan for treason against the Imperium, unnatural liaisons with that clone-brother of his, and breeding a secret army of mutant super-soldiers in the Dendarii mountains." He paused. "I'm half tempted to see if we can get that one into the report, just to have it on record somewhere. I get so few chances to be creative in this job."*

Humanity is the only intelligent species known in the galaxy. Not even relics have been discovered of any other race. However, natural selection (and in some cases, deliberate breeding), combined with genetic manipulation, have created variants on humanity that are still clearly kin to *Homo sapiens,* but fertile within their own species and numerous enough to continue their kind. In another few hundred years, humanity may have created its own aliens.

Variant Human Races

"Normal" humans are by far the majority of the inhabitants of the galaxy. Old-style racial prejudice has, by and large, disappeared, at least in mainstream Galactic culture.

Given the high TL of most worlds, it is not unusual for "normal" humans to be extremely healthy by 20th-century standards, and to have one or more physical advantages. These may include extra FP [3/FP], extra HP [2/HP], Damage Resistance 1 (Tough Skin, -40%) [3], Immunity to Disease [10], Longevity [2] (on planets with highly developed biotech resources, such as Beta Colony or Cetaganda), and Rapid Healing [5].

Two variants on the human norm are well known: hermaphrodites and quaddies. Both were created shortly after the invention of the uterine replicator, and they managed to establish themselves as stable groups without separating entirely from human society. Members of both races are suitable as player characters or as interesting NPCs.

Hermaphrodites

Hermaphrodites (or "herms") are the product of a social experiment. Betan idealists wanted to produce the "ideal race" that would resolve all gender and social difficulties. The theory was that, since a hermaphrodite combined both genders, it would eliminate gender prejudice. Eventually, the entire galaxy would become gloriously hermaphroditic, working together with no gender bars.

To the regret of the originators, the idea never caught on. Enough hermaphrodites were created to produce a viable population, but the galaxy as a whole remained stubbornly committed to the two old-fashioned genders.

At present, a population of several thousand hermaphrodites lives on Beta Colony, mostly in the city of Silica. Most of them are stable, reliable people, with the "rigidly liberal" attitudes of any other Betan. They may go offworld for business or pleasure, but few leave Beta permanently. Those who do tend to be atypical personalities, looking for excitement, adventure, and other things not usually found on "the old sandbox." A good example of an adventurous herm is Bel Thorne, who became an officer in the Dendarii Mercenaries – p. 128.

It is polite to use the pronoun "it" when referring to a herm. A hermaphrodite has a body morphology midway between that of standard males and females, and is fully functional as both male and female – but is only fertile with other hermaphrodites. A herm may appear on first sight to be either male or female, depending on how it is dressed and presents itself. As a product of gengineering, it is likely to have several of the typical Betan physical and mental advantages (see p. 71). Many hermaphrodites work in the LPST field (pp. 37, 65) or other areas involving social dynamics. A herm making a career off-planet is likely to have some unusual tastes, skills, and hobbies.

In a campaign centered on Barrayar or some other relative backwater of civilization, a hermaphrodite would meet prejudice. A disguised hermaphrodite would have a Secret; an open one could take Social Stigma (Mutant offworld sex pervert) [-15], which would affect pretty much everyone it

met. On Barrayar, the reaction penalty wouldn't be evenly distributed . . . -1 reaction among educated people honestly trying to accept this galactic novelty, worsening among those of less sophistication, down to -5 ("Kill it now before it gets our children!") from backcountry folk.

Quaddies

Quaddies (*Homo quadrimanus,* according to their creator, Dr. Cay) are humans modified to have four arms instead of two arms and two legs. They are thin-hipped, without the hip-and-thigh muscles that legs require. Their lower arms are more powerful than the upper set – grippers rather than manipulators. Quaddies are never motion-sick, and their muscles maintain tone in a 0G environment with an exercise regimen of 15 minutes per day. Their bones don't deteriorate in zero- or microgravity. Their bone marrow and reproductive organs are far more radiation-resistant than those of normal humans (superficial effects of radiation exposure are the same, but divide rads by 5 before assessing permanent effects).

Quaddie Hardware

Quaddies have no difficulty using equipment built for normal humans, except of course for spacesuits. When not hampered by gravity, quaddies can even deal with regular chairs.

However, normal humans don't have enough hands to operate the controls of quaddie vehicles or workstations, and will be at -3, or worse . . . on top of any problems they may have in dealing with microgravity or zero gravity.

More than 200 years ago, before artificial gravity was invented, it was very expensive to maintain workers on space stations and spaceships. They needed expensive revolving gymnasiums to simulate gravity – or frequent visits to an actual planet – to minimize damage to their muscles and bones. GalacTech decided to create a source of cheap, controllable free-fall labor.

At great expense, and in total secrecy, a pilot population of a thousand quaddies was created. They were taught to think in communal terms, to build and maintain space stations and spaceships, and to trust their "normal" supervisors. However, before the oldest quaddies had even completed their training, Beta Colony developed artificial gravity. There was no longer any profit in a workforce bred for zero-G. In the power of corporate bureaucrats who didn't even see them as human, the quaddies nearly met an ugly fate. But they managed to escape, taking their entire habitat. They jumped far away and settled an asteroid belt. In time, they thrived.

Most of the galaxy's quaddie population still lives in the Union of Free Habitats (p. 50) established by the original colonists. Many galactic travelers have never met a quaddie, and it is extremely rare to encounter one on the Barrayaran side of the galaxy. When in normal-gravity areas, quaddies often utilize a floating chair, shaped like a cup, that allows them to move around freely. Without such a device, they are forced to pull themselves awkwardly along the ground.

Quaddies are only fertile by natural birth with other quaddies; any conception with other variants of humanity would result in a spontaneous abortion. However, through genetic engineering, a quaddie can produce a child with a normal human or herm. The child would have to be engineered as either quaddie or walker – a compromise would hardly be viable.

Any quaddie characters should have a good reason for leaving home. They may meet prejudice, not just from Barrayarans, but from others surprised by their form.

Quaddie

41 points

The typical quaddie personality is group-oriented and work-oriented. Much of this may be cultural rather than genetic, though certainly the original designers wanted to create workers who were emotionally stable and not aggressive. Many quaddies love the arts, especially music and dance.

Quaddies come from a cooperative and technological culture. No quaddie character in the Union, or in any other quaddie society, would be Poor.

Attribute Modifiers: HT+2 [20].

Advantages: 3D Spatial Sense [10]; Ambidexterity [5]; Extra Arms 2 (Foot Manipulators, -30%) [14]; G-Experience (All) [10]; Longevity [2]; Rapid Healing [5].

Disadvantages: Crippled Legs (Accessibility, Not in Zero-G, -10%)* [-9]; Honesty (12) [-10]; Pacifism (Self-Defense Only) [-15]; Selfless (12) [-5]; Sense of Duty (Other quaddies) [-10]. Their communal living and work ethic often result in the disadvantages Odious Personal Habit (No innate sense of personal property) [-5] and Workaholic [-5].

Racially Learned Skill: Free Fall (A) DX+8 [24]†.

Feature: Only fertile with other quaddies.

* Basic Move must be halved; see p. B141.

† Includes +2 from 3D Spatial Sense.

Many galactic travelers have never met a quaddie, and it is extremely rare to encounter one on the Barrayaran side of the galaxy.

Cetagandans

The highest honor any Cetagandan could achieve, higher even than the bestowal of a haut bride, was to have his or her genome formally taken up into the Star Crèche's banks – for disassembly, close examination, and possibly selective insertion of the approved bits into the haut race's next generation.

– Diplomatic Immunity

The Cetagandan haut (p. 41) are working to evolve themselves through selective breeding and genetic manipulation. The highest haut might already be considered superhuman. In a dozen more generations, they may no longer be "human" at all.

The haut have a galaxy-wide Reputation (Wealthy, terrifying, mysterious, empire-building supermen). They usually get at least a +1 reaction to their face, but often an equal penalty from those who think they can oppose them without being noticed; in points terms, this balances out.

Haut

Women 220 points, men 214 points

Attribute Modifiers: ST+4 [40]; DX+1 [20]; IQ+2 [40]; HT+2 [20].
Secondary Characteristic Modifiers: FP+2 [6].
Advantages: Acute Hearing 1 [2]; Acute Taste and Smell 1 [2]; Appearance (Handsome/Beautiful) [12]; Charisma 1 [5]; Eidetic Memory [5]; Immunity to Disease [10]; Longevity [2]; Rapid Healing [5]; Status 5 [25]; Wealth (Very Wealthy) [30].
Disadvantages: Duty (To constellation and to all haut; 15 or less; Nonhazardous) [-10].

Notes

Haut-women add an extra level of Charisma [5] and Immunity to Fast-Penta [1]. They may not take the disadvantage Susceptible (Fast-Penta Allergy).

Most haut have higher attributes, as well as extra levels of some advantages. Other very common haut advantages are Extra HP [2/HP], Combat Reflexes [15], Hard to Kill [2/level], High Pain Threshold [10], Fit [5], Less Sleep [2/level], Mathematical Ability [10/level], Musical Ability [5/level], and Perfect Balance [15]. Still other advantages are quite possible; the haut do not advertise their abilities.

A haut would require an Unusual Background in order to be *without* any of the standard advantages and disadvantages; for instance, only some sort of unlikely haut outcast would have less than the standard haut wealth and status.

Ghem

72 points

The military ghem clans are part of the haut's genetic project (see p. 41), but far more numerous and much less genetically "advanced." They are not superhuman, but the average ghem is stronger, smarter, and tougher than the average human.

Attribute Modifiers: ST+1 [10]; IQ+1 [20]; HT+1 [10].
Secondary Characteristic Modifiers: FP+1 [3].
Advantages: Appearance (Handsome/Beautiful) [12]; Longevity [2]; Rapid Healing [5]; Status 3 [15]; Wealth (Comfortable) [10].
Disadvantages: Duty (To clan; 15 or less) [-15].

Notes

Ghem often have one or more advantages typical of their haut cousins, especially Combat Reflexes, High Pain Threshold, and Musical Ability. This is especially likely in the descendants of a ghem-general who was awarded a haut-wife. It is also quite possible that the Star Crèche will be watching that ghem-line with an eye to spreading its

genes around, or even taking some of them back into the haut genome.

No adult ghem, except possibly one far gone in old age, will have any attributes less than 10. See the ghem character templates on p. 71 and 76.

Ba

179 points

A ba (p. 41) will have a Status of only 3 and will be genderless and sterile, but physically and intellectually, it will be as capable as a haut. In fact, as cutting-edge experiments of the Star Crèche, ba may display unusual advantages not yet incorporated into the haut.

Attribute Modifiers: ST+4 [40]; DX+1 [20]; IQ+2 [40]; HT+2 [20].

Secondary Characteristic Modifiers: FP+2 [6].

Advantages: Acute Hearing 1 [2]; Acute Taste and Smell 1 [2]; Appearance (Handsome/Beautiful) [12]; Eidetic Memory [5]; Immunity to Disease [10]; Longevity [2]; Rapid Healing [5]; Status 3 [15]; Wealth (Comfortable) [10].

Perk: Immunity to Fast-Penta [1].

Disadvantages: Duty (To Imperial Garden *or* Star Crèche; 15 or less; Nonhazardous) [-10]; Sexless [-1].

Feature: Sterile [0]. Many older ba are completely hairless; this was merely a fashion among their creators, which has since passed.

TELEPATHS

The Vorkosigan universe holds – as far as anyone knows – a single living telepath, Terrence Cee, whose story is told in *Ethan of Athos*. He was created in a Cetagandan genetics lab. The project's records and cell cultures were destroyed in his escape, and none of the other telepaths survived. The Star Crèche will no doubt try to re-create the telepathy gene, but they will have to start from scratch.

Cee himself now lives on Athos (p. 46) and is not likely to leave without a very good reason. Only Cee and one other person know that every child born on Athos now carries a recessive telepathy gene. In two generations, there will be millions of Athosian telepaths. See p. 47.

Cee's telepathy is bioelectrical in nature and comes from an artificial modification of his pineal gland. It did not manifest reliably until he reached puberty. What little is known about it includes:

- He can read the surface thoughts of others, and sometimes see through their eyes, but he cannot learn anything they are not thinking about.
- His range is a few hundred meters at most. Usually he needs to get much closer to his target, because the thoughts of others interfere.
- The ability is blocked by anything that interferes with electrical transmissions; this would include Faraday cages and most types of force screens.
- He can't read some minds. Another telepath created in the same lab was able to read some minds that he couldn't, and vice versa, so Cee concluded that it was a case of "fit" between telepath and subject, rather than of some people being immune.
- He cannot transmit his own thoughts.
- His subjects feel nothing unusual when their minds are read.
- The ability is activated by high doses of the amino-acid compound tyramine, which naturally occurs in some foods but is also available in tablets. After the telepathy organ uses up the available tyramine, the power "turns off."
- After a session of mind-reading, Cee is exhausted and suffers from headaches.

Terrence Cee's Telepathy

Mind-Reading (Accessibility, Blocked by anything that interferes with radio, -10%; Backlash, Headache, -20%; Costs Fatigue, 1 FP, -5%; Increased Immunity 3, -30%; Reliable +10, +50%; Sensory, +20%; Trigger, Tyramine, Common, -20%) [24].

Notes

Backlash is a Limitation described on p. 159.

Increased Immunity is described on p. 159. This level of Increased Immunity means that if Cee fails at his first attempt on a target, he'll never be able to read that person. (If he has read a target before and fails on a later attempt, treat that as an ordinary failure with no further effects.)

In game terms, 24 points may seem cheap for the ability to read minds, but a complete character design would add something like "Unusual Background (Product of experimental biotech)," which is valued at 15 points in the writeup of Sergeant Taura on p. 126. Note also that for the described abilities to be reliable at 200+ yards, the telepath would need an IQ stat of at least 14. This is reasonable for Terrence Cee as described in *Ethan of Athos* – he was clearly brilliant and inventive – but it's very costly in points!

Of course, Cee is only one person. Among the millions of hypothetical future Athosian telepaths, there will no doubt be some with more talent, and some with less; there is simply no way to know where Cee himself might lie on that curve. The GM is free to assume that only a few Athosians will ever manifest any significant ability . . . or that most Athosians will be able to pick secrets out of strangers' brains from miles away.

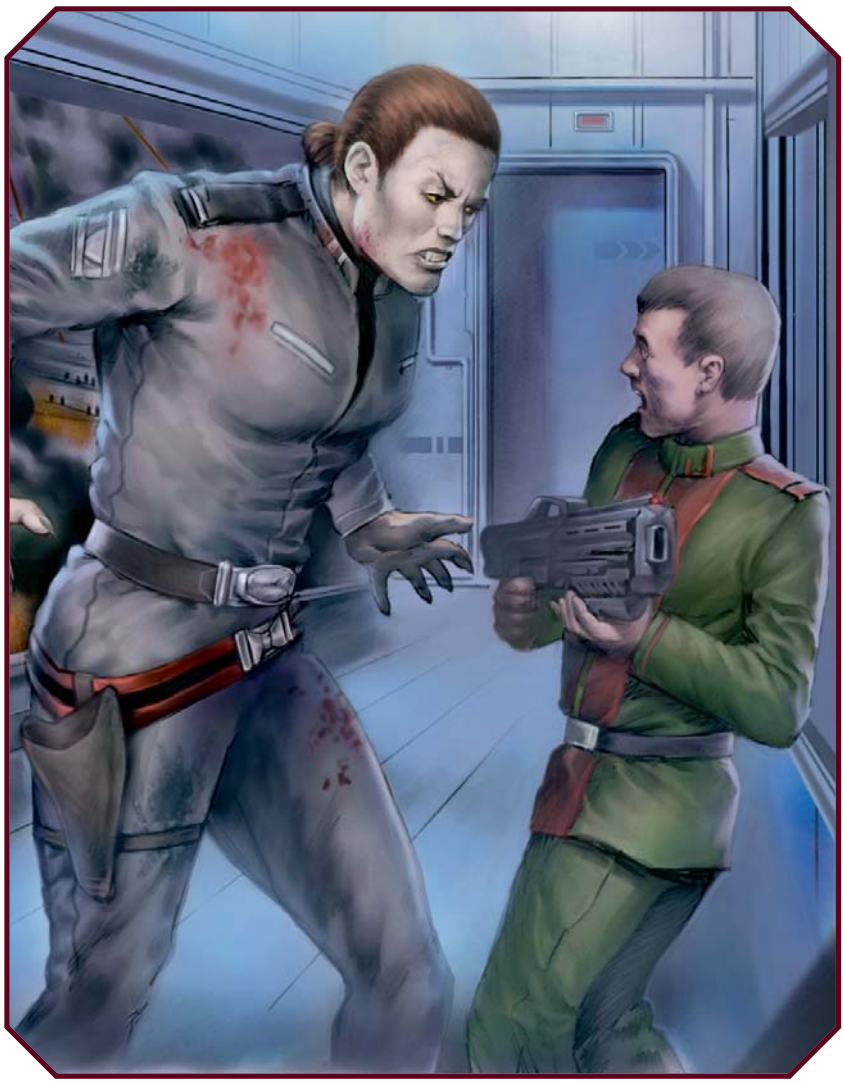
In ***GURPS*** terms, Terence Cee's ability can be described as *Mind Reading* (p. B69), taken as a separate game advantage rather than part of a "psionics" power. The ability comes from an identified organ – the modified pineal gland – and is affected by electrical interference. These facts imply that Cee's telepathy is firmly seated in the physical world, and would be subject to engineering analysis in a laboratory. It is not something mystical.

Other Modified Humans

There are certainly other kinds of human out there. "Marginal habitat people" and "heavy-worlders" have been mentioned. Confronted with a man modified to breathe underwater, Miles speculated, without shock, that the colonists on an ocean planet might have changed their children to fit their world. But in most of the galaxy, human genetic modification is performed only for medical purposes. No really different new races are known to have come out of the laboratories for a long time, and few worlds permit the creation of extreme variants.

Jackson's Whole is a notable exception, of course. Houses such as the late unlamented House Ryoval will create (or at least try to create) any sort of modified human the customer wants. The Cetagandan haut create human "experiments" in the course of their quest to improve their own genome, and some of these experiments may look completely normal but demonstrate unexpected talents (see *The Telepathy Gene,* p. 47).

Both the Betans and Escobarans have the technology to design drastic yet viable modifications. However, their ethics will not allow them to create individuals with differences that would expose them to prejudice. Given a good enough reason, and a plan to keep conflict from resulting, they might design a whole race – for instance, to live in an environment unfriendly to normal humans.



Isolated Athos might also produce unusual specimens, due to the telepathy gene (above) or attempts by the Rep Centers to improve their stock. A new generation of Nuovo Brasilian leaders (p. 52) might revive their super-soldier project. And a true "mad scientist" genetic experimenter could appear anywhere, even on Beta Colony!

Genetic modification can confer whatever physical advantages and disadvantages the GM and player consider appropriate, and many mental ones. See ***GURPS Bio-Tech*** for much more on this subject. The purpose of the original genetic designer should be kept in mind. A genetically modified character almost certainly has an Unusual Background, and may have Enemies ranging from his original creator or purchaser to the Star Crèche of Cetaganda.

Sergeant Taura, on p. 126, is an example of an extreme modification. With her fangs and eight-foot stature, she does not even appear human. She has severe physiological disadvantages to go with her advantages. Genetic design isn't always perfect . . .

An adventure, or a whole campaign, could be built around the story of a genetically modified human (or a whole group) escaping from his creators.

Chapter Six
Technology

"So," Solone summed up, "the Jacksonians aren't sure what's going on, only that ***something*** *is. The Cetagandans either don't know anything's happening, or are being so subtle we haven't noticed them yet."*

"Or maybe I'm in Cetagandan pay," Danseur suggested dryly. "It's the sort of devious plot a finicky desk-bound paranoid might think up."

"Leaving aside the really unlikely possibilities," Waverd said hastily, "we now know that the Jacksonians were tracing the money, not the equipment. I still think they were just looking for a way to buy into the Toscane family, and the evidence supports that. I think we need to physically follow the equipment – I've gone as far as I can in theorizing what they could be doing with it. I need some data."

"But how?" Solone asked. "The equipment's just dropping out of sight. The crates turn up in out-of-the-way places, full of old holo-novels."

Waverd smiled slightly, but with a hint of embarrassment. "Actually, I was thinking of tracing the holo-novels. That's not just second-hand trash they're shipping there – that's ***rare*** *second-hand trash, even if they don't realize it. If we can backtrack to the original source, we may be able to get on the trail from a different direction." He paused, coughed. "Er, my mother likes them. Don't ask."*

The Vorkosigan stories are about people, not gadgetry. All the same, these people have some *neat* gadgets . . . This chapter covers some of the more important technologies. In ***GURPS*** terms, the galactic civilization is at TL9. However, especially in spacecraft design, there are some TL10 and TL11 advances with a significant amount of superscience.

Costs in this chapter are given in Betan dollars, which currently are worth four Barrayaran marks each (see p. 66).

Medicine and Biotechnology

Medical science and biotech figure prominently in the Vorkosigan stories. Doctors and medtechs appear in the aftermath of combat, and many stories hang on the human reaction to biotech innovations.

Almost all TL9 medical technology is available on the more advanced planets, such as Beta Colony, Jackson's Whole, Cetaganda, and Earth. Viral circuitry is used to interface between biological and electronic systems. The products of genetic engineering are becoming more common.

However, the biotechnology available – or encouraged – is different in each galactic culture. Genetic modification is practically a religion for the Cetagandans; any really *elegant* project is likely to win approval from the haut, though utility is also valued. On Jackson's Whole, anything goes if the client can pay. Beta Colony refuses to permit projects that they consider unethical, or even non-egalitarian. Earth is likely to disapprove of anything that will upset the social dynamics of its huge population. Barrayar is warily supportive of innovations with a military application, as long as they don't create obvious "mutations" or involve social changes that would upset the old Vor.

A few technologies described in ***GURPS Ultra-Tech*** and ***Bio-Tech*** are apparently unknown, or only wild rumors. These include anti-agathics, very rapid healing, panimmunity, and braintaping. Rejuvenation by transplanting the patient's brain into a younger clone is available on Jackson's Whole and possibly elsewhere, but less ethically challenged methods of restoring youth are not generally available . . . if they exist at all.

Body Modifications

While galactic medicine is clearly capable of major body modifications through surgery and technological augmentation, radical changes are costly and therefore rare. Most surgical alterations take weeks or months to heal completely. Major changes, such as those used to replace Miles' bones, often require many surgical sessions.

Surgical Alterations

Any advanced surgical facility can perform operations ranging from a simple change of appearance, through alteration – or duplication – of finger and retina prints, up to fully functional sex changes. Beta Colony and Escobar have the best surgeons, but those who want alternations not compatible with galactic medical ethics usually wind up at Jackson's Whole.

The range of potential body modifications in a science fiction universe is too wide to detail here; see ***GURPS Bio-Tech.*** Treat standard medical facilities as only TL8 for body-modification surgery. Some advanced hospitals might attempt TL9 or even TL10 operations. GMs should feel free to make these *expensive* . . . in the Vorkosigan stories, most of the really unusual enhancements or repairs were commissioned by governments or the ultra-rich.

Implants

Adding hardware to the human body (e.g., "cyborging") is relatively rare. This may reflect general social pressures in galactic society, or bad experiences with such technologies (after all, if cyborgs made better soldiers or agents, or more productive workers, Jackson's Whole would be cranking them out). The best-known surgically enhanced humans – jump pilots – are widely thought to be crazy, and the Illyrican memory chip *did* drive users crazy. Hardly a good advertisement . . .

The cost of an implant, and the time required to recover from the operation, depend on its complexity. Implants that interface with the nervous system usually employ viral circuitry. They are partly biological and partly electromechanical, leaving them vulnerable to the failings of both types of systems.

Common implants include the following.

Curative Implant are small bio-mechanical devices. Like today's pacemakers, they are implanted in the body to treat medical problems. For instance, they can suppress the symptoms of epilepsy or bypass disruptor-burned nerves. They offset various physical disadvantages, and can be a mechanism for buying them off in game terms.

Jump Pilot Implants enable the wearer to interface with the FTL drive controls of starships. Small silver contact disks on the pilot's forehead and temples connect viral circuitry in the brain with the control helmet. Only characters with the Jump Pilot Aptitude advantage can benefit from the implant; while others can have the operation, they still cannot successfully pilot a starship. The implant also may be used for normal-space piloting, and gives a +4 to Piloting (High-Performance Spacecraft) skill. Jump implants are matched to specific jump control systems; to switch ship types, a pilot must receive a new implant. (Not all implants can be freely upgraded, however.) A jump pilot implant costs $4,500, plus $1,500 for the operation. *Training* a pilot to understand the input he is receiving, and use it in jump, can cost much, much more.

Memory Implants were an experimental Illyrican device, apparently no longer available. Only one in 10 of the patients successfully learned to use the chip. The others went mad . . . Simon Illyan (p. 117) was one of the lucky ones. A successful operation confers Eidetic Memory [10]; unsuccessful ones cause a variety of mental disadvantages until removed.

Butter Bugs

A product of cutting-edge genetic engineering, butter bugs are two-inch insects that produce a yogurt-like substance called *bug butter.* This is a perfect food for humans, containing all the essential dietary elements. Most of the necessary chemistry is performed by gene-tailored symbiotic bacteria in the bug's gut. These transform whatever the bug eats (and it will eat almost any plant material) into bug butter, which the bug then regurgitates into cells in a colony hive, much as bees do with honey. Worker butter bugs are sterile; only the large (four- to six-inch) queen can reproduce, which she does parthenogenetically and only under the influence of special hormones.

Potential applications for the bugs range from producing military rations, through station life support, up to the terraforming of alien biospheres. Since they reproduce themselves and can eat virtually any plant material, production costs are minimal. Licensing terms have not yet been established, so the price of a complete hive is unknown. It will certainly be lower for allies of the Vorkosigans and Barrayar, since Lord Mark's company controls the rights . . .

Genetic Manipulation

Minor genetic modifications are routine with galactic medicine. Screening and repair of defective genes in zygotes is routine and inexpensive. Simple design projects, such as a custom strain of bacteria, are straightforward and relatively cheap – one project done at Jackson's Whole cost $50,000. Complex, multiple modifications of the human genome (see p. 74) are rarely successful, and *much* more expensive. The success rate with simpler species is much better, but major bio-engineering projects are always costly, and there are many failures for every success.

The possibilities of genetic engineering are far too complex to detail here. ***GURPS Bio-Tech*** provides detailed background on the genetic engineering process as it is understood today and as scientists and writers speculate that it may develop. It also gives complete rules for designing new species, with the cost and time required. The Genetic Engineering specialization of the Bioengineering skill (p. B180) is required to perform any sort of genetic modifications.

Galactic genetic engineers operate primarily at TL9. The Cetagandans, and a few top researchers elsewhere, are beginning to explore TL10 gengineering.

Cryo-Suspension

Cryo-suspension is an emergency procedure that freezes a mortally wounded patient – or a recent corpse – for transport to medical facilities. This makes recovery possible from nearly any traumatic injury that doesn't directly damage the brain, even if the patient has been dead up to an hour. However, the more quickly the patient goes into suspension, the better; after a few minutes, oxygen deprivation begins to cause irreversible brain damage. The suspension process takes a few minutes, and replaces the patient's blood with a greenish cryo-fluid that speeds the suspension process and buffers the body against freezing damage.

Cryo-suspension in the field requires a cryo-chamber (p. 84) and a First Aid-2 roll by the attending medtech or doctor. In a hospital, with dedicated suspension facilities, the roll is against unmodified First Aid. Failure of the roll means the patient is lost. Also roll vs. the patient's HT once for each five minutes after death, rounding up to the next five. Each failure on one of these HT rolls results in the permanent loss of 1 IQ point. However, these rolls are not made until revival is attempted. Unless they made a critical failure, the medics will not know how good a job they did or how well the patient's system stood up to the shocks. If they can, medics in the field will attempt suspension on anyone who *might* be recoverable.

Cryo-Revival

Reversing the suspension process requires complete medical facilities, and takes at least an hour. The revival process will be complicated by whatever injuries killed the patient; it is usually performed in an operating room, after any needed replacement organs are grown (see *Organ Cloning,* below). No roll is required for this surgery unless there is an unusual problem with the facilities or personnel. As a rule, if the patient was recoverable and got a good suspension, the surgeons will bring him back . . . but this is the point at which the GM makes the First Aid and HT rolls for the suspension, to see how well the medics did. And sometimes it's clear, sometimes even before the thawing starts, that the patient's head injuries were too great, or the wait was too long, and death will be permanent.

"Alive" and "dead" are not such neat categories as they used to be in the Time of Isolation.

– Lord Auditor Professor Georg Vorthys, ***Komarr***

Cryo-Amnesia

Cryo-suspension takes a toll on the body – it adds about a month to the recovery time needed for the injuries to heal. The real uncertainty lies with the patient's memories, regardless of whether there was a head injury. Memory is fragile and does not always survive death and freezing.

Once the cryo patient is revived and repaired, he must make a roll against HT. A success results in immediate recovery of memory. A failure results in cryo-amnesia. This is a temporary condition, otherwise identical to the Partial Amnesia disadvantage (p. B123). Memory recovery follows a bell curve – first a few memories, then more and more, until a *cascade* occurs, and most of the lost memories flood back all at once. After cascade, recovery of the final gaps slows; the last few memories may take years to return.

If the initial HT roll is a critical failure, the patient also suffers a long-term brain-chemistry imbalance. He *permanently* gains a -5-point disadvantage, such as a weak form of Epilepsy (p. B136) or any plausible mental disadvantage. Once diagnosed, however, such problems can usually be alleviated, possibly by an implant.

To recover, the amnesiac makes an HT-5 roll each day, starting after revival. On a failure, only a few disjointed memories return. A success indicates a cascade has started, and most of his memories will return in the space of a few minutes. A critical success completely restores all memories at once. On a critical failure, the subject believes he is *someone else* from his own memories for a period of 1d weeks. He can make no additional recovery rolls until that period ends. The drug fast-penta (p. 83) can be used to assist the recovery process; it gives a bonus of +3 to the day's recovery roll.

For 2d months after cascade, the GM should require the patient to make IQ rolls occasionally when he needs to remember some piece of information he would normally know without a roll. Failure on the IQ roll means the information is still missing. Eidetic Memory is no help here.

Voluntary Suspension

A patient does not have to be dead in order to enter cryostasis. On some worlds (see *Shinkibou Ni,* p. 52) people may have themselves frozen because they're nearing death and hope to be revived when medical treatment is better . . . or just because they want to see the future! There are still risks, of course. All the same rolls must be made for preservation and revival, but give an effective +1 to HT and all relevant skills if the patient is relatively healthy at the start of the process.

Cloning

A clone is grown from the cells of its "parent." They are genetically identical, and DNA scans cannot distinguish them. This gives rise to some of the most powerful, and most abusable, of galactic medical techniques.

Organ Cloning

Cloned organs may be created for patients who lose a limb, suffer heart or kidney failure, and so on. The advantage, of course, is that the body does not reject them. This is routine on any world with modern TL9 technology.

Most organs and smaller body parts (e.g., fingers) take two to three months to grow to transplantable maturity. A complete limb can take six months or more.

A typical cost for a replacement organ or limb is $5,000, plus $10,000 for the transplant operation. Major transplants require six weeks or more of bed rest before the patient is mobile, and another month of physical therapy to reach normal function. Seriously injured patients are often cryo-suspended while waiting for the replacement organs.

Reproductive Cloning

Another common use of cloning technology is simply to create babies. There are any number of reasons why a parent might want a child genetically identical to himself, to a living or deceased loved one, or even (with consent) just to someone the parent deeply admires.

The process of starting a clone and implanting it in a uterine replicator is no more difficult or costly than the cost of starting a child in the usual way and moving it to a replicator: $20,000 is standard. On even moderately advanced worlds, a basic genescan will be conducted on any just-conceived child, of any origin, to find and correct genetic problems.

Brain Transplants

The most dramatic abuse of cloning, of course, is the "brain transplant" operation offered at Jackson's Whole. See p. 44.

Wonder Drugs

Listed here are a few of the more important drugs used by galactic medicine. Obviously, many others exist. Most TL9 drugs (and a few TL10 ones) from ***GURPS Ultra-Tech*** and ***Bio-Tech*** are available, except for those that produce super-fast healing or retard aging.

First Aid and Healing

The basic techniques of first aid are unchanged, but the drugs and "bandages" of Miles' time are better. Use the TL9 line on the *First Aid Table* (p. B424) as long as either plastiskin or liquid bandage (p. 84) is available. Without these, First Aid is effectively TL7. The wonder drugs listed on p. this page will help get a wounded patient on his feet.

Of course, cryo-suspension (p. 81) can be seen as the ultimate first-aid technique!

Hospital recovery benefits from many improved medical technologies, such as the ability to speed bone regrowth. A patient who makes it to the hospital with his nervous system intact will probably walk out on his own. Use the TL9 line of the *Medical Help Table* (p. B425).

Barrayaran Antibiotic Cream

Found in Imperial field medkits, this weak but wide-spectrum antibiotic adds +1 to all HT rolls vs. infections from wounds treated with it. Each application lasts 24 hours, and a tube contains 10 doses.

This cream is intended only for first aid. Hospital care for an infected wound uses antibiotics tailored to attack the specific invading bacteria.

A 10-dose tube of antibiotic cream has negligible weight, costs $5, and is LC4.

Barrayaran Military Analgesic

These small white pills mask pain for a period equal to half the user's HT in hours. Any penalties normally caused by pain are ignored. The user does not roll for damage effects (such as stunning) until his HT reaches 0, nor does he take shock penalties – he 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 the character falls over or takes time to examine his wounds. Once the drug wears off, the user will feel pain normally. The analgesic works against stunner hangover, but does not protect against the *neural* effects of a stunner.

A half-dose of the drug can be used, with the same duration; it provides High Pain Threshold (p. B59).

One dose (a single pill) costs $50, and is LC3.

Barrayaran Military Stimulant

These small blue pills temporarily restore the user's full FP and prevent further loss. This lasts for a period of about 16 hours. After that, the user's former level of fatigue returns, along with all FP that should have been lost to any exertion during that time, plus *another* 2 FP. The pills take effect in 30 minutes, cost $25/dose, and are LC3.

Weaker forms of this drug may also exist. Stronger combat drugs *may* be available, but if so, they must have even worse side effects, or they'd also be standard issue.

Clarium

A tranquilizer often used in military interrogations, clarium puts the subject into a docile, dreamy state of euphoria, in which he has no interest in the world around him. The drug also inhibits the transfer of short-term memory to long-term memory, so the subject will not remember anything that happens while under the drug, or from the previous half-hour. This memory-erasure effect makes the drug a popular adjunct to fast-penta interrogations, and has other applications – some merciful, some unsavory in the extreme.

Clarium's effects last 3d minutes. The subject will be at -2 to DX and IQ (and -1 to Move) while under the drug. The drug can be resisted with a HT-3 roll; anything that raises or lowers Will also modifies this roll. The subject may also regain volition if he is hurt or injured; make a roll vs. HT, at +1 per point of injury suffered. A successful roll leaves the subject semi-alert, but he will still have the DX and IQ penalties.

Memory Suppression Therapy

This psychotherapy procedure uses a combination of drugs and hypnosis to block memories from conscious access. It requires daily sessions over several weeks or months, depending on the amount of memory affected. The subject will experience severe headaches if he tries to remember anything from the blocked period of time. Each week of therapy can block up to a month's worth of memory, and requires a successful Hypnotism skill roll by the doctor.

The subject may retain a few specific memories by hiding notes to read after each session and making a Will-3. If he has an object related to the memories to examine after each session, there is a +3 bonus to the roll. (Keeping notes or other memory aids is likely to require Holdout skill.)

The same procedures can be used to recover blocked memories, but much more slowly. Unless extensive information is available about the blocked period (e.g., a recording of the subject during that time), each day's session can initially recover only a single, specific memory, and requires a successful skill roll vs. Hypnotism-4. Once a reasonable number of memories (GM's decision) have been recovered, each week of therapy can recover a week's worth of memories. Recovered memories will include gaps, unless one of the skill rolls is a critical success, which recovers *all* related memories, fully and immediately.

A week of treatment costs $2,500, including the drugs. The procedure is LC3 on most planets.

Multiple doses of clarium are relatively safe, but subsequent doses last only 1d minutes. However, if more than four doses are given in a 24-hour period, roll vs. HT for each additional dose to avoid permanent loss of 1 IQ.

Clarium is available in both pill and injection form, both at $15/dose. The drug is LC3.

Fast-Penta

Used for interrogation by almost all security forces, fast-penta is a highly effective "truth drug." It is an injectable euphoric, inducing happiness and benign good feeling. The interrogator must be trained in the drug's proper use, since the subject rambles in free association when not answering a direct question. Keeping the subject on-topic is the only major difficulty in using fast-penta, and thorough interrogations usually take hours. Its effects are generally thought to be irresistible (although Miles Vorkosigan displayed an unusual reaction which allowed him to beat an interrogation). Repeated doses are safe, and equally effective. A fast-penta session can be cut short by injecting *fast-penta antagonist,* which counteracts the drug in 10 seconds.

Unfortunately for the subject, he will remember the interrogation clearly, unless clarium (above) is used. Both his uncensored speech and his behavior under the euphoric are likely to be embarrassing once he recovers. Unless he was given the antagonist, the victim also suffers a severe, but relatively short, hangover after the drug wears off. Use the hangover rules on p. B440, but substitute a HT-5 roll for the hangover roll, and measure the duration in 10-minute periods rather than hours. The only remedy for a fast-penta hangover is the antagonist, which provides relief in seconds.

A fast-penta injection takes effect in 10 seconds, and lasts for 1d+3 hours. It provides no direct bonus to Interrogation skill, but eliminates the subject's ability to resist the interrogation with Will or to stay silent. Under fast-penta interrogation, each question takes one minute, and a success on Interrogation skill gives a truthful and relevant answer. On a failed roll, the subject misinterprets the question, or gives an unhelpful or irrelevant answer. On a bad failure (by 5 or more), the subject gives a seemingly reasonable answer, but was not responding to the question the interrogator intended.

Fast-penta is a powerful painkiller – the subject suffers no pain-related effects under its influence, so adding physical torture to a fast-penta interrogation is pointless. The drug also reduces coordination; the victim suffers a penalty of -7 to DX and all DX-related rolls while under the drug.

Fast-penta comes only in injectable form, and is LC3. Each dose costs $50. It is readily available on the black market. The antagonist is also only available as an injection, is LC3, and costs $50 per dose.

A few people are naturally allergic to fast-penta, and an artificial allergy is often induced in those entrusted with important secrets. The allergy causes anaphylactic shock and rapid death at dosages well below effective interrogation levels. The fast-penta allergy-inducing "vaccine" is a one-time injection, and is primarily distributed by government security agencies, though it is often available through black-market channels. A dose costs $350 (legally), and is LC2.

She giggled. It was a very fast-penta'ish sort of giggle, the disturbing sort which suggested that on some other level, in her drug-scrambled brain, she was not giggling at all.

– Komarr

Skin patch test kits for fast-penta allergy are routinely used by interrogators; they seldom yield a false positive result. (Roll 1d: on a 1-5, the test is accurate; on a 6, it indicates an allergy even if none is present.) A patch test takes five minutes, and produces a rash or hives as a positive result. A typical test kit contains 10 inch-square patches, costs $20, has negligible weight, and is LC3.

Gravity and Medicine

Since artificial gravity is widespread in Miles' time, most people will spend most of their time in places with near Earth-normal gravity. However, "free fall" or "null-gee" figure prominently in earlier stages of space colonization, as described in *Falling Free*.

Anyone who spends much time in free fall risks space sickness. There are also long-term physiological effects from living in null-gee, microgravity, or high gravity. (For detailed rules on dealing with varying levels of gravity or acceleration, see pp. B350 and B434.)

Liquid Bandage

This thick, sharp-scented liquid can be spread over a wound to hold the edges together until it heals. It stops bleeding, and is part of standard first aid treatment (See *First Aid and Healing,* p. 82). Without either it or plastiskin, first aid counts only as TL7 (p. B424).

A bottle of liquid bandage is good for six applications, weighs 1/2 lb., costs $10, and is LC4.

Synergine

Synergine is a mild stimulant used to treat shock and temporary nausea, including "stunner hangover." It is extremely safe and widely available.

A synergine injection takes effect in 10 seconds. It gives the subject a roll at HT+8 to recover from physical stunning, unconsciousness, and nausea. The drug has no specific duration, since it merely accelerates the body's natural recovery processes until the subject returns to normal, and multiple doses of synergine have no additional effect. Unfortunately, it is not effective against persistent nausea, such as spacesickness, nor will it help the subject recover from stunner *fire* . . . just the aftereffects. Synergine costs $5/dose, comes only in injectable form, and is LC4.

Medical Devices

Common medical gadgetry includes:

Cryo-Chambers

Portable cryo-suspension units or "cryo-chambers" (see p. 81) are horizontal cylinders with a clear plastic cover over the body compartment. The power pack, refrigeration unit, monitoring computer, controls, cryo-fluid tanks, and tubing make the unit resemble a deep-sea probe.

The power pack can run the unit for up to six months in a room of normal temperature, and the built-in computer can maintain proper conditions for that long without human monitoring or maintenance. A portable cryo-chamber costs $20,000 and weighs 200 lbs. It's fairly bulky (since it's meant to hold a human body!) and usually requires a float pallet to move. Cryo-chambers are LC4.

Hospital units are similar, but are designed to use building power, and share refrigeration and controls among multiple patients. A hospital will have separate "freeze down" equipment to chill patients quickly, placing them in the chamber after they're frozen. Hospital suspension is superior . . . of course, patients in the field have no choice.

Hypospray

This hand-held instrument, about the size of a penlight, injects drugs with a charge of compressed air. The hypospray must be touching the patient to inject its drug – most medtechs use the inside of the elbow, but any exposed skin will work. Its charge can easily penetrate clothing with DR 1 or less. $20, 0.1 lb., LC4.

It takes two turns to remove an empty vial (or pneumocharge) and replace it with a ready new one. Air cartridges are good for 100 injections. Replacement air cartridges cost $10.

Medical Stunner

This outgrowth of the neural stunner is akin to a stunner set to "low" (see p. 87) but will not render the subject unconscious. It *will* cause all surface nerves to "go dead" temporarily, providing instant local anesthesia and allowing a wound to be treated or surgery to be performed. Unlike a regular stunner's effects, this numbness is not painful. $100, 1/4 lb., LC4.

Medscanner (Diagnostic Viewer)

This is a compact, short-range scanner with a dedicated medical computer and a small display screen, designed to aid medical diagnoses. It is only useful to a trained doctor. Its effective range is only one yard. On a successful Electronics Operation/TL9 (Medical) roll, it adds a +3 (quality) bonus to Diagnosis skill. It can detect implants if the roll is made by 3 or more. $1,000, 1/4 lb., LC4.

Plastiskin

This antiseptic and hemostatic patch can serve as a pressure bandage or a tourniquet. When the flesh beneath it heals, the patch falls off. It reduces the time required for bandaging (p. B424) from 60 seconds to 20 seconds, and its hemostatic proteins stop bleeding immediately after successful application.

Plastiskin is normally brightly colored, so the bandage can be easily identified. However, versions that take on the color of the underlying skin are available to cover tattoos and scars; these are useful as disguises. A field dressing pack of either type with four applications is $2, 1/8 lb., LC4.

Uterine Replicator

This device nurtures human fetuses (whether conceived naturally or artificially) outside the womb. Properly used, a uterine replicator not only relieves the mother of the hazards of childbirth, but also provides a safer environment for the growing baby.

There are several types of uterine replicators, ranging from portables to built-in hospital units. Portable units are metal and plastic cylinders about 20 inches high and 18 inches in diameter, studded with control panels and access ports. They cost $45,000 and weigh 20 lbs. empty, at least twice that when full of fluid. They are fairly bulky . . . about five cubic feet. Built-in units are expensive and tied into a hospital's systems (i.e., not available to PCs). Uterine replicators are LC3 on most planets, since they require medtechs or doctors to oversee their operation.

Normally, the child is only a small bundle of cells when placed in the replicator and is "born" after a standard nine-month term. A fetus may also be transferred to a uterine replicator at a later stage of pregnancy, using a procedure similar to a Cesarean section, but complicated by the need to detach the placenta intact and re-embed it in the replicator's matrix. The operation requires a surgeon and support staff. It is fairly routine up to about four months, after which it becomes more risky. Roll vs. Surgery skill for the transfer, with a cumulative -1 to skill per month of pregnancy past the fourth. The transfer operation costs $7,000, not including costs for the uterine replicator.

Personal Weapons and Armor

Most TL9 weapons are available in this setting, along with a few TL10 and superscience weapons. Ordinary chemical slugthrowers are obsolete, though some planetary civilizations still use them on ceremonial occasions.

There is no galactic standard for power cartridges. Weapon power cartridges are generally different for every world and every general weapon size. Some weapons may only accept power cartridges from the individual manufacturer of the weapon!

Weapons from ***Space*** and ***Ultra-Tech*** not listed below are available only with GM permission, but many TL9 weapons or armor are likely to be found *somewhere* – it's a big galaxy.

Laser Rifles

Previously used by many militaries, the laser rifle is now obsolete, passed over in favor of the more powerful and versatile plasma arc (p. 87). Some old supplies may still exist, however. Other laser devices, such as soldering lasers, are still extant and might be pressed into service as improvised weapons.

Needle Guns

Needle guns, also called "needlers," fire small, sharp projectiles which break into dozens of tiny needles upon impact. The projectiles make a whining noise as they fly through the air, and locating the shooter by sound alone requires a Hearing-5 roll.

A needle gun uses a disposable magazine which includes a power cell and 100 needles. A clip of needler ammunition costs $10.

The autoneedler is essentially a needle-firing submachine gun. It's really only practical for messy assassinations or lethal crowd control. Its magazine has a power cell and 400 needles. A clip would cost a legitimate user $30, but there are few legitimate users for this weapon, at least on civilized worlds.

Needler rifles may exist, but have never appeared in the books. Except for the sound, they would be identical to the Gauss needle rifle in ***GURPS Ultra-Tech.***

Weapon Table

This table lists all the weapons described in this section, in standard ***GURPS*** format. All weapons are TL9.

BEAM WEAPONS (RIFLE) (DX-4, other Beam Weapons-4)

Weapon	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
Laser Rifle	4d(2) burn	12+1	700/ 2,100	10/4p	1	40(5)	7†	-5	1	$10,000	2
Plasma Arc Rifle	5d burn	6	50/150	5.6/2C	1	28(3)	5†	-3	1	$2,300	2

BEAM WEAPONS (PISTOL) (DX-4, other Beam Weapons-4)

Weapon	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
Nerve Disruptor Pistol	HT-3 aff	6	23/70	1.8/C	1	66(3)	4	-2	1	$2,600	4
Heavy Plasma Arc	8d burn	6	130/390	20/Dp	1	35(5)	10†	-5	1	$10,000	1
Plasma Arc	4d burn	3	30/90	3.3/2C	1	56(3)	6	-2	1	$1,200	3
Heavy Stun Pistol	Spcl. (1 yd)	6	23/70	1.8/C	1	66(3)	4	-2	1	$1,500	4
Light Stun Pistol	Spcl. (1 yd)	6	15/40	1/C	1	100(3)	4	-2	1	$2,600	4

GUNNER (BEAMS) (DX-4, other Gunner-4)

Weapon	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
Plasma Cannon	6d×3 burn	12	150/450	70/Ep	1	100(5)	18M	-8	1	$35,000	1

GUNS (PISTOL) (DX-4, most other Guns at -2)

Weapon	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
Needle Gun	1d+2 pi-	1	50/150	1/0.3	3	100(3)	7†	-2	2	$500	3

GUNS (SMG) (DX-4, most other Guns at -2)

Weapon	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
Autoneedler	2d(3) pi-	0	100/300	1.5/1	12	400(3)	7†	-2	2	$2,000	1

Nerve Disruptors

Similar to stunners (p. 87) but far more lethal, these weapons produce a blue bolt of energy that *destroys* nerves. They are excruciatingly painful, and do not kill cleanly, so they're very intimidating.

In terms of game mechanics, the nerve disruptor beam is a ranged contact agent – ignore DR unless the target is sealed, in which case there is no effect. It delivers an affliction attack. The victim gets a HT-3 roll to resist. Failure causes the Severe Pain condition (p. B428) until the victim is given medical attention.

Any limb that suffers a direct hit is crippled and useless, whether or not the victim made the HT roll. If the hit was a head shot, a successful HT-3 roll indicates that the blast missed the cerebellum and the target is now "merely" severely brain-damaged. The target loses 1d+3 IQ. A failed roll for a head or body shot indicates death, as the nerves that control breathing and heartbeat are destroyed. The body will be nearly unmarked, with only mild blistering around the target area to suggest the cause of death.

The victim gets a +3 to resist beyond the 1/2D range, and does not suffer the crippling effect described above. Failing the HT roll indicates a superficial hit that only affects surface nerves, causing the Moderate Pain condition for minutes equal to the margin of failure. If you are within a yard of someone or something hit by a nerve disruptor, you will suffer the effects of a superficial hit. A bolt that passes within a yard of you without striking anything will produce a very unpleasant tingling (the GM may require a Fright Check!) but will do no damage.

Nerve Disruptor Shield-Nets

A *very* recent Betan invention, these hooded, full-body mesh suits give a +15 to HT rolls to *totally* resist the effects of a nerve disruptor. There will be some discomfort (those with Low Pain Threshold should roll to avoid being stunned from the pain), but no lasting damage. Shield-net suits must be at least approximately the right size for the wearer; they don't stretch, and are difficult to cut down after they are created. $15,000, 10 lbs., LC3 (in most places).

Plasma Arcs

The Swiss army knife of ranged weapons, plasma arcs come in all sizes from large pistols to rifles to cannons. They were common as ship weaponry before the advent of the plasma mirror (p. 94).

They emit fiery gouts of blue plasma, larger and more impressive than the visual effects of stunners and nerve disruptors – which makes them almost as terrifying as disruptors. Plasma arcs use Beam Weapons (Pistol) or (Rifle) skill, except for cannons, which use Gunner (Beams). They inflict burning damage, but not tight-beam burning damage. Note that only *totally* sealed armor fully protects a target from a plasma arc; lesser cover may help somewhat, at the GM's option.

And, of course, even sealed armor can be breached by enough damage. Plasma arcs are among the few handheld weapons that can get past the DR of space armor, and are thus a favorite of militaries and mercenaries.

Wide-Beam Use

The beam of a plasma arc can be widened at the flip of a switch. This is mainly useful for removing fairly flimsy obstacles, for starting fires, or for dealing with swarms, packs, or mobs of unarmored foes. The wide beam creates a cone-shaped blast of flame which is four yards wide at four yards from your position, and is centered on your chosen target point.

Unless you have Beam Weapon (Projector) skill, which is not normally learned by plasma arc users, you roll at -2 when using wide beam. If you fail your roll, your actual target point is displaced by that many hexes, rolling randomly to the right or left. The damage delivered to each hex in the cone of effect is normal plasma arc damage, *divided* by the distance in hexes to that target. Thus, wide beams are devastating at close range, and worthless at any distance except against very vulnerable targets.

Use as a Tool

The powerful beam of a plasma arc can be used to cut metal, dig holes, sterilize blades, or fell trees. It may not be the *right* tool for these jobs, but in a soldier's hands it is good enough. Its power can be dialed down to avoid collateral damage when the user merely wanted, for instance, to burn out a door lock! The GM should allow an experienced plasma arc user to make any reasonable "tool" use without a skill roll, unless there is time pressure.

Personal Plasma Mirror Fields

This device takes the form of a harness, holding a neat, flat power pack. It must be worn over all other armor. Its sensors detect incoming plasma arc fire, whereupon it snaps up a force screen around the wearer. (It provides no protection from neural weapons, and allows a little heat through before the shield forms – a Fright Check may be required from anyone with appropriate Phobias or inexperience with combat!) A very recent outgrowth of plasma mirrors for ships (p. 94), "personal plasma mirror fields" light up the air around the wearer but do not actually reflect energy weapons back at attackers. (Not yet. There are always rumors about the Next Betan Development.)

The protective field can absorb a total of 600 points of plasma weapon damage, with a maximum of 100 per turn. The closer the field is to burning out, the more heat it allows through. This in itself isn't fatal, but a survivor may have a nasty sunburn. Plasma damage beyond 100 points in a single turn penetrates the field. After 600 points, the power cell is exhausted and must be replaced. Unless the wearer also has sealed armor, he'll suffer the full force of the remaining plasma arc damage. $25,000, 20 lbs., LC3.

> *The stunner, weapon of choice for all uncertain situations, the one weapon with which you really could shoot first and ask questions later.*
>
> ***– Brothers in Arms***

Stunners

These neural-energy weapons are nonlethal, and thus legal on all but the most restrictive worlds, although they often require a license. Because they're quiet and won't kill a friend or noncombatant, stunners are a favored weapon for agents. "Stunner tag" is a common training exercise, but real-life stunner combat can be serious business . . . a stunner won't kill you, but once you're unconscious, you're helpless against a knife or a boot to the head. Because they do not work through sealed armor such as spacesuits, they are not considered weapons of war.

Any direct hit to a head or torso renders the victim unconscious. A Dodge roll that fails by 1 or 2, or a direct hit to a limb, indicates a partial, physical stun, which is quite painful. Roll HT to remain conscious; on a critical success, the physical numbness of the stun is also negated. Likewise, the full effects can be avoided beyond 1/2D range or by interposing cover – including somebody else – between yourself and the pale blue energy beam.

Battlesuits

Battlesuits are also known as "space armor," "battle armor," or "powered armor," as well as the more informal "armor" or "suits." They include servos to increase the wearer's ST, as well as integral weaponry (typically plasma arcs, p. 87), sonic scrubbers to keep the helmet clean, head-up displays in the helmets, life support (at least air and waste-disposal), and IFF (Identify Friend or Foe) transponders. Many have built-in medkits.

Battlesuit helmets have vid pickups, with infrared, visual, and UV; they also have medical readouts and holovid map displays with GPS, and their com units will scan radio channels for enemy chatter. The helmet records everything for post-operation analysis.

Some modern suits can be monitored in real time, and even *controlled* from a central point, such as a ship's Tactics Room or a station's security center. This lets them provide live views of the battle or be walked back to safety even if the occupant is unconscious. However, if the enemy manages to crack the encryption codes, these suits are extremely vulnerable! From suit mobility, to weapons, to full control of all the *interesting* drugs in the medkit . . . the occupant is essentially helpless until he can shut off the remote control by verbal override.

For basic space armor statistics, use the battlesuit on p. B285; this does not include integral weaponry, which the GM or player should add separately. Some ground security troops use partial armor, and squad leaders often use command helmets with IFF locators, encrypted communications gear, and sensor attachments. Use the armor pieces and equipment in the ***Basic Set,*** or the armor design rules and equipment in ***GURPS Ultra-Tech.***

Stunners come in two types: light and heavy. (Many stunners also have settings, from "low" to "maximum." The low setting requires actual contact to the back of the head to render the target unconscious.) Victims of light stun will awaken in 20-HT minutes, while victims of heavy stun will awaken in 15-HT *hours* (minimum 1, in each case). Both stuns cause "stunner hangover" . . . the Nauseated condition (p. B428). Heavy stun can also cause muscle aches, spasms, and migraines, which are collectively treated as the Moderate Pain condition. These effects last for 20-HT minutes after awakening, but can be alleviated by administering synergine (p. 84).

If a stunner's power cell is nearly spent, it may still fire, with results similar to those for a range beyond 1/2D.

Anti-Stun Suits

Hooded coveralls that can be pulled over uniforms, or worn underneath other protective gear, these are bulky enough that they aren't worn except when combat is imminent, or by guards who have to assume an attack might happen at any time.

For all practical purposes, they grant complete immunity to stunner fire. A direct hit on the hand or foot would

still have effect, unless the target is really prepared and is also wearing anti-stun gloves and overboots.

An anti-stun suit uses a small power cell, but uses so little energy that there is no fear of it overloading under fire. Troops wearing anti-stun gear are typically armed with weapons heavier than stunners.

Tangle-Nets

These are also known as "tangle fields," "tangle cords," and "stun nets." There are minor physical variations (a tangle field is typically larger than a mere cord), but they work the same way. They're commonly used to capture unarmed foes in areas where stunner fire might be inconvenient, or to restrain a potentially violent captive.

Based on the same technology as stunners and shock sticks, a tangle-net carries a neural charge, painfully immobilizing whoever it touches by disrupting the neural impulses to the voluntary muscles at the point(s) of contact. At a low setting, anyone wrapped in a tangle-net is at -5 to DX (and all DX-based skills); a typical midpoint is -10 to DX, and the highest settings (such as those on large nets around defended positions) provide -15! A successful HT roll halves these penalties (round the penalty up), but the netting itself is entangling. (See the Escape skill, p. B192, for guidelines on getting free.) Throwing a cloak-sized net requires Net skill (p. B211).

A tangle-net has DR 1, with 1 HP per thin, glittering strand. It costs $50 per square foot of netting and requires one small power cell per square foot per hour of use at "normal" (-10 DX) settings. A tangle-cord has DR 2 and is reinforced to have 3 HP. It costs $10 per foot, with a minimum of six feet. It uses one small power cell per 10 feet per hour of use at "normal" (-10 DX) settings.

Double the time for "low" setting and halve it for "high." When the power cell runs out, the neural charge no longer works. For larger nets, such as those around fixed emplacements, a more bulky power cell can be used, or it can be plugged in to building power. It weighs about an ounce per square foot.

Grenades

Any grenade should be used in an appropriate launcher, unless the user has a *very* strong throwing arm. Pistol-sized and crossbow-style grenade launchers are both available; grenades must match the style of launcher. See p. B276 for crossbow information, and ***GURPS Ultra-Tech*** for grenade launchers.

In addition to the grenades found in the ***Basic Set*** and ***Ultra-Tech,*** the following types of grenades are available.

Sonic Grenades

These contain a powerful sonic generator that liquefies flesh and bone, doing 12d corrosion damage with the explosive modifier. This damage continues every second for three seconds, after which the grenade burns out. Any armor in the area of effect loses 3 DR per turn.

Each turn, anyone in the area of effect must roll against HT or his eardrums will rupture, deafening him until they are replaced. Wearing a sealed helmet protects totally unless the damage rolled exceeds the helmet's DR – then a HT roll is needed.

There are other versions of sonic grenades, from small ones (half damage) for assassinations, to Class Four sonic grenades that can kill targets within a sealed groundcar (6d×3 corrosion damage with the explosive modifier and an armor divisor of 2).

Sonic grenades cost $20 per die of damage (the basic version costs $240 per grenade) and are LC1.

Needle Grenades

Also known as projectile spine-grenades, these are a larger and more vicious version of the needlegun ammo. The grenade does 2d crushing damage, with a follow-up attack of 8d impaling damage if it hits an unarmored human target. If the grenade hits armor or a hard surface, it does 8d cutting damage to anyone within a one-yard radius. Needle grenades cost $75 and are LC0 on most worlds.

Soltoxin Gas

Developed by the Barrayaran military, this war gas was still stocked in some armories at the time of Miles' birth. Soltoxin is a catalytic agent that breaks down cellular walls, progressively dissolving any soft tissue it contacts. Death normally occurs as the lung tissue breaks down and the lungs fill with blood, but soltoxin gas affects *all* tissue it contacts, including the skin.

Fortunately, soltoxin is water-soluble, and contact exposure can be treated with a quick and thorough shower. If soltoxin is inhaled, however, the only treatment is a gaseous counteragent that combines with the soltoxin molecule, rendering it inert. The antidote is very rarely found outside major military facilities.

Any contact with soltoxin will typically cause death in about an hour, though heavy exposure accelerates the process. Roll vs. HT every five minutes, losing 1 HP on a success and 2 HP on a failure. If the victim avoided breathing the gas at all, add a +5 to HT for these rolls; for each breath after the first, use a cumulative penalty of -1 to the HT roll. HT loss stops after thorough washing and (if the soltoxin was inhaled) use of the antidote gas.

Complications from soltoxin exposure in survivors include pneumonia and male infertility. The antidote gas also has side effects on the body's calcium chemistry, often resulting in arthritic problems later in life. In developing fetuses, it completely halts bone development, resulting in severe, and normally deadly, birth defects.

An experimental *in vitro* treatment devised by Dr. Vaagen, an ImpMil chemical-warfare expert, allowed Miles to survive despite his exposure to the antidote at a gestational age of five months.

One dose (p. B438) of soltoxin gas costs $500. Soltoxin is LC0, and the only known source is ImpMil.

Shock Sticks

These painful but (usually) nonlethal melee weapons, resembling short batons and based on stunner technology, are favored by those who wish to take prisoners . . . and by sadists. Shock sticks can be found in the hands of Jackson's Whole "police," prison guards, and so on. They require Knife or Shortsword skill.

Shock sticks can be set to different levels, from merely unpleasant (make a HT roll to avoid being physically stunned), painful (-1 or -2 penalty to HT rolls), to excruciating (-3 penalty). High Pain Threshold gives a +3 bonus to the roll, while Low Pain Threshold doubles any penalties. Each additional hit lowers the resisting HT roll by 1!

If the roll succeeds, the victim can still function, but at (setting's penalty-1) to ST, DX, IQ, and all skills based on those attributes for 15-Will turns (minimum one turn). If a limb is hit, the limb is useless for the same time. If the victim *fails* the roll, he loses 1d FP and suffers the Agony condition (p. B428) for 15-Will turns (minimum one turn). Critical failure causes unconsciousness for 20-HT minutes (minimum 1). Each additional hit starts the recovery time over, but penalties to attributes are *not* cumulative.

Shock sticks strike 20 times before losing power. They are $100, 1 lb., LC1.

Vibra-Blades

These weapons are commonly found as daggers, knives, or surgical scalpels. The blade vibrates thousands of times per second, adding 1d cutting damage and a (3) armor divisor to the weapon. The blade vibrates so rapidly that its movement is invisible, but a Hearing roll made from one yard away will detect the characteristic faint whine.

Vibra-blades are powered by cells that last 300 seconds divided by the weapon's weight in pounds. Thus, a half-pound knife runs for 600 seconds. Of course, they are usually not activated until needed, so that time can be spread over hundreds of uses. Turning on the vibra effect takes one turn. A successful Fast-Draw roll activates it as the blade is drawn. When not activated, it performs like a normal weapon.

Any cutting weapon can be made in vibra version. Regular knives of all sizes cost $200 extra in vibra; regular swords of all sizes cost $400 extra and are generally custom jobs. Any other weapon (e.g., a vibra-halberd) would *definitely* be custom work, costing $1,000 or more over the cost of a regular weapon – if you can find someone willing to make it at all. Vibra-blades are LC3.

Space Technology

Finishing touches on construction were still in progress around the ***Triumph****'s docking bay as Miles marched his parade across it. A few Aslunder workers in tan, light blue, and green leaned over to goggle down from catwalks. Military techs in their dark blue uniforms paused in mid-installation to stare, then had to re-sort connections and realign bolts.*

– The Vor Game

Interstellar travel is a major element of the Vorkosigan universe, and the differing speeds of communication and movement will be crucial to many plots.

This section is an overview of the most important technologies for space travel and combat. For many campaigns, this is enough. Ships will just be transportation, and all the characters need to know is when they expect to arrive or how soon they can send a message home.

Some GMs and players will want more detailed rules for ship design and combat. These are complex enough to merit two appendices of their own – this *is* rocket science, after all! See *Spacecraft* (p. 184) for a system for designing spaceships, as well as some representative vessels; see *Space Travel and Combat* (p. 207) to learn how to use these spacecraft in play.

Interstellar Travel

All interstellar travel passes through *wormholes,* weak spots in 3-dimensional space that are the projections of a vortex in 5-dimensional space ("5-space"). See p. 9.

Passage through a wormhole requires a *jumpship* – a spaceship equipped with Necklin drive rods and a vortex focusing mirror. The 5-space fields generated by the Necklin rods enfold the ship, enabling it to "punch through" the weak spot of a wormhole and traverse 5-space. At the end of the passage, the fields unfold, leaving the ship back at a wormhole in normal 3-space.

A jumpship's pilot must have Piloting (Starship) skill *and* jump pilot implants (p. 80) to go through a wormhole.

In-System Travel

Travel within a star system is sublight, though often at significant fractions of lightspeed. Ships use superscience thrusters to accelerate and decelerate. High accelerations are feasible due to artificial gravity compensation. Fast ships have accelerations of 25Gs or more; heavily loaded freighters in no hurry may be limited to 1G or less.

Operating a ship (or shuttle) in normal space requires Piloting (High-Performance Spacecraft) skill. Anyone with that skill can pilot a jumpship of similar size and performance at no penalty, as long as it stays in-system.

SHIPS

Ships fall into three main classes: *jumpships, in-system ships,* and *shuttles.* Jumpships travel from star system to star system, but very few are designed to land on planets. In-system ships are space-to-space ships that lack FTL drives, but are otherwise similar to jumpships. Shuttles are short-range ground-to-orbit spaceships based at ground shuttleports or orbital transfer stations, or carried as auxiliary craft by larger ships; they have streamlined hulls and short-duration life-support systems.

The function a ship serves, however, shapes it more than its class. There are three primary groups – *commercial ships, couriers,* and *warships* – and an assortment of specialized ship types.

Commercial Ships

The driving principle behind a commercial ship design is profit: the craft must pay off its cost, meet its operating expenses, and give its investors a reasonable return. For this reason, commercial vessels rarely have any weaponry, and only carry mass shields, which are required to deal with space debris while moving at velocities of 0.5c or greater.

The Wormhole Experience

Wormhole passage is relatively uneventful: Most people experience a mild dizziness or mental time distortion, while a few get actively jumpsick. Those with the potential for jump piloting (p. 59) may get hallucinations and severe time distortions. Passage takes only moments, though the mental effects can make it seem longer.

On a normal jump, there is no error in the arrival point. The ship either appears where it's supposed to be, or it never arrives *anywhere.*

Passengers on a jumpship voyage spend most of their time simply traveling through normal space to the next wormhole. Typical transit times from planets to wormholes, or between wormholes, range from a few days to several weeks, depending on the placement of wormholes in the system and the drive acceleration. Transit time is inversely proportional to the *square root* of the drive's acceleration, so a passage that takes a week on one of the fastest ships might take months on a slow freighter.

Stations

From a technical standpoint, a space station is just a huge ship with no drive systems. Stations are to space travel what port cities were to 19th-century sea travel: hubs of traffic and commerce. They're places to make deals, warehouse and exchange cargo, and find a bit of civilization between the worlds. Large, well-established stations, such as Pol or those of Quaddiespace, will have civilizations as sophisticated, and technology as good, as any but the most advanced worlds.

Stations are warrens of corridors, quarters, cargo bays, docking ports, and customs checkpoints. Public concourses include hotels and eateries, embassies, shops, banks, and offices. Over time, successful stations *grow.* New sections are added. Old sections may be converted to industrial use but are rarely scrapped completely.

Almost all stations serve wormholes. Some hubs, like Kline Station (p. 48), have a single main station that handles commerce for all the local wormholes. Others have stations near each of their wormhole points, each serving as a port of entry and defensive outpost for the domain on the far side. At Komarr, each wormhole is served by a commercial station and guarded by a separate Barrayaran military station.

Military Stations

A military station is like a big *warship* with no drives. These are always defensive; they're built to protect wormholes or worlds. If they ever see action, the fight will come to them, and they'll be sitting ducks . . . so they have powerful shielding. But they can mount really big weapons, too. They don't want to be taken by surprise, so they'll have very competent sensor systems. A station may find itself serving as a fleet command point, so it'll have a good tactics room. It may also have to receive casualties after a battle, so it'll have a bigger sick bay than its own crew warrants. And if there's any chance that it might be boarded, it'll have battlesuited security troops.

Freighters move cargo from place to place. They're big empty boxes with the minimum necessary drive systems and crew, and are optimized for getting cargo on and off as fast as possible. While freighters often have large engines, they're slow when fully loaded, and maneuver sluggishly. Cargo ships vary widely in size. The space equivalent of trailer trucks might appear anywhere. Mid-sized ships are used by trade fleets like those of Komarr (p. 32). The huge bulk carriers are seen only on regular trade routes. Some cargo carriers are little more than frames and engines, to which cargo modules are attached. In-system freighters are used to carry asteroid ore to orbital refineries, and metal back to the homeworld.

Freight runs can be regular routes, speculative trading expeditions, or freelance "opportunity" deals. Each has its risks and benefits. Trading expeditions are often organized as stock partnerships, with investors buying into a particular run or set of runs. Since information about far places sometimes travels slowly, trade can be very risky – or very profitable, if you're the first to hear a key bit of news.

Freighters sometimes have extra cabin space, and can take on passengers who aren't in a hurry. This is the only way for a civilian of ordinary means to go somewhere the passenger ships don't visit. Of course, it's also used by the shady types who hope to avoid regulation.

Passenger ships are designed to move people, in varying degrees of comfort. *Liners* are the cream of the crop. They're reasonably fast, comfortable, and safe . . . and expensive. Entertainment of the passengers is a major concern, and crews will be large. Most of the ship is devoted to passenger quarters, common areas, and life support; the "working" part of the ship is relatively small. Liners are designed for hundreds of passengers, if not more. Smaller passenger ships may be less luxurious, but never uncomfortable. Passenger ships are rarely found off established trade routes.

Couriers

The critical attributes of a courier are size and speed. They're small, often with a crew of only one or two, carrying no more than information, a handful of passengers, or a few tons of valuable, time-critical cargo.

Operating these ships is expensive, and most are owned by governments, though there are some commercial couriers. The two major cargoes for couriers are important information and VIPs. Most star empires use couriers for internal communications, with scheduled runs throughout their region of control. Commercial couriers are built for maximum speed, and usually have little defense and no weaponry. They're not expected to go into harm's way.

Military couriers carry orders, intelligence reports, and key personnel who have to be somewhere in a hurry. They are likely to have more defenses and a bit of weaponry. Some "courier officers" are actually intelligence agents.

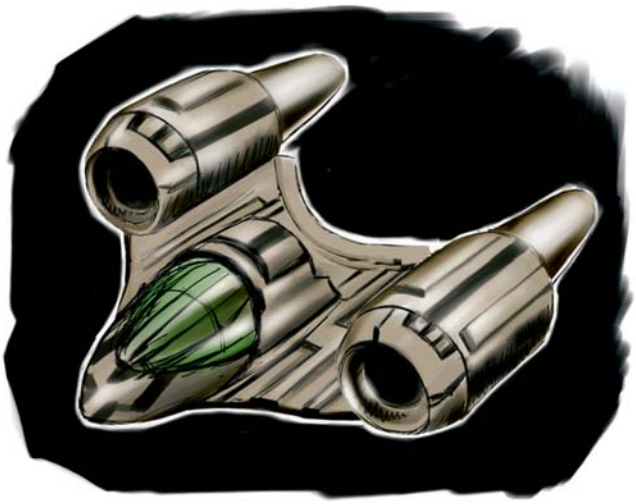
Warships

The defining characteristics of warships are speed, heavy weapons and defense systems, cramped quarters, and relative insensitivity to cost. Defensive fleets will include in-system warships with no jump capability; the space and cost that would have gone into the Necklin rods can be used to upgrade their thrusters and weaponry, making them ton-for-ton more capable than jump warships.

There are many schools of combat ship design – some concentrate on firepower, some on defense, and some on maneuverability. Any warship will have all three, in some degree. Some of the most important types:

Scouts are often not much larger than couriers. They are intended to penetrate enemy-held areas, possibly to raid, more likely just to collect intelligence. They emphasize sensors, stealth, and speed, and carry relatively light weaponry. Some have armor; others have little defense except their speed.

Destroyers emphasize speed and weaponry, with relatively light armor. A typical destroyer crew is a dozen or less. A destroyer might have a single shuttle, or none; they are space combatants, not ground raiders.



Cruisers are workhorse warships, big enough to pack decent firepower and defenses, small enough to have reasonable speed. Crew sizes of about 20 are typical; some also carry a squad of commandos. Cruisers typically carry two to four shuttles.

Pocket dreadnoughts are heavy hitters, but still have decent speed. They pack heavier weapons and better shielding than cruisers, and have docking ports for six to 12 shuttles, letting them mount space-to-space or space-to-ground raids. Crew sizes range from 60 to 100, often including a couple of squads of commandos. They are usually command ships, with appropriate communications facilities and officers' quarters. The pocket dreadnaught *Triumph* was the core of the Dendarii Mercenary fleet.

Dreadnaughts are even bigger, better armed, and slower to maneuver. The flagship of Randall's Rangers was the dreadnaught *Kurin's Hand*.

Superdreadnoughts are rare, fielded only by the largest planetary fleets. They are usually slow but *extremely* well-shielded, and equipped with the most powerful weapons available. The pride of the Barrayaran fleet is the *Prince Serg* class. This design is unusual in that its engines are very powerful – it's as fast as a typical cruiser, even though it is several times as powerful.

Troop carriers are similar to civilian passenger ships, but have very cramped bunk space, more life support, and considerably more shielding. Weapons are typically light, since escorts provide offensive capability. Troop carriers aren't meant for long missions, though.

Drop shuttles are designed to move troops from space to ground actions and back. They are winged for maneuverability in atmosphere, and often carry light weapons and armor or shielding, as well as powerful engines and anti-grav. Many carry a tractor beam. A typical two-squad drop shuttle masses 50 tons unloaded. Such vehicles usually have 4Gs or more of acceleration, fully loaded.

Fighter shuttles concentrate on firepower and maneuverability, with minimal defenses. Most are winged, for atmospheric combat. Fighters have no crew except the pilot and perhaps a copilot.

Other Ship Types

There are many specialized ship types. Some of the most common include the following.

Survey ships are jumpships designed for wormhole or planetary exploration. They carry extensive sensors, and often a scientific crew and small laboratories. They resemble military cruisers in many ways, but mount light weapons at most.

Passenger shuttles are intended to move passengers over short distances, usually no more than a few hours flight time. They have densely packed seats and limited life support. They operate primarily from ground to orbital transfer stations, or directly to ships, but are sometimes used for high-speed ground-to-ground transport. Passenger shuttles usually hold 50 to 500 passengers and can accelerate at 1 to 2Gs. There are also mini-shuttles, carrying only a few people, the ground-to-space equivalent of couriers.

Cargo shuttles move shipments from freighters and orbital stations to the surface, and back, or between stations. They have low acceleration and a crew of one or two. Cargo capacities generally range from 20 to 100 tons.

Tugs are space-only vehicles used to move large masses around. They are essentially just big thrusters with tractor beams and simple pilot stations. They come in a wide range of sizes.

Flitters are small space-only passenger vehicles – mini-shuttles without the anti-grav or streamlining.

WEAPONRY

Galactic ship-weapon development is fairly rapid. One weapon type predominates in ship designs for a decade or two, until effective defenses are widely deployed against it and a newer design takes hold.

Lasers

The classic ship weapon a few generations before Miles' period, lasers are tightly focused beams of coherent light. Because of their slow beam spread, lasers are very effective at long range, out to about 50 kilometers. By Miles' time, lasers are obsolete as ship weapons, due to the Betan anti-laser shield known as the Sword-Swallower (p. 94).

Maser Scramblers

These relatives of the laser use microwaves instead of visible light, and are outside the frequency range of laser shields. They wreak havoc with electronics by inducing powerful electric currents in any metal they hit. They also cook any crew who are not protected by metal shielding. The main drawbacks to maser scramblers are their relatively low damage, high power requirement, and the fact that metal armor is effective against them.

Plasma Cannon

The primary ship weapon of Miles' parents' day, and still the most common in Miles' time, the plasma cannon is the ship equivalent of the plasma arc. The beam is composed of high-velocity plasma at ultra-high temperatures, and can easily penetrate both mass shields and laser shields. Plasma cannons are power-hungry, and the particle beam can't be focused as tightly as a laser, so the range is much shorter.

Gravitic Imploder Lances

This cutting-edge weapon is an offshoot of the tractor beam, generating a very tightly focused, high-intensity gravitic beam. The highly localized gravitic gradients warp space, creating ultra-powerful tidal stresses which can twist a ship's hull or tear apart the bodies of the crew. The weapon's main drawbacks are its enormous power requirements and the incredibly short range – at least for space combat – of 36 kilometers. (The *Prince Serg* class mounts a version with three times that range; by now, the Cetagandans have no doubt duplicated it, and the Betans probably had it first.)

A group of Komarran rebels developed a hyper-powerful, long-range version of the imploder lance, using a resonant 5-space field from an unusual Necklin rod configuration to excite a gravitic wave from a wormhole. Unfortunately, the generated wave was focused back at the generator, limiting the device's utility. This device is currently a highly classified Barrayaran secret.

Defenses

While the defense systems described here are intended primarily for ships, some are also used to protect important buildings, or even large air or ground vehicles. There are a number of types of shields, each defending against a different type of weapon. Thus, weapons developers are in a constant arms race to create new types of weapons, which in turn are countered with new shield types.

Mass Shields

Originally designed to protect ships from debris while moving at normal-space velocities of up to half the speed of light, mass shields stop the passage of matter – the classical "force field" – but are transparent to energy weapons, including plasma arcs. They effectively stop conventional projectiles and missiles, but nuclear warheads still work if detonated outside the shield, since the radiation gets through.

Sword-Swallower

More than a simple defense against lasers, the Betan-developed Sword-Swallower actually turns back laser energy on the attacker, drawing power for the shield from the incoming fire. This resulted in the rapid demise of ship-borne laser weaponry, and the ascension of the shorter-range plasma cannon, which isn't affected by the Sword-Swallower field.

Plasma Shields

The initial defense against plasma cannon, plasma shields defocus and disperse incoming fire. They are power-hungry; to completely block the incoming attack, they require considerably more power than the strike itself! Thus, they are of limited effectiveness.

Plasma Mirror

Developed by the Betans for their Escobaran allies during the Escobar-Barrayar war, shortly before Miles' birth, the plasma mirror affects plasma cannon the same way the earlier Sword-Swallower did lasers. The plasma mirror can only handle a limited amount of incoming power, so it can be swamped if several attackers gang up on a single target. Despite this limitation, by the time of Miles' maturity, plasma weapons were being slowly phased out in favor of the gravitic imploder lance.

Artificial Gravity Shields

Various designs for shields against the imploder lance have been proposed, using artificial gravity technology. So far, none have been sufficiently effective.

Planetary Vehicles

Planetside transport may not be as exciting as spaceships, but it's often more crucial to the surface economy. Most "ground vehicles" actually use anti-grav technology to float a few inches or feet above the ground.

Float Pallets

These small anti-grav devices are used everywhere for moving loads from a few hundred pounds to a few tons. The float-pallet stays a few inches above the ground and reduces

Ground Vehicle Table

All vehicles listed are TL9. They use an antigrav and an assortment of means for drive and steering. Though not technically road-bound, their off-road use is limited to flat surfaces. Unlike true hovercraft, these ground vehicles cannot cross water.

Most ground vehicles are enclosed but not sealed. The exceptions below are the armored limo and the scat-cat, which are completely airtight. To make any other vehicle airtight and provide supplemental oxygen where needed, add 15%.

DX roll to control

Vehicle	*ST/HP*	*Hnd/SR*	*HT*	*Move*	*LWt.*	*Load*	*SM*	*Occ.*	*DR*	*Range*	*Cost*	*Locations*	*Notes*
Quaddie Floater	18	+3/4	11	2/8	0.25	0.2	0	1	3	50	$4,000	E	
Float-Chair	30	+4/5	10	2/10	0.5	0.3	+1	1	4	100	$8,000	E	
Haut Chair	35	+6/5	12	3/30	0.7	0.4	+1	1	5	500	$150,000+	E	[1]

Notes

[1] All stats for this equipment are conjectural. Only one outsider is known to have ridden in a haut chair, and this was for a brief time, as a passenger only. No haut chair has ever been observed in a conventional combat situation. The DR given is *without* force screens, and the operator would certainly not count as "exposed" once she, or the chair's computer systems, became aware of danger and put up the screens.

DRIVING/TL9 (GROUNDCAR)

Vehicle	*ST/HP*	*Hnd/SR*	*HT*	*Move*	*LWt.*	*Load*	*SM*	*Occ.*	*DR*	*Range*	*Cost*	*Locations*	*Notes*
Small Groundcar	44	+2/5	10	5/140*	0.9	0.25	+3	1+1	3	600	$1,500	G	
Family Groundcar	45	+2/5	10	5/150*	1.2	0.5	+3	1+3	3	500	$2,500	G	
Armored Limo	64	+2/7	12	5/170*	2.8	0.8	+4	1+5(S)	90	300	$55,000	G	
Scat-Cat	64	+2/6	11	6/150	4	2	+4	1+1	9	500	$35,000	G	[2]
Ground-Truck	86	+1/4	11	4/140	10	5	+4	1+1	5	650	$12,000	G	

Notes

[2] All skill penalties for terrain are halved. All penalties for operation in extreme weather are divided by 4.

the cargo's weight to zero, but its mass remains, and the pallet has no propulsion of its own. Small float-pallets, a yard or so on a side, are just platforms with handles or even leashes, meant to be towed by one person. Larger pallets may be pulled by vehicles, or moved *slowly* by manpower.

Unless modified or deliberately sabotaged, float-pallets are very safe. They go no faster than they can be pulled, and won't go high enough to be dangerous. About the worst thing you can do with a float-pallet is to deliberately leave your foot under it as it settles to the ground, and advanced ones won't even allow that.

Prices start at $800 for a small, bare-bones pallet. A wagon-sized heavy-duty pallet for warehouse use might cost $5,000 or more.

The same technology is used in industrial float cradles for moving or servicing heavy equipment. These can hold several tons, and raise their loads several yards in the air . . . and are *not* safe if mishandled. Costs would be $20,000 and up.

Float-Bikes

These are the flying equivalent of the 21st-century motorcycle, carrying one or two passengers with anti-grav lift and thruster propulsion. Price range is $6,000-$20,000, depending on features and performance.

Quaddie Floaters

Quaddies (p. 75) use these one-man anti-grav vehicles to get around in normal Earth gravity. They are stubby cylinders, often described as "flying washtubs." They usually enclose their riders at waist level and float at a height that puts them face-to-face with the walkers around them. Most floaters can't get more than a few feet above the ground, as a safety feature, but some built for special purposes have higher "ceilings."

In Quaddiespace, most floaters are common property, maintained by the station and used by whoever needs them. Quaddie social responsibility is such that the public property is always returned on time and in good condition.

They are plain-vanilla transport, limited to fast walking speeds so as not to endanger pedestrians. Some floaters, such as those used by security forces, might be capable of more speed or even mount weapons. A floater can carry extra weight if necessary – at least 100 kilos – but a regular floater has no *place* for cargo except in the rider's lap.

A quaddie who spends a lot of time in gravity, either in-station or on a mission to "walker" worlds, could have a personal floater which might have special capabilities.

Floaters are very simple to control . . . if you're a quaddie. No skill roll is required; just a DX roll (minus any penalties for lack of familiarity; see p. B196). However, the seat is meant for a quaddie, and the controls are designed for a quaddie's lower hands, leaving both upper hands free. A walker must squeeze his big, awkward legs into the floater's well, and either manipulate the controls one-handed at DX-3, or two-handed at DX-1.

Price is $4,000 for a basic unit.

Float-Chairs

These open, single-passenger anti-grav devices are slow and comfortable. They are used by invalids, tourists, window washers, and so on. The controls are on the arms of the chair. Like floaters, they are controlled with a simple DX roll, and like floaters, they can carry extra weight but have no convenient place to put it (some, designed for shopping, will have baskets on the sides).

The haut-ladies of Cetaganda almost never appear in public except in their ceremonial float-chairs, which have force screens of variable color and opacity. Outsiders rarely see the occupant – just an opalescent bubble. Each haut-lady has her own chair; its controls include a DNA check that locks out everyone but its owner.

Haut chairs usually move at walking speed, but they have displayed higher performance on occasion. They clearly allow their users secure planetwide communication. The force-screens have been observed to stop stunner fire, but no one knows how much else they might resist. Haut chairs probably have many other features known only to their users.

A regular float-chair would cost $8,000; one for use outdoors, with a basic force-screen to deflect light wind and rain, would be $10,000. The price to duplicate the luxury materials, variable force-screen, and other obvious features of a haut-lady's chair might be $150,000 or more, but in a game, no one except the GM (or a haut PC) will know what capabilities that simple-looking chair might have.

Lightflyers

The equivalent of sports cars with wings, thrusters, and anti-grav units, lightflyers are a common choice for personal transport on advanced planets. They usually seat two to four people, and emphasize performance and style over utility. Lightflyers are enclosed but not necessarily

Air Vehicle Table

All vehicles listed are TL9. Stalling is not an issue with float-bikes or antigrav vehicles; the wings are control surfaces only.

Air vehicles, except for non-military float-bikes, are enclosed, but not truly sealed. They're not intended to fly high enough for air pressure to be an issue. Pay an extra 15% for a sealed vehicle.

Piloting (Float-Bike) and Piloting (Contragrav) default to each other at -4. The technology is the same, and the controls are similar, but the handling is very different.

PILOTING/TL9 (FLOAT-BIKE)

Vehicle	*ST/HP*	*Hnd/SR*	*HT*	*Move*	*LWt.*	*Load*	*SM*	*Occ.*	*DR*	*Range*	*Cost*	*Locations*	*Notes*
Light Float-Bike	34	+2/3	10	7/160*	0.4	0.1	0	1	3	300	$2,000	E	
Standard Float-Bike	37	+2/3	10	8/180*	0.7	0.3	0	1	3	250	$3,000	E	
Sport Float-Bike	40	+3/3	9	9/220	0.6	0.1	0	1	3	250	$5,000	E	
Military Float-Bike	43	+2/4	11	8/180	0.9	0.3	+1	1	4	250	$6,000	E	

PILOTING/TL9 (CONTRAGRAVITY)

Vehicle	*ST/HP*	*Hnd/SR*	*HT*	*Move*	*LWt.*	*Load*	*SM*	*Occ.*	*DR*	*Range*	*Cost*	*Locations*	*Notes*
Lightflyer	43	+2/3	10	11/360*	1	0.4	+3	1+1	3	1,000	$18,000	G	
Anti-Grav Sled	50	+1/2	10	7/180	2	1	+3	1+1	4	1,200	$8,000	E	[1]
Lift-Van	58	+1/3	11	8/180	6	4.5	+4	1+1	4	1,200	$15,000	G	[2]

Notes

[1] A light utility cargo flyer with an open cockpit.

[2] A middle-sized utility cargo flyer. If configured with three bench seats instead of a cargo space, it carries the driver and 10 passengers.

airtight; pay 15% extra for a sealed one. Price range is $25,000-$150,000, depending on size and performance.

Aircars

Aircars are the anti-grav utility vehicles of most planets. Larger than lightflyers, they seat four or more passengers, and can carry modest cargoes of a ton or two. Larger cargo versions are known as float trucks. Aircars can manage speeds of 150 mph or so. These vehicles are enclosed but not airtight; pay 15% extra for one that will (for instance) hold breathable air in the Komarran environment. Price range is $20,000-$100,000, depending on size and extra features.

Scat-Cats

These are all-terrain utility vehicles with anti-grav lift and fan propulsion, used by the military in hostile environs such as Kyril Base (p. 20). They emphasize utility, seating two to four people, and always carry complete survival kits for the terrain. A scat-cat is extremely fast, but will remain under control even in high winds. It moves very close to the ground, and its powerful fans leave a noticeable trail when driven on anything but road or bare rock. Price range is $20,000-$50,000, depending on features and size.

Groundcars

While personal air vehicles are common, ground transport is still more economical for local travel. Groundcars are similar to 21st-century Earth automobiles in most respects, but they don't roll; they hover a few inches above the ground. Most have bubble canopies that open for entry and exit; VIP groundcars are often well-armored. Price range is $20,000-$100,000, depending on degree of luxury and performance.

Other Technology

Listed here are a few devices in common use. ***GURPS Ultra-Tech*** contains many others; most TL9 technologies and a few TL10 items are available. Computers and communications devices are limited to TL9.

Bod-Pod

Used as a cheap "lifeboat" in space emergencies, this is an inflatable plastic bubble about a yard in diameter, with a small air recycler and a locator beacon. It takes four seconds to deploy and enter a bod-pod in an emergency. A power cell runs the recycler and beacon for 12 hours. $250, 2 lbs., LC4.

Breath Mask

A breath mask filters out atmospheric poisons or provides oxygen in atmospheres that are unbreathable but otherwise harmless. It includes active catalytic filters to recycle oxygen and remove carbon dioxide. Many kinds are available for different applications. Two described in the novels were:

Barrayaran Service emergency breath mask: Very small, weight negligible (several could fit in a pocket). Allows 30 minutes of activity; one use only. $100, LC4.

Komarran breath mask: Typical outdoor equipment for worlds with unbreathable atmospheres. Allows an hour of activity, or more with a supplementary oxygen bottle. Power and oxygen are rechargeable; rechargers are located in all Komarran buildings. $300, 1.5 lbs., LC4. An oxygen bottle rated for 12 hours of activity, with at least a 10% safety margin, is $100, 3 lbs.

Bug (Miniaturized)

Many sorts of bugs and communication tap devices exist. A typical miniaturized audio/video recorder is pinhead-sized, with an adhesive back. It is usually placed where it can scan an entire room with its camera lens/microphone. It can store two hours of TV-quality digital images, including sound. The mike can pick up voices clearly within 25 yards. The bug may be programmed to run constantly, to listen for a specific voice before switching on, to scan at specific times of day, or to scan when its sensors detect light or body heat in the room.

The bug includes a burst transmitter and radio receiver (range 50 miles) which can transmit all recorded data in a micro-second burst upon receiving a coded radio command, or be set to do so after a specified time has passed. It has enough power to operate for a year of continuous use before its cell is replaced. Once it transmits, it may be programmed to erase everything it has stored and begin recording again, or to self-destruct. It will also self-destruct if tampered with; make an Explosives (EOD)-3 or Traps-3 roll to defuse it. $100, LC1.

Cold Light

This pencil-sized tube can be cracked to mix chemicals that produce a bright, blue-green light. One tube will illuminate a 5-yard radius for up to 10 hours. Combat in the lit area is only at a -2 penalty. $10 (package of 6), 1/2 lb., LC4.

Com

There are many models of communicators, with varying ranges and features. All use standard electromagnetic waves (radio or light). Three general types are listed here, plus a secure communication option that can be included in any com unit. All communicators can have their basic range increased, up to double the base effective range, with an Electronics Operation (Communications) roll at -1 per additional 10% of base range. Any com can be linked into a planetary com net, if the proper arrangements are made, letting it reach anywhere on the world, in its atmosphere, or in near orbit.

Short-Range Com: About the size of a cigarette lighter, this unit has an effective range of 50 miles (which includes low-orbit ships and satellites, if they are in line of sight). A short-range com can be built into a helmet, watch, etc., at 10% additional cost. Its power cell lasts for a year. $15, negligible weight, LC4.

Medium-Range Com: This is a "palmtop" unit, with an effective range of 500 miles. Its power cell runs the com for a year. $50 ($100 with video display), 1/4 lb., LC4.

Long-Range Com: This dictionary-sized unit is normally carried on a shoulder strap, built into vehicles, or part of a desk unit. The effective range is 5,000 miles. It runs for three months on a power cell. $150 ($175 with video display, $350 with holographic display), 2.5 lbs., LC4.

Com Scrambler

This option can be added to any com unit for an additional $125 and no additional weight. It scrambles or encrypts the message, so that only a compatible com can translate it. Effectiveness of scramblers vary, and Legality Class varies with it – a military-grade scrambler would be LC1, while one suitable for defeating casual civilian eavesdroppers would be LC4.

A particular scrambler code used for more than an hour can be "cracked" with an Electronics Operation (Communications) roll at -12. Add a bonus equal to the Complexity of the computer being used, plus *twice* the scrambler's LC, plus 1 for every additional hour the same code is used.

Comconsoles

These are desktop computer/communicator combinations. A typical comconsole includes a holographic screen, a Complexity 3 computer, and a tie-in to the planetary communications network. $1,500, 10 lbs.

Cone-of-Silence

This is a defense against bugging and other sonic eavesdroppers. It generates a sonic interference pattern in a spherical zone in the open, or following the walls of a specially equipped room. It blocks normal sound waves. No one inside the field's boundaries can hear any sound originating outside the field, and no sounds within the field are audible outside it. The field only works in an atmosphere. It blocks audio bugs, but won't stop bugs inside the field from transmitting via radio or microwaves, nor does it interfere with the visual spectrum. A portable version generates a spherical field four yards in radius in a standard atmosphere, runs for 90 minutes on a power cell, costs $5,000, weighs four pounds, and is LC4. (For an additional $1,000, specially designed holographic projectors can be incorporated into walls, floor, and ceiling that *do* blur the speakers; these give a -3 to rolls for anyone trying to lip read.)

Kirlian Aura Detector

This TL10 device can track and record the passage of living human "auras" through a room. Aura detectors are most often used at crime scenes and can show the relative positions and movements of people in a 10 × 10-yard area. The auras only appear as vague blobs, making it impossible to identify individuals beyond a rough estimate of size, and the auras' tracks fade within 3d minutes. A success on an operator's Electronics Operation (Sensors) roll can extend this time by a minute for every point of success, or five minutes per point of success on a critical success. $50,000, 20 lbs.

Lift Tubes and Null-Gee Bubbles

Yet another spin-off of Betan gravity-control technology is the null-gee bubble – usually used as a zero-gravity bed – and its more practical cousin, the lift tube.

Null-gee bubbles are small chambers, typically installed in houses, ships, or stations, and run off of the local power network. More expensive modules are semi-portable, weighing about 140 pounds and generating a sphere of null-gravity large enough for two or three people. (A typical portable version, with plastic walls and "roof," will run for about 12 hours.) They must be stationary and carefully tuned to operate, requiring five minutes of setup. (Built-in units only require re-tuning if jostled severely, such as by ship combat or earthquakes.) They also come with infrared generators, which can keep the bubble at whatever temperature is desired.

While null-gee bubbles are essentially rich people's toys, lift tubes are common. Though relatively expensive, they're *useful,* and they're common in most well-off societies. Using gravity technology, a slow rise or fall is generated in a tube. Most lift tubes have ladders or safety straps so passengers won't spin out of control and jostle each other. They can also use these hand/footholds to pull themselves along faster, or resist the gentle tug of the gravity field. A tube can also be set for zero gravity, and the handholds used to pull oneself along; this might be typical on a ship where crew are experienced with zero-G and need to pass each other frequently.

A typical household lift tube is large enough for two people (three if they're small) and has a directional control at the doors. Like an elevator, it is either set for "down" or "up," but multiple people can use it, from different floors. Public lift tubes are installed in pairs, one going up and one going down, and are bigger – four to six people can be in the same "level."

A null-gee bubble costs $8,500 for a built-in module, or $17,000 for a portable one. A household lift tube costs $50,000, and public-grade ones are two to three times that, depending on size.

Power Cartridges

These are the power cells of the Vorkosigan universe. They are not standardized; see p. 85. The energy density of a power cartridge is at "superscience" levels. A power arc cartridge weighs only two ounces, and smaller ones have negligible weight.

Some cartridges – Barrayaran models, at least – are touchy enough that they can be used as improvised explosives. This requires a roll against Armoury, or against Engineer (Electrical) skill at -3. The GM must then require an

appropriate roll to get rid of the about-to-explode cartridge; usually, this would be Throwing, perhaps at a penalty depending on circumstances. A critical failure on either the initial roll or the "get rid of it!" roll means the cartridge goes off in the user's hand or at his feet.

A plasma arc cartridge will explode violently, making a fireball doing 6d×4 explosive burning damage and leaving a large crater. A communicator or stunner power pack explosion is much smaller: 3d burning damage.

Cartridges in a hot enough fire will also explode. The explosion of a plasma arc cartridge is definitely hot enough to set off others within a yard, and a *direct* hit by a plasma arc beam will detonate cartridges. This makes it sound as though they're dangerous to carry, but in fact, anything that could possibly set off a cartridge would kill its carrier anyway!

He pulled out the power pack and proceeded to bugger the cartridge, in the best approved ImpSec covert ops "How to Turn Your Stunner into a Hand Grenade" style.

– Memory

Scanners (Various)

Scanners are highly sophisticated, hand-held sensors, each designed to locate and identify one sort of thing. A scanner allows a roll on Electronics Operation (Sensors) skill to detect its general category of item within its scanning range of 1,000 yards; one roll is allowed every 10 seconds. If it is set to pick up a specific item within its category, it searches at -2 to skill (or worse, if the user is not exactly certain what he is scanning for), but can detect the item up to 2,500 yards away. Large concentrations can be detected at up to twice these distances. More specific data can be picked up at ranges of 500 yards or less on a roll at skill+2. The device may be used for detailed analysis of an item within 50 yards, but the user must roll against the appropriate scientific skill to properly interpret the data. Divide range by 10 if scanning through significant amounts of dense material (e.g., under the ground). A bio or chem scanner is blocked by solid walls.

Scanners may be set for a specific area sweep, which lets the user scan a 60-degree arc each turn at the ranges listed above. A scanner can be set for a 360-degree scan instead, but all listed ranges are divided by 5. Changing the setting takes one turn. Larger, stationary scanners are found in secure locations (such as ImpSec). Since they are stationary and may have larger scan-angles than the hand-held versions, they give an additional +1 to skill.

Three common types of scanners are listed here; other specialized types exist (such as medical diagnostic scanners, p. 84).

Energy Scanners: These pick up energy of all types (such as radio and radar), as well as radiation and power sources such as energy cartridges. They can also pick up the scanning radiation of other types of scanners, but not other energy scanners, since the energy scanner itself is a passive device. Along with chem scanners, energy scanners are the basis for most starport security systems. They can detect dormant power cartridges with a modifier depending on size and usual power output (the smaller the cartridge, the harder it is to find). Any *operating* power cartridge will be detected automatically. Military weapons typically have countermeasures against detection, and have an additional modifier of -2 to detection.

Chemscanners: These detect minerals, metals, and chemical compounds. They can detect a single, unfired round of chemical slug-thrower ammunition at 500 yards on a roll against skill+2. Larger amounts are detected automatically. Chemscanners are often used by security checkpoints to detect illegal substances, usually on a roll against skill+2, modified by amount.

Mass Scanners: These can pick up the general shapes and densities of masses in the vicinity, giving a limited ability to see into closed crates and through walls. They are often used by customs forces to find concealed compartments and contraband items.

Scanner Shields

Various technologies are available to defeat specific kinds of scanners, or to block scanners entirely. Cutting-edge devices include a belt-mounted shield that blocks all types of scans, rendering the wearer invisible to sensors (but not to vision, cameras, or similar devices). The belt shield modifies incoming scanner pulses to give a distorted or false reading of the wearer. Effectively, it gives a -5 penalty to anyone using a scanner to detect the wearer; a failed roll will either detect nothing, or something innocuous. The belt runs for 12 hours. $2,200, 3 lbs., LC3.

Mass scanners can be defeated by Betan mass-detector jammers, which were introduced about the time Miles' adventures started. Savvy customs forces will know about them by now, and may have countermeasures. At the very least, no one should expect the Betans themselves to be fooled by their own technology of 20 years ago. However, most people who need to deceive a mass scanner are intelligence agencies and criminals, so acquiring a jammer might become an adventure in itself. LC1; all details of size, reliability, and cost are up to the GM.

Chapter Seven
Supporting Cast

"There's nothing out here," Danseur repeated, tapping the computer screen with a light pen for emphasis. "Nothing in any orbital scans for the past ten years. We know it's leaving Equinox. But traffic analysis is getting us nothing. we've ruled out every destination within that van's range, all the way down to emergency shelters. They're leaving the regular routes between satellite passes and leaving no trace, but where are they going? We've got enough financial irregularities to cover the cost of a whole building, ten times over, but how could they put it up without being seen? How could they ***hide*** *it?"*

"You're right about the traffic aspect," Danseur agreed. "I'm not sure about the finances. I'm not an expert on counter-scanning, but there might be some way of doing it cheaply, if it's just short-term. Camouflaged tents wouldn't work, but . . ." He trailed off, muttering to himself.

"No. Trust me on this," said Waverd. "They are not hiding ***that*** *equipment from an orbital scan, not with a tent. They'd need a force screen with a huge generator, and then they're trying to hide a whole building. A big building. The . . . ah, the signature is masked in a dome, but they couldn't put it out in the middle of nowhere. Visual concealment wouldn't matter. It would absolutely be spotted by, well, trust me. It would be spotted."*

Solone stared at the sheaf of printouts, resting his chin on his hands. Time was getting away from them. Whatever was going to happen was going to happen soon. Depression seized him. He was out of his depth, just as he'd been when he was talking to that herm . . .

A memory jolted loose, as he remembered precisely what it had said to him – what words it had used.

"Dr. Waverd," he said, breaking in on the scientist's rant, "are there any really deep ***caves*** *around there?"*

A Note About Allies

NPCs in ***GURPS*** are not usually permitted to take the Ally advantage, which is intended to allow PCs to have NPC helpers. However, players may want the opportunity to play key heroes from the Vorkosigan stories, so some of the NPCs that follow have been created with Allies as part of their character statistics. If you are not using these characters as PCs, disregard these traits and reduce the point totals accordingly.

Vor

At the center of the Vorkosigan adventures are Miles, his family, and a number of close and not-so-close relatives who share the hereditary responsibility to serve Barrayar. Not every Vor takes that obligation seriously, but these do.

Lord Auditor Miles Naismith Vorkosigan

411 points

Miles Naismith Vorkosigan is half-Barrayaran, half-Betan, physically malformed from damage in the womb, and a hyperactive overachiever who believes in "forward momentum." He is one of the nine Auditors who report to Emperor Gregor, and is the confirmed heir to Count Vorkosigan, with his father's voting rights in the Council of Counts in Count Aral's absence. Against the expectations of many of his peers and elders – though never those of his parents – he managed to overcome the Barrayaran prejudice against mutants enough to be accepted by Vor society, and respected – or feared, or both – in many quarters. His military career was brilliant, though almost totally classified. Now that he serves as an Auditor, he answers directly to the Emperor – which, if nothing else, means that he no longer has to complain about superiors who are less intelligent than he is. Miles is happily married to Ekaterin Vorkosigan (p. 105); they have two children and plan more. (As of the beginning of the next, still-untitled novel, there are two more children.)

Miles' Story

When a disaffected young Vor tried to assassinate Regent Aral Vorkosigan with soltoxin gas, the unborn Miles' bone structure was irrevocably damaged. Although he was transferred to a uterine replicator and given calcium treatments, his bones never grew normally strong. Throughout his childhood, Miles constantly broke bones,

Naismith was obsessed with winning at all costs, and being seen to have won. But Vorkosigan . . . Vorkosigan couldn't surrender.

*– **Memory***

one after another. He was oddly proportioned and abnormally short, and was mocked and scorned as a "mutie" by most other children. Sergeant Bothari was his constant protector and companion. Crippled by his body's restrictions, Miles threw his energy into mental development and charm, soaking up information like a sponge from everyone around him.

Miles failed the examinations for the Imperial Military Academy by rushing over an obstacle and breaking both his legs. As a civilian, he impulsively helped a down-on-his-luck pilot on Beta Colony; one thing led to another, and he ended up accidentally creating the "Dendarii Mercenaries" and winning a war on Tau Verde. When he returned to Barrayar, he was charged with violating Vorloupulous' Law. Miles refuted the charges and presented the Dendarii as a private company to Gregor. In consideration of his energy and demonstrated talent, he was enrolled in the Imperial Academy.

Miles' career in the mainstream military was cometary and brief. After finishing his Academy training, he was assigned to Kyril Island (p. 20) to prove that he could serve in a normal chain of command. This went drastically wrong when he mutinied against his commanding officer to prevent a mass murder. He ended up reassigned to ImpSec, and then used the Dendarii Mercenaries to foil a Cetagandan invasion in the Hegen Hub. Thereafter, he was assigned to ImpSec full-time; as "Admiral Naismith," he led the Dendarii on private, deniable missions for Captain Illyan, including anti-Cetagandan ops and daring rescues. Miles developed his Naismith identity, and acquired more than one lover as the "Little Admiral" – but at the same time, Lieutenant Vorkosigan's interests and personal life dwindled to nothing. He played the Vor when he needed to and the Admiral when he needed to, keeping the two identities separate.

At 24, Miles met his clone-brother, Mark Pierre Vorkosigan, and got him out of a bad situation. Miles found himself delighted by the concept of a brother. While he was able to use Mark, his then-physical double, to convince the Cetagandans that Admiral Naismith and Lord Vorkosigan really were two separate people, the incident forced him to consider for the first time who he really was – the Vor or the Admiral.

Naismith is me with no brakes, no constraints. He doesn't have to be a good little Vor, or any kind of Vor. He doesn't have a problem with insubordination, he isn't subordinate to anyone.

*– Miles Vorkosigan, **The Vor Game***

Four years later, all of the bones in Miles' arms and legs had been replaced with plastic prosthetics. Mark impersonated him and "borrowed" a shipful of Dendarii Mercenaries to raid Jackson's Whole. During the engagement, Miles was killed by a grenade shot to the chest. He was saved by immediate cryo-treatment. When he was revived, there were lingering after-effects, mainly seizures, in moments of stress. He kept these secret from Captain Illyan, afraid of being relieved of duty.

Unfortunately, he had a seizure during a combat mission and falsified his report to Illyan, who recalled him immediately and offered him a medical discharge without prejudice. Miles retreated to Vorkosigan House to descend into a black study. He realized that Admiral Naismith had taken over all the important parts of his life. With the Dendarii Mercenaries now denied to him, he was left with the identity of Lord Vorkosigan, who had few interests or friends, and who wasn't *real* to him in the way Naismith had been. Miles was roused from this torpor, reminded of his duty as a Vor lord to a family liegeman, when Illyan began to suffer mental problems as his memory chip broke down. The Emperor made Miles an Auditor to investigate the problem, and Miles found that he was capable of redefining his identity. He made Lord Vorkosigan someone to be proud of, and found a new measure of contentment.

Continuing his work as Auditor, Miles met Ekaterin Vorsoisson on Komarr and soon fell in love with her. When she returned to Barrayar a widow, he tried to woo her. The courtship was stormy but ultimately successful. They have two babies; Aral and Helen are now Miles' hostages to fortune, but at least the children of Lord Auditor Vorkosigan will have the best protection Barrayar can give.

Miles has matured into an intelligent adult, with strong Vor beliefs and habits but a leavening of galactic open-mindedness. By now, the Cetagandans are aware that he is, or was, Admiral Naismith; however, as he has abandoned that identity, it is unlikely to be a danger to him in the near future. He has a ridiculous number of medals (most won as Admiral Naismith) that he can never wear in public, and a strong sense of service to Barrayar. His philosophy used to be, "If you can't win, change the rules," and he had a history of dealing with situations by inventing a suitable lie, and then making it true – as with the Dendarii. He has come to realize that these methods aren't always appropriate – some situations cannot have their rules bent, and some lies should never be told. Even now, he is only capable of two speeds: "off" and "flat out." He also still suffers from seizures. Miles used to want to be famous; now he wants to be someone in his own right, not just his father's son. He defines himself as a Vor lord, protector of his District, a Vorkosigan, an Auditor of the Emperor, a husband, and (very recently) a father, and intends to make good on all those definitions.

Miles Vorkosigan is just under five feet tall, with a large head set on a short neck, and a faintly hunched stance, lean but solid. He has black hair, gray eyes, and strongly marked features. He wears traditional male Vor clothing – tunic and trousers in a near-military style. There are scars on either side of his neck, and more under his clothing. His hands are strong and short-fingered.

ST 10 [0]; **DX** 12 [40]; **IQ** 16 [120]; **HT** 12 [20].
Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 20 [20]; Per 18 [10]; FP 12 [0].
Basic Speed 6.00 [0]; Basic Move 6 [0]; Dodge 9; Parry 9 (Brawling, Judo, Karate).
4'10"; 120 lbs.

Social Background

TL: 9 [0].

CF: Barrayar [0]; Beta Colony [1]; Cetaganda [1]; Jackson's Whole [1].

Languages: English (Native) [0]; French (Accented) [4]; Greek (Accented) [4]; Russian (Native) [6].

Advantages

Allies (Dendarii Mercenaries; 25% of point total; 100 people; 6 or less) [6]; Ally (Captain Ivan Vorpatril; 100% of point total; 9 or less) [5]; Charisma 3 [15]; Eidetic Memory [5]; Legal Enforcement Powers [15]; Patron (Emperor Gregor Vorbarra; 12 or less) [30]; Patron (Other Auditors; 6 or less) [8]; Patron (Vorkosigans; 12 or less) [30]; Status 6* [25]; Wealth (Wealthy) [20].

Disadvantages

Code of Honor (Vor) [-15]; Dependents (Loved ones, little Aral and Helen; 6 or less) [-15]; Duty (Emperor Gregor Vorbarra; 12 or less) [-10]; Epilepsy (Mitigator, Controllable by seizure inducer, -60%) [-12]; Reputation -4 (As weird mutie Progressive; To conservative Vor) [-6]; Sense of Duty (Dendarii Mercenaries) [-5]; Sense of Duty (Ekaterin Vorkosigan) [-2]; Sense of Duty (Vorkosigans) [-5]; Social Stigma (Apparent mutant on Barrayar) [-15]; Stubbornness [-5].

Quirks: Babbles under fast-penta, but can choose what to babble about; Manic-depressive swings; Talks very fast when excited. [-3]

Skills

Accounting (H) IQ-2 [1]-14; Administration (A) IQ-1 [1]-15; Animal Handling (Horses) (A) IQ-1 [1]-15; Battlesuit/TL9 (A) DX+2 [8]-14; Beam Weapons/TL9 (Pistol) (E) DX+2 [4]-14; Boating/TL9 (Motorboat) (A) DX [2]-12; Brawling (E) DX [1]-12; Computer Operation/TL9 (E) IQ [1]-16; Dancing (A) DX+1 [4]-13; Detect Lies (H) Per-2 [1]-16; Diplomacy (H) IQ-1 [2]-15; Driving/TL9 (Groundcar) (A) DX+1 [4]-13; Electronics Operation/TL9 (Weapons) (A) IQ-1 [1]-15; Escape (H) DX+1 [8]-13; Fast-Talk (A) IQ [2]-16; First Aid/TL9 (E) IQ [1]-16; Free Fall (A) DX+1 [4]-13; Intelligence Analysis/TL9 (H) IQ-1 [2]-15; Judo (H) DX [4]-12; Karate (H) DX+1 [8]-13; Law (Barrayaran)

(H) IQ-2 [1]-14; Leadership (A) IQ+2 [1]-18†; Main-Gauche (A) DX [2]-12; Meteorology/TL9 (Barrayar) (A) IQ-1 [1]-15; Navigation/TL9 (Hyperspace) (A) IQ-1 [1]-15; Navigation/TL9 (Space) (A) IQ-1 [1]-15; Piloting/TL9 (Contragravity) (A) DX+2 [8]-14; Politics (A) IQ-1 [1]-15; Public Speaking (A) IQ+2 [1]-18†; Research/TL9 (A) IQ [2]-16; Riding (Horse) (A) DX+2 [8]-14; Saber (A) DX [2]-12; Savoir-Faire (High Society) (E) IQ+2 [4]-18; Savoir-Faire (Military) (E) IQ+1 [2]-17; Shiphandling/TL9 (Starship) (H) IQ [4]-14; Soldier/TL9 (A) IQ+1 [4]-17; Spacer/TL9 (Starship) (E) IQ [1]-16; Stealth (A) DX+1 [4]-13; Strategy (Space) (H) IQ-1 [2]-15; Survival (Barrayar Mountains) (A) Per-1 [1]-17; Tactics (H) IQ-2 [1]-14.

* Includes +1 Status from Wealth.
† Includes +3 from Charisma.

The Early Miles

The next two sections detail Miles' skills and abilities at earlier points in his career, for GMs who wish to set adventures at different times in the history of the Vorkosigan universe. Miles is an evolving and maturing character, as much as any PC, and his attitude and opinions reflect that.

Too-large head, too-short neck, back thickened with its crooked spine, crooked legs with their brittle bones too-often broken, drawing the eye in their gleaming chromium braces.

– The Mountains of Mourning

Lord Miles Vorkosigan

196 points

Young Miles is brash, impulsive, and desperate to prove himself worthy of his family and the Vorkosigan name. He gets bleeding ulcers under stress and has pronounced manic-depressive mood swings (the result of stress rather than illness). Miles is in love with Elena Bothari, and broken-hearted at losing her. He admires and respects Sergeant Bothari, even if he suspects something hidden about the man's history. His usual response to trouble is a combination of bluff and fast-talk, followed by an attempt to retrofit the universe to match his story. His driving passions are to join the Service and to prove himself worthy of his father and grandfather. A childhood spent with Emperor Gregor as a playmate and his father's political and military guests in constant attendance has given him a rather relaxed attitude toward high rank and status.

Miles is a young man of 17, with a large head and a pronounced stoop. He wears dark civilian clothes, with metal braces on his legs.

ST 10 [0]; **DX** 11 [20]; **IQ** 15 [100]; **HT** 11 [10].
Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 19 [20]; Per 15 [0]; FP 11 [0].
Basic Speed 5.50 [0]; Basic Move 5 [0]; Dodge 8; Parry 8 (Brawling).
4'9"; 115 lbs.

Social Background

TL: 9 [0].
CF: Barrayar [0]; Beta Colony [1].
Languages: English (Native) [0]; French (Accented) [4]; Greek (Accented) [4]; Russian (Native) [6].

Advantages

Charisma 3 [15]; Eidetic Memory [5]; Patron (Sergeant Konstantine Bothari; 15 or less) [30]; Patron (Vorkosigans; 12 or less) [30]; Status 3 [15]; Wealth (Comfortable) [10].

Disadvantages

Code of Honor (Vor) [-15]; Duty (Barrayar; 15 or less) [-15]; Impulsiveness (12) [-10]; Overconfidence (12) [-5]; Reputation -4 (As weird mutie Progressive; To conservative Vor) [-6]; Sense of Duty (Vorkosigans) [-5]; Social Stigma (Minor) [-5]; Social Stigma (Apparent mutant on Barrayar) [-15]; Stubbornness [-5]; Vulnerability (Crushing ×2) [-30].
Quirks: Constantly hyper; Wears grandfather's dagger. [2]

Skills

Accounting (H) IQ-2 [1]-13; Animal Handling (Horses) (A) IQ-1 [1]-14; Beam Weapons/TL9 (Pistol) (E) DX [1]-11; Brawling (E) DX [1]-11; Computer Operation/TL9 (E) IQ [1]-15; Dancing (A) DX-1 [1]-10; Diplomacy (H) IQ-1 [2]-14; Driving/TL9 (Groundcar) (A) DX [2]-11; Fast-Talk (A) IQ [2]-15; First Aid/TL9 (E) IQ [1]-15; Free Fall (A) DX-1 [1]-10; Leadership (A) IQ+2 [1]-17*; Main-Gauche (A) DX [2]-11; Piloting/TL9 (Contragravity) (A) DX+1 [4]-12; Public Speaking (A) IQ+2 [1]-17*; Research/TL9 (A) IQ [2]-15; Riding (Horse) (A) DX [2]-11; Saber (A) DX-1 [1]-10; Savoir-Faire (High Society) (E) IQ+2 [4]-17; Stealth (A) DX+1 [4]-12; Strategy (Space) (H) IQ-1 [2]-14; Survival (Barrayar Mountains) (A) Per-1 [1]-14; Tactics (H) IQ-2 [1]-13.

* Includes +3 from Charisma.

"Plus your rather irritating habit of treating your superior officers as your, ah . . ." Cecil paused, apparently groping again for just the right word.

"Equals?" Miles hazarded.

"Cattle," Cecil corrected judiciously. "To be driven to your will."

– The Vor Game

Admiral Naismith

352 points

Admiral Naismith has learned from experience that anything can be managed, given sufficient momentum and quick thinking, and that anyone can be manipulated. While he is still totally devoted to Barrayar and the Emperor, he hungers for recognition and identity. His reports at the end of missions are slanted to promote the Dendarii Mercenaries. He will acknowledge that he's "a little manic-depressive," but doesn't care to be reminded of it, despite suffering from post-mission sulks. His greatest fear is the loss of his mind – without his brain he's nothing, as he uses it to force those around him to accept his body. He fulfills family duties as Lord Vorkosigan when necessary, but at this point in his life, most of his drive centers on the "Little Admiral." Miles will attempt to politely take over all operations in which he is involved, organizing those around him and arranging their lives for them. He knows his duty to Barrayar, but he believes that he serves it best as Admiral Naismith, and he's very proud of doing so.

Miles as Admiral Naismith is in his 20s, with less of a stoop than before, and without his leg braces. He wears the Dendarii Free Mercenary Fleet uniform of gray and white – or, when needed, his custom-sized suit of battle armor.

ST 10 [0]; **DX** 12 [40]; **IQ** 16 [120]; **HT** 12 [20].
Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 20 [20]; Per 17 [5]; FP 12 [0].
Basic Speed 6.00 [0]; Basic Move 6 [0]; Dodge 9; Parry 9 (Brawling, Judo, Karate).
4'9"; 115 lbs.

Social Background

TL: 9 [0].

CF: Barrayar [0]; Beta Colony [1]; Cetaganda [1].

Languages: English (Native) [0]; French (Accented) [4]; Greek (Accented) [4]; Russian (Native) [6].

Advantages

Ally (Captain Ivan Vorpatril; 100% of point total; 9 or less) [5]; Charisma 3 [15]; Eidetic Memory [5]; Military Rank 8 [40]; Patron (Dendarii Mercenaries; 15 or less) [30]; Patron (Emperor Gregor Vorbarra; 9 or less) [15]; Patron (ImpSec; 12 or less) [30]; Patron (Vorkosigans; 12 or less) [30]; Status 6* [15]; Wealth (Comfortable) [10].

Disadvantages

Code of Honor (Vor) [-15]; Duty (ImpSec; 15 or less) [-15]; Enemy (Baron Ryoval of Jackson's Whole; Hunter; 6 or less) [-5]; Enemy (Cetagandans; Hunter; 9 or less) [-40]; Overconfidence (12) [-5]; Reputation -2 (Sinecure job; To own generation in service) [-3]; Reputation -4 (As weird mutie Progressive; To conservative Vor) [-6]; Secret Identity (As Admiral Naismith) [-15]; Sense of Duty (Dendarii Mercenaries) [-5]; Sense of Duty (Vorkosigans) [-5]; Social Stigma (Apparent mutant on Barrayar) [-15]; Stubbornness [-5]; Vulnerability (Crushing ×2) [-30].

Quirks: Betan accent; Constantly hyper; Wears grandfather's dagger. [-3]

Skills

Accounting (H) IQ-2 [1]-14; Administration (A) IQ-1 [1]-15; Animal Handling (Horses) (A) IQ-1 [1]-15; Battlesuit/TL9 (A) DX+2 [8]-14; Beam Weapons/TL9 (Pistol) (E) DX+1 [2]-13; Boating/TL9 (Motorboat) (A) DX+1 [4]-13; Brawling (E) DX [1]-12; Computer Operation/TL9 (E) IQ [1]-16; Dancing (A) DX [2]-12; Detect Lies (H) Per-2 [1]-15; Diplomacy (H) IQ-1 [2]-15; Driving/TL9 (Groundcar) (A) DX+1 [4]-13; Electronics Operation/TL9 (Weapons) (A) IQ-1 [1]-15; Escape (H) DX [4]-12; Fast-Talk (A) IQ [2]-16; First Aid/TL9 (E) IQ [1]-16; Free Fall (A) DX+1 [4]-13; Intelligence Analysis (H) IQ-1 [2]-15; Interrogation (A) IQ-1 [1]-15; Judo (H) DX [4]-12; Karate (H) DX+1 [8]-13; Law (Barrayar Criminal) (H) IQ-2 [1]-14; Leadership (A) IQ+2 [1]-18†; Main-Gauche (A) DX [2]-12; Meteorology/TL9 (Barrayar) (A) IQ-1 [1]-15; Navigation/TL9 (Hyperspace) (A) IQ-1 [1]-15; Navigation/TL9 (Space) (A) IQ-1 [1]-15; Piloting/TL9 (Contragravity) (A) DX+2 [8]-14; Politics (A) IQ-1 [1]-15; Public Speaking (A) IQ+2 [1]-18†; Research/TL9 (A) IQ-1 [1]-15; Riding (Horse) (A) DX+2 [8]-14; Saber (A) DX [2]-12; Savoir-Faire (High Society) (E) IQ+2 [4]-18; Savoir-Faire (Military) (E) IQ [1]-16; Shiphandling/TL9 (Starship) (H) IQ [4]-14; Soldier/TL9 (A) IQ [2]-16; Spacer/TL9 (Starship) (E) IQ [1]-16; Stealth (A) DX+1 [4]-13; Strategy (Space) (H) IQ-1 [2]-15; Survival (Barrayar Mountains) (A) Per-1 [1]-16; Tactics (H) IQ-2 [1]-14.

* Includes +3 Status from Military Rank.

† Includes +3 from Charisma.

Using Miles in the Game

Miles is likely to attempt to take over any situation in which he is involved. He is hyperactive, motivated, and, given his wide range of capabilities, liable to steal the storyline. (If he doesn't at least *try* to sort everything out himself, then he's not being played right.) If he is being used as a PC, the GM should take care to create situations and complications for which Miles lacks experience or skills, and where other characters can enjoy the spotlight.

As an NPC, Miles Vorkosigan makes a wonderful plot device. His wide range of interests and frequent leaps into the unknown on missions for ImpSec or Gregor – or even Dendarii jobs without a secret Barrayaran motive – mean that he can turn up literally anywhere. The aim here, however, is to keep the focus on the heroes, rather than to let Miles save the day, rout the villain, and end up with the tall brunette. Miles may be a major character in the campaign, but ultimately, the PCs are the protagonists and should expect to make the vital difference.

Miles can serve as an employer, supervisor, or superior officer; he generally allows his junior officers a reasonable amount of initiative, and (despite his tendencies) doesn't try to micromanage his field commanders. It wouldn't be out of character for him to hand over an entire avenue of investigation to junior officers or allied experts. He is also extremely busy these days as an Auditor – he might well ask the PCs, as subordinates, colleagues, or friends, to look into something that has come to his attention but that he doesn't have the time to investigate. It is *not* recommended that he be a junior officer serving under one of the PCs, unless the GM feels that the PC in question deserves such a disadvantage! Miles has a record of reorganizing tasks to suit his own priorities or judgment, taking command of field missions and reinterpreting the orders, second-guessing his superior officers, and so on. While he may do his job extremely well, any superior officer of less mettle than Illyan – or the Emperor himself – is liable to develop a nervous twitch, or worse.

Miles can also provide a good start to an adventure or campaign . . . by vanishing in the line of duty. He has needed rescuing more than once after getting into a situation that turned out to be unexpectedly dangerous; characters might well be given his "last known location" and turned loose to find him. This might be a job for a team working with ImpSec, the Dendarii Mercenaries, or on a private commission for Lord Mark or for Miles' parents. They might even be working on what they believe to be a totally unrelated investigation when they discover a rather short Imperial Auditor locked up in the house they just raided – and Miles will be delighted to explain how working on *his* project serves *their* best interests.

Although Miles has learned to rein himself back – to some extent – he still tends to be extremely manic and hyper when in full operating mode. He is liable to burst onto the scene, hand out assignments or request information, and then vanish for a while. Just because he is personally averse to handing in reports until the end of a case doesn't mean that he'll accept that from subordinates. Those interacting with him should see his very real concern for Barrayar and its people, and the qualities which make him an excellent tactician and leader of men. They may also soon wish he were at the other end of the galaxy, if his view on how to approach the current situation differs from theirs. Finally, Miles has a good memory for contacts and useful people – if the investigators show themselves to be talented and capable, then he or ImpSec may well call on them at some future time . . .

Lady Ekaterin Vorkosigan

245 points

Ekaterin Nile Vorkosigan, formerly Ekaterin Nile Vorvayne Vorsoisson, is an intelligent, educated woman with a growing expertise in landscape and garden design. A widow with a pre-teen son, she recently married Lord Auditor Miles Vorkosigan.

Although her first marriage was traumatic, Ekaterin has managed to recover her sense of self-worth. She intends to continue with her education and career, even though she is now wed to the Lord Auditor – and Miles Vorkosigan wouldn't have it any other way.

Ekaterin's father, Sasha Vorvayne, was a minor provincial bureaucrat in Vandeville, a Southern Continent frontier town; he kept a very traditional Vor household, and Ekaterin's mother taught her a Vor woman's proper duties toward men. She also taught the young Ekaterin to "become stone" – to deal with aggression and irrationality from others by reacting passively. At the age of 20, shortly after her mother's death, Ekaterin married Etienne (Tien) Vorsoisson, a young bureaucrat with a promising career. Ekaterin bore a son, Nikolai (Nikki), by traditional body-birth. Sometime thereafter, Tien discovered he had Vorzohn's Dystrophy, a Barrayaran genetic disorder. He refused to seek treatment for himself – or for Nikki, who might also have it – for fear of being exposed as a "mutant." He shifted from job to job and became increasingly difficult to live with, jumping between suspicions, arguments, accusations, and a desperate need for attention. Ekaterin slowly lost her love for him, but remained with him, bound by her duties and incapable of abandoning her marriage vows.

Eventually the couple moved to Komarr, where Tien took a post as an administrator. Soon after, he accepted a bribe to cover up a large-scale embezzlement. Tien did not survive the collapse of the conspiracy, though Ekaterin helped to capture his killers.

Ekaterin returned to Barrayar with Nikki after his condition was treated. She stayed with her aunt and uncle Vorthys while planning to study landscape gardening and terraforming at the Imperial University, in the hopes of making a career out of a hobby she loved. Miles Vorkosigan's campaign to capture her heart was eventually successful, though fraught with near-disaster. As of the end of *Diplomatic Immunity,* she and Miles had just (barely) been present for the replicator birth of their first two children, Aral Alexander and Helen Natalia.

Ekaterin is a smart and competent woman, with the ability to stand up to Miles Vorkosigan . . . and even to brake his tendency to forward momentum when she has to. For most of her life, she's had no chances to grow or develop. Now that she does, she's taking them. She is a woman of absolute taste – even Lady Alys Vorpatril has commented approvingly on Ekaterin's sense of style – and has served as an aesthetics consultant to Mark Vorkosigan (on butter-bug design), as well as designing a garden of native Barrayaran plants next to Vorkosigan House.

Any attempt to manipulate her through Miles or her children will cause her to fight back in a focused, practical, and effective way.

She is likely to take to her eventual role as Countess with the same unswerving competence that she has displayed elsewhere. Oaths and honor are extremely important to her; she will sympathize with people, Vor women or others, who find themselves torn between their oath and their personal sense of honor. In the character stats below, she is represented with a formal Duty to Miles Vorkosigan, as a proper Vor wife . . . but it is assigned the minimum point value, because, Miles being the man he is, her Duty to support him will rarely conflict with her responsibilities as a mother and a Vor.

Lady Vorkosigan is a tall, soft-spoken brunette in her 30s, with ivory-pale skin and light blue eyes. She dresses with quiet, understated elegance.

ST 10 [0]; **DX** 12 [40]; **IQ** 15 [100]; **HT** 12 [20].
Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 19 [20]; Per 16 [5]; FP 12 [0].
Basic Speed 6.00 [0]; Basic Move 6 [0]; Dodge 9.
5'8"; 140 lbs.

Social Background

TL: 9 [0].
CF: Barrayar [0]; Komarr [1].
Languages: English (Native) [0]; French (Accented) [4]; Greek (Accented) [4]; Russian (Accented) [4].

Advantages

Appearance (Attractive) [4]; Common Sense [10]; Fashion Sense [5]; Patron (Vorkosigans, and Gregor himself; 12 or less) [45]; Reputation +3 (Unshakably brave and cool in emergencies; To Barrayaran ImpSec, the Emperor, and a few others) [5]; Status 3* [10]; Unfazeable [15]; Wealth (Wealthy) [20].

Disadvantages

Code of Honor (Vor) [-15]; Dependents (Nikki and new babies; 25% or less of point total; Loved Ones; 15 or less) [-60]; Honesty (12) [-10]; Duty (Miles Vorkosigan) [-2]; Social Stigma (Second-Class Citizen) [-5].

Quirks: Almost unbreakably tough; Loves plants; Oaths highly important to her; Oversocialized (when intensely displeased, she *might* say, "Drat!"). [-4]

Skills

Accounting (H) IQ-1 [2]-14; Artist (Drawing) (H) IQ-1 [2]-14; Artist (Landscape) (H) IQ-1 [2]-14; Biology/TL9 (Botany) (H) IQ-1 [2]-14; Biology/TL9 (Ecology) (H) IQ-1 [2]-14; Computer Operation/TL9 (E) IQ [1]-15; Dancing (A) DX+1 [4]-13; Driving/TL9 (Groundcar) (A) DX [2]-12; Gardening (E) IQ [1]-15; Naturalist (Barrayar) (H) IQ [4]-15; Piloting/TL9 (Contragravity) (A) DX [2]-12; Research/TL9 (A) IQ-1 [1]-14; Savoir-Faire (E) IQ+2 [4]-17.

* Includes +1 Status from Wealth.

Viceroy Aral Vorkosigan

481 points

Aral Vorkosigan has become a living legend on Barrayar, partly just by surviving his Regency; it is customary for great Barrayarans to avoid problems with their successors by dying in office. He survived Mad Yuri's Massacre, in which his mother, elder brother, and sister died, and took part in the execution of Mad Yuri when Ezar Vorbarra took

power. Although he had at least as good a claim to the throne as did Ezar, the late Emperor, he chose to remain loyal to Ezar.

Aral has seen the worst in Barrayaran history – insanity, dictatorship, rebellion, interplanetary invasions that he knew could not succeed, massacres of civilians for which he had to take the blame. And yet, despite all this, he has managed to retain his integrity and not betray his oaths to Emperor and to Barrayar.

Aral's military career was notable for clashes with the Ministry of Political Education, but he could never be faulted in his loyalty to the new Emperor. He became the youngest admiral in the history of the Barrayaran fleet, and directed the invasion of Komarr. During the fighting, the fleet Political Officer ordered the execution of 200 Komarran Councillors (the infamous Solstice Massacre, p. 31). This went directly against Aral's orders, and when he found out, he personally killed the Political Officer. However, the Komarrans believed that he had simply murdered the officer as a cover-up. From then on, Aral Vorkosigan was known to the rest of the galaxy as the Butcher of Komarr. After that, political turmoil saw him demoted to the rank of Captain and exiled to remote patrol duties, with other politically disgraced or generally dubious officers, on the cruiser *General Vorkraft*. When the Escobaran venture began, he was given command of the mission to Sergyar, where he met and fell in love with Cordelia Naismith. The Escobaran war nearly destroyed him – he was forced to wait on the sidelines, on the Emperor's secret orders, as Prince Serg led the Barrayaran forces into a position they could not possibly hold. By doing so, Vorkosigan was able to bring the Emperor's plan to fruition – Prince Serg died, and the military party and Ministry of Political Education fell – but it was at the cost of many Barrayaran lives and of his own honor. Had Cordelia not married him, he would probably have drunk himself to death in retirement.

These days, the Viceroy is occupied with governing Sergyar, supervising its settling by Barrayaran colonists, and dealing with the inevitable crises of a planet in development, both political and ecological. He pays frequent visits to Barrayar, for state events (such as the Emperor's recent wedding), to report to the Emperor, or for personal or political reasons. (While Aral still takes a great interest in the development of the Vorkosigan District, Miles has to some extent shouldered those responsibilities.) There is plenty of scope for young Barrayaran or Sergyaran officers to rise in his service, as he values talent and integrity.

Count Aral's attachment to his family and to old friends, such as Captain Koudelka and Captain Illyan, is well-known – he has an (entirely justified) reputation as a Vor who maintains the old virtues of loyalty to those who serve him. However, this does not negate the fact that he is a soldier and a killer, experienced on far too many battlefields. He saw his mother murdered when he was 11. He led thousands to their deaths at Escobar in a fight he knew they could not win, on his Emperor's orders. Aral Vorkosigan is capable of anything, however bloody, for the safety of Barrayar or the well-being of his family.

Aral is a stocky man of average height, with penetrating gray eyes. His hair is completely white. He usually wears his House colors, now that his naval career is over.

These statistics reflect the Viceroy after recovery from his heart attack and heart transplant during *Mirror Dance*. Before that attack, he had ST 12, DX 14, and HT 13. As a young officer, at the top of his form, Aral Vorkosigan had ST 13, DX 14, and HT 14. His weapon and combat skills were, relative to DX, a level higher than they are now. On the other hand, his Diplomacy, Politics, and Savoir-Faire skills were notably lower.

ST 10 [0]; **DX** 12 [40]; **IQ** 16 [120]; **HT** 11 [10].
Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 18 [10]; Per 17 [5]; FP 11 [0].
Basic Speed 5.75 [0]; Basic Move 5 [0]; Dodge 8; Parry 10 (Judo, Karate, Main-Gauche, Saber).
5'9"; 220 lbs.

> *Ekaterin was one of those "show once" people whom Miles, in his mercenary days, had found more precious than unexpected oxygen in the emergency reserve. And she didn't even know she was unusual.*
>
> **– *A Civil Campaign***

Social Background

TL: 9 [0].
CF: Barrayar [0].
Languages: English (Native) [0]; French (Broken) [4]; Greek (Broken) [4]; Russian (Native) [6].

Advantage s

Charisma 2 [10]; Danger Sense [15]; Eidetic Memory [5]; High Pain Threshold [10]; Legal Enforcement Powers [15]; Patron (Emperor Gregor Vorbarra; 12 or less) [30]; Patron (Vorkosigans; 12 or less) [30]; Reputation +2 (Ex-Regent; To Barrayarans) [5]; Reputation +2 (Famous strategist; To military) [5]; Status 7* [30]; Wealth (Very Wealthy) [30].

Disadvantages

Code of Honor (Vor) [-15]; Duty (Emperor Gregor Vorbarra; 6 or less) [-2]; Duty (Sergyar; 15 or less) [-15]; Reputation -1 ("Butcher of Komarr"; To all galactics) [-2]; Reputation -3 ("Butcher of Komarr"; To Komarrans) [-7]; Sense of Duty (Vorkosigans) [-5].

Quirks: Aversion to closed doors ("You never know what's on the other side"); Aversion to stunners ("No one hesitates before rushing them"); Insults senior officers but never junior ones. [-3]

Skills

Administration (A) IQ+2 [8]-18; Artist (Drawing) (H) IQ-2 [1]-14; Beam Weapons/TL9 (Pistol) (E) DX+2 [4]-14; Boating/TL9 (Motorboat) (A) DX+2 [8]-14; Computer Operation/TL9 (E) IQ [1]-16; Detect Lies (H) Per [4]-17; Diplomacy (H) IQ [4]-16; Driving/TL9 (Groundcar) (A) DX+1 [4]-13; First Aid/TL9 (E) IQ [1]-16; Free Fall (A) DX+1 [4]-13; Judo (H) DX+2 [12]-15; Karate (H) DX+2 [12]-14; Leadership (A) IQ+1 [1]-17†; Main-Gauche (A) DX+2 [8]-14; Navigation/TL9 (Hyperspace) (A) IQ [2]-16; Navigation/TL9 (Space) (A) IQ [2]-16; Piloting/TL9 (Contragravity) (A) DX+1 [4]-13; Piloting/TL9 (Float-Bike) (A) DX [2]-12; Politics (A) IQ [2]-16; Riding (Horse) (A) DX+1 [4]-13; Saber (A) DX+2 [8]-14; Savoir-Faire (High Society) (E) IQ+2 [4]-18; Savoir-Faire (Military) (E) IQ+2 [4]-18; Shiphandling/TL9 (Starship) (H) IQ [4]-16; Soldier/TL9 (A) IQ+2 [8]-18; Spacer/TL9 (E) IQ [1]-16; Stealth (A) DX+2 [8]-14; Strategy (Space) (H) IQ+2 [12]-18; Survival (Barrayar Mountains) (A) Per-1 [1]-16; Tactics (H) IQ [4]-16.

* Includes +1 Status from Wealth.
† Includes +2 from Charisma.

Vicereine Cordelia Vorkosigan

356 points

Cordelia Naismith Vorkosigan is Betan by birth, with all the democratic beliefs and lack of prejudice idealized in that culture. Yet she has managed to adapt to the feudal, stratified world of Barrayar, forcing it to accept her . . . and her "mutant" son. While she is frequently exasperated by the world that her family calls home (her favorite swearword is "Barrayarans!"), she has done her best to improve matters around her and for those she cares about. As far as she's concerned, a home isn't a place – it's people, and for her, here and now, it is her husband and children. The only reason she chose to live on Barrayar was to be with her family. She sees the world as a monster that devours its children and has nearly taken her husband and sons from her, more than once.

Cordelia extends a great deal of trust to other people, expecting the best of them, and is frequently gratified in her expectations. Her faith in other people and her ability to extend mercy are two of her most striking characteristics. She is glad to help others arrange their lives and sort out their problems, although she will not involve herself without some invitation. When convinced of the rightness of her course, she is capable of a cold-blooded integrity and ruthlessness that can come as a surprise to those who have only seen her forgiving side. She will calmly dissect a person's motivations and personality in a way that can be extremely disconcerting – both to the target and to other listeners.

Cordelia Naismith was born on Beta Colony by uterine replicator (her brother was born via the "natural method"). While serving as a captain in the Betan Astronomical Survey, she commanded the first Betan mission to the planet later named Sergyar. It was there that she met and fell in love with Aral Vorkosigan; the Barrayarans had also discovered the planet and were using it as a forward base. The war against Escobar caused them to fight on opposite sides, both constrained by their honor and their duty to their own worlds. It was only after the war ended that Cordelia was free to choose for herself. Angry at her treatment by the Betan psychologists, who believed she had been programmed as a Barrayaran spy, and desperate to keep the Barrayaran secrets she had learned, she left Beta Colony one step ahead of the Mental Health Board, and married Aral Vorkosigan on Barrayar.

> *"How did your mother cope, Lord Vorkosigan?"*
>
> *"You mean, being an egalitarian Betan and all? No problem. She says egalitarians adjust to aristocracies just fine, as long as they get to be the aristocrats."*
>
> *– Miles Vorkosigan,* ***Cetaganda***

Cordelia's life on Barrayar was complicated by Aral's being declared Regent by the dying Emperor Ezar, her soltoxin poisoning during an assassination attempt on Aral, Miles' physical problems, and the natural difficulties of trying to assimilate a foreign culture. She rose to the challenges. Some who sneered at "Vorkosigan's Betan frill" learned too late that they should have feared her.

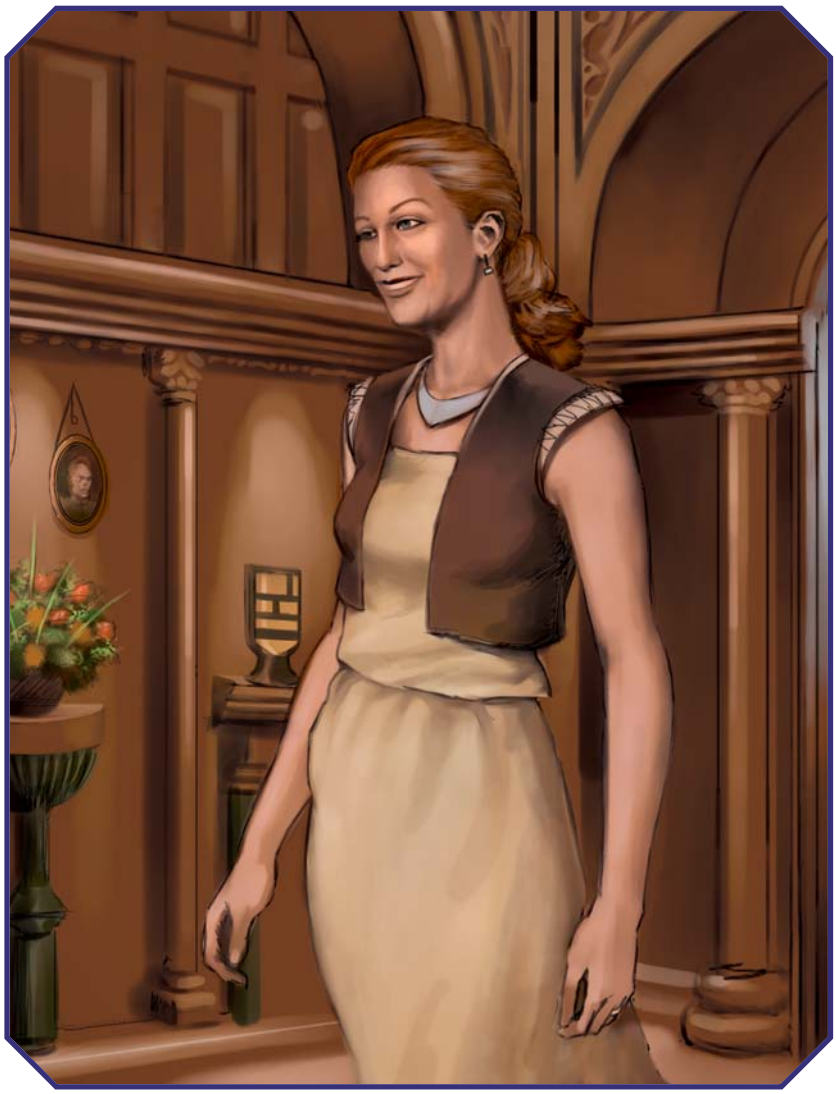
Her responsibility for Gregor's early upbringing gave her a great opportunity, and he owes much of his broadmindedness and mental stability to her guidance. Even today, they maintain a friendly relationship . . . though Gregor may occasionally be relieved that she and Aral now live on another planet. Cordelia, for her part, is glad of the new area to apply her talents and energy, and her Betan influence is likely to show itself in Sergyar's development.

The Vicereine of Sergyar is a moderately frequent visitor to Barrayar, and has also been known to travel to Beta to see her family. She is an ideal patron for young Sergyarans or Barrayarans of both sexes. Her love for her husband and her sons Miles and Mark are absolutes in her life, and are widely known, as is her daring and bloody rescue of the unborn Miles during the Vordarian Rebellion. Should politics or her family require it, she would be ready to take a more central political role, with Aral at her side; however, his recent heart condition has caused her a great deal of concern, and she is happier to have him well away from Barrayar and the associated stress. She does not feel bound by the strata of Barrayaran society, so she treats all others as equals – even Simon Illyan, when he was Head of ImpSec – giving respect where it is earned, by ability or achievement.

It is likely that Cordelia will outlive her husband. Should that occur, there is a strong possibility that she would use a genetic sample from Aral to have a daughter via uterine replicator.

Cordelia is tall and has a sturdy frame. Her hair is chestnut-red but streaked with gray, and she walks with a stride more appropriate to trousers than long skirts, although she wears the dresses appropriate to a Barrayaran countess.

ST 10 [0]; **DX** 12 [40]; **IQ** 16 [120]; **HT** 13 [30].
Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 16 [0]; Per 16 [0]; FP 13 [0].
Basic Speed 6.25 [0]; Basic Move 6 [0]; Dodge 9; Parry 9 (Brawling).
5'9"; 180 lbs.



Social Background

TL: 9 [0].
CF: Barrayar [1]; Beta Colony [0].
Languages: English (Native) [0].

Advantages

Common Sense [10]; Empathy [15]; Patron (Emperor Gregor Vorbarra; 6 or less) [8]; Patron (Vorkosigans; 12 or less) [30]; Reputation +1 (War heroine; To older Barrayarans) [2]; Reputation +2 (War heroine; To Betans) [5]; Status 6* [25]; Unfazeable [15]; Wealth (Wealthy) [20].

Disadvantages

Duty (Sergyar; 15 or less) [-15]; Honesty (12) [-10]; Odious Personal Habit (Usually accurate Betan psychoanalysis of those around her) [-5]; Reputation -2 (Galactic degenerate; To ultra-conservative Barrayarans) [--5].

Quirks: Absolutely no inhibitions about discussing sexual matters; Believes that tests are given to us to be faced and should not be refused; Considers Vor system to be planetwide mass hallucination; Theist (variant on Presbyterian Christianity); Vegetarian – only eats vat-grown protein, though will eat meat in dire emergencies. [-5]

Skills

Administration (A) IQ [2]-16; Area Knowledge (Beta Colony) (E) IQ [1]-16; Beam Weapons/TL9 (Pistol) (E) DX+2 [4]-14; Biology/TL9 (Ecology) (H) IQ [4]-16; Brawling (E) DX+1 [2]-13; Computer Operation/TL9 (E) IQ [1]-16; Detect Lies (H) Per+4 [8]-20†; Driving/TL9 (Groundcar) (A) DX+2 [8]-14; First Aid/TL9 (E) IQ [1]-16; Free Fall (A) DX+1 [4]-13; Navigation/TL9 (Hyperspace) (A) IQ+1 [4]-17; Navigation/TL9 (Space) (A) IQ+2 [8]-18; Piloting/TL9 (Contragravity) (A) DX+2 [8]-14; Professional Skill/TL9 (Astrocartography) (A) IQ+2 [8]-18; Psychology/TL9 (H) IQ+3 [4]-19†; Saber (A) DX-1 [1]-11; Savoir-Faire (E) IQ+2 [4]-18; Strategy (Space) (H) IQ-2 [1]-14; Survival (Betan Desert) (A) Per [2]-16.

* Includes +1 Status from Wealth.
† Includes +3 from Empathy.

Lord Mark Pierre Vorkosigan

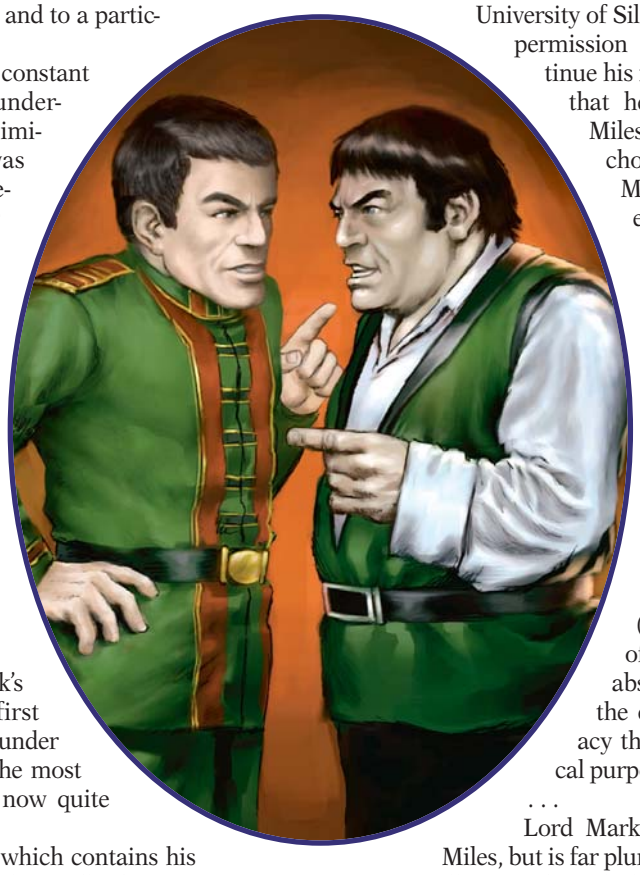
331 points

Lord Mark Pierre Vorkosigan is a clone of Miles Vorkosigan, created as a weapon in a Komarran conspiracy to destroy the Vorkosigan family and the whole Barrayaran Imperium. After escaping his creator's control, he spent a brief, disastrous period attempting to outdo Miles at heroism. This went horribly wrong, resulting in Miles' death and cryo-preservation. Mark was involved in the rescue of the revived Miles, but suffered in the process, developing a partly fractured personality.

*He rolled near to Ryoval's ear. "I am **too** a Vorkosigan. The one who was trained as a deep-penetration mole and assassin. It really pisses me off when people underestimate me, y'know?"*

– Mirror Dance

The "Black Gang" is Mark's private term for his four subsidiary personas: Gorge, Grunt, Howl, and Killer. These are not true separate personalities, but darker sides of Mark that may emerge when he is under stress. Each is tied to past traumatic history and to a particular type of behavior.



Gorge is linked to the constant body-modification Mark underwent while being forced to imitate Miles, when he was alternately starved and force-fed, and had no control over his own body. When Gorge comes out, Mark overeats, sometimes to the point of actual physical damage.

Howl represents the masochistic side of Mark's nature, which believes – mainly due to Ser Galen's indoctrination – that he deserves to be punished. He will accept any source of pain that will let him suffer appropriately. Howl often operates in tandem with Gorge.

Grunt is linked to Mark's sexuality, which was first repressed and then abused under Galen. Grunt has benefited the most from Betan therapy, and is now quite civilized when he emerges.

Killer is the part of Mark which contains his assassin skills and reflexes. When Killer begins to emerge, Mark is at his most dangerous.

Kareen and Mark's therapist are aware of the way that Mark views these aspects of his personality, but he keeps them otherwise secret.

Mark isn't a completely balanced man, but he has his mental disorders mostly under control, with the help of Betan therapy, his family's support, and Kareen Koudelka's love. However, he still has a tendency to revert under stress. His desire for independence (as well as his Jacksonian upbringing) makes him twitchy about asking his family (and Miles most of all) for favors.

Mark is interested in finance, and good at it. He came away from his last visit to Jackson's Whole with two million Betan dollars in his pocket, and his fortune is growing. His first big venture into entrepreneurship – founding a company to produce "butter bugs" (p. 80) with the help of Escobaran scientist Dr. Enrique Borgos – has succeeded. He is doing extremely well at his economic studies at the University of Silica on Beta Colony, and he has permission from the Koudelkas to continue his relationship with Kareen. Now that he has succeeded in rescuing Miles, for once, he feels that he can choose his own direction in life. Mark plans to expand his economic holdings, and in particular, to find cheaper life-extension therapies in order to undercut and ultimately destroy the clone-butchers of Jackson's Whole. His aggressive expansion may well bring him into contact with other financial experts or with innovative scientists (whether legal or illegal), on Barrayar or on other planets. While he has a claim on the throne just after that of Miles (according to some reckonings of the line of descent), he has absolutely no interest in it – quite the contrary, in fact. Any conspiracy that manipulates him for political purposes might seriously stress him . . .

Lord Mark has grown a bit taller than Miles, but is far plumper and lacks Miles' scars. He wears well-cut civilian clothes, and goes to great effort to look as unlike Miles as possible. His accent is an amalgam of Barrayaran and galactic.

ST 11 [10]; **DX** 13 [60]; **IQ** 16 [120]; **HT** 13 [30].
Damage 1d-1/1d+1; BL 24 lbs.; HP 11 [0]; Will 18 [10]; Per 16 [0]; FP 13 [0].
Basic Speed 6.50 [0]; Basic Move 6 [0]; Dodge 9; Parry 11 (Karate).
4'11"; 170 lbs.

Social Background

TL: 9 [0].
CF: Barrayar [0]; Beta Colony [1]; Jackson's Whole [1].

Languages: English (Native) [0]; French (Accented) [4]; Greek (Accented) [4]; Russian (Native) [6].

Advantages

Allies (Duronas; 100% of point total; 6-10 individuals; 6 or less) [15]; Lightning Calculator [2]; Patron (Vorkosigans; 12 or less) [30]; Status 4* [15]; Unusual Background (Jacksonian clone) [10]; Wealth (Wealthy) [20].

Disadvantages

All personalities: Fat [-3]; Reputation -2 (Fat clone; To Barrayaran high society) [-5]; Sense of Duty (Kareen Koudelka) [-2]; Sense of Duty (Vorkosigans) [-5]; Social Stigma (Mutant on Barrayar) [-15]; Split Personality (12) [-15]; Susceptible (Fast-Penta Allergy) [-1]; Unluckiness [-10].

As Gorge: Gluttony (6) [-10]; Laziness [-10]; Noisy 1 [-2].

As Grunt: Lecherousness (9) [-22].

As Howl: Compulsive Behavior (Masochism) (9) [-22].

As Killer: Bloodlust (6) [-20]; Overconfidence (15) [-2].

Quirks: Competes with Miles and works hard not to be mistaken for him; Hates Jackson's Whole clone traders; Likes peace and quiet; Needs Kareen; Twitchy about asking family for favors. [-5]

Skills

Accounting (H) IQ+1 [8]-17; Acting (A) IQ-1 [1]-15; Area Knowledge (Jackson's Whole) (E) IQ [1]-16; Beam Weapons/TL9 (Pistol) (E) DX+2 [4]-15; Computer Operation/TL9 (E) IQ [1]-16; Dancing (A) DX [2]-13; Detect Lies (H) Per [4]-16; Driving/TL9 (Groundcar) (A) DX [2]-13; Economics (H) IQ+1 [8]-17; Electronics Operation/TL9 (Weapons) (A) IQ [2]-16; Fast-Talk (A) IQ-1 [1]-15; First Aid/TL9 (E) IQ [1]-16; Free Fall (A) DX [2]-13; Intelligence Analysis/TL9 (H) IQ [4]-16; Judo (H) DX-1 [2]-12; Karate (H) DX+3 [16]-16; Leadership (A) IQ-1 [1]-15; Merchant (A) IQ-1 [1]-15; Navigation/TL9 (Hyperspace) (A) IQ-1 [1]-15; Navigation/TL9 (Space) (A) IQ-1 [1]-15; Piloting/TL9 (Contragravity) (A) DX+1 [4]-14; Research/TL9 (A) IQ [2]-16; Savoir-Faire (E) IQ [1]-16; Stealth (A) DX+1 [4]-14; Strategy (Space) (H) IQ-2 [1]-14; Tactics (H) IQ-2 [1]-14.

* Includes +1 Status from Wealth.

Lady Alys Vorpatril

249 points

Lady Vorpatril is a woman of taste, firmness, and exquisite societal precision. She has acted as Emperor Gregor's hostess for more than a decade (he lacks any other female household members) and is likely to continue in that role in some degree, even now that he has married Laisa Toscane. Lady Alys also maintains a quiet liaison with Simon Illyan – who manages to be socially unclassifiable, and is a person whom no Barrayaran in his right mind would want to annoy. She is a close friend of the Vorkosigans, and is always willing to offer advice, if she feels it is required. She has her finger on the pulse of polite society, and typifies high Vor womanhood.

Lady Alys Vorpatril became Cordelia Vorkosigan's friend shortly after Cordelia's arrival on Barrayar. When fighting broke out in Vorbarr Sultana during Vordarian's attempted coup, Alys (quite pregnant at the time) and her husband, Lord Padma Vorpatril, were trapped and eventually discovered by Vordarian's men. Cordelia managed to rescue Lady Alys, but Padma was killed. Alys went into labor and gave birth to her son, Ivan. She escaped the city and reached safety with Koudelka's help.

Throughout Ivan's childhood and youth, Alys worked hard to be the perfect Vor mother, supporting and protecting the boy, and encouraging him to rise in the Service. However, Ivan failed her expectations in the most crucial area – he refused to marry a nice young Vor girl and give his mother grandchildren to fuss over. She found this problem repeating itself when, as the Emperor's main female relative, she took responsibility for arranging his marriage. Gregor's choice of Dr. Laisa Toscane has relieved her greatly.

Many people would consider female influence on Barrayaran politics to be insignificant, given the position of women in the society in general. However, the high Vor ladies do have opinions, and they network among themselves extremely effectively, exerting influence on their husbands and families. Lady Alys has a firm grasp on this flow of information, and is a strong influence on other women in her circle. Where she leads, they often follow – and no matter what young Vor men may think, the experience and sophistication of their mothers and aunts is a force that should not be undervalued.

"Richars Vorrutyer sat right there," said Miles, pointing to Rene's chair, "and informed me that Lady Alys held no vote in Council. The fact that she has spent more years in the Vorbarr Sultana political scene than all of us here put together seemed to escape him. Too bad."

– Lord Miles Vorkosigan, ***A Civil Campaign***

Lady Alys will maintain her grip on society, despite her new tendency to take occasional holidays in Simon Illyan's company. Indeed, the ripples caused by Gregor taking a Komarran bride are likely to keep her busy for decades. While she does not always agree with Cordelia Vorkosigan's point of view, the two are good friends and rely upon each other. Lady Alys would be glad to take on protégées, or to help young men and women of good breeding introduce themselves into polite society. She has an office at the Imperial Residence, where she performs the logistical aspects of her role as Gregor's protocol advisor and social coordinator. Should she require a military aide, the usual victim is her son Ivan.

Lady Alys is a Vor matron, dressed in the very best of taste. Her long, silver-streaked black hair is worn in an elegantly restrained style, and she moves with the decisiveness of a woman who knows herself to be an arbiter of society.

ST 9 [-10]; **DX** 11 [20]; **IQ** 13 [60]; **HT** 11 [10].
Damage 1d-2/1d-1; BL 16 lbs.; HP 9 [0]; Will 13 [0]; Per 13 [0]; FP 11 [0].
Basic Speed 5.50 [0]; Basic Move 5 [0]; Dodge 8.
5'5"; 135 lbs.

Social Background

TL: 9 [0].
CF: Barrayar [0].
Languages: English (Native) [0]; French (Native) [6]; Greek (Native) [6]; Russian (Native) [6].

Advantages

Appearance (Attractive) [4]; Charisma 2 [10]; Common Sense [10]; Fashion Sense [5]; Longevity [2]; Patron (Emperor Gregor Vorbarra; 12 or less) [30]; Patron (Vicereine Cordelia Vorkosigan; 9 or less) [15]; Reputation +3 (Social arbiter; To Vor society) [7]; Status 6* [25]; Voice [10]; Wealth (Wealthy) [20].

Disadvantages

Code of Honor (Vor) [-15]; Duty (Emperor Gregor Vorbarra; 15 or less; Nonhazardous) [-10]; Sense of Duty (Vorkosigans) [-5]; Social Stigma (Second-Class Citizen) [-5].

Quirks: Likes dressing people; Meddles romantically; Wants grandchildren. [-3]

Skills

Accounting (H) IQ+1 [8]-14; Administration (A) IQ+1 [4]-14; Computer Operation/TL9 (E) IQ+1 [2]-14; Dancing (A) DX+2 [8]-13; Detect Lies (H) Per+1 [8]-14; Diplomacy (H) IQ [1]-13†; Driving/TL9 (Groundcar) (A) DX+1 [4]-12; Fast-Talk (A) IQ+2 [2]-15†; First Aid/TL9 (E) IQ [1]-13; Law (Barrayaran) (H) IQ [4]-13; Public Speaking (A) IQ+3 [1]-16†‡; Savoir-Faire (E) IQ+3 [8]-16.

* Includes +1 Status from Wealth.
† Includes +2 from Voice.
‡ Includes +2 from Charisma.

Notes

Readers of *A Civil Campaign* may conclude that Lady Alys has another Duty to the Imperium. If so, it would count as a Secret, and a very closely held one!

Captain Ivan Vorpatril

381 points

Of all the noble Vor, Lord Ivan Vorpatril is one of the *least* interested in politics. Unfortunately for him, he's been involved in Vor politics from his birth . . . and if his rank and bloodline weren't enough, he is a friend of Miles Vorkosigan. This has led to him being drugged, shot at, shipped halfway across the galaxy, shut inside a pumping chamber in the Thames Barrier on Earth, and – far too frequently to mention – being manipulated into going along with Miles' schemes. (Ivan is finding the current situation, with Miles trying to cut back on talking him into things, unsettling. It has even prompted him into occasionally acting of his own volition.) He's lazy, cheerful, often deliberately obtuse, doesn't live up to his full potential, flirts with any attractive woman, and tries to avoid any kind of responsibility. Other family members often regard him as something of an affable idiot – especially when compared with Miles – but the truth is that Ivan works *hard* not to be in the foreground.

Ivan was born during the Vordarian Pretendership, in the back room of a disused warehouse, with Sergeant Bothari as midwife and his father less than an hour dead – shot by the Pretender's forces. As Lady Alys Vorpatril raised him, she planned his triumphant progress through school and military academy, his climb to high rank, and his marriage to a nice Vor girl. Ivan's reaction to these plans – and,

indeed, to all attempts to goad him into actual achievement – was passive resistance. He rose smoothly, with no major indiscretions on his record, to the rank of Captain in Ops. He is frequently assigned to important political duties, particularly those involving Miles, due to his day-to-day competence and loyalty rather than any outstanding achievement. He's also next in line for the Vorkosigan title after Miles and Mark, though he has absolutely no interest in it.

This laziness on his part – and, in particular, his frequent non-matrimonial arrangements with women – have been a constant grievance to Lady Alys, who reacted by trying to matchmake for him. Her recent relationship with Simon Illyan has let her ignore Ivan, for now. However, reaching his 30s, Ivan has begun to realize that there is a shortage of eligible Vor women of his own age, and that younger women are either too galactically open-minded for him, or treat him as an uncle, or both. (Ivan is traditionally Vor enough to expect an eventual marriage to a "nice" woman, even if he has resisted all Lady Alys' efforts urging him toward one.)

However, Ivan Vorpatril has certain strengths. His long association with Miles has rendered him almost unfazeable – after sharing his cousin's adventures, it takes a great deal to shock or surprise him. The lifelong influence of Countess Cordelia, combined with his galactic travels, has made him more receptive to different cultures than most Vor. He knows Miles very well, and is able to prick his cousin's vanity – or to administer shock treatment, where necessary. And he *is* capable, little as he chooses to show it. He's far smarter than he seems, and he spends a lot of time in the company of members of the Vorkosigan family or working in Ops, which keeps him well up-to-date with galactic affairs.

Fortunately, he is also extremely good at keeping silent and projecting cheerful ignorance. This fools most people, but not Emperor Gregor, who trusts him enough to have given him his private com-number (one of a handful of people to be so honored). This lets Ivan contact the Emperor at any time, a privilege he does not treat lightly. In the end, Ivan has a definitely Vor, deeply embedded sense of what is *right,* and what is *wrong.* If nobody else is around to take the responsibility, he can act decisively, and with surprising political acumen.

Ivan Vorpatril is tall and startlingly handsome in the classic Vor style, with dark hair, brown eyes, and a lazy smile. As a military man, he wears either full uniform, with Ops pins, or undress greens.

ST 12 [20]; **DX** 13 [60]; **IQ** 14 [80]; **HT** 13 [30].
Damage 1d-1/1d+2; BL 29 lbs.; HP 12 [0]; Will 14 [0]; Per 15 [5]; FP 13 [0].
Basic Speed 6.50 [0]; Basic Move 6 [0]; Dodge 9; Parry 10 (Main-Gauche, Saber).
6"; 180 lbs.

Social Background

TL: 9 [0].
CF: Barrayar [0].
Languages: English (Native) [0]; French (Native) [6]; Greek (Accented) [4]; Russian (Native) [6].

Advantages

Appearance (Handsome) [12]; Eidetic Memory [5]; Luck [15]; Military Rank 4 [20]; Patron (Lady Alys Vorpatril; 12 or less) [20]; Patron (Vorkosigans; 12 or less) [30]; Status 4* [15].

Disadvantages

Code of Honor (Vor) [-15]; Duty (Barrayar; 15 or less) [-15]; Laziness [-10]; Sense of Duty (Miles Vorkosigan) [-2].

> *Ivan played the upper-class lout with the same cultivated thoroughness with which he played the Imperial lieutenant, or any other role his world demanded of him.*
>
> ***– Mirror Dance***

Quirks: Conceals his competence; Dislikes confined spaces; Flirt; Jealous yet protective of Miles; Rapid and violent driver. [-5]

Skills

Accounting (H) IQ-1 [2]-13; Administration (A) IQ [2]-14; Beam Weapons/TL9 (Pistol) (E) DX+3 [8]-16; Carousing (E) HT+2 [4]-15; Computer Operation/TL9 (E) IQ [1]-14; Dancing (A) DX+2 [8]-15; Diplomacy (H) IQ-1 [2]-13; Driving/TL9 (Groundcar) (A) DX+2 [8]-15; Erotic Art (A) DX [2]-13; Fast-Talk (A) IQ-1 [1]-13; First Aid/TL9 (E) IQ [1]-14; Free Fall (A) DX+1 [4]-14; Interrogation (A) IQ [2]-14; Main-Gauche (A) DX+2 [8]-15; Navigation/TL9 (Hyperspace) (A) IQ [2]-14; Navigation/TL9 (Space) (A) IQ [2]-14; Piloting/TL9 (Contragravity) (A) DX+2 [8]-15; Saber (A) DX+2 [8]-15; Savoir-Faire (E) IQ+2 [4]-16; Sex Appeal (A) HT+2 [8]-19†; Soldier (A) IQ-1 [1]-13; Stealth (A) DX+1 [4]-14; Strategy (Space) (H) IQ [4]-14; Survival (Barrayar Mountains) (A) Per [2]-15; Tactics (H) IQ [4]-14.

* Includes +1 Status from Military Rank.
† Includes +4 from Appearance.

Notes

As Miles is more often the viewpoint character, he is written up with the Ally advantage for the Miles-Ivan relationship. If the GM wishes to have a random "chance of appearance" for Miles to come to Ivan's rescue, simply use Ivan's appearance modifiers for Miles.

Count Piotr Pierre Vorkosigan

331 points

Count Piotr Vorkosigan is a complicated character. Given his pride in his family, his concern for Barrayar, and his disapproval of mutants and modernizations, he can be easily stereotyped as an old warrior who's been left behind by the new era. That is unjust . . . and dangerous. The Count has already changed the face of Barrayar twice – first as a leader of the resistance against the Cetagandans, and then as chief architect of the removal of Mad Emperor Yuri and his replacement by Ezar Vorbarra – and he was quick to adopt galactic technologies. When Barrayar's armies were changing from cavalry units to lightflyers, he was one of the young Vor leading the way. Society is now changing in ways that he is unwilling to accept, but he is still the man who helped shape Barrayar, and it is unwise to forget it.

Count Piotr is, above all, a stalwart defender of his world and its traditions. The great history of the Vorkosigan family strengthened his belief that no mutant should ever claim the name of Vorkosigan. When he discovered that Miles would be born deformed, he appealed to Aral and Cordelia to have the child aborted. Upon Cordelia's decision to bear Miles via uterine replicator, he tried to bribe the doctors to kill Miles, and later attempted to smother the child in his cradle. (His eventual acceptance of his grandson was slow, and heavily depended on the boy proving himself in the traditional Vor way – the military. Old and weary as he was, Count Piotr's death immediately after Miles washed out of officer training was not a coincidence.)

By the time of *Barrayar,* many see Count Piotr as an anachronism, disapproving of his son's Centrist coalition even if he does not actively oppose it. However, he is quite capable of holding his own in Barrayaran politics, and is still supported solidly by his District liegefolk, who remember how he led them against the Cetagandans. While it would take an unusual incident for him to come into direct contact with young officers, he would make an excellent patron for orthodox young Barrayarans in a military career. He also remains concerned with the affairs of his District, and might sponsor a gifted boy into the military. Politically, even though he separated himself from his son for several years after the birth of Miles, he would not act directly against him, and would certainly not in any way betray the

Emperor. His main leisure interest is horse-breeding and training – he maintains a full polo team, trains his best mounts in dressage, and imports stock from offworld to improve the local breed.

Count Piotr is clearly a Vorkosigan, but his face is lined by age and his hair is grizzled. He has a military bearing, and usually wears the house colors of brown and silver.

These statistics reflect Count Piotr's abilities at the age of 70, during the *Shards of Honor* and *Barrayar* novels. He died in bed, 20 years later, still mentally active. As a young officer fighting the Cetagandans, he was taller and heavier, and his physical and combat skills were formidable.

ST 9 [-10]; **DX** 11 [20]; **IQ** 14 [80]; **HT** 13 [30].
Damage 1d-2/1d-1; BL 16 lbs.; HP 9 [0]; Will 16 [10]; Per 15 [5]; FP 13 [0].
Basic Speed 6.00 [0]; Basic Move 6 [0]; Dodge 9; Parry 10 (Main-Gauche, Saber).
5'11"; 170 lbs.

Social Background

TL: 9 [0].
CF: Barrayar [0].
Languages: English (Native) [0]; French (Accented) [4]; Greek (Native) [6]; Russian (Accented) [4].

Advantages

Allies (Armsmen; 50% of point total; 6-10; 15 or less) [36]; Allies (Ex-servicemen in Vorkosigan District; 25% of point total; 51-100; 6 or less) [6]; Ally (Aral Vorkosigan; 150% of point total; 12 or less) [20]; Animal Empathy [5]; Eidetic Memory [5]; Legal Enforcement Powers [5]; Longevity [2]; Reputation +1 (Dangerous opponent; To Cetagandans) [2]; Reputation +1 (Heroic old nobility; To Barrayarans) [2]; Status 5* [20]; Wealth (Very Wealthy) [30].

Disadvantages

Code of Honor (Vor) [-15]; Duty (Emperor Gregor Vorbarra; 9 or less) [-5]; Duty (Vorkosigan District; 12 or less) [-10]; Fanaticism (Barrayar) [-15]; Intolerance (Mutants) [-5]; Sense of Duty (Armsmen) [-5]; Sense of Duty (Vorkosigans) [-5].

Quirks: Loves to talk about horses; Thinks he's a liberal. [-2]

Skills

Administration (A) IQ-1 [1]-13; Animal Handling (Horses) (A) IQ [2]-14; Beam Weapons/TL9 (Pistol) (E) DX+1 [2]-12; Brawling (E) DX+1 [2]-12; Driving/TL9 (Groundcar) (A) DX [2]-11; Explosives/TL9 (Demolition) (A) IQ [2]-14; First Aid/TL9 (E) IQ [1]-14; History (Barrayar) (H) IQ [4]-14; Intelligence Analysis/TL9 (H) IQ+1 [8]-15; Leadership (A) IQ+2 [8]-16; Main-Gauche (A) DX+3 [12]-14; Piloting/TL9 (Contragravity) (A) DX [2]-11; Riding (Horse) (A) DX+3 [12]-14; Saber (A) DX+3 [12]-14; Savoir-Faire (High Society) (E) IQ+2 [4]-16; Savoir-Faire (Military) (E) IQ [1]-14; Soldier/TL9 (A) IQ+1 [4]-15; Strategy (Land) (H) IQ+1 [8]-15; Survival (Barrayar Mountains) (A) Per+1 [4]-16; Tactics (H) IQ+1 [8]-15; Tracking (A) Per+1 [4]-16; Veterinary/TL9 (H) IQ [4]-14.

* Includes +1 Status from Wealth.

> *My grandfather . . . learned his political science from the Cetagandans. Mad Emperor Yuri offered him postgraduate instruction after that. My grandfather schooled my father. By the time I knew Piotr, Vorbarr Sultana party politics were just an amusing pastime to him, to entertain him in his old age.*
>
> *– Miles Vorkosigan,* ***A Civil Campaign***

Lord Auditor Professor Georg Vorthys

321 points

Professor Vorthys is an Imperial Auditor, and an authority on engineering who has taught at the Imperial University for more than 30 years. His specialty is engineering failure analysis, and he is often called upon – both by the other Auditors and by civil or military authorities – to investigate engineering-related cases, such as suspicious accidents.

Vorthys has a deep affection and respect for Professora Helen Vorthys, to whom he has been married for nearly 50 years. The Professora, who teaches Barrayaran history at the University, is a historian, teacher, and scholar in four languages. They have three children and numerous grandchildren. Both have also encouraged a great many students at the University, as teachers or in a more personal capacity, and can provide off-planet contacts if necessary. Ekaterin Vorkosigan (p. 105), the Professor's niece, lived with them during her time of mourning after the death of her first husband.

Professor Vorthys is a friendly man, easy to get along with, jovial and open. None of this should be confused with sloppy practice in engineering, or with a less than acute intellect. He believes that a man's library tells a lot about the man's mind, and has a habit of inspecting the bookcases of subjects under investigation. Should he investigate a case dealing with matters outside engineering failure, he may be teamed with an Auditor who has appropriate experience. During term time, he is usually found at the Imperial University, where he remains a Professor Emeritus, though his galactic reputation often takes him offworld to lecture.

The Professor, one of the Emperor's recent Auditor appointees, does not fit the traditional military mold – late in his career, he became philosophically interested in the connections between sociopolitical and engineering integrity. He is an example of Vorish authority in a non-military field, and of the growing importance of scientific expertise on Barrayar. Emperor Gregor's choice of him as an Auditor says a great deal about Gregor's administration and policies.

Professor Vorthys is in his late 60s, white-haired, with big nose and ears, and a deep laugh. He tends to wear rumpled, oversized clothing that always looks slept-in.

ST 10 [0]; **DX** 12 [40]; **IQ** 17 [140]; **HT** 12 [20].
Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 17 [0]; Per 17 [0]; FP 12 [0].
Basic Speed 6.00 [0]; Basic Move 6 [0]; Dodge 9.
5'7"; 185 lbs.

Social Background

TL: 9 [0].
CF: Barrayar [0].
Languages: English (Native) [0]; French (Native) [6]; Greek (Native) [6]; Russian (Native) [6].

Advantages

Legal Enforcement Powers [15]; Longevity [2]; Mathematical Ability 2 [20]; Patron (Emperor Gregor Vorbarra; 12 or less) [30]; Patron (Other Auditors; 6 or less) [8]; Reputation +4 (Authority on engineering failure analysis; To academics) [7]; Status 6 [30].

Disadvantages

Code of Honor (Vor) [-15]; Duty (Emperor Gregor Vorbarra; 12 or less) [-10]; Duty (Imperial University; 9 or less) [-5]; Sense of Duty (Family) [-5].

Quirks: Connoisseur of desserts; Rarely acts high Vor; Usually looks rumpled. [-3]

Skills

Accounting (H) IQ [1]-17*; Administration (A) IQ-1 [1]-16; Computer Operation/TL9 (E) IQ [1]-17; Computer Programming/TL9 (H) IQ [4]-17; Dancing (A) DX [2]-12; Detect Lies (H) Per-2 [1]-15; Diplomacy (H) IQ-2 [1]-15; Driving/TL9 (Groundcar) (A) DX+1 [4]-13; Electronics Operation/TL9 (Scientific) (A) IQ [2]-17; Engineer/TL9 (Electronics) (H) IQ+1 [2]-18*; Engineer/TL9 (Failure Analysis) (H) IQ [1]-17*; Mathematics (5-Space) (H) IQ [1]-17*; Mathematics (Applied) (H) IQ+1 [2]-18*; Physics/TL9 (VH) IQ+1 [4]-18*; Savoir-Faire (E) IQ [1]-17; Teaching (A) IQ-1 [1]-16.

* Includes +2 from Mathematical Ability.

Byerly "By" Vorrutyer

231 points

Byerly (or "By") Vorrutyer is a town clown – an idle Vor and fashion plate – with an extremely sarcastic tongue. He is capable of turning up anywhere in Vorbarr Sultana – even the officers' bars, usually uninteresting for non-Service – and gossips with every faction. Other Vor tolerate or even flatter him; he's stylish, amusing, and displays no threatening ambitions. His insults may not always be in the best of taste, but they are usually polite – and never unintended. However, By's best-kept secret is that he is actually a deep-cover informer for ImpSec, and has been for the last eight years (civilian contract employee in counterintelligence for Domestic Affairs, specializing in the high Vor social milieu). His "drop," the person to whom he passes collected information, may well be Lady Alys Vorpatril.

Byerly's father is the youngest son of his generation, a misanthrope who never comes near the capital if he can help it. By notoriously lacks visible means of support, but manages upper-class elegance and never seems short of money. He's probably too far from the Vorrutyer title to become Count. He is distantly related by marriage to Miles Vorkosigan, as one of his aunts – the sister of Admiral Vorrutyer – was Aral Vorkosigan's first wife. Byerly shows no great urge to pursue the relationship, except as a source for witticisms.

Byerly makes no secret of despising those of his fellows who "come unarmed to the battle of wits" – however, this loses him few friends. He is welcome in most quarters, if only because his barbs are showered so widely that at least a few are bound to hit someone whom his interlocutors dislike. He can be extremely charming when he wants to be, and is loyal to Barrayar and ImpSec (though the latter is *not* public knowledge). Part of his value to ImpSec is his reputation as a wastrel and idler; this gives him access to a great deal of gossip. He's sharp-witted and generally well-informed, and only rarely acts on his own behalf.

By recently suffered a minor demotion within ImpSec, for a certain overenthusiasm in the case of the Vorrutyer succession, but he expects to regain his old grade soon enough. Byerly isn't a trained combatant – he doesn't need to be. His job is gathering information and gossip, plus the occasional covert operation, and he does it extremely well. Very few people have any idea of his allegiance to ImpSec (Ivan Vorpatril and Miles Vorkosigan are recent additions to that list), and it is likely to stay that way. If he does provide any assistance to acquaintances in trouble, it will be discreet and untraceable, and will not affect his public attitude of polite derision in any way.

Byerly is a slender man of medium height, with typical dark Vor hair and eyes. He wears finely cut civilian clothing and carries himself with polite elegance.

ST 10 [0]; **DX** 12 [40]; **IQ** 14 [80]; **HT** 12 [20].
Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 16 [10]; Per 14 [0]; FP 12 [0].
Basic Speed 6.00 [0]; Basic Move 6 [0]; Dodge 9.
5'8"; 135 lbs.

Social Background

TL: 9 [0].
CF: Barrayar [0].
Languages: English (Native) [0]; French (Native) [6]; Greek (Accented) [4]; Russian (Accented) [4].

Advantages

Eidetic Memory [5]; Fashion Sense [5]; Patron (ImpSec; 12 or less) [30]; Reputation +2 (Stylish, witty gossip; To Vor social circles) [3]; Status 2 [10]; Voice [10].

Disadvantages

Code of Honor (Vor) [-15]; Duty (ImpSec; 15 or less) [-15]; Odious Personal Habit (Sarcasm) [-10]; Secret (ImpSec employee) [-10].

Quirks: Affectation of making small bows; Dislikes stupid people; Projects "idle Vor" decadence. [-3]

Skills

Acting (A) IQ+2 [8]-16; Carousing (E) HT+2 [4]-14; Computer Operation/TL9 (E) IQ [1]-14; Dancing (A) DX+2 [8]-14; Detect Lies (H) Per [4]-14; Diplomacy (H) IQ [1]-14*; Driving/TL9 (Groundcar) (A) DX+2 [8]-14; Fast-Talk (A) IQ+2 [2]-16*; Law (Barrayaran) (H) IQ [4]-14; Piloting/TL9 (Contragravity) (A) DX+2 [8]-14; Public Speaking (A) IQ+1 [1]-15*; Savoir-Faire (E) IQ+3 [8]-17.

* Includes +2 from Voice.

Other Barrayarans

Some of the most capable servants of the Emperor don't have "Vor" in front of their names. They were not all even born on Barrayar, but they are loyal Barrayarans nonetheless.

Captain Simon Illyan

365 points

Simon Illyan is one of the most feared men on Barrayar, despite his recent retirement and bland manner. As the head of ImpSec, he was one of Gregor's most powerful confidants, responsible for keeping the Emperor well-informed, and doing whatever was necessary to guard the Emperor and the Imperium . . . from data analysis to ordering assassinations. He was efficient, cold-blooded, and utterly dedicated to his job and to Barrayar.

Simon Illyan started officer's training at 18. His future diverged from his dream life – service, promotion, eventual retirement – when he was selected for special duty by Emperor Ezar. An experimental memory chip (see p. 80) was implanted in his brain, granting him perfect recall. Illyan survived the experience and became a useful tool. Transferred to ImpSec, Illyan reported directly to the department head, Captain Negri.

During the Barrayaran invasion of Escobar, Emperor Ezar placed Illyan at Aral Vorkosigan's side to report on the Admiral's actions. Illyan rapidly found himself becoming Aral's ally as well. He helped conceal Cordelia Naismith and Sergeant Bothari after Vorrutyer's murder. After Aral Vorkosigan was named Regent, Illyan became the ImpSec liaison to the Regent's household.

After Captain Negri's death at the outset of Vordarian's Pretendership, Illyan was promoted to captain – and head of ImpSec. He served with distinction for 30 years, but his career –and, almost, his mind – was shattered when his memory chip was destroyed. After he recovered, he settled into a dignified retirement and a quiet relationship with Lady Alys Vorpatril.

As the Head of ImpSec, Illyan was an object of terror to all Barrayar save the Emperor – and the Vorkosigan family. Despite his retirement, this fear remains, and he will trade on it if necessary. He carries a small audio recorder and computer map, as his memory is unreliable – not only has he lost his perfect recall, he now has gaps in both long- and short-term memory. (This is known only to certain members of ImpSec and the Council of Counts.) Simon avoids ImpSec business, not wanting to cramp his successor's style. However, he still takes an interest in Imperial (and Vorkosigan) business, and should be considered an *extremely* dangerous "casual bystander." Although he was the Emperor's servant, he was also loyal to Aral Vorkosigan; while the first duty has technically come to an end, the second continues.

Captain Illyan (he retains his title, despite his retirement) is an unremarkable-looking man of medium height, with thinning brown hair and a bland face. His civilian clothing is always neat and respectable, if not especially stylish. To those who do not know him, Simon Illyan is nearly invisible, and he likes it that way.

These statistics reflect Simon Illyan's abilities after the loss of his memory chip in *Memory*. With the chip, he had Photographic Memory [10] instead of Absent-Mindedness [-15].

ST 11 [10]; **DX** 13 [60]; **IQ** 15 [100]; **HT** 12 [20].
Damage 1d-1/1d+1; BL 24 lbs.; HP 11 [0]; Will 18 [15]; Per 17 [10]; FP 12 [0].
Basic Speed 6.25 [0]; Basic Move 6 [0]; Dodge 9; Parry 10 (Judo, Karate).
5'7" (but anyone who meets him will think he's taller); 150 lbs.

Social Background

TL: 9 [0].
CF: Barrayar [0].
Languages: English (Native) [0]; French (Native) [6]; Greek (Native) [6]; Russian (Native) [6].

Advantages

Common Sense [10]; Longevity [2]; Patron (Vorkosigans; 12 or less) [30]; Reputation +4 (Former head of ImpSec; To entire Imperium) [20]; Status 4 [20].

Disadvantages

Absent-Mindedness [-15]; Duty (Barrayar; 9 or less) [-5]; Fanaticism (Barrayar) [-15]; Reputation -4 (Dreaded ex-head of ImpSec; To enemies of Imperium) [-10]; Sense of Duty (Vorkosigans) [-5].

Quirks: Carries personal recording device; Claims memory lapses to avoid discussing subjects; Looks abstracted when accessing his chip, or when his memory fails him; Never uses euphemisms; Suppressed panic makes him sarcastic. [-5]

Skills

Accounting (H) IQ+1 [8]-16; Administration (A) IQ+2 [8]-17; Beam Weapons/TL9 (Pistol) (E) DX+2 [4]-15; Computer Operation/TL9 (E) IQ+1 [2]-16; Dancing (A) DX [2]-13; Detect Lies (H) Per [4]-17; Diplomacy (H) IQ-1 [2]-14; Driving/TL9 (Groundcar) (A) DX+1 [4]-14; Fast-Talk (A) IQ+1 [4]-16; First Aid/TL9 (E) IQ [1]-15; Intelligence Analysis/TL9 (H) IQ+2 [12]-17; Interrogation (A) IQ+1 [4]-16; Judo (H) DX+1 [8]-14; Karate (H) DX+2 [12]-15; Law (Barrayaran) (H) IQ-1 [2]-14; Leadership (A) IQ [2]-15; Navigation/TL9 (Hyperspace) (A) IQ [2]-15; Navigation/TL9 (Space) (A) IQ [2]-15; Piloting/TL9 (Contragravity) (A) DX+1 [4]-14; Piloting/TL9 (Contragravity) (A) DX-1 [1]-12; Savoir-Faire (High Society) (E) IQ [1]-15; Savoir-Faire (Military) (E) IQ+1 [2]-16; Soldier/TL9 (A) IQ+2 [8]-17; Stealth (A) DX+1 [4]-14; Strategy (Space) (H) IQ-1 [2]-14.

Commodore Clement Koudelka ("Kou")

177 points

Commodore Koudelka has swum against the Barrayaran mainstream in several ways. He is a grocer's son who rose to high rank and status in the military, and a crippled war veteran who is still a respected member of society. For a long time, he served as Aral Vorkosigan's personal secretary; when the ex-Regent became Viceroy of Sergyar, Koudelka chose to remain on Barrayar, and holds a high position in the Service.

Clement Koudelka rose to prominence in the only way a Barrayaran man can achieve promotion purely by merit – the Service. He met Aral Vorkosigan during Vorkosigan's virtual exile on the *General Vorkraft*. During an especially enthusiastic outbreak of Barrayaran politics, the active and athletic Koudelka was hit by nerve-disruptor fire. This caused crippling neural damage, to a degree that would normally have invalided a soldier out of any service – and on Barrayar, would probably have resulted in suicide. But Vorkosigan (as Regent-elect) gave Koudelka a position as his secretary, along with a promotion to lieutenant, and prosthetic nerve implants restored most of Koudelka's functions.

While in service to Vorkosigan, Koudelka met and married Ludmilla Droushnakovi, who was then Cordelia's bodyguard. They have four daughters: Delia, Olivia, Martya, and Kareen. The girls are tall, blonde, and attractive, and are often referred to by junior officers from HQ as "Commodore Koudelka's all-blonde commando team." Two of the girls are now engaged (and the others nearly so), so the question of who gets married *first* – and how to pay for all the weddings – is a current concern in the Koudelka household.

Commodore Koudelka is an excellent patron for junior officers, and is likely to be a particularly sympathetic contact for any Barrayaran who has been invalided out of spaceship duty. (Alternatively, he may end up having such orphans dumped on him by other officers, which will mean that the injured officers will have to prove themselves . . .) He is still fully employed at HQ, in an administration/strategy position, and his career is by no means over. However, having four weddings to arrange in the near future (and recently funding Kareen's study on Beta Colony) has strained his finances. It is possible that old enemies of the Vorkosigans might see this as an opportunity to damage someone affiliated with the family, or that a particularly foolish spy might believe that the Commodore would be susceptible to blackmail or bribery.

The Commodore is in his early 60s, and moves with a loose-kneed gait, the result of the old injuries to his nervous system. He is over six feet tall, though now slightly stooped, with gray hair. He usually wears his green Service uniform and leans on his cane (actually a swordstick).

ST 9 [-10]; **DX** 8 [-40]; **IQ** 14 [80]; **HT** 10 [0].
Damage 1d-2/1d-1; BL 16 lbs.; HP 9 [0]; Will 14 [0]; Per 16 [10]; FP 10 [0].
Basic Speed 4.50 [0]; Basic Move 2 [-10]; Dodge 7; Parry 6 (Saber).
6'2"; 200 lbs.

Social Background

TL: 9 [0].
CF: Barrayar [0].
Languages: English (Native) [0]; French (Accented) [4]; Greek (Native) [6]; Russian (Accented) [4].

Advantages

High Pain Threshold [10]; Military Rank 6 [30]; Patron (Vorkosigans; 12 or less) [30]; Status 4* [10]; Wealth (Comfortable) [10].

Disadvantages

Dependents (Daughters; 75% of point total; Loved Ones; 12 or less) [-16]; Duty (Barrayar; 15 or less) [-15]; Ham-Fisted 1 [-5]; Klutz [-5]; Lame (Crippled Leg) [-10]; Social Stigma (Crippled) [-5].

Skills

Accounting (H) IQ [4]-14; Administration (A) IQ+6 [24]-20; Area Knowledge (Vorbarr Sultana) (E) IQ+2 [4]-16; Beam Weapons/TL9 (Pistol) (E) DX+2 [4]-10; Computer Operation/TL9 (E) IQ+1 [2]-15; Diplomacy (H) IQ+1 [8]-15; Driving/TL9 (Groundcar) (A) DX+2 [8]-10; Fast-Talk (A) IQ [2]-14; Free Fall (A) DX [2]-8; Intelligence Analysis/TL9 (H) IQ [4]-14; Karate (H) DX-3 [4]-5†; Leadership (A) IQ [2]-14; Merchant (A) IQ-1 [1]-13; Saber (A) DX-1 [8]-7†; Savoir-Faire (E) IQ [1]-14; Soldier/TL9 (A) IQ [2]-14; Spacer/TL9 (Starship) (E) IQ [1]-14; Strategy (Space) (H) IQ+2 [12]-16; Survival (Barrayar Mountains) (A) Per [2]-16; Tactics (H) IQ [4]-14.

* Includes +2 Status from Military Rank.
† Includes -3 for Lame.

Madame Ludmilla Koudelka, née Droushnakovi ("Drou")

417 points

Madame Koudelka is a trusted ally to the Vorkosigans, a former bodyguard to the Emperor, twice all-Barrayar women's judo champion, and a happily married wife with a suitably Barrayaran large number of children. Cordelia Vorkosigan has been known to remark that if Drou had been Betan, she would have been leading a commando team. But as matters stand, Madame Koudelka is very happy with her life – and trying, like her husband, not to interfere too much with her children's lives and futures.

Drou (she loathes her given name, Ludmilla) was the youngest of four, and her father and three brothers were all in the Service. She learned a bit of judo from her brothers, and started to take classes – but she was too big and too good to learn much there. So her brothers got her into the men's classes! She was good enough to win the all-Barrayar women's judo championship for two years running. This brought her to the notice of Captain Negri of ImpSec, as Gregor's mother, Princess Kareen, had been asking for a female guard. Drou was delighted to become a bodyguard, as it was as close as she would ever get to "being a real soldier" . . .

Shortly after Cordelia's arrival on Barrayar, Princess Kareen transferred Drou's services as bodyguard to the new Countess Vorkosigan. When Vordarian launched his rebellion, Drou helped Cordelia in her attempt to rescue Miles, in return for an equal attempt to rescue the Princess. (They were successful in retrieving Miles but, sadly, not Kareen.) During her service to Cordelia, Drou met and fell in love with Koudelka.

These days, Madame Koudelka is a perfect Barrayaran matron – Emperor Gregor's continuing favor toward his first bodyguard cements her high status in Barrayaran society. She acts as his hostess if Lady Alys and Dr. Toscane are away.

But she still does isometric exercises every night, and teaches self-defense and security classes to Ministerial employees. Her four daughters, Delia, Olivia, Martya, and Kareen, are very dear to her, and she has done what she can to give them the best education available. Even though she has no official rank in ImpSec or the Service, and is apparently just another society matron, she should not be discounted – she still has the muscle tone of a trained acrobat, the reflexes of a soldier, the Emperor's trust, and regular contact with the Vorkosigans. Madame Koudelka might well give help and patronage to any Barrayaran woman with unusual hobbies or skills. She is the ideal person to recommend a suitably qualified would-be soldier of the "wrong gender" to people such as Gregor, Miles, or Cordelia. These days, Barrayar needs women, too . . .

*But, Cordelia . . . we want our children to do **better** than we did. To **not** make the same mistakes!*

*– Drou Koudelka, **A Civil Campaign***

Drou Koudelka is a tall, elegant blonde in her late 50s. Beneath the clothing of a well-off Barrayaran matron, she still has the body of an athlete.

ST 13 [30]; **DX** 15 [100]; **IQ** 12 [40]; **HT** 14 [40].
Damage 1d/2d-1; BL 34 lbs.; HP 13 [0]; Will 12 [0]; Per 14 [10]; FP 14 [0].
Basic Speed 7.25 [0]; Basic Move 9 [10]; Dodge 11*; Parry 13* (Judo).
5'10"; 165 lbs.

Social Background

TL: 9 [0].
CF: Barrayar [0].
Languages: English (Native) [6]; Russian (Native) [0].

Advantages

Combat Reflexes [15]; Danger Sense [15]; Fit [5]; Patron (High Vor of the capital: Gregor, Lady Alys, the Vorkosigans; 12 or less) [30]; Reputation +1 (War heroine; To older Barrayarans) [2]; Status 4 [20]; Unusual Background (Judo training) [5]; Wealth (Comfortable) [10].

Disadvantages

Dependents (Daughters; 50% of point total; Loved Ones; 12 or less) [-40]; Sense of Duty (Barrayar) [-10]; Social Stigma (Second-Class Citizen) [-5].

Quirks: Dislikes her given name; Enjoys combat workouts; Low-key but determined advocate for women's rights. [-3]

Skills

Acrobatics (H) DX [4]-15; Area Knowledge (Imperial Residence) (E) IQ+5 [16]-17; Beam Weapons/TL9 (Pistol) (E) DX+1 [2]-16; Computer Operation/TL9 (E) IQ+2 [4]-14; Driving/TL9 (Groundcar) (A) DX-1 [1]-14; First Aid/TL9 (E) IQ+2 [4]-14; Holdout (A) IQ+4 [16]-16; Judo (H) DX+3 [16]-18; Karate (H) DX+2 [12]-17; Piloting/TL9 (Contragravity) (A) DX-1 [1]-14; Running (A) HT+1 [4]-15; Savoir-Faire (E) IQ+4 [12]-16; Stealth (A) DX+1 [4]-16; Tactics (H) IQ [4]-12; Teaching (A) IQ+3 [12]-15.

* Includes +1 from Combat Reflexes.

Kareen Koudelka

180 points

Kareen Koudelka, the daughter of Drou and Kou, is a woman of strong insight and observation, to the extent that Mark Vorkosigan's Betan therapist would like her to train as a therapist on Beta Colony. She has to balance the constraints and duties of her Barrayaran upbringing against the freedoms she has encountered on Beta. More urgently, she has to balance her relationship with Mark Vorkosigan against the views of her parents and family. However, she has managed so far, with some help from Lady Cordelia Vorkosigan.

Kareen was born by uterine replicator, and has absolutely no problems with the use of galactic technology. She grew up in an atmosphere that was incredibly liberated for Barrayar, with a mother who had fought as a soldier, mother-daughter sessions in self-defense and stunner techniques, and frequent input from Countess Vorkosigan. While attending the Winterfair Ball at the Imperial Residence, she met Mark Vorkosigan, and the two of them became interested in each other.

Kareen did well at Vorbarr Sultana University, and won a scholarship from Countess Vorkosigan for a year studying on Beta Colony. While there, she was able to spend time with Mark, who was on Beta to study finance and get psychiatric therapy. However, when she returned to Barrayar at the end of the year, she found it hard to reconcile her Barrayaran upbringing with her feelings for Mark. Despite their liberal leanings, her parents were astonished and very displeased to find out about the relationship – especially that it had been physically consummated. Fortunately, diplomatic counseling from Countess Vorkosigan allowed a compromise. With the income from the recent butter-bug project (p. 80), Kareen is scheduled to return to Beta Colony for another year's study.

Kareen is an intelligent young woman. She is compulsively honest and very conscientious about obligations. While she has taken several courses in psychology on Beta Colony, she's not sure whether it's psychology in general that interests her, or just Mark Vorkosigan's psychology. What she wants at the moment is time, to decide whether she wants to follow Barrayaran or Betan customs – or to make her own – and to explore her relationship with Mark. While her sisters and parents do not all necessarily approve of Mark, they will back her to the hilt against outsiders.

While on Beta Colony, Kareen would make an excellent contact for any Barrayarans in trouble – particularly if they come recommended by a Vorkosigan.

Kareen is an attractive, blue-eyed blonde; she's tall for a woman, though her sisters are taller. When on Barrayar, she wears typical Barrayaran women's clothing, but on Beta Colony, she dresses in a more cosmopolitan manner, possibly even donning a topless Betan sarong.

ST 10 [0]; **DX** 12 [40]; **IQ** 13 [60]; **HT** 11 [10].
Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 13 [0]; Per 13 [0]; FP 11 [0].
Basic Speed 5.75 [0]; Basic Move 5 [0]; Dodge 8; Parry 9 (Judo).
5'8"; 145 lbs.

Social Background

TL: 9 [0].
CF: Barrayar [0]; Beta Colony [1].
Languages: English (Native) [0], Greek (Accented) [4], Russian (Accented) [4].

Advantages

Appearance (Attractive) [4]; Common Sense [10]; Empathy [15]; Patron (Vorkosigans; 12 or less) [30]; Status 1 [5].

> *"I don't understand how it can feel so right there and so wrong here," Kareen said. "It should be not wrong here. Or not right there. Or something."*
>
> *– Kareen Koudelka,* ***A Civil Campaign***

Disadvantages

Honesty (12) [-10]; Pacifism (Self-Defense Only) [-15]; Sense of Duty (Lord Mark Vorkosigan) [-2]; Social Stigma (Second-Class Citizen) [-5]; Truthfulness (12) [-5].

Quirks: Wears Betan earrings denoting relationship with Lord Mark Vorkosigan. [-1]

Skills

Beam Weapons/TL9 (Pistol) (E) DX [1]-12; Computer Operation/TL9 (E) IQ+2 [4]-15; Dancing (A) DX+2 [8]-14; Detect Lies (H) Per+2 [2]-15*; Driving/TL9 (Groundcar) (A) DX+1 [4]-13; Fast-Talk (A) IQ-5 [2]-8†; First Aid/TL9 (E) IQ [1]-13; Judo (H) DX [4]-12; Piloting/TL9 (Contragravity) (A) DX+1 [4]-13; Piloting/TL9 (Float-Bike) (A) DX-1 [4]-11; Psychology (E) IQ+2 [2]-15*; Savoir-Faire (E) IQ [1]-13; Survival (Barrayar Mountains) (A) Per-1 [1]-12.

* Includes +3 from Empathy.
† Includes -5 from Truthfulness.

Commodore Duv Galeni

329 points

Duv Galeni is a Komarran who has managed to reach the rank of Commodore in ImpSec, where he is now Chief of Komarran Affairs. He rose through the Barrayaran Service, achieving respect and position through his abilities. Despite having a father who actively rebelled against Barrayar until the moment of his death, Galeni has succeeded in both his career and in his personal ambitions. He was seriously interested in Laisa Toscane before she met Gregor, but somehow neglected to advise her of his interest until too late. He learned from the experience; he is currently engaged to Delia Koudelka, eldest daughter of Commodore Koudelka (p. 122).

Galeni was born David Galen, the son of Ser Galen of the Galen Orbital Transshipping Warehouse Cartel. He was four years old when his aunt, Rebecca Galen, was killed in the Solstice Massacre. At 10, he was following his father in the Komarran Revolt, and before his 14th birthday, he had helped to kill men. He was 15 when the last spasms of the Revolt died down, and his father and older brother were believed dead.

"Barrayarizing" his name to Duv Galeni, he moved to Barrayar, where he took a Ph.D. with honors in Modern History and Political Science from the Imperial University at Vorbarr Sultana. (His Ph.D. thesis was "The Barrayaran Imperial Service: A Century of Change.") Within weeks of the ruling permitting Komarrans to enter the military, Galeni gave up a faculty position at the College of Belgravia to attend the Imperial Service Academy. He swiftly rose to the rank of Captain.

Galeni refused to cooperate with his father's final conspiracy against Barrayar. His loyalty won him a stint in counterintelligence on Komarr. Galeni then requested assignment to Barrayar, and was soon promoted to Head of Komarran Affairs.

Galeni has seen war and its results, and has seen that people are just as dead whether they are killed for conquest or for idealism – and he doesn't want any more wars. He honestly wants the best for Komarr – and for Barrayar – and works through the system to achieve it. He sees Miles Vorkosigan as a friend, but is wary of presuming on the friendship. He tolerates Mark, though guardedly. Galeni is deeply in love with Delia Koudelka, and can count on support from her and her family under any circumstances.

Duv Galeni is normally a cool, assessing personality, and is developing a façade of serenity as ImpSec's Head of Komarran Affairs. He has a keen sense of the difference between eyewitness testimony, hearsay, and speculation – vital in his job. When under extreme tension, though, his accent reverts to street-Komarran, and he can go berserk in combat.

Duv Galeni is a saturnine man, slightly shorter than average for a Barrayaran (which is still tall for a Komarran). He has dark hair, hooded brown eyes, and an aquiline profile. He usually wears standard Barrayaran green uniform, with ImpSec silver eyes.

ST 12 [20]; **DX** 12 [40]; **IQ** 14 [80]; **HT** 13 [30].
Damage 1d-1/1d+2; BL 29 lbs.; HP 12 [0]; Will 16 [10]; Per 16 [10]; FP 13 [0].
Basic Speed 6.25 [0]; Basic Move 6 [0]; Dodge 9; Parry 10 (Karate).
5'9"; 160 lbs.

Social Background

TL: 9 [0].

CF: Barrayar [1]; Komarr [0].

Languages: English (Native) [0]; French (Native) [6]; Greek (Native) [6]; Russian (Native) [6].

Advantages

Ally (Delia Koudelka; 75% of point total; 12 or less) [4]; Common Sense [10]; Eidetic Memory [5]; Military Rank 6 [30]; Patron (Lord Auditor Miles Naismith Vorkosigan; 9 or less) [15]; Status 4* [10].

Disadvantages

Berserk (15) [-5]; Duty (Barrayar; 15 or less) [-15]; Sense of Duty (Komarr) [-10]; Social Stigma (Komarran on Barrayar) [-5]; Unluckiness [-10].

Quirks: Accent goes street-Komarran under stress; Determined to prove himself. [-2]

Skills

Accounting (H) IQ-1 [2]-13; Administration (A) IQ+1 [4]-15; Beam Weapons/TL9 (Pistol) (E) DX+2 [4]-14; Computer Operation/TL9 (E) IQ [1]-14; Detect Lies (H) Per-1 [2]-15; Diplomacy (H) IQ [4]-14; Driving/TL9 (Groundcar) (A) DX [2]-12; Explosives/TL9 (Demolition) (A) IQ-1 [1]-13; Fast-Talk (A) IQ-1 [1]-13; First Aid/TL9 (E) IQ [1]-14; History (Barrayaran) (H) IQ [4]-14; Intelligence Analysis/TL9 (H) IQ+2 [12]-16; Interrogation (A) IQ-1 [1]-13; Judo (H) DX [4]-12; Karate (H) DX+2 [12]-14; Law (Barrayaran) (H) IQ [4]-14; Leadership (A) IQ+1 [4]-15; Navigation/TL9 (Space) (A) IQ-1 [1]-13; Piloting/TL9 (Contragravity) (A) DX [2]-12; Piloting/TL9 (Float-Bike) (A) DX [2]-12; Savoir-Faire (High Society) (E) IQ [1]-14; Savoir-Faire (Military) (E) IQ+1 [2]-15; Soldier/TL9 (A) IQ+2 [8]-16; Stealth (A) DX [2]-12; Strategy (Space) (H) IQ+1 [8]-15; Tactics (H) IQ [4]-14.

* Includes +2 from Military Rank.

But he's a very closed man, for a lot of good reasons. I think it's been hard for him to try to get close to Laisa. Not because of what she is, but because of how he is, or how he's made himself. Slow, and deliberate, and careful.

– Miles Vorkosigan about Duv Galeni, ***Memory***

Sergeant Konstantine Bothari

237 points

Sergeant Konstantine Bothari is a troubled soul. He is absolutely loyal to the Vorkosigans, absolutely deadly, but by no means absolutely sane. An Armsman to Count Piotr, he was transferred to Cordelia's service by Count Piotr at Miles' birth, and she made him Miles' bodyguard. (The fact that this was partly to guard Miles from Count Piotr himself was never mentioned.) Bothari performed his duties effectively and with dedication until his death.

Konstantine Bothari was born to a prostitute in the slums of Vorbarr Sultana. As a child, he was sold to her customers. At the age of 12, he ran with the gangs, and when he reached 16, he lied about his age and joined the Service. He has a very poor sense of self, depending on the people around him for identity and personality. As a soldier, he could shape himself by the rules and standards of military life. In the company of people who demanded the best of him, he became a hero . . . commanded by those who wanted the worst, he became a monster.

During his time in service, Bothari came under the command of Admiral Ges Vorrutyer, who molded Bothari into his personal torturer. But Bothari also served under Vorkosigan – who expected, and got, the behavior and ideals of a good soldier – and met Cordelia, who saw the potential for heroism in him, opening the possibility to become more than he could ever imagine for himself. Ultimately, Bothari killed Vorrutyer in order to save Cordelia.

Bothari's behavior patterns are very straightforward, but depend on the person by whom he is most influenced at the time. While serving under Count Piotr and Aral Vorkosigan, he was a perfectly loyal soldier, reliable and brave. As Miles' guardian, he was cold-bloodedly loyal and utterly protective. Medical treatment after the Vordarian Rebellion mostly suppressed his schizophrenic tendencies, silencing the "voices in his head." Should he be deprived of his medication for more than a short period, the consequences are unpredictable. Bothari *is* a sick man, but knows that his feeling that "killing is better than sex" is wrong; he relies on military discipline, and on the orders of people like Aral and Cordelia, to keep himself on track. Any contact between him and PCs is likely to be brief and military, unless they are serving on the same mission or somehow involved in the affairs of the Vorkosigans. Anyone around him can see that he is dangerous, but his history is known only to Aral and Cordelia, and ImpSec – and, later, to Miles and Elena.

Sergeant Bothari is six and a half feet tall, with a closed, wary, beak-nosed face, and dark hair cut severely short in a military crop. He wears the uniform of a Vorkosigan Armsman in brown and silver, and never willingly goes unarmed.

These statistics reflect Sergeant Bothari's abilities during the *Shards of Honor, Barrayar,* and *The Warrior's Apprentice* novels.

ST 14 [40]; **DX** 15 [100]; **IQ** 10 [0]; **HT** 15 [50].
Damage 1d/2d; BL 39 lbs.; HP 14 [0]; Will 5 [-25]; Per 12 [10]; FP 15 [0].
Basic Speed 7.50 [0]; Basic Move 7 [0]; Dodge 11*; Parry 12* (Judo, Karate, Shortsword).
6'6"; 265 lbs.

Social Background

TL: 9 [0].
CF: Barrayar [0].
Languages: English (Native) [0], French (Broken) [2]; Greek (Broken) [2]; Russian (Broken) [2].

Advantages

Combat Reflexes [15]; Military Rank 2 [10]; Patron (Vorkosigans; 12 or less) [30]; Rapid Healing [5].

Disadvantages

Bloodlust (12; Mitigator, Controlled by drugs, -60%) [-4]; Dependent (Elena; 50% of point total; Loved One; 12 or less) [-20]; Duty (Vorkosigan Armsman; 15 or less) [-15]; Fanaticism (Vorkosigans) [-15]; No Sense of Humor [-10]; Reputation -4 (Vorrutyer's torturer; To Escobaran veterans) [-10]; Secret (Killed Vorrutyer) [-30]; Secret (Vorrutyer's torturer) [-10].

Quirks: Abnormally sensitive to the word "bastard"; Extremely old-fashioned in the way that he treats Elena; Picks up dropped coins to save them for Elena's dowry; Says "Right and proper" a lot. [-4]

Skills

Area Knowledge (Vorbarr Sultana slums) (E) IQ+2 [4]-12; Beam Weapons/TL9 (Pistol) (E) DX+1 [2]-16; Beam Weapons/TL9 (Rifle) (E) DX [1]-15; Camouflage (E) IQ+2 [4]-12; Driving/TL9 (Groundcar) (A) DX-1 [1]-14; Electronics Operation/TL9 (Weapons) (A) IQ+2 [8]-12; Explosives/TL9 (Demolition) (A) IQ+2 [8]-12; First Aid/TL9 (E) IQ+1 [2]-11; Free Fall (A) DX-1 [1]-14; Interrogation (A) IQ+4 [16]-14; Judo (H) DX+1 [8]-16; Karate (H) DX+1 [8]-16; Knife (E) DX+2 [4]-17; Piloting/TL9 (Contragravity) (A) DX-1 [1]-14; Piloting/TL9 (Float-Bike) (A) DX-2 [0]-13; Riding (Horse) (A) DX-1 [1]-14; Savoir-Faire (Military) (E) IQ+3 [8]-13; Shortsword (A) DX+1 [4]-16; Soldier/TL9 (A) IQ+2 [8]-12; Stealth (A) DX+1 [4]-16; Streetwise (A) IQ+1 [4]-11; Survival (Barrayar Mountains) (A) Per+2 [8]-14; Swimming (E) HT [1]-15; Tactics (H) IQ+1 [8]-11.

* Includes +1 from Combat Reflexes.

Mercenaries

There are a lot of galactics out there, and Barrayar has to deal with them in order to survive. The galactic viewpoint is represented here by a few of Miles' most trusted Dendarii . . . including one who was born Barrayaran, but got away as soon as she could . . . and by perhaps his most deadly enemy still alive.

Admiral Elli Quinn

456 points

Elli Quinn is the Admiral of the Dendarii Free Mercenary Fleet, and a former lover of Miles Vorkosigan. Her beautiful face is the result of plastic surgery to repair combat injuries that nearly killed her. She respects Miles, learned from him, and loves him, but she couldn't bring herself to become Lady Vorkosigan.

Elli Quinn was born in space, grew up on Kline Station (p. 48), and spent most of her adult life on ships. She signed on with the Oseran Mercenaries and stayed when they became the Dendarii Mercenaries. Elli was badly injured during the fighting around Tau Verde IV, her face erased by plasma-arc fire. Miles Vorkosigan paid for her plastic surgery on Beta Colony, and she has the most beautiful features money could buy. Unfortunately, when Elli returned to the Dendarii Mercenaries, she found this a handicap – she kept being propositioned rather than obeyed. She was forced to develop new techniques for command. This resulted in her becoming one of the most wily manipulators and spies in the mercenary fleet.

When Miles Vorkosigan (or rather, Simon Illyan) needed an investigation on her native Kline Station, Elli was chosen for the job. She performed brilliantly, and was equally successful on other missions, including a risky undercover job supporting the Dagoola IV evacuation (p. 50). She became Admiral Naismith's second-in-command, and eventually his lover, despite their earlier intentions not to fraternize between ranks. Elli was attracted to him not just because she admired and respected him, but because she knew he cared about more than her face. He had seen her when she had no face at all . . .

Elli was once blindsided by Mark masquerading as Admiral Naismith, and she has never forgiven him for Miles' death. She was almost as furious at Miles' own irresponsibility in keeping his seizures secret.

Lord Auditor Miles Vorkosigan (in his new position) could offer Elli the position of Lady Vorkosigan, but couldn't be Admiral Naismith for her any more. She didn't want to be trapped on a single planet for the rest of her life – particularly not Barrayar – and wouldn't sacrifice her career for him, however much she loved him. Miles understood this; indeed, he forced the choice on her. She became Admiral of the Dendarii Free Mercenary Fleet, and currently works with General Allegre of ImpSec, just as Miles once worked with Illyan.

Admiral Quinn is an energetic, vital woman who knows her own capacities and is justly proud of them. Her face was the only gift that she received; the rest she earned through talent and dedication. She is responsible to the Dendarii, and leads them well. In personal terms, she has always disliked being on the defensive, and is something of a thrill-seeker, though she tries to suppress this now that she has other people depending on her. She is extremely stubborn. Admiral Quinn is likely to be looking for promotable talent among the Dendarii Mercenaries, given the recent shift in the command tree caused by her own promotion and the departure of the Bothari-Jeseks.

For the first six months, I was delighted. But the second time a soldier made a pass at me instead of following an order, I knew I definitely had a problem. I had to discover and teach myself all kinds of tricks, to get people to respond to the inside of me, and not the outside.

– Commander Elli Quinn, ***Brothers in Arms***

Elli Quinn is an astonishingly beautiful woman, standing 5'6" tall, with short dark curls, liquid brown eyes, pale skin, and a lean, well-muscled body. She usually wears the gray Dendarii uniform.

ST 11 [10]; **DX** 12 [40]; **IQ** 14 [80]; **HT** 13 [30].
Damage 1d-1/1d+1; BL 24 lbs.; HP 11 [0]; Will 14 [0]; Per 16 [10]; FP 13 [0].
Basic Speed 6.25 [0]; Basic Move 6 [0]; Dodge 9; Parry 10 (Judo, Karate).
5'6"; 120 lbs.

Social Background

TL: 9 [0].
CF: Kline Station [0].
Languages: English (Native) [0].

Advantages

Allies (Dendarii Mercenaries; 25% of point total; 51-100 people; 15 or less) [36]; Appearance (Very Beautiful) [16]; Charisma 2 [10]; Danger Sense [15]; Intuition [15]; Military Rank 8 [40]; Patron (Barrayaran ImpSec; 12 or less) [30]; Patron (Miles Vorkosigan; 9 or less) [10]; Status 6* [15].

Disadvantages

Duty (Dendarii Mercenaries; 15 or less) [-15]; Sense of Duty (Miles Vorkosigan) [-2].

Quirks: Bites nails when nervous; Dislikes Barrayar; Dislikes Mark Vorkosigan; Doesn't use euphemisms about killing; Looks down on planet-dwellers ("dirt-suckers"). [-5]

Skills

Administration (A) IQ+1 [4]-15; Battlesuit/TL9 (A) DX+2 [8]-14; Beam Weapons/TL9 (Pistol) (E) DX+3 [8]-15; Computer Operation/TL9 (E) IQ+1 [2]-15; Detect Lies (H) Per-1 [2]-15; Diplomacy (H) IQ [4]-14; Driving/TL9 (Groundcar) (A) DX+1 [4]-13; First Aid/TL9 (E) IQ [1]-14; Free Fall (A) DX+1 [4]-13; Judo (H) DX+2 [12]-14; Karate (H) DX+2 [12]-14; Leadership (A) IQ+1 [1]-15†; Navigation/TL9 (Hyperspace) (A) IQ [2]-14; Navigation/TL9 (Space) (A) IQ+1 [4]-15; Piloting/TL9 (Contragravity) (A) DX+2 [8]-14; Piloting/TL9 (Float-Bike) (A) DX [2]-12; Savoir-Faire (High Society) (E) IQ [1]-14; Savoir-Faire (Military) (E) IQ+2 [4]-16; Shiphandling/TL9 (Starship) (H) IQ [4]-14; Soldier/TL9 (A) IQ+2 [8]-16; Spacer/TL9 (E) IQ+1 [2]-15; Stealth (A) DX+2 [8]-14; Strategy (Space) (H) IQ+1 [8]-15; Tactics (H) IQ+1 [8]-15.

* Includes +3 Status from Military Rank.
† Includes +2 from Charisma.

Sergeant Taura

396 points

Taura was born – or rather, created – "Nine," one of a set of 10 experimental specimens designed by House Bharaputra of Jackson's Whole for a sub-planetary government that wanted super-soldiers. Unfortunately, the other nine died very young from various disorders, their buyer lost the war, and the project was abandoned. Taura was sold to House Ryoval, which had an interest in unusual genetic specimens.

At this point, the Dendarii Mercenaries entered the picture. They were hired to help Dr. Canaba, a biologist under contract to House Bharaputra, escape from Jackson's Whole. However, Dr. Canaba – who was the leader of the scientific team that designed Taura – insisted that his "experiment" be humanely killed before he left the planet. While leading the mission to do so, Miles met Taura, gave her a name, and treated her like a human being rather than as an experiment or a freak. (This led to a romantic encounter, which began a relationship that still continues.) Together they escaped from House Ryoval, destroying Baron Ryoval's priceless collection of tissue samples along the way. Miles promptly gave her a position in the Dendarii.

Taura rose to the rank of Master Sergeant very quickly – it was the ideal job, given her nature. She was created to be a super-soldier, and she is. She's smart, and incredibly strong and fast. Her size and appearance can make well-armed foes give up without firing a shot, and she's violent but not bloodthirsty. If she can win by intimidation, she will.

But there's a price. Taura's highly accelerated metabolism is expected to give her a very short lifespan. Her hair is already graying, despite the fact that she is only 23 years old. The Dendarii fleet surgeons have done what they can to slow her metabolism, lowering it from approximately six times normal to only twice normal . . . but ultimately, they cannot prevent her body from burning out. Taura knows this, but does not let it affect her work; off duty, she grabs life with all the gusto she can.

Sergeant Taura is a compassionate woman, with an understandable loathing for the Houses of Jackson's Whole. While she is physically imposing, she is capable of great gentleness toward children or the weak. She enjoys dressing in very feminine styles in her free time, with nail varnish and exotic hairstyles, but only does so in front of close friends. Her Dendarii duties frequently involve combat drops and commando missions, and she is absolutely fearless in combat. Her extra Lifting and Striking ST only activate under extreme circumstances, such as threats to people she loves (in particular, Miles Vorkosigan), and don't normally come into play in combat. She is aware of Admiral Naismith's true identity, but will not reveal it under any circumstances.

Sergeant Taura of the Dendarii Mercenaries is 8' tall, with long dark hair, yellow eyes, and a mouthful of fangs that give her an extremely disquieting smile. She wears a Dendarii uniform with sergeant's stripes, and her claws are trimmed short and polished.

ST 16 [54]*†; **DX** 16 [120]; **IQ** 13 [60]; **HT** 16 [60].
Damage 1d+1/2d+2; BL 51 lbs.; HP 16 [0]; Will 13 [0]; Per 19 [30]; FP 16 [0].
Basic Speed 8.00 [10]; Basic Move 9† [0]; Dodge 12‡; Parry 13‡ (Karate).
8'; 310 lbs. (SM +1).

Social Background

TL: 9 [0].
CF: Jackson's Whole [0].
Languages: English (Native) [0].

Advantages

Combat Reflexes [15]; Damage Resistance 1 (Tough Skin, -40%) [3]; High Pain Threshold [10]; Immunity to Disease [10]; Military Rank 2 [10]; Night Vision 9 [9]; Patron (Dendarii Mercenaries; 12 or less) [20]; Patron (Miles Vorkosigan; 6 or less) [5]; Rapid Healing [5]; Sharp Teeth [1]; Unusual Background (Product of experimental bio-tech) [15].

Disadvantages

Appearance (Monstrous) [-20]; Code of Honor (Soldier's) [-10]; Duty (Dendarii Mercenaries; 12 or less) [-10]; Enemy (House Ryoval; Hunter; 6 or less) [-10]; Fanaticism (Miles Vorkosigan) [-15]; Gigantism [0]; Increased Consumption 1 [-10]; Intolerance (Jackson's Whole clone-barons) [-5]; Self-Destruct [-10]; Short Lifespan 1 [-10]; Shyness (Mild) [-5]; Unusual Biochemistry [-5].

Quirks: Dislikes psychologists; No fashion sense; Prefers intimidation to violence, and enjoys it more. [-3]

Skills

Beam Weapons/TL9 (Pistol) (E) DX+2 [4]-18; Beam Weapons/TL9 (Rifle) (E) DX+1 [2]-17; Free Fall (A) DX+1 [4]-17; Intimidation (A) Will [4]-13§; Judo (H) DX+2 [12]-18; Karate (H) DX+2 [12]-18; Leadership (A) IQ [4]-13§; Piloting/TL9 (Contragravity) (A) DX-1 [1]-15; Running (A) HT+1 [4]-17; Soldier/TL9 (A) IQ+4 [16]-17; Stealth (E) DX+1 [4]-17; Survival (Woodlands) (A) Per-1 [1]-18; Tactics (H) IQ [4]-13.

* Includes Size, -10%.
† Includes effects of Gigantism.
‡ Includes +1 for Combat Reflexes.
§ Includes -1 for Shyness.

Elena Bothari-Jesek

359 points

Elena Bothari-Jesek is currently a shipmaster operating out of Escobar. She spent 10 years in the Dendarii Mercenaries, sucked in when Miles Vorkosigan created it. Through her career as a soldier, she proved herself in her own eyes and justified herself by Barrayaran standards. More recently, she has realized that judging herself merely by Barrayaran standards is self-limiting, and that the people she cares about (the Vorkosigans, her husband) won't think less of her for choosing to be other than a soldier.

Elena was the product of Sergeant Bothari's rape of an Escobaran soldier, by order of his perverted master, Admiral Vorrutyer. After the Barrayaran retreat, she and a few other children of war were sent to Barrayar in uterine replicators. Bothari (by then in Vorkosigan's service and receiving treatment) provided Elena with what luxuries he could as she grew up. He told her that her mother was dead – although he accidentally told more than one story about how she had died – and did his best to be a proper father to a properly brought up young lady. Elena grew into a competent and curious young woman, even if Barrayar refused her the chance to be a soldier.

When Miles had to invent the Dendarii Mercenaries, Elena played along, and was surprised and delighted to find that she could do the things he asked her to – lead troops, supervise martial arts sessions, act like a commander. She began to realize that she could achieve anything she wanted. Her mother's appearance – and immediate murder of her father – shattered her world. She was forced to confront her father's history and her mother's rejection. She chose to remain with the Dendarii as an apprentice to Commander Ky Tung. She married the engineer Baz Jesek, a Barrayaran deserter and expatriate. Later, when Admiral Oser retook the fleet, she and Baz supported Miles during the Hegen Hub battle (p. 17).

When Miles was killed, Elena returned to Barrayar to escort Mark and bring the news. Elena spent a long time with Countess Vorkosigan, realized how much the Countess had accomplished, and began to think she herself might be able to do things other than being a soldier. When Mark took her oath as Armswoman, it served as closure; she had finally achieved everything that a Barrayaran man could have done – everything that her father had done.

A few years ago, Elena and Baz left the Dendarii Mercenaries to find jobs at Escobar – he as an engineer in an orbital shipyard, she as a commercial shipmaster – but primarily to start a family. Elena will understand the situation faced by young Barrayaran women visiting other planets for the first time, and by those who want to break out of the "proper Barrayaran lady" mold. She is *definitely* still in contact with Barrayaran ImpSec, and would pass along any important information.

Elena is six feet tall, in her early 30s, an aquiline beauty with short-cropped ebony hair and pale ivory skin. She wears a dress when necessary to move in polite society on Barrayar, but prefers her uniform or plain fatigues.

ST 12 [20]; **DX** 12 [40]; **IQ** 13 [60]; **HT** 13 [30].
Damage 1d-1/1d+2; BL 29 lbs.; HP 12 [0]; Will 15 [10]; Per 13 [0]; FP 13 [0].
Basic Speed 6.25 [0]; Basic Move 6 [0]; Dodge 9; Parry 10 (Judo).
6'; 205 lbs.

Social Background

TL: 9 [0].
CF: Barrayar [0].
Languages: English (Native) [0].

Advantages

Appearance (Beautiful) [12]; Charisma 2 [10]; Patron (Admiral Elli Quinn; 6 or less) [5]; Patron (Vorkosigans; 12 or less) [30]; Unusual Background (Vorkosigan protégée) [10].

Disadvantages

Secret (Sergeant Bothari's history) [-5]; Sense of Duty (Barrayar) [-10]; Social Stigma (Second-Class Citizen; Only on Barrayar, -60%) [-2].

Quirks: Avoids Barrayar; Highly sensitive about crimes of sexual assault. [-2]

Skills

Accounting (H) IQ+1 [8]-14; Administration (A) IQ+3 [12]-16; Battlesuit/TL9 (A) DX+2 [8]-14; Beam Weapons/TL9 (Pistol) (E) DX+2 [4]-14; Computer Operation/TL9 (E) IQ+2 [4]-15; Dancing (A) DX+2 [8]-14; Detect Lies (H) Per [4]-13; Driving/TL9 (Ground-car) (A) DX+1 [4]-13; First Aid/TL9 (E) IQ+2 [4]-15; Free Fall (A) DX+1 [4]-13; Judo (H) DX+2 [12]-14; Karate (H) DX+1 [8]-13; Leadership (A) IQ+1 [1]-14*; Merchant (A) IQ+2 [8]-15; Navigation/TL9 (Hyperspace) (A) IQ+2 [8]-15; Navigation/TL9 (Space) (A) IQ+2 [8]-15; Piloting/TL9 (Contragravity) (A) DX+1 [4]-13; Piloting/TL9 (Float-Bike) (A) DX+2 [8]-14; Savoir-Faire (High Society) (E) IQ+2 [4]-15; Savoir-Faire (Military) (E) IQ+3 [8]-16; Soldier/TL9 (A) IQ+1 [4]-14; Stealth (A) DX+1 [4]-13; Strategy (Space) (H) IQ [4]-13; Survival (Barrayar Mountains) (A) Per [2]-13; Tactics (H) IQ+1 [8]-14.

* Includes +2 from Charisma.

Captain Bel Thorne

317 points

Bel Thorne is a Betan hermaphrodite (see p. 74). It – the preferred pronoun for a herm – is cheery and energetic. It is of medium height, with brown hair, brown eyes, and regular, chiseled features. Depending on how it dresses and acts, it can pass for either a handsome man or a strong-featured, athletic woman. Around Barrayarans, Bel uses a male persona because Barrayarans don't have female officers and consider herms "muties." In galactic company, of course, it dresses ambiguously and acts like what it is: an attractive, sophisticated herm.

Bel is a warrior through and through, although its mindset is "Betan military" (of course, a Barrayaran, and some Betans, would consider that a contradiction in terms). Bel is brave, loyal, mission-oriented, and aggressive, but thinks about its orders and will often ask questions rather than jumping to obey. Quick-thinking, observant, and technologically trained, Bel is a valuable planner and tactician . . . but it's also a fast, dirty hand-to-hand fighter, and skilled with a battlesuit for boarding actions.

Bel was the first officer on the *Ariel,* the Oseran Mercenary ship which Miles took in his first action. The mercurial herm had chafed under the command of the stolid Captain Auson. It quickly fell under Miles' spell and joined the (at that time imaginary) Dendarii Mercenaries. Miles soon came to rely on Bel, and promoted it to command of the *Ariel* as part of the Dendarii fleet.

Not only was Bel loyal to Miles, it soon developed a serious crush on him, which lasted throughout their association. Miles, while very fond of Bel and not unaware of its attractiveness, didn't *quite* let himself be seduced, and Bel stayed professional whenever it mattered. It was probably a near thing, though . . .

Captain Thorne remained one of the Dendarii inner circle for many years, until Miles' temporary death. At that point, it resigned its commission and left the Dendarii; it had been a mercenary, first under Oser and then for Miles Vorkosigan, for nearly 25 years.

Miles lost track of Bel for several years, and encountered it again, quite by accident, in the Union of Free Habitats in Quaddiespace *(Diplomatic Immunity).* At that point in the Vorkosigan Saga, Bel is attached to a quaddie whom it met while in the Dendarii, and holds a responsible position in quaddie society – Assistant Portmaster of Graf Station, a major habitat.

These statistics represent Bel Thorne after Miles gave it command of the *Ariel* for the Dendarii fleet.

ST 11 [10]; **DX** 12 [40]; **IQ** 14 [80]; **HT** 12 [20].
Damage 1d-1/1d+1; BL 24 lbs.; HP 11 [0]; Will 14 [0]; Per 15 [5]; FP 12 [0].
Basic Speed 6.00 [0]; Basic Move 6 [0]; Dodge 9; Parry 11 (Brawling),* Parry 10 (Judo, Karate).*
5'10"; 160 lbs.

Social Background

TL: 9 [0].
CF: Beta Colony [0]; general galactic society [1].
Languages: English (Native) [0]. (It is likely that the cosmopolitan Bel spoke other languages, but if so, they didn't come into the story.)

Advantages

Combat Reflexes [15]; Charisma 1 [5]; Appearance (Handsome/Beautiful) (both!) [12]; Military Rank 5 [25]; Patron (Dendarii Mercenaries; 12 or less) [20]; Patron (Miles Vorkosigan; 6 or less) [5]; Very Fit [15].

Disadvantages

Code of Honor (Soldier's) [-10]; Duty (Dendarii Mercenaries; 12 or less) [-10].

Quirks: Propositions Miles occasionally; Dresses ambiguously unless it's trying to get the attention of some particular male or female; Thinks Beta Colony is boring but can't help comparing other worlds to it; Sense of humor described as "vile" even by fellow soldiers. [-4]

Skills

Administration (A) IQ-1 [1]-13; Battlesuit/TL9 (A) DX+2 [8]-14; Beam Weapons/TL9 (Pistol) (E) DX+3 [8]-15; Brawling (E) DX+2 [4]-14; Computer Operation/TL9 (E) IQ [1]-14; Crewman/TL9 (Spacer) (E) IQ [1]-14; Dancing (A) DX+1 [4]-13; Detect Lies (H) Per-2 [1]-13; Diplomacy (H) IQ-2 [1]-12; Driving/TL9 (Groundcar) (A) DX+1 [4]-13; Electronics Operation/TL9 (Weapons) (A) IQ [2]-14; Fast-Draw (Pistol) (E) DX+1 [1]-13*; Fast-Talk (A) IQ-1 [1]-13; First Aid/TL9 (E) IQ [1]-14; Free Fall/TL9 (A) DX+2 [8]-14; Judo (H) DX [4]-12; Karate (H) DX+1 [8]-13; Leadership (A) IQ+1 [2]-15†; Navigation/TL9 (Hyperspace) (A) IQ-1 [1]-13; Navigation/TL9 (Space) (A) IQ [2]-14; Piloting/TL9 (Contragravity) (A) DX+1 [4]-13; Piloting/TL9 (Float-Bike) (A) DX [2]-12; Savoir-Faire (Galactic Society) (E) IQ+2 [4]-16; Savoir-Faire (Military) (E) IQ [1]-14; Sex Appeal (A) HT+3 [2]-15‡; Shiphandling/TL9 (Starship) (H) IQ [4]-14; Soldier/TL9 (A) IQ [2]-14; Spacer/TL9 (Starship) (E) IQ [1]-14; Strategy (Space) (H) IQ-2 [1]-12; Tactics (H) IQ-1 [2]-13.

* Includes +1 from Combat Reflexes.
† Includes +1 from Charisma.
‡ Includes +3 from appearance, which is Handsome/Beautiful (Androgynous).

Portmaster Thorne

At the beginning of *Diplomatic Immunity,* Bel is in its 50s. Its military skills have eroded; its administrative skills have increased. It is no longer Fit at all, but it has Cultural Familiarity (Quaddiespace), Comfortable Wealth, and Status 1. Instead of Military Rank 5, it has Administrative Rank 6 (+2 to its effective Status). Bel also has a Duty which is a Secret: It has retained its ImpSec connections and is a covert Barrayaran observer.

Bel's life partner, Nicol, a noted quaddie musician, would be an Ally, appearing almost always. Nicol has no explicit authority or special resources, but she does have a great many connections and a high and completely favorable Reputation throughout Quaddiespace. She could get a lot done with a single vidcall.

Commander Cavilo

366 points

Commander Cavilo is a greedy, power-hungry killer, with absolutely no conscience or honor, though she often finds it profitable to simulate both. She has an quick and devious mind, and believes she can design her operations so that every possibility leads to her victory. Her fondness for complicated planning and multiple betrayals can backfire, causing her to overplan, impute devious motives to others, and miss the obvious. As well as directing operations, she is quite prepared to act as a field agent, and she frequently uses her beauty and small stature to cause men to underestimate her.

Cavilo rose to the command of Cavilo's Rangers – previously Randall's Rangers – after arranging a fatal accident for Commander Randall. When the Cetagandans threatened Vervain, she took a contract to help defend the planet. She and the Rangers were later involved with the Hegen Hub Alliance's defeat of the Cetagandan forces.

What is not widely known is her deeper scheme during the Vervain crisis. Commander Cavilo originally planned to knock out the planet's navy, loot its treasuries and art galleries, and then hand the world to the incoming Cetagandans, barely "escaping" in time to preserve her reputation as an honorable mercenary. Her plans ran afoul of Miles Vorkosigan and the Emperor Gregor. Cavilo was captured by the Dendarii and forced to commit her ships against the Cetagandans. The Vervani were not advised that she had intended to betray them, and she unblushingly accepted a medal before leaving the Hub at high speed.

Cavilo has a vengeful nature, and would no doubt enjoy the prospect of revenge on Admiral Naismith (or Miles Vorkosigan, since she is aware of both identities). She may be a mercenary in every sense of the word, but at the very least, she would offer a discount to anyone who would send her against Miles. The Cetagandans are unlikely to employ her, having been betrayed by her once, but any of the Jackson's Whole powers might hire Cavilo's Rangers.

Cavilo is in her 30s. She is tiny but extremely intense, with blue eyes, a slight figure, and white-blonde hair cut close to her head. She usually wears the tan-and-black uniform of her mercenary outfit; in civilian clothing, she dresses to get attention.

> *Face like an angel, mind like a rabid mongoose.*
>
> *– Miles Vorkosigan about Cavilo,* ***The Vor Game***

ST 10 [0]; **DX** 14 [80]; **IQ** 15 [100]; **HT** 12 [20].
Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 19 [20]; Per 16 [5]; FP 12 [0].
Basic Speed 6.50 [0]; Basic Move 6 [0]; Dodge 9; Parry 10 (Karate).
5'4"; 120 lbs.

Social Background

TL: 9 [0].
CF: Interstellar [0].
Languages: English (Native) [0].

Advantages

Appearance (Beautiful) [12]; Charisma 2 [10]; Military Rank 6 [30]; Patron (Cavilo's Rangers; 15 or less) [30]; Status 2* [0].

Disadvantages

Callous [-5]; Overconfidence (12) [-5]; Reputation -4 (Treacherous; To Barrayaran ImpSec and Cetagandan Intelligence) [-6]; Stubbornness [-5].

Quirks: Kills casually; Wears strongly scented "green" spicy perfume; Enjoys gloating; Vengeful; Will do anything for power. [-5]

Skills

Accounting (H) IQ [4]-15; Administration (A) IQ [2]-15; Battlesuit/TL9 (A) DX [2]-14; Beam Weapons/TL9 (Pistol) (E) DX+2 [4]-16; Computer Operation/TL9 (E) IQ [1]-15; Detect Lies (H) Per-2 [1]-14; Diplomacy (H) IQ [4]-15; Electronics Operation/TL9 (Weapons) (A) IQ [2]-15; Escape (H) DX-1 [2]-13; Fast-Talk (A) IQ+1 [4]-16; First Aid/TL9 (E) IQ [1]-15; Free Fall (A) DX-1 [1]-13; Intelligence Analysis/TL9 (H) IQ-2 [1]-13; Interrogation (A) IQ-1 [1]-14; Judo (H) DX-2 [1]-12; Karate (H) DX [4]-14; Law (Interstellar) (H) IQ-2 [1]-13; Leadership (A) IQ+1 [1]-16†; Navigation/TL9 (Space) (A) IQ-1 [1]-14; Piloting/TL9 (Contragravity) (A) DX [2]-14; Piloting/TL9 (Float-Bike) (A) DX [2]-14; Politics (A) IQ [2]-15; Public Speaking (A) IQ+1 [1]-16†; Savoir-Faire (High Society) (E) IQ+2 [4]-17; Savoir-Faire (Military) (E) IQ+2 [4]-17; Sex Appeal (A) HT+3 [12]-19‡; Soldier (A) IQ+3 [12]-18; Stealth (A) DX [2]-14; Strategy (Space) (H) IQ [4]-15; Tactics (H) IQ-1 [2]-14.

* Free from Military Rank.
† Includes +2 from Charisma.
‡ Includes +4 from Appearance.

Russo ("Guppy") Gupta

288 points

Russo Gupta was born on Jackson's Whole, one of a group of amphibious genetic constructs created for an underwater ballet. He wasn't a performer; he was trained as a tech and stagehand.

When his creator, House Dyan, was taken over by House Ryoval, Gupta was deemed useless. As he observed later, it could have been worse . . . Ryoval could have had a use for him. The houseless Gupta knocked around at various tech jobs and eventually joined with three other Jacksonians to own a (heavily mortgaged) small freighter. Some of their cargoes were even legal. This heartwarming Jacksonian success story was interrupted by the events of *Diplomatic Immunity,* leaving Gupta alone, shipless, and with a single goal: to kill the man who'd killed his friends. This wasn't just revenge; by Jacksonian standards, it was justice. On the Whole, there is no higher authority than the House, and his shipmates had no House but each other. As the last survivor of their little group, it was Gupta's proper task to deal with their killer. He did his best.

Gupta looks odd – lanky, barrel-chested, with a big nose, small ears, and patchy dark hair – but at first glance he's merely ugly. At second glance, his nonhuman features will be noticed. His hands and feet are very long, and if he spreads his digits, a rose-pink web is visible between fingers and toes. His limbs are also quite flexible. His barrel chest seems scarred but not especially odd – until he opens the gills that let him breathe underwater. His hunched posture conceals his height.

He's comfortable on land, in water, and in zero gravity – though he prefers to rest in a tank of water. He can't stay in his tank for more than a half-day or so, because he doesn't want to urinate in the water he breathes . . . but in a large body of water, if he must, he can stay immersed indefinitely. He prefers clean fresh water but can tolerate salt. When he spends a long time in dry air (in a ship, for instance), he needs to moisten his gills occasionally with a glycerin solution.

Gupta is streetwise and technically adept. He's shown himself to be determined, ingenious, and ruthless. He escaped from his drifting, contaminated ship, and tracked the killer across the nexus to Union Station. With no contacts there, he managed to acquire a supply of highly illegal knockout gas. He bought a rivet gun and modified it into a short-range machine gun. He learned to use his long toes to control quaddie floaters, well enough to pass briefly as a quaddie. A self-appointed one-man hit squad, he came very close to eliminating the suave Dubauer, who had never dreamed retaliation might come from the despised "frog" he'd left for dead.

When Gupta shot at Miles, he was at the end of his rope, murderously crazed by loss and despair. Miles felt no little sympathy for him, regardless, and gave his Vor promise of protection. His solution was to ship Gupta off to the Dendarii, where he would encounter no prejudice, and where an ingenious and technically skilled water-breather might occasionally be a valuable asset.

Gupta stayed with the mercenaries for a time, got past most of his trauma, and proved Miles' judgment correct: He became a loyal, if sardonic, Dendarii, and his talents were useful. He could come into any Dendarii adventure set a few years after *Diplomatic Immunity.* Eventually he left on friendly terms and set out on a personal quest to find and rescue any survivors from his original troupe.

The description below represents Gupta in his early 30s, not long after he joined the Dendarii. He's learned more about things that go *boom,* and begun to solidify his very informal skills as a ship's engineer.

ST 11 [10]; **DX** 12 [40]; **IQ** 13 [60]; **HT** 11 [10].
Damage 1d-1/1d+1; BL 24 lbs.; HP 11 [0]; Will 17 [20]; Per 14 [5]; FP 11 [0].
Basic Speed 5.75 [0]; Basic Move 5 [0]; Dodge 8
5'11"; 190 lbs.

Social Background

TL: 9 [0].
CF: Jackson's Whole [0].
Languages: English (Native) [0].

Advantages

Amphibious [10]; Doesn't Breathe (Gills, -50%) [10]; Extra Arms 2 (Foot Manipulators, -30%; Temporary Disadvantage, Ham-Fisted 2, -10%) [12]; Flexibility [5]; G-Experience (All) [10]; Gadgeteer [25]; Military Rank 1 [5]; Nictitating Membrane 1 [1]; Patron (Dendarii Mercenaries; 12 or less) [20]; Temperature Tolerance 1 (Unharmed down to 24 degrees F) [1]; Unusual Background (Product of experimental bio-tech) [15].

Disadvantages

Appearance (Ugly) [-8]; Code of Honor (Soldier's) [-10]; Duty (Dendarii Mercenaries; 12 or less) [-10]; Flashbacks (Mild) [-5]; Sense of Duty (Fellow genetic constructs) [-5]; Unnatural Features (Barrel-chested; Lanky; Peculiar hands and feet) [-3].

Quirks: Cold-tolerant but still complains of cold out of water; Fears and dislikes Cetagandans; Nervous about disease and contamination; Self-deprecating; Wets his gills occasionally when in dry air, usually with a glycerin spray (a comfort issue rather than a requirement). [-5]

Skills

Beam Weapons/TL9 (Pistol) (E) DX+2 [4]-14; Computer Operation/TL9 (E) IQ+2 [4]-15; Driving/TL9 (Groundcar) (A) DX [2]-12; Electrician/TL9 (A) IQ+1 [4]-14; Electronics Operation/TL9 (Communications) (A) IQ+1 [4]-14; Electronics Repair/TL9 (Communications) (A) IQ+1 [4]-14; Explosives/TL9 (Underwater Demolition) (A) IQ+1 [4]-14; Fast-Talk (A) IQ+1 [4]-14; First Aid/TL9 (E) IQ [1]-13; Free Fall (A) DX+1 [4]-13; Gambling (A) IQ-1 [1]-12; Mechanic/TL9 (Starship) (A) IQ+1 [4]-14; Piloting/TL9 (Contragravity) (A) DX [2]-12; Freight Handling/TL9 (A) IQ [2]-13; Research/TL9 (A) IQ+1 [4]-14; Scrounging (E) Per+1 [2]-15; Spacer/TL9 (Starship) (E) IQ+2 [4]-15; Smuggling (A) IQ+2 [8]-15; Soldier/TL9 (A) IQ [2]-13; Streetwise (A) IQ+2 [8]-15; Swimming (E) HT [1]-11; Urban Survival (A) Per [2]-14.

Chapter Eight
Forward Momentum

The short man in brown and silver looked at the screen of his computer again. ***As if he needed to check it,*** *Solone reflected wearily. "So," he stated. "Three Barrayaran tourists out for some hill-country hiking. You became separated from our friends, you took a knock to the leg, your short-range com wasn't working because those hills have a high metal content, breath mask only good for a few more hours, so you hit the panic button . . ." He paused to allow comment.*

Solone nodded. "And the patrollers sent out a van and found the poor clueless Barrys, and what do you know, 30 feet from the little hole where I'd been waiting out of the wind, there was a real cave, and people had been using it, and what do you know again, it turned out to be a crime scene, and the tourists couldn't be allowed near it. Between that, and Alexei going on about stalactites, and me hopping around on one leg and making mutant jokes, and the Lieutenant asking them to pose for pictures with their flyer, they were ***delighted*** *to get rid of us."*

"No doubt," the other agreed with a grin so quick Solone almost missed it. "Fortunately, the trouble to which you have put our Komarran friends has been recompensed by the discovery of House Fell's agents. It was quite easy to identify them, and that closed the case very nicely as far as the Komarrans are concerned."

It should have been, Solone reflected, after the trouble he and the other two had taken to leave the stolen Jacksonian computer files and physical belongings in obvious locations. "I apologize for requiring local aid, but it was the best I could come up with."

"Think nothing of it, Captain Solone. You have resolved your investigation with no visible ImpSec involvement at all. The clueless tourists have vanished. Well done."

"But I fear . . ." He checked his computer again. "I fear you won't be home for a little while yet. Given how well the three of you seem to work together, there is a small matter on Beta Colony which I need you to investigate. You two officers will keep your tourist identities, and we're sending out a packet for Alexei . . ."

The universe doesn't stop moving. It's big, and it's busy, and even if the major worlds are currently – barely – stable and peaceful, you can be sure that someone, somewhere, is cooking up a new invention, political system, or other disruption. Market forces and scientific insight bring political and economic change, and a society that can't adapt is going to find itself left behind. (Of course, those worlds that pride themselves on their tradition and stability will be busy trying to maintain themselves against the waves of change.) Characters need to react, or better still, act – the rest of the universe won't slow down for them.

Crossovers

The ***Vorkosigan Saga*** can be melded with other genres, and other ***GURPS*** sourcebooks can be used to provide additional background for historical campaigns or unusual settings.

Extrapolations: For a psionics campaign, exploring the possibilities of Terence Cee's genes on Athos, ***GURPS Powers*** (or the Third Edition book ***GURPS Psionics***) may be useful. ***GURPS Ultra-Tech*** is full of interesting technology that could pop up in a Betan research lab. ***GURPS Space*** and the ***GURPS Traveller*** books provide suggestions for further campaigns in space – or the worlds from the Vorkosigan universe could easily be folded into a ***Traveller*** campaign (although the TL is different). ***GURPS Mysteries*** is a natural for intrigue-heavy Vorkosigan Saga games.

Historical Possibilities: ***GURPS Russia*** could provide background for some aspects of Barrayar during the Time of Isolation. Likewise, ***GURPS Illuminati*** might provide valuable suggestions for a campaign about the evolution of Jackson's Whole . . . (Both of these books are for Third Edition.)

Other Genres: Why limit a Vorkosigan Saga game by space and time? Use ***GURPS Fantasy*** to turn the worlds into islands linked across the ocean by magical gates – or use ***GURPS In Nomine*** to add angels and demons to humanity, and make Miles' life even more complicated! Characters in a ***GURPS Infinite Worlds*** campaign could journey to – or from – the Vorkosigan setting. And for those who like an off-the-wall game, perhaps a few Dendarii Mercenaries have landed at ***GURPS IOU*** and taken up temporary positions as lecturers or students.

Types of Campaign

The Vorkosigan books wander through a wide variety of themes and plots. Miles and his family have been involved in events that range from the dangerous to the farcical, from space battles to down-and-dirty assassinations, and from high-society intrigues to desperate life-or-death negotiations. A campaign may contain any or all of these elements, but sometimes the GM will want to choose one particular theme as his central motif. And the game may be set at any point in time – in the past, or even in the potential future.

High Adventure

The Vorkosigan universe is *made* for high drama, last-minute escapes ("Daring rescues our specialty!"), perilous confrontations, and heroic resistance against the forces of evil. There are plenty of opposing factions who may engage in life-or-death struggles for the most ethical – or unethical – reasons. If Cetagandan and Barrayaran secret agents are both trying to get hold of the genomic complex for telepathy, neither are necessarily villains – they can both be acting on orders from their superiors, and for the highest of motives. (Whether or not their ends justify the means they use is a different question.) There are plenty of opponents out there – possibly including other player characters.

High-adventure campaigns should be played straight-faced, with an understanding by the characters that the universe *is* a dangerous place and that the threat of death is real. They know that they're risking their lives for their worlds . . . or, of course, for power or other personal reasons. This is a setting for stories about heroism and duty, and about people who change the universe around them. The protagonists will enjoy hairbreadth escapes, thrilling confrontations, and the chance to become heroes. And even if they die – heroically, of course – their names will be remembered.

ImpSec and Auditorial Investigations

This is the setting for players who want to investigate crimes, corruption, and intrigues. They may be an ImpSec team, a loose group of experts requisitioned by ImpSec, an Auditor's assembled staff, Auditors themselves, or merely a hired set of investigators on retainer for ImpSec – in which case they may not even know who their employers truly are! They might even be an investigative group working for another government, such as Beta Colony, the Cetagandan Empire, Escobar, or Jackson's Whole. GMs may find this a useful model to work with, as it gives convenient reasons for the team to be working together, and offers the possibility of multiple layers of plot and investigation.

However, matters shouldn't be made too easy for the investigators. Using fast-penta on everyone in sight should be discouraged . . . by widespread cases of allergy, by official orders from above to refrain (perhaps some suspects can't be allowed to babble freely, or are too politically important), or by simple restraint on the part of the agents, respecting the dignity and privacy of the suspects. (Which is sometimes an error!)

The party may be placed somewhere unusual – imagine trying to conduct an investigation on Beta Colony – or forced to operate under the scrutiny of *another* ImpSec team. Ultimately, even if they discover the truth, there may be reasons for keeping it secret, or for blaming it all on someone else . . .

GURPS Mysteries will be a very valuable resource for the GM running this type of adventure.

Ultimately . . . his career ran aground in disaster. But before it ended, he changed worlds.

– Simon Illyan about Miles Vorkosigan, ***A Civil Campaign***

Political Intrigue

Where there are important people, there will be political intrigues, and this is certainly true in the Vorkosigan universe. The PCs may have the political power to be intriguers themselves, or they may be the trusted agents of Counts and Emperors – or dupes to be used, framed, and discarded. Admittedly, in this sort of campaign, it's more fun if the heroes have some power to influence the course of events. Younger sons and rising officers may have connections to a Minister or Count, and may be sent out to make deals for him – or to perform the odd bit of illegal activity. Female Vor may need to network on the distaff side, to persuade the Countesses to persuade their Counts.

The *Yarrow* Incident

It's possible for an adventure to combine both investigative fieldwork and Vorish intrigue.

When Gregor began to assert himself as Emperor, some of the Old Vor became angry enough with his reforms to forget their oaths. A hyperisolationist faction, including Count Vortrifrani, plotted an assassination that would have taken out not only the Emperor but most of Vorbarr Sultana . . . without using any indecent, mutation-inducing nukes. They acquired an old freighter, the *Yarrow.* They intended to fill it with high explosives and crash it from orbit onto the Imperial Residence. Fortunately, Imperial Security uncovered the plot and prevented the attack.

The investigation was led by ImpSec Colonel Haroche; it became a textbook case in counterterrorism, studied by all new ImpSec analysts. The details were never made public . . . which makes it a possible adventure for an ImpSec team, acting as Haroche's field investigators and, ultimately, capturing the *Yarrow* intact and hunting down the conspirators.

Ultimately, it may come down to a question of trust, honor, and duty. What if someone is obliged by political obligations, or by his name's word, to cast a vote in the Council of Counts for something that he violently disagrees with? Why is ImpSec following the party wherever they go – could they have stumbled into something bigger than they realize while negotiating for a shipment of the newest-model uterine replicators? Why would a Count, on your first meeting, offer unsubtle warnings over coffee in Vorbarr Sultana – and might it have something to do with a relative's recent rise to the Ministry of Mines? And what do you do when a politically important figure asks *you* to testify on his behalf, in public, to the Council of Counts, on a matter that will change the future of Barrayar? Worse still, what if he wants you to lie?

Historical Adventures

Every planetary culture has high spots to explore. Adventurers could even alter the course of history! This sort of game offers a great deal of potential fun for both GM and players. There's enough evidence in the books to make some reasonable extrapolations about "what it was like back then," and it can allow simpler scenarios, without some of the current galactic complications. If the heroes actually take part in major events, their names might even go down in the history books. Imagine a researcher in a modern-day Barrayaran campaign being able to look into the archives of House Vorrutyer, and finding a reference to the character he ran back in a Time of Isolation game! (Of course, history has been known to be imperfectly recorded, as Aral Vorkosigan, "the Butcher of Komarr," could bear witness. The GM should not be blamed if a Vor with a mild taste for Dendarii maple mead goes down in the books as a rowdy alcoholic . . .)

Situations on Barrayar could include the arrival of the Firsters, high Vor martial adventure during the Time of Isolation, Emperor Dorca's suppression of the Counts, the rediscovery of Barrayar and the first ships to make contact, General Piotr Vorkosigan's adventures during the Cetagandan Invasion and Mad Yuri's War, or even the present day with the Escobaran War and the Vordarian Pretendership. Barrayaran history is nothing if not full of excitement. ("Meet Pierre le Sanguinaire – and hope to survive!")

Jacksonian history is full of drama and dirty deeds – the evolution of the world from pirate base to the current organization of Houses Major and Minor offers countless opportunities for intrigue and foul play.

In the Cetagandan Empire, the separate evolution of haut and ghem dates back to an early decision by the founders of the Star Crèche – what happened then, and did some of the early Cetagandans try to stop it?

Beta's earliest history was a constant fight for survival. And even in that most ethics-obsessed of cultures, there have been recidivists, criminals, and unbalanced scientists; their histories would doubtless make for an interesting campaign. Are the facts about the invention of the gravity drive, the development of the uterine replicator, or the creation of hermaphrodites, quite as straightforward as history makes them out to be? The Betan government might have decided that it was in the best interests of its citizens to simplify some of the details . . .

Romance

Love is the plot motivation for several of the books, and can add a great deal to a campaign. However, it can also be an extremely tricky subject for a GM and players to handle. A player may object if he is informed that his character has fallen in love without his consent; equally, GMs may find that players who declare their characters to be "in love" don't run them the way that the GM thinks would be suitably romantic, or which fulfill the GM's concepts for the campaign. It can be awkward, and risks being embarrassing or painful for the players themselves as well as within the game. If a romance needs to be resolved mechanically, it can be handled as a set of reaction rolls, affected by Savoir-Faire and Fast-Talk, the presence of a good Baba, and Fashion Sense (in the character or his tailor).

Laisa and Gregor

Mother Nature gives a sense of romance to young people, in place of prudence, to advance the species. It's a trick – that makes us grow.

– Countess Cordelia Vorkosigan,
Mirror Dance

However, romance can also add a great deal to a Vorkosigan campaign. It's a staple of the genre that people fall in love, and that love brings them plenty of additional plot twists, dependents, concerns, problems, and the like. The GM is at liberty to set romance-bait NPCs in the heroes' way – especially if some of them are being pressured to marry or reproduce. If players like the idea , fine. But it's not something that should be forced on them. (Having a NPC conceive a passionate desire for a PC is a different matter – that can be quite amusing, as Ivan Vorpatril's varied relationships demonstrate . . .) Also, a romance involving two NPCs can easily entangle their allies and enemies in the confusion; there may be political and social implications, emotional difficulties, desperate appeals to assist elopements or facilitate secret meetings, and other similarly amusing possibilities.

Scenario vs. Campaign

A campaign should feature running themes (responsibility, honor, revenge), recurring secondary characters (such as the Dendarii regulars who keep showing up in the background), and plausible reactions to events. Each episode of the campaign, or any single scenario, can be self-contained – the heroes handle a problem, resolve an investigation, or take steps to deal with an enemy. There must be some sense of accomplishment in each separate episode, even if the team doesn't reach their ultimate goals. Such an achievement may be the resolution of the whole campaign . . . work toward it a step at a time.

One of the main requirements in campaign play, as opposed to single-scenario play, is that each player be comfortable with his PC, one whose future he will enjoy exploring. While many personality types can be amusing for a single scenario – or even several – a campaign requires a party with plausible but manageable interactions, in which each member gets opportunities for growth. Of course, individual tastes may differ – some people may *enjoy* a campaign where they are all Jacksonian barons, politicking and Dealing for the good of their Houses and the downfall of their enemies.

Long-Term Goals

A long-term goal will probably take most of a campaign to accomplish, and is likely to figure in each adventurer's personal history as something very important: achieving a lifelong dream, for example, or laying to rest a hideous personal trauma. It might involve a non-Vor achieving high rank in the army, a Jacksonian joining a House (or escaping one for good, or destroying it), a ghem-lord gaining high command or a haut-lady wife, a merchant trader making the profit which will establish him permanently as a major player on the Komarran stock market . . . These are things that will probably take years to accomplish, and require significant effort. Their achievement will be a defining moment for the character . . . at which point he will be forced to review his life's objectives and decide what to do next.

Short-Term Missions

This is an objective or priority which only takes one or two sessions: rescuing kidnapped nobility, spying on an important meeting, securing a trading conflict, investigating a murder, and so on. Short-term missions may vary wildly, and be as minor as "Introduce young Lord Vorpatril to Lady Vormuir," or as *seemingly* minor as "Infiltrate the House Thibault genetic lab on Jackson's Whole and copy the databank with the screaming-bird icon."

Inter-Character Conflict

GMs and players can have a lot of fun with inter-character friction. This may come from mutually incompatible goals or priorities, competition for favor or resources, embedded prejudices, historical grievances, or simply obnoxious personal habits such as hyperactive manic enthusiasm. As play progresses, some PCs may actively work against each other, rather than simply failing to cooperate. It can add a great deal of richness and interest to the game, whether they ultimately manage to work together and succeed, or if they find themselves dealing with failure. Even Miles didn't always win – and when he lost, it had permanent consequences. Players can and will generate their own plots involving each other's characters, and should be encouraged to do so.

Complications

Problems are what make life interesting. In the Vorkosigan novels, it is the characters' handicaps and problems that make them truly great. Miles would not be as interesting without his brittle bones, his Vor sense of honor, his duty to the Emperor, and his manic-depressive swings. Character disadvantages and cultural restrictions add a great deal of the fun to roleplaying in this universe – the heroes succeed *despite* who they are and what they have to contend with, not because they were perfect in the first place.

Certain complications are common in the Vorkosigan universe, and frequently cause problems for the people who encounter them. They can become themes to be explored in the course of a campaign, viewed from different perspectives each time.

Duty

Duty is related to, but distinct from, honor. Put in its simplest terms, honor is the trait that requires you to do your duty. Duty is the set of everyday tasks and obligations that most characters labor under, ranging from the trivial (data input, saluting superior officers) to the extreme and unexpected (apprehending a spy, guarding a wormhole, sacrificing your life for the Emperor). Duty rarely comes as a surprise; if you don't want the duties of a Service life, don't sign up for a career in the military.

Betrayal of one's duty is likely to lead to consequences ranging from the social (ostracism for actions unbefitting a Vor) to civil and military (imprisonment for betrayal of the haut). Duty is what a person signed up for – either by birth or by conscious assent – and must now fulfill. It is not unknown for duty and honor to pull in different directions . . .

Honor

A person may be able to evade his duty, but he cannot escape his own sense of honor. Honor is intensely personal, even if it is often broadly delineated along cultural line; many Vor disagree on questions of personal honor, even when they agree on the general duties of the Vor caste. Equally, honor may drive a person to disobey his duty. If Miles Vorkosigan is ordered by a superior officer to stay out of a fight, but feels honor-bound to involve himself to save his clone-brother's life, which will he obey? Duty or honor? If a Cetagandan ghem-lord has his life saved in a spaceport brawl by a Barrayaran, and is later ordered to kill the Barrayaran to protect a haut secret, what will he do? When Count Aral Vorkosigan refused to sanction a mission to rescue the baby Miles during the Vordarian rebellion, he was acting from a personal sense of honor; he could not favor his own son when he would not mount a similar mission for other hostages. If someone acts contrary to his honor, other people may never know it, but he may have irrevocably wounded himself. It then becomes his choice whether to continue in the same way, with betrayal after betrayal, or to try to admit his fault and start again . . .

Family

Family mingles questions of affection, duty, and honor, bringing trouble from all three sides. What is a young Vor woman to do if her parents have arranged a marriage with a "nice young man" whom she's never heard of before, and who turns out to be exactly the sort of old-fashioned Vor bore she'd never consider marrying in her worst nightmares? How is a rising non-Vor officer in the Barrayaran Service supposed to cope when he finds out that his family, back home in a remote District, has joined some sort of *democratic* party? Will a Jacksonian escapee leave the rest of his clone-family behind – or will he go back to bring them out as well? Families provide some of the most reliable allies that anyone could hope for, but they also bring problems. A Barrayaran may have overcome his distrust of Cetagandans to befriend a ghem-lady, but his father may not be as understanding. So what will the Barrayaran do about it?

> *Reputation is what other people know about you. Honor is what you know about yourself.*
>
> *– Count Aral Vorkosigan,* ***A Civil Campaign***

Scenario Seeds

Three weeks ago they hijacked a Tau Cetan registered passenger vessel . . . among the passengers were eleven Barrayaran subjects . . . your orders, of course, are to rescue alive the Emperor's subjects, and as many other planetary citizens as possible, and . . . prevent the perpetrators from ever repeating this performance.

– Upcoming assignment for the Dendarii at the close of ***Brothers in Arms***

Several scenario or campaign options follow, as examples of how various themes from the Vorkosigan saga can be used or expanded.

Untold Dendarii Stories

This campaign might be set before Admiral Naismith's retirement, while he's still personally directing the Dendarii under ImpSec's orders. It could also be set afterward, with Admiral Elli Quinn in command. The party may be high-ranking officers, captains of ships or leaders of commando teams, reporting directly to the Admiral. For a different approach, they may be a low-level team, who seldom achieve the rarified heights of the Admiral's presence but who are constantly busy in "down and dirty" missions. If they are particularly skilled or talented, they could be on a detached mission, as Commander Quinn was in *Ethan of Athos*. They will be expected to operate together under conditions of extreme danger and secrecy, possibly never fully understanding their mission but bound to carry out their employer's wishes. It's a tough life – but they're the Dendarii Mercenaries, the best of the best, and if anyone can do it, they can.

There will doubtless be plenty of missions besides those commissioned by ImpSec. The Dendarii undertake rescues, assaults, spying, and sabotage. Mercenaries earn their money, and characters can make friends and enemies independently of any involvement with Barrayar. For an interesting campaign twist, they might discover Admiral Naismith's *real* identity and that Barrayar and ImpSec are behind half their missions. What will they do with that information – sell it, keep it secret, or attempt to blackmail someone? Do any of them have a grudge against Barrayar, or against the Butcher of Komarr and his son? And what would the Cetagandans or Jacksonians pay for this bit of intel . . . ?

The Lord Auditor's Henchmen

When the Emperor has an issue involving either galactic affairs or ImpSec, he calls Lord Auditor Miles Vorkosigan. The Lord Auditor will need scientists to analyze data, guards to keep him safe from the inevitable assassination attempts, guides for unknown geography, local cultural experts to explain the situation, investigators to go undercover and fetch him the information that he needs . . . This can be an excellent way to bring together a group of agents who have little in common. Being in ImpSec's files is enough to bring them to Miles' notice. And what will they do if the Auditor is incapacitated or goes missing? They may have to resolve the investigation themselves . . .

Imperial Security

ImpSec needs agents all across the wormhole nexus to protect Barrayaran interests; these agents may or may not know who they are working for. They may be independent investigators, cooperating at the request of their mysterious patron, or an existing team of operatives. Their assignment may involve sabotage, kidnapping, spying, pursuing an enemy agent, or any number of illegal activities. In the old days, ImpSec would have appreciated some criminal evidence against its hired help, to blackmail them into cooperation. Are the old days really over? If the operatives have a dark secret or criminal record, they will doubtless be extremely unhappy to find out that ImpSec knows about it . . .

Merchant Campaign

Trade fleets? Private merchant traders? Wormhole wildcatters? Pirates? Dirty deeds done dirt cheap behind sordid spaceport bars, goods smuggled through customs, illegal cargoes that will fetch a nice little packet of money – and pay off a debt to a Jacksonian crime lord? High-level economics and stocks and shares, discussed in Komarran domes, negotiated with Vor lords and Cetagandan ghem-clans, financed by Jacksonian banks . . .

A career as a trader, whether upper-class or lower-tier, offers all sorts of opportunities to acquisitive heroes with quick reflexes and retentive minds. Anybody can drift into a trading career, from any sort of background. Of course, if a group is *too* diverse, certain cultural clashes are likely . . . but perhaps they can put their prejudices aside in pursuit of greater goals. Life as a trader can be dangerous, but can offer huge profits – how much might it be worth to negotiate a deal between the Cetagandan Empire and certain Komarran trading houses? It's up to the traders how much they care to risk, and how much they hope to achieve.

Jacksonian Renegades

There are all sorts of reasons for all sorts of people to be on the run from Jackson's Whole. They might have offended one of the Barons, or reneged on a Deal – or *kept* a Deal with the wrong person at the wrong time. Maybe they're a group of gengineered slaves, on the run together, hoping to escape servitude, experimentation, or worse. Perhaps they're desperate spaceport workers, on the run with a stolen ship and false IDs. Or perhaps one of them is the heir to a House, accompanied by loyal servants or guards, and needs to take a long vacation offplanet for his health . . . in that, if he doesn't get offworld, he'll be dead.

Whatever the reason, getting away from the Whole is only the first step. The Houses Major can reach almost anywhere in the galaxy – fugitives shouldn't feel secure just because they've left the planet behind . . .

For Family and Vor

This campaign deals with a particular Vor family trying to improve its fortunes. It could take place during the Time of Isolation, with private armies, spies, and open war, or in a more recent period, such as the Cetagandan occupation. Or it could be today, under Emperor Gregor. It could even be a generational campaign, in which one set of heroes meets its goals . . . or fails tragically . . . and the saga picks up again with their children or grandchildren.

The adventurers may be scions of the house, valued retainers, loyal Armsmen, hired researchers, or anyone else who has thrown in their lot with the family. They may undergo crises of duty and honor when asked to subordinate their personal desires to their lord's needs, or they may have to risk their lives in service. This sort of campaign requires a certain amount of work to ensure that the heroes are created with the group dynamic in mind, so that they will be able to fit together, but offers clearly defined objectives.

Flashpoints

The Fourth Cetagandan War

Even with constant diplomacy, Barrayar doesn't trust Cetaganda, or vice versa. Low-level secret-service sniping continues, although understandings have been reached between some leaders on both sides. Miles himself is a key player in this, with important contacts at the highest levels of both haut and ghem.

Still, the Cetagandan Empire is holding to its borders, and only indulging in minor intimidation and deal-making – for the moment. If the haut-lords decide to unleash their military servitors, the ghem, to expand the Empire, the whole face of the galaxy might be changed. But it's also possible that the haut's power struggles could split the Cetagandans into planetary factions, each with its own fleet and its own ambitions. The next Cetagandan war could start as a civil war.

The Second Komarran Revolt

A number of Komarrans still resent Barrayaran rule. Even after all these years, some will rebel given the chance, but many feel their world's future lies with Barrayar. A new Komarran revolt would encounter some of its bitterest opposition right at home.

On the other hand, several interstellar powers – even some with no particular ill will toward Barrayar – might happily support a Komarran revolution, in hopes of taking control of the wormhole hub.

The Barrayaran Succession

Barrayar, under the progressive Emperor Gregor Vorbarra, is spending its energy on colonizing and terraforming its South Continent and the world of Sergyar – much to the relief of its neighbors. But the peace of the Barrayaran Imperium depends upon the Vorbarra line of succession. Gregor has no named heir; he has just married, but there is no sign of a child yet, and there is no clear line of succession.

If Gregor were to die without issue, various factions would support a half-dozen different claimants for the throne. If he died leaving young heirs, the Regency would become a political football. Either way, the Imperium would be thrown into disarray. Internal factions would try to grab what they could, while every Fleet unit that went home to keep the peace (or join in the politics) would expose Komarr and Sergyar to external foes. Even a relatively bloodless resolution would leave Gregor's peaceful, progressive policies in disarray.

The Telepathy Scare

If the existence of the telepathy gene on Athos (p. 46) were discovered, it would cause a galactic uproar. Secret services would scramble to obtain samples . . . and prevent other powers from doing the same. The Star Crèche of Cetaganda (p. 41) would be intensely interested, since they originally developed the genetic complex. The Great Houses of Jackson's Whole would see huge opportunities for profit. Some powers might be so unnerved by an expanding group of telepaths that they would attack Athos in an attempt to destroy the telepath gene, if not the planet itself.

That Marvelous New Device

Scientific discoveries and economic pressures can also have a major impact – for example, consider Beta Colony's invention of artificial gravity or the uterine replicator. Jackson's Whole continues to offer its cloning services and scientific advances to anybody who wants an assassin, a slave, a lethally engineered virus, black-market weapons, or

wholesale money laundering. The Great Houses will certainly be quick to exploit any emerging technology. One line of research that is getting a lot of tightly focused attention could lead to . . .

The Longevity Wars

Lord Mark Vorkosigan is actively funding research into alternate methods of life extension. He hopes to undercut the Jacksonian barons and end the practice of selling clones as new bodies for the rich. Should he succeed, the competition he creates for the hated clone-farmers will be the smallest of consequences! An effective method of life extension will change politics and cultures throughout the galaxy, especially if only the wealthy and powerful get to live longer – perhaps much longer – and the common people don't.

New Wormholes

The discovery of a new wormhole route (see p. 9) could alter the galactic situation radically. Imagine the uproar if a shortcut is found between Barrayaran space and the Cetagandan Empire! When a lucky explorer pops through into a new system and makes it back alive, the first order of business is to look for more wormholes. They are difficult, but not impossible, to detect . . . and there is no way to know what's on the other side except to go through. This is a dangerous job. The Survey crews that explore new wormholes are respected, and the civilian "wildcatter" jump pilots who try it solo are considered the craziest of the crazy.

If an established power controls the new wormhole entrance, that power will heavily guard its own side, just in case, and send ships through to explore the other side. They may find a new habitable world . . . they may find more wormholes, requiring more exploration. Or they might find a system that's already known, in which case a new route has opened for trade or war.

Should a new wormhole entrance be discovered in neutral or disputed territory, it will be the scene of an instant power struggle. Information as to its location will be highly marketable to all the intelligence services, every Great House on Jackson's Whole, and any private individuals who might want to try to explore on the other side. Ships from every interested empire or planet will crowd the area, inflaming any ongoing border disputes. Neutral powers nearby will be requested – diplomatically or otherwise – to allow navies to move through their space, or to add their own forces to the competing factions.

Mere hints about possible new wormholes could set off a "treasure hunt," with ships thronging the area – each, of course, trying to keep its own researches secret. Regular investigators of such rumors include the Betan Astronomical Survey (p. 37), as well as the "wormhole wildcatters," obsessive explorers in search of the one big discovery, the new world which will make their fortunes. There will be agents from all the major powers, as well as independents, mercenaries, and thrill-seekers. And once a new wormhole is located, what then? Do the discoverers run for home, wait for backup, or try to jump through for some quick exploration? Enemies are gathering, the clock is ticking . . . and what if someone emerges from the other side?

Destroying a Wormhole

Existing wormholes do, rarely, close. The disappearance of a wormhole can cut a formerly-profitable trade route, beggaring some worlds and benefiting others. It can even isolate a world; Barrayar was cut off from the galaxy for centuries because of the sudden disappearance of the wormhole through which it was colonized. The Barrayarans regularly check, but there is no sign of it reopening. If it did, Barrayar would no longer be a dead end, but would have access to a whole new chain of wormholes!

Nobody has yet established what creates wormholes, or how to predict their opening and closing. They are the product of energies beyond the present human capacity to control. Wormholes appear to be related to stellar masses – at least, they are found in the neighborhood of stars, not in the empty space between them, and they possess a pseudo-mass which keeps them orbiting the parent star. The events that create wormholes may indeed be stellar in scale.

As described in *Komarr,* a group of rebel Komarran scientists and engineers developed an experimental "wormhole collapser." The theory turned out to be flawed, and the device produced an entirely different effect than its creators intended.

But it *did* have an effect. Specifically, more energy came out of the wormhole than went in, making it a potential power source. However, the long-term results of such meddling are, so far, unpredictable. Might the wormhole degrade, or even collapse in a shower of radiation like that which hit Barrayar when its original wormhole closed? No doubt this will be investigated; the technique is currently known only to the Barrayaran Imperium (and certain Komarran engineers in Barrayaran custody), but such things rarely remain secret for long. The ability to seal wormholes at will, let alone to create them, would change *everything.*

Appendix A
GURPS Lite

This book uses the ***GURPS*** roleplaying rules. The *full* version of the system, the ***GURPS Basic Set,*** is available through any good game shop. This appendix provides a customized adaptation of ***GURPS Lite***, It can be used either as an introduction to the ***GURPS*** system, or for (nearly) systemless roleplaying.

What Is *GURPS*?

GURPS stands for "Generic Universal RolePlaying System." Why is it called that? Well . . .

"Generic." ***GURPS*** starts with simple rules, and builds up to as much optional detail as you like. This abridged version presents the "core rules" that most GMs start with.

"Universal." The basic rule system is designed to emphasize realism. It can fit any situation – fantasy or historical; past, present, or future.

"RolePlaying." This is not just a "hack-and-slash" game. The rules are written to make true roleplaying possible – and to encourage it. In ***GURPS,*** you pretend, for a little while, to be someone else.

"System." Over 200 different books have been published for ***GURPS,*** in eight different languages (so far). It is one of the recognized standards for roleplaying, worldwide.

Materials Needed for Play

To play, you will need these rules, three six-sided dice, pencils, and scratch paper.

About *GURPS Lite*

This is the boiled-down "essence" of ***GURPS:*** all the fundamental rules, but not the options and embellishments that often confuse new players. Once you're comfortable with these rules, you can pick up the ***GURPS Basic Set*** and jump right into the action. Experienced Game Masters will, we hope, find this a valuable tool for introducing new players to the game.

Glossary

GURPS is a roleplaying game (RPG). Like any hobby, gaming has its own unique language. To help you understand the concepts and terms used in this game (and other RPGs), we'll start with a few definitions:

roleplaying game (RPG): A game in which players take on the personalities of imaginary individuals, or *characters,* in a fictional or historical setting, and try to act as those characters would.

Game Master (GM): The referee, who chooses the adventure, talks the players through it, judges the results, and gives out bonus points.

character: Any being – person, animal, robot, etc. – that is played by the GM or a player.

non-player character (NPC): Any character played by the GM.

player character (PC): A character created and played by one of the players.

statistics: The numerical values that describe a character, piece of equipment, etc., taken collectively. Often called "stats."

party: A group of PCs taking part in the same adventure.

game world: A background for play; a setting. "World" might mean "planet," but it could also refer to a region and historical period . . . or an entire universe.

adventure: The basic "unit" of play in a roleplaying game, representing a single mission or plot. It might require several sessions of play, or just one play session.

encounter: One "scene" of an adventure, usually a meeting between the PCs and one or more NPCs.

campaign: A continuing series of adventures. A campaign will usually have a continuing cast of player characters, and the same GM (or team of GMs). It may move from one game world to another, with a logical reason.

The Basics

GURPS uses six-sided dice only. To figure combat damage (and several other things), the "dice+adds" system is used. If a weapon does "4d+2" damage, this is shorthand for "roll 4 dice and add 2 to the total." Likewise, "3d-3" means "roll 3 dice and subtract 3 from the total." If you see just "2d," that means "roll two dice."

GURPS Lite has only three basic "game mechanics": *success rolls, reaction rolls,* and *damage rolls.*

Success Rolls

A "success roll" is a die roll made when you need to "test" one of your skills or abilities. Sometimes you roll; sometimes the GM rolls for you. For instance, you might test, or roll against, your Strength to stop a heavy door from closing.

What to Roll

Whenever a character attempts to perform an action (e.g., use a skill), roll three dice to determine the outcome. This is called a *success roll.* The task in question *succeeds* if the total rolled on the dice is *less than or equal to* the number that governs the action – most often a skill or an attribute. Otherwise, it *fails.* For example, if you are rolling against Strength, and your ST is 12, a roll of 12 or less succeeds. Thus, the higher the stat you are rolling against, the easier it is to make the roll.

Regardless of the score you are rolling against, a roll of 3 or 4 is *always* a success, while a roll of 17 or 18 is *always* a failure.

In general, the player makes the die rolls for his character's actions. However, the GM may always choose to roll the dice in secret; see *When the GM Rolls* (below).

When to Roll

To avoid bogging down the game in endless die rolls, the GM should only require a success roll if . . .

- A PC's health, wealth, friends, reputation, or equipment are at risk. This includes chases, combat (even if the target is stationary and at point-blank range!), espionage, thievery, and similar "adventuring" activities.
- A PC stands to gain allies, information, new abilities, social standing, or wealth.

The GM *should not* require rolls for . . .

- Utterly trivial tasks, such as crossing the street, driving into town, feeding the dog, finding the corner store, or turning on the computer.
- Daily work at a mundane, non-adventuring job.

When the GM Rolls

There are two sets of circumstances under which the GM should roll for a PC and not let the player see the results:

1. When the *character* wouldn't know for sure whether he had succeeded.
2. When the *player* shouldn't know what's going on.

Modifiers

The rules often specify *modifiers* for certain success rolls. These bonuses and penalties affect the *number you are rolling against* – your "target number" – and not the total rolled on the dice. Bonuses always improve your odds, while penalties always reduce them.

For instance, if you're using the Lockpicking skill in the dark, the GM might tell you to roll at -5 for the attempt. If your Lockpicking skill is 9, you roll against 9 minus 5, or 4, in the dark.

A specific scenario might provide modifiers to allow for the relative ease or difficulty of a particular situation. For instance, an adventure might state that a lock is +10 to open due to the fact that it is primitive and clumsy. If your Lockpicking skill were 9, you would roll against 9 + 10, or 19. Since the highest roll possible on 3d is 18, it would seem that success is assured. Not quite; see *Critical Success and Failure* (below).

Modifiers are cumulative unless stated otherwise. For instance, if you tried to open that primitive lock in the dark, *both* modifiers would apply, and you would roll against 9 – 5 + 10, or 14.

Base Skill vs. Effective Skill

Your *base skill* is your actual level in a skill, as recorded on your character sheet. Your *effective skill* for a particular task is your base skill plus or minus any modifiers for that task. In the Lockpicking examples above, the base skill is 9 in all cases, while the effective skill is 4, 19, or 14.

You may not attempt a success roll if your effective skill is less than 3 unless you are attempting a *defense roll* (p. 177).

Degree of Success or Failure

Once you have calculated your effective skill by applying all the relevant modifiers to your base skill, roll 3d to determine the outcome. If the total rolled on the dice is less than or equal to your effective skill, you succeed, and the difference between your effective skill and your die roll is your *margin of success.*

Example: If you have effective skill 18 and roll a 12, you succeed; your margin of success is 6.

If you roll *higher* than your effective skill, you fail, and the difference between the die roll and your effective skill is your *margin of failure.*

Example: If you have effective skill 9 and roll a 12, you fail; your margin of failure is 3.

Many rules use margin of success or failure to calculate results that matter in play, so be sure to note it when you roll.

Critical Success and Failure

A *critical success* is an especially *good* result.

- A roll of 3 or 4 is *always* a critical success.
- A roll of 5 is a critical success *if your effective skill is 15+.*
- A roll of 6 is a critical success *if your effective skill is 16+.*

When you roll a critical success, the GM determines what happens. It is always something good! The lower the roll, the better "bonus" he gives you.

A *critical failure* is an especially *bad* result.

- A roll of 18 is *always* a critical failure.
- A roll of 17 is a critical failure *if your effective skill is 15 or less;* otherwise, it is an ordinary failure.
- Any roll of 10 or more greater than your *effective* skill is a critical failure: 16 on a skill of 6, 15 on a skill of 5, and so on.

When you roll a critical failure, the GM determines what happens. It is always something bad – the higher the roll, the worse the result.

Repeated Attempts

Sometimes you only get one chance to do something (defuse a bomb, jump over a crevasse, remove an inflamed appendix, calm down a gun-waving Cetagandan). Other times you can try over and over again until you succeed (pick a lock, catch a fish, analyze a poison). Still other times you will not know whether you succeeded or failed until it's too late to try again (buy a used lightflyer, order in a Betan restaurant, field-repair a plasma arc). Finally, there are times when you are injured by failure but can afford to fail a few times (climb a wall, impress a Jacksonian street gang).

The GM must use common sense to distinguish among these cases, according to the exact situation in which the adventurers find themselves.

Contests

Sometimes a situation arises in which two characters must compare attributes, skills, or other traits to settle a competition. The one with the highest score doesn't *always* win . . . but that's the way to bet. A "Contest" is a quick way to handle such a competitive situation without playing it out in detail. In a Contest, each competitor attempts a success roll against the ability being tested – with all applicable modifiers – and then compares his result to his opponent's. There are two different ways to make this comparison.

Quick Contest

A "Quick Contest" is a competition that is over in very little time – often in one second, perhaps even *instantly.* Examples include two enemies lunging for a gun or two knife throwers seeing who gets closer to the bull's-eye.

Each competitor attempts his success roll. If one succeeds and the other fails, the winner is obvious. If both succeed, the winner is the one with the largest margin of success; if both fail, the winner is the one with the smallest margin of failure. A tie means nobody won (in the examples above, both fighters grabbed the weapon at once, or the knives hit the same distance from the bull's-eye).

Margin of Victory

The amount by which the winner beat the loser is often important – success by 5 vs. failure by 5 generally means more than success by 2 vs. success by 1! The winner's "margin of victory" is the difference between his margin of success and the loser's margin of success if both succeeded, the sum of his margin of success and the loser's margin of failure if he succeeded and the loser failed, or the difference between the loser's margin of failure and his margin of failure if both failed.

Regular Contest

A "Regular Contest" is a slow competition with much give and take – for instance, arm wrestling.

Each character attempts his success roll. If one succeeds and the other fails, the winner is obvious. If both succeed or both fail, the competitors' relative positions are unchanged and they roll again. Eventually, one character succeeds when the other fails. At this point, the one who made his roll is the winner.

The length of *game time* each attempt takes depends on the activity, and is up to the GM. In a combat situation, each attempt takes one second . . . but in a library-research contest, with the fate of the world hanging on who finds a certain obscure reference first, each attempt could represent days of time.

Reaction Rolls

When the PCs meet an NPC whose reaction to them is not predetermined (see below), the GM makes a "reaction roll" on 3d. The higher the roll, the better the reaction. The GM then plays the NPC according to the guidelines on the *Reaction Table.*

The GM should keep this roll secret from the players. They don't know, for instance, whether that friendly looking old farmer is giving them straight advice or sending them into a trap.

A reaction roll is *not* a success roll. There are three important differences:

1. There is no "target number" to roll against.
2. A high roll is *good,* not bad.
3. Reaction modifiers apply directly to the die roll. A reaction *bonus* is any factor that makes NPCs *friendlier,* while a reaction *penalty* is something that biases NPCs *against* the PCs.

Some common reaction modifiers:

Personal appearance and behavior. This is especially true for the PC who does the talking! Above-average appearance gives a bonus, as do some advantages (see p. 151). Below-average appearance and many disadvantages give a penalty.

Racial or national biases. Cetagandans don't like Barrayarans, and so on. These are usually penalties, and take the form of an Intolerance disadvantage on the part of the NPC.

Appropriate behavior by the players! Here's a chance to reward good roleplaying. A good approach should be worth +1 or more! A wholly inappropriate approach that antagonizes the NPCs should give the party -1 or -2 on the reaction roll. don't tell the players, "You blew it!" – just roleplay the offended character, and let them figure it out.

Random reaction rolls are great when they add a note of unpredictability to the game – this is more fun for the GM, too! However, *never substitute random die rolls for reason and logic.*

Reaction Table

Roll 3 dice and apply any reaction modifiers.

0 or less: Disastrous. The NPC hates the characters and will act in their worst interest. Nothing is out of the question: assault, betrayal, public ridicule, or ignoring a life-or-death plea are all possible.

1 to 3: Very Bad. The NPC dislikes the characters and will act against them if it's convenient to do so: attacking, offering grossly unfair terms in a transaction, and so on.

4 to 6: Bad. The NPC cares nothing for the characters and will act against them (as above), if he can profit by doing so.

7 to 9: Poor. The NPC is unimpressed. He may make threats, demand a huge bribe before offering aid, or something similar.

10 to 12: Neutral. The NPC ignores the characters as much as possible. He is totally uninterested. Transactions will go smoothly and routinely, as long as protocol is observed.

13 to 15: Good. The NPC likes the characters and will be helpful within normal, everyday limits. Reasonable requests will be granted.

16 to 18: Very Good. The NPC thinks highly of the characters and will be quite helpful and friendly, freely offering aid and favorable terms in most things.

19 or better: Excellent. The NPC is extremely impressed by the characters, and will act in their best interests at all times, within the limits of his own ability – perhaps even risking his life, wealth, or reputation.

Damage Rolls

A "damage roll" is a roll made in a fight, to see how much harm you did to your foe. Damage rolls use the "dice+adds" system (see p. 140).

Many things can affect the final injury inflicted by your attack. Armor reduces the damage received by the wearer. Certain attacks do extra damage if they get through armor. All these things are explained in the combat rules – see p. 173.

Characters

When you roleplay, you take the part of another person – a "character" that you create. ***GURPS*** lets you decide exactly what kind of hero you will become. Mercenary guard? Explorer-scientist? Merchant-adventurer? You can take your inspiration from a fictional figure, or create your new "self" from the ground up. Once you know what role you want to play, it's time to bring that character to life!

The GM (Game Master – the person "running" the game) will give you a number of *character points* with which to "buy" your abilities. For instance, the stronger you want to be, the more points it will cost. You can also buy advantageous social traits, such as wealth, and special abilities called *advantages* (p. 151). If you want more abilities than you can afford on the budget given to you by your GM, you can get extra points by accepting below-average strength, appearance, wealth, social status, etc., or by taking *disadvantages* – specific handicaps such as bad vision or fear of heights (p. 153).

But the two most important things to know about your character are *who he is* and *what role you want him to play in his adventures*. Find out what kind of game the GM plans to run and what kinds of characters he intends to allow. Then start filling in the details. There are several ways to approach this.

You can choose the abilities you want, spend your character points, and work out a character concept that fits the abilities. A good character is much more than a collection of abilities, but "shopping" for abilities can be a great inspiration. Or you might instead decide on your character's focal qualities first, the handful of things that *define* him – personal history, appearance, behavior, aptitudes, and skills. Think about how he acquired those qualities, and then spend your points on features that go with these traits.

Note that the ***GURPS Basic Set*** describes *many times* more abilities than this appendix can accommodate. A few of these appear as options in the templates on pp. 68-73, and in passing in other places (this is especially true of specialized technological skills). The GM can either ignore these, or use the trait's name as a clue as to what it does and its point value to rate the size of the effect.

Character Points

Character points are the "currency" of character creation. Anything that improves your abilities has a cost: you must spend points equal to the listed price of an ability to add that ability to your character sheet and use it in play. Anything that reduces your capabilities has a negative cost – that is, it *gives you back* some points. For instance, if you start with 125 points, buy 75 points of advantages, and take -15 points of disadvantages, you have 125 – 75 + 15 = 65 points remaining.

Starting Points

The GM decides how many character points the player characters (PCs) – the heroes – start with. This depends on how capable he wants them to be, and the nature of the setting. Options range from less than 25 points (children, mindless thralls, etc.) up to 250-300 points for major figures of an entire planetary culture – or even more than that for super-beings or heroes of epic legends. See p. 56 for one set of suggestions.

This beginning point level is sometimes referred to as the campaign's *power level.*

Disadvantage Limit

A *disadvantage* is anything with a negative cost, including low attributes, reduced social status, and all the specific disabilities listed under *Disadvantages* (p. 153). In theory, you could keep adding disadvantages until you had enough points to buy whatever advantages and skills you wanted. In practice, most GMs will want to set a limit on the disadvantage points a PC may have. A common rule of thumb is to hold disadvantages to 50% of starting points – for instance, -75 points in a 150-point game – although this is entirely up to the GM. Because the Vorkosigan universe offers medical and psychological treatments to eliminate extreme problems, the GM may wish to allow even fewer points in disadvantages.

Basic Attributes

Four numbers called "attributes" define your basic abilities: Strength (ST), Dexterity (DX), Intelligence (IQ), and Health (HT).

A score of 10 in any attribute is *free,* and represents the human average. Higher scores cost points: 10 points to raise ST or HT by one level, 20 points to raise DX or IQ by one level. Similarly, scores lower than 10 have a negative cost: -10 points per level for ST or HT, -20 points per level for DX or IQ. (Remember that negative point values mean you get those points back to spend on something else!)

Most characters have attributes in the 1-20 range, and most normal humans have scores in the 8-12 range. Scores above 20 are possible but typically reserved for superhuman beings – ask the GM before buying such a value. At the other end of the scale, 1 is the minimum score for a human.

The basic attributes you select will determine your abilities – your strengths and weaknesses – throughout the game. Choose wisely:

6 or less: *Crippling.* An attribute this bad severely constrains your lifestyle.

7: *Poor.* Your limitations are immediately obvious to anyone who meets you. This is the lowest score you can have and still pass for "able-bodied."

8 or 9: *Below average.* Such scores are limiting, but within the human norm. The GM may forbid attributes below 8 to active adventurers.

10: *Average.* Most humans get by just fine with a score of 10!

11 or 12: *Above average.* These scores are superior, but within the human norm.

13 or 14: *Exceptional.* Such an attribute is immediately apparent – as bulging muscles, feline grace, witty dialog, or glowing health – to those who meet you.

15 or more: *Amazing.* An attribute this high draws constant comment and probably guides your career choices.

Strength (ST)

±10 points/level

Strength measures physical power and bulk. It is crucial to warriors on primitive worlds, as high ST lets you dish out *and absorb* more damage in battle. It's much less important at high tech levels, but even Miles Vorkosigan found himself in hand-to-hand combat occasionally. Any adventurer will find ST useful for lifting and throwing things, moving quickly with a load, etc.

Strength is more "open-ended" than other attributes; scores greater than 20 are common among large creatures.

Basic Lift (BL)

Basic Lift is the maximum weight you can lift over your head with *one* hand in *one* second. It is equal to (ST×ST)/5 lbs. If BL is 10 lbs. or more, round to the nearest whole number; e.g., 16.2 lbs. becomes 16 lbs. The average human has ST 10 and a BL of 20 lbs.

Attributes and Large Size

Unusual characters may be larger than the human norm. A character with a *Size Modifier* (p. 176) of +1 or more is easier to hit and may have problems fitting into normal human-sized rooms, vehicles, etc., but is often stronger and harder to damage than most humans. To reflect this, he gets 10% off the price of ST and HP per +1 Size Modifier.

Smaller-than-human characters (Size Modifier -1 or less) *don't* take a modifier to these costs. The benefits and drawbacks of this size – such as being harder to hit but not being able to use a lot of standard human gear – are considered to balance out.

Being larger is also *intimidating;* add your Size Modifier to your skill when using Intimidation (p. 162), and subtract the target's.

Dexterity (DX)

±20 points/level

Dexterity measures a combination of agility, coordination, and fine motor ability. It controls your basic ability at most athletic, fighting, and vehicle-operation skills, and at craft skills that call for a delicate touch. DX also helps determine Basic Speed (a measure of reaction time, below) and Basic Move (how fast you run, p. 145).

Intelligence (IQ)

±20 points/level

Intelligence broadly measures brainpower, including creativity, intuition, memory, perception, reason, sanity, and willpower. It rules your basic ability with all "mental" skills – sciences, social interaction, etc. Any scientist, strategist, or master psychologist needs a high IQ first of all. The secondary characteristics of Will and Perception (below) are based on IQ.

Health (HT)

±10 points/level

Health measures energy and vitality. It represents stamina, resistance (to poison, disease, radiation, etc.), and basic "grit." A high HT is good for anyone – but it's *vital* for low-tech warriors. HT determines Fatigue Points, and helps determine Basic Speed (below) and Basic Move (p. 145).

Secondary Characteristics

"Secondary characteristics" are quantities calculated from your attributes. You can raise or lower these scores by adjusting your attributes – or independently, if the GM permits. The latter is optional because it complicates the game; in any case, normal humans rarely have scores more than about three levels different from their base values.

Hit Points (HP) represent your body's ability to sustain injury. You have HP equal to your ST; e.g., ST 10 gives 10 HP. *±2 points per ±1.*

Will measures your ability to withstand psychological stress (brainwashing, fear, hypnotism, interrogation, seduction, torture, etc.) and your resistance to some exotic attacks (e.g., psionics). Will is equal to IQ. Will does not represent *physical* resistance – buy HT for that! *±5 points per ±1.*

Perception (Per) represents your general alertness. The GM makes a "Sense roll" against your Per to determine whether you notice something. Per is equal to IQ. *±5 points per ±1.*

Fatigue Points (FP) represent your body's "energy supply." You have FP equal to your HT. *±3 points per ±1.*

Basic Speed is a measure of your reflexes and general physical quickness. It helps determine your running speed, your chance of dodging an attack, and the order in which you act in combat (a high Basic Speed will let you "out-react" your foes). To calculate Basic Speed, add your HT and DX together, and then divide the total by 4. *Do not round it off.* A 5.25 is better than a 5! *±5 points per ±0.25.*

Dodge: Your Dodge defense (see *Dodging,* p. 177) equals Basic Speed + 3, dropping all fractions. For instance, if your Basic Speed is 5.25, your Dodge is 8. You must roll under your Dodge on 3d to duck or sidestep an attack.

Basic Move is your ground speed in yards per second. This is how fast you can run (although you can go a little faster if you "sprint" in a straight line; see p. 171). Basic Move starts out equal to Basic Speed, less any fractions; e.g., Basic Speed 5.75 gives Basic Move 5. An average person has Basic Move 5; therefore, he can run about 5 yards per second if unencumbered. *±5 points per ±1 yard/second.*

The hulking figure unfolded from the groundcar and stood up, and up. Pym, who was almost as tall as Roic, did not come quite up to its shoulder. It shook out the swirling folds of a gray-and-white greatcoat of military cut and threw back its head. The light from overhead caught the face and gleamed off . . . were those ***fangs*** *hooked over the outslung lower jaw?*

– Roic encounters Sergeant Taura in "Winterfair Gifts"

Damage (Dmg)

Your ST determines how much damage you do in unarmed combat or with a melee weapon. Two types of damage derive from ST:

Thrusting damage (abbreviated "thrust" or "thr") is your basic damage with a punch, kick, or bite, or an attack with a thrusting weapon such as a spear.

Swinging damage (abbreviated "swing" or "sw") is your basic damage with a swung weapon such as an axe – anything that acts as a lever to multiply your ST.

Consult the following table for your basic damage. This is given in "dice+adds" format.

Damage Table

ST	*Thrust*	*Swing*	*ST*	*Thrust*	*Swing*
1	1d-6	1d-5	11	1d-1	1d+1
2	1d-6	1d-5	12	1d-1	1d+2
3	1d-5	1d-4	13	1d	2d-1
4	1d-5	1d-4	14	1d	2d
5	1d-4	1d-3	15	1d+1	2d+1
6	1d-4	1d-3	16	1d+1	2d+2
7	1d-3	1d-2	17	1d+2	3d-1
8	1d-3	1d-2	18	1d+2	3d
9	1d-2	1d-1	19	2d-1	3d+1
10	1d-2	1d	20	2d-1	3d+2

Damage is sometimes abbreviated "Dmg." On your character sheet, list thrust followed by swing, separated by a slash; e.g., if you had ST 13, you would list "Damage 1d/2d-1."

Image, Looks, and Physique

This defines your character's intrinsic "social" traits – appearance, manner and bearing – and anything exceptional about your build. Traits with positive point values (e.g., above-average Appearance, Voice) are considered advantages (p. 151), and obey all the usual rules for advantages. Others (e.g., below-average Appearance, Odious Personal Habits) have negative values, and are treated as disadvantages (p. 153). Still others (e.g., height within the normal human range, handedness) merely add "color."

Appearance

Appearance is mostly a "special effect" – you may choose any physical appearance you like.

Appearance is rated in levels. Most people have "Average" appearance, for 0 points. Good looks give a reaction bonus; this is an advantage and costs points. Unappealing looks give a reaction penalty; this is a disadvantage, and gives you back points. Both only matter with people who can see you.

Hideous: You have any sort of disgusting looks you can come up with: a severe skin disease, wall-eye . . . preferably several things at once. This gives -4 on reaction rolls. *-16 points.*

Ugly: As above, but not so bad – maybe only stringy hair and snaggle teeth. This gives -2 on reaction rolls. *-8 points.*

Unattractive: You look vaguely unappealing, but it's nothing anyone can put a finger on. This gives -1 on reaction rolls. *-4 points.*

Average: The default level. Most people have Average appearance. *0 points.*

Attractive: You don't enter beauty contests, but are definitely good-looking. This gives +1 on reaction rolls. *4 points.*

Handsome (or Beautiful): You *could* enter beauty contests. This gives +4 on reaction rolls made by those attracted to members of your sex, +2 from everyone else. *12 points.*

Very Handsome (or Very Beautiful): You could *win* beauty contests – regularly. This gives +6 on reaction rolls made by those attracted to members of your sex, +2 from others. *16 points.*

Build

Variable

If your physique is *significantly* different from the norm, you suffer penalties to your Disguise skill, and to Shadowing skill if trying to follow someone in a crowd:

Skinny: -2 to skills. Your HT may not be above 14. *-5 points.*

Overweight: -1 to skills. However, you also get +1 to Swimming rolls. *-1 point.*

Fat: -2 to skills. However, you also get +3 to Swimming rolls. Your HT may not be above 15. *-3 points.*

Gigantism: -2 to skills. Also, you are Size Modifier +1 (see *Attributes and Large Size,* p. 144), and you get +1 to Basic Move (due to long legs). *0 points.*

Charisma

5 points/level

You have a natural ability to impress and lead others. Anyone can acquire a semblance of charisma through looks, manners, and intelligence – but *real* charisma is independent of these things. Charisma is one of the things that makes Miles Vorkosigan who he is! Each level gives +1 on all reaction rolls made by sapient beings with whom you actively interact (converse, lecture, etc.); +1 to Influence rolls (see *Influence Skills,* p. 162); and +1 to Leadership, Panhandling, and Public Speaking skills.

Fashion Sense

5 points

You have an eye for style. Any outfit you assemble will give the wearer (who need not be you) +1 to reaction rolls in polite society.

Odious Personal Habits

Variable

You usually or always behave in a fashion repugnant to others. An Odious Personal Habit (OPH) is worth -5 points for every -1 to reaction rolls made by people who notice your problem. Specify the behavior when you create your character, and work out the point value with the GM.

Examples: Body odor, constant scratching, or tuneless humming would give -1 to reactions, and are worth -5 points apiece. Constant bad puns or spitting on the floor would give -2 to reactions, worth -10 points apiece. We leave -15-point habits (-3 to reactions) to the imagination of those depraved enough to want them!

Voice

10 points

You have a naturally clear, resonant, and attractive voice. This gives you +2 with any skill that depends on speaking or singing (with the GM's approval, of course). You also get +2 on any reaction roll made by someone who can hear your voice.

Handedness

Decide whether you are right-handed or left-handed. Whenever you try to do anything significant with the other hand, you are at -4 to skill. This does not apply to things you *normally* do with your "off" hand, like using a shield.

GURPS doesn't distinguish between left- and right-handed characters; either is 0 points. However, Ambidexterity is an advantage that costs points – see p. 151.

Social Background

It is an advantage to be technologically advanced or culturally cosmopolitan. *Inadequacy* in these areas can be a crippling disadvantage.

Technology Level (TL)

"Technology level" (or "tech level") is a number that rates technological development. The more advanced the society, the higher its TL. Characters also have a TL, equal to that of the technology with which they are most familiar. Unless you are especially primitive or advanced, your personal TL will be the same the setting's TL.

But your personal TL *may* differ from the campaign average. The Vorkosigan universe is mostly TL9. However, technologists working at the leading edge on advanced worlds can create TL10 or even TL11 devices (*especially* space technology; see Appendix B), and some people know how to use them, while characters from backwater planets may be TL8 or even less.

The Meaning of Tech Levels

The following is a comparison of ***GURPS*** tech levels and what they signify:

TL0	Stone Age
TL1	Bronze Age
TL2	Iron Age
TL3	Medieval
TL4	Renaissance
TL5	Industrial Revolution
TL6	Mechanized Age
TL7	Nuclear Age
TL8	Digital Age (e.g., start of the 21st century)
TL9	Age of Planetary Exploration
TL10	Age of Molecular Manipulation
TL11	Age of Exotic Matter (?)
TL12+	Whatever the GM likes!

Low TL

-5 points/TL below campaign TL

Your personal TL is below the campaign standard. You start with *no* knowledge (or default skill) relating to equipment above your personal TL. You can learn DX-based technological skills (pertaining to vehicles, weapons, etc.) in play, if you can find a teacher, but fundamental differences in thinking prevent you from learning IQ-based technological skills.

High TL

5 points/TL above campaign TL

Your personal TL is above the campaign standard. You may enter play with skills relating to equipment up to your personal TL. This is most useful if you also have access to high-TL equipment, but the knowledge of a high-tech doctor or scientist can be very useful in a low-tech setting, even without specialized equipment!

You may also enter play with equipment from your background TL, with GM permission, but its cost is *doubled* for each TL by which it exceeds the campaign standard (e.g., if TL10 gear is available in a basically TL8 game, it costs 4× the listed price).

This reflects special import costs and the like. The GM may set some prices even higher, or simply prohibit certain equipment. Note that you don't start with more *money* than other characters just because you have a higher TL – standard starting wealth is determined purely by the setting (see below).

Language and Culture

GURPS assumes that most characters can read and write their "native" language. This costs no points, but you should note it under "Languages" on your character sheet; e.g., "English (Native) [0]." Characters are also assumed to be comfortable with their "native" planetary culture for free. Record this under "Cultural Familiarities"; e.g., "Barrayar [0]."

Additional competency costs extra!

Language Comprehension Levels

The point cost to learn an additional language depends on your "comprehension level": a measure of how well you function in that language overall. There are four comprehension levels:

None: You don't know the language at all. *0 points.*

Broken: You know just enough to get by in daily life, but you're at -3 when using skills that depend on language. When reading, roll vs. IQ just to get the basic meaning. *1 point for spoken, 1 point for written.*

Accented: You can communicate clearly. You're only at -1 when using skills that depend on language. *2 points for spoken, 2 points for written.*

Native: You can use the language as well as an educated native. *3 points for spoken, 3 points for written.*

Native-level comprehension of your native language is free. Being less literate in that language is a *disadvantage:* -1 point for Accented, -2 points for Broken, or -3 points for None.

Cultural Familiarity (CF)

You also require familiarity with a *culture* to operate within it comfortably. Otherwise, you're at -3 to any skill with a significant social or cultural component, such as Criminology, Dancing, Diplomacy, Fast-Talk, Leadership, Public Speaking, and many others (see *Skills,* p. 159). You are familiar with your home culture for free. Familiarity with other cultures costs 1 point per culture. Cultures are defined quite broadly – one CF for a planetary society or similar.

Wealth and Influence

Now you need to determine your position in your society: How much money do you have, what privileges do you enjoy, and how do others react to you?

Wealth

Personal wealth is rated in "wealth levels." A level of "Average" costs no points, and lets you support an average lifestyle for the setting. The rest of these rules apply if you are unusually poor or wealthy, or have a source of income that does not require you to work. See p. 63 for more about levels of wealth in the Vorkosigan universe.

Wealth

Variable

Above-average Wealth is an advantage; it means you start with two or more times the average starting wealth of your game setting. Below-average Wealth is a disadvantage; it means you start with only a fraction of average starting wealth.

Dead Broke: You have no job, no source of income, no money, and no property other than the clothes you are wearing. Either you are unable to work or there are no jobs to be found. *-25 points.*

Poor: Your starting wealth is only 1/5 of the average for the game setting. Some jobs are not available to you, and no job you find pays very well. *-15 points.*

Struggling: Your starting wealth is only 1/2 of the average for the setting. Any job is open to you (you *can* be a Struggling doctor or movie actor), but you don't earn much. *-10 points.*

Average: The default wealth level, as explained above. *0 points.*

Comfortable: You work for a living, but your lifestyle is better than most. Your starting wealth is twice the average. *10 points.*

Wealthy: Your starting wealth is five times average; you live very well indeed. *20 points.*

Very Wealthy: Your starting wealth is 20 times the average. *30 points.*

Filthy Rich: Your starting wealth is 100 times average. You can buy almost anything you want without considering the cost. *50 points.*

In addition, you may have an *Independent Income:* a regular source of money that doesn't require you to work, but that you can't or won't otherwise invade – a stock portfolio, pension, etc. This costs 1 point per level, and gives you 1% of your starting wealth (adjusted for wealth level) per month per level of this trait, to a maximum of 20%.

Reputation

It is possible to be so well-known that your reputation becomes an advantage or a disadvantage. This affects reaction rolls made by NPCs (see p. 142).

The details of your reputation are entirely up to you; you can be known for bravery, ferocity, eating green snakes, or whatever you want. However, you *must* give specifics.

Specify the reaction-roll modifier that you get from people who recognize you. This determines the base cost of your reputation. For every +1 bonus to reaction rolls (up to +4), the cost is 5 points. For every -1 penalty (up to -4), the cost is -5 points.

Note: In full-fledged ***GURPS,*** the cost of a Reputation is reduced if it doesn't affect everyone you meet.

Importance

Your formally recognized *place* in society is distinct from your personal fame and fortune.

Clerical Investment

5 points

You are a recognized priest of a reputable religion. This gives a +1 reaction bonus from co-religionists and those who respect your faith. You may also buy Religious Rank (see *Rank,* below), *if* your faith uses it.

Heir

Variable

You stand to inherit wealth or title – but you don't have it yet, and it may be a long time coming. The GM decides if and when you come into your inheritance. At that time, you acquire Status (see below), Wealth, or other privileges worth twice the points set aside for this trait. Until then, you enjoy extra money, reaction modifiers, etc., equal to *half* what you stand to gain. For instance, if you stood to inherit +2 to Status [10] and a wealth level of Comfortable [10], Heir would cost 10 points, and give +1 Status and a 50% bonus to starting wealth.

Legal Enforcement Powers

5, 10, or 15 points

You are an agent of the law. For 5 points, you have local jurisdiction and the ability to perform arrests and searches (e.g., a local beat cop). For 10 points, you have national or planetary jurisdiction, *or* you can disregard some significant legal limits, perhaps ignoring "civil rights" or killing with relative impunity (e.g., many government security agents). For 15 points, you have broad privileges *and* discretion (e.g., Barrayaran ImpSec). You should probably also take a Duty (p. 155) and Rank (below).

Rank

5 points/level

Rank represents position in some structured organization that gives higher-ranked members significant authority over lower ranks. The classic example is Military Rank, which usually ranges from 0 (Private, Airman, etc.) to 8 (Supreme Commander of a major nation's army or navy). Very formal, powerful religions, bureaucracies, and so on may also have Rank, dubbed Administrative Rank, Religious Rank, etc., as suits the organization.

If you have high Rank, you can order lower Ranks to assist you – but *only* for purposes related to the organization, which usually has serious rules and restrictions. Individuals with higher Rank can likewise command you, however! Hence, Rank is often accompanied by a Duty (p. 155).

The lowest Rank in a structure is always 0, which is free and grants no particular benefits. The highest depends on the organization's size and nature, but never exceeds 8.

Emperor Gregor

Social Stigma

Variable

You belong to a class, sex, genotype, or other group that your society deems inferior, and this is obvious from your physical appearance, dress, manner, or speech, *or* easily learned by anyone who cares to check up on you, *or* the result of public denouncement (e.g., by a powerful leader or media figure). This is different from Status (below). You can hold a high position in society and still be stigmatized.

Your Stigma gives you a reaction penalty (-1 per -5 points of Social Stigma) and/or restricts your social mobility. Examples:

Criminal Record: You have previously been convicted of a serious crime. You may be prohibited from acquiring weapons, taking certain jobs, receiving security clearances, or even traveling far. Many non-criminals who learn of your past react at -1; police, judges, vigilantes, etc., usually react at -2. *-5 points.*

Disowned: Your family has publicly snubbed you. This is only worth points in settings where family ties play a significant social role (such as Barrayar!), and never applies to those who *voluntarily* part ways with their family. This Stigma comes in two levels:

- You would normally be an heir in your culture, but someone else has been named in your stead. This is embarrassing (-1 on reaction rolls), but you may still count yourself as part of the family. *-5 points.*
- The head of your family or clan has wholly and publicly disowned you (-2 on reaction rolls). *-10 points.*

Minor: You are underage by your culture's standards. You suffer -2 on reaction rolls whenever you try to deal with others as an adult; they might like you, but they don't respect you. You may be barred from nightclubs, vehicle operation, war parties, guild membership, etc. You must buy off this trait when you reach "legal age." *-5 points.*

Minority Group: You are a member of a minority that the dominant culture around you regards as "barbarians" or "inferior." You get -2 on reaction rolls made by anyone except your own kind. In an area, profession, or situation where your minority is *especially* rare, you get +2 on reaction rolls made by your own kind. *-10 points.*

Monster: You are a genetic monstrosity or other being that is hated or feared, regardless of *actual* appearance or disposition. This gives you -3 on all reaction rolls, and you are liable to be hunted on sight. However, you get +3 to Intimidation rolls in situations where you have the upper hand (GM's opinion). *-15 points.*

Second-Class Citizen: You belong to a group (a sex, religion, etc.) that receives fewer rights and privileges than "full citizens." This gives -1 on all reaction rolls except from others of your own kind. *-5 points.*

Valuable Property: Your society regards you as somebody's property rather than as a "legal person." This takes the form of limited freedom or lack of intellectual respect more than as a reaction modifier. *-10 points.*

Status

5 points/level

Status is a measure of social standing. Levels range from -2 (serf or street person) to 8 (powerful emperor or god-king), with a freeman or ordinary citizen being Status 0; see p. 62 for details. If you don't specifically buy Status, you have Status 0. Status costs 5 points per level; e.g., Status 5 costs 25 points, while Status -2 is -10 points.

Special Cases for Status

In some societies, wealth and official power grant *effective* Status. At the GM's option, all characters who are Wealthy or better may receive +1 Status for free. Likewise, the GM may choose to give characters +1 Status for free at Rank 2-4, +2 Status at Rank 5-7, and +3 Status at Rank 8 or higher. In a powerful democracy with a highly structured government, the president might have only a few levels of Status in his own right (from family background, education, etc.), but add +1 for Wealth and another +3 for his Administrative Rank 8 in the government, giving him effective Status 6-8! On such worlds, no character may be able to buy more than Status 1-4 (GM's decision) directly with points; any more has to come from Rank and Wealth.

Because Military Rank is so important to Barrayaran culture, it gives more status than the default rule above. The rule for Barrayar is on p. 61.

It is also possible that some form of Rank might *replace* Status; e.g., Religious Rank on a theocratic world. Characters from such societies cannot buy Status. Instead, the relevant form of Rank costs double (10 points/level), and gives all its usual benefits *plus* the effect of an equivalent level of Status.

Status greater than 0 means you are a member of the ruling class in your culture. As a result, others *in your culture only* defer to you, giving you a bonus on all reaction rolls. Status less than 0 means you are a serf or a slave, or simply very poor.

Friends and Foes

Some specific NPCs may be inclined to help you in various ways. You might be obliged to take care of others. And yet others may want to *harm* you.

Frequency of Appearance

These types of NPCs may or may not appear during the game. The GM rolls 3d at the start of each adventure for each individual or group. The roll required for them to show up in the course of events multiplies their point value as an advantage or a disadvantage, as follows:

Roll	*Multiplier*
15 or less	×3
12 or less	×2
9 or less	×1
6 or less	×1/2 (round up)

Allies

Variable

You have an NPC friend who is a completely reliable adventuring companion. He is usually agreeable to your suggestions, although he is not your puppet; he can refuse to go along with plans he considers foolish, and even walk away if you treat him badly enough. He may also get into trouble on his own account. The GM won't award you bonus character points for any play session in which you betray, attack, or unnecessarily endanger him.

Only PCs who take NPCs as Allies pay points for the privilege. Two PCs can be mutual "allies" for free, as can two NPCs – and NPCs never pay points for PC Allies.

Consult the following table when defining your Ally. "Point Total" is the Ally's point total expressed as a percentage of the PC's starting points. "Cost" is the base cost of the Ally.

Point Total	*Cost*	*Point Total*	*Cost*
25%	1 point	100%	5 points
50%	2 points	150%	10 points
75%	3 points		

Allies cannot be built on more than 150% of the PC's starting points; treat such NPCs as Patrons (p. 150).

Choose a frequency of appearance (see above) and modify the base cost accordingly. If your Ally appears at the start of an adventure, he accompanies you for its duration.

Allies built on up to 100% of the PC's starting points may *also* be Dependents (see below). Add the cost of Ally and Dependent together, and treat the combination as a single trait: an advantage if the total point cost is positive, a disadvantage if it is negative. You must use the same point total for the NPC in both cases, but frequency of appearance can differ. Roll separately for appearance as a Dependent and as an Ally. If he appears as a Dependent, he shows up in a way that causes you trouble (e.g., he's captured). If he appears as an Ally, he is helpful and takes care of himself. If he appears as both, he is helpful *and* troublesome; e.g., he uses his skills to assist you, but is singled out by the enemy.

Ally Groups

A group of more than five *identical* and *interchangeable* allies who share a single character sheet – e.g., a squad of ordinary soldiers – can be treated as a single advantage. Find the point cost to have one member of the group as an Ally, and then multiply that cost as follows to find the group's cost:

Size of Group	*Multiplier*
6-10	×6
11-20	×8
21-50	×10
51-100	×12

Add ×6 to the multiplier per tenfold increase in number (e.g., 100,000 Allies would be ×30). However, huge Ally Groups require special justification, and the GM may prohibit them. A whole army might be better treated as a Patron (p. 150).

The frequency of appearance multiplier applies to the final cost of the entire group.

Allies in Play

The GM will adjust your Ally's abilities in order to keep his point total a fixed percentage of your own as you earn points. Youngsters grow up, adults earn money, and everyone learns things. This will keep his value as an advantage constant.

If your Ally dies through no fault of yours, you may put the points spent on him toward a new Ally. The new relationship should normally develop gradually, but the GM might allow an NPC to become an Ally on the spot if you have done something that would win him over (e.g., saving his life). This is especially appropriate in cultures like Barrayar, where debts of honor are taken seriously!

Dependents

Variable

A "Dependent" is an NPC for whom you are or feel responsible; e.g., your child, kid brother, spouse, or even "boyfriend/girlfriend of the week." You *must* take care of your Dependents. Furthermore, your foes can strike at *you* through them. If your Dependent is kidnapped or otherwise in danger, you *must* go to the rescue immediately, or the GM will deny you bonus character points for "acting out of character." Furthermore, you never earn character points for a game session in which your Dependent is killed or badly hurt.

Three factors determine the disadvantage value of a Dependent: his *competence,* his *importance* (to you!), and his *frequency of appearance.*

Competence: Specify the number of points your Dependent is built on. The more points you use, the more competent he will be, and the *fewer* points he will be worth as a disadvantage. "Point Total" is the Dependent's point total as a fraction of the PC's, except for the last line, which is absolute. "Cost" is the number of character points the disadvantage is worth.

Point Total	*Cost*
No more than 100%	-1 point
No more than 75%	-2 points
No more than 50%	-5 points
No more than 25%	-10 points
0 or fewer points	-15 points

The *same person* can be both a Dependent and an Ally; see *Allies* (above).

Importance: The more important your Dependent is to you, the more you multiply his intrinsic "nuisance value":

- *Employer or acquaintance:* You feel a responsibility toward this person, but may weigh risks to him rationally. ×*1/2.*
- *Friend:* You must always try to protect this person, only risking harm to him if something very important (such as the safety of many other people) is at stake. ×*1.*
- *Loved one:* You may not put *anything* before this person's safety! ×*2.*

Finally, choose a *frequency of appearance* (p. 149). This reflects how often the Dependent gets caught up in your adventures, not how important he is in your life.

You cannot earn points for more than two Dependents.

Dependents in Play

As with Allies, when you earn points, the GM will scale your Dependent's abilities proportionally to keep his point total a fixed percentage of your own. Thus, his value as a disadvantage will not change.

If your Dependent is killed or so seriously injured that he is effectively out of the campaign, you *must* make up the points you got for him. You have three options: buy off the amount by spending earned character points, take a new disadvantage (a mental disability brought on by the loss is good), or get a new Dependent.

Enemies

Variable

An NPC, group of NPCs, or organization is actively working against *you,* personally. Three factors determine the disadvantage value of an Enemy: its *power,* its *intent,* and its *frequency of appearance.*

Power: The GM sets this value. If your Enemy is an organization, the point value is based on the number of individuals who are after *you,* not on total group size. For example, a security agency might assign a dozen agents to pursue a significant suspect.

- One person, less powerful than the PC (built on about 50% of the PC's starting points). *-5 points.*
- One person, equal in power to the PC (with about 100% of the PC's starting points), or a small group (3 to 5 individuals) of less-powerful people. *-10 points.*
- One person, more powerful than the PC (with at least 150% of the PC's starting points), or a medium group (6 to 20 individuals) of less-powerful people. *-20 points.*
- A large group (21 to 1,000 individuals) of less-powerful people, or a medium group that includes some formidable individuals. *-30 points.*
- An utterly formidable group; e.g., an entire planetary government. *-40 points.*

Intent: The more unpleasant the Enemy's intentions, the more you multiply its worth in points:

- *Watcher:* Your Enemy stalks or spies on you. This makes it hard to keep secrets, but is rarely more than a minor inconvenience. Examples include a journalist dogging a politician or detectives shadowing a routine suspect. ×*1/4.*
- *Rival:* Your Enemy wishes to upstage or inconvenience you, or plays cruel practical jokes, but stops short of anything physically dangerous. ×*1/2.*
- *Hunter:* The Enemy intends to arrest, bankrupt, injure, or otherwise harm you in some lasting way – or simply wants to kill you. ×*1.*

Finally, choose a *frequency of appearance* (p. 149) to reflect how often the Enemy comes after you.

And yes, if you take an extremely powerful Hunter, you are likely to be jailed or killed before long. That's your choice!

You may not take more than two Enemies, or claim more than -60 points in Enemies.

Enemies in Play

If you get kill or otherwise eliminate an Enemy, you have three choices: pay enough character points to buy off its original value, find some other disadvantage to cover the shortfall (e.g., a wound suffered in the final battle), or take a new Enemy of the same value (e.g., the old Enemy's vengeful brother).

Patron

Variable

You have a more-powerful individual or organization looking out for you *personally.* An ordinary employer isn't a Patron – but a commanding officer who values you enough to go out of his way to help you might be. Alternatively, your Patron might be a wealthy relative, a politician who sees you as his chosen successor, etc.

The base point cost of a Patron depends on its power. Use the categories below as a guide, but note that some Patrons won't fit neatly into any of them:

- A powerful individual (usually built on at least 150% of the PC's starting points) or a fairly powerful organization (assets of at least 1,000 times average starting wealth): *10 points.*
- An extremely powerful individual (built on at least twice the PC's starting points) or a powerful organization (assets of at least 10,000 times starting wealth): *15 points.*
- An ultra-powerful individual (built on as many points as the GM wants!) or a very powerful organization (assets of at least 100,000 times starting wealth): *20 points.*
- An extremely powerful organization – a large corporation or a very small nation: *25 points.*
- A national or planetary government or a giant multinational organization: *30 points.*

Modify this cost for *frequency of appearance* (p. 149).

Advantages

An "advantage" is a useful trait that gives you a mental, physical, or social "edge" over other people. Each advantage has a cost in character points. This is fixed for some advantages; others can be bought in "levels," at a cost per level (e.g., Acute Vision costs 2 points/level, so if you want Acute Vision 6, you must pay 12 points). Advantages with "Variable" cost are more complicated; read the advantage description for details.

The GM has the final say as to whether a particular advantage suits a given character concept.

Limited Advantages: Occasionally, a character may have a more limited version of an advantage. This is represented by a *limitation,* which reduces the point cost by a specific percentage. Some of the advantages listed below include specific limitations; see p. 159 for the Headache limitation, which applies in this world to Telepathy. See the ***GURPS Basic Set*** for many more examples.

Enhanced Advantages: An enhancement improves an advantage and increases its point cost. See p. 158 and the ***GURPS Basic Set.***

Advantage List

Absolute Direction

5 or 10 points

You have an excellent sense of direction. This ability comes in two levels:

Absolute Direction: You always know which way is north, and you can always retrace a path you have followed within the past month. This ability does not work in environments such as interstellar space, but it *does* work underground, underwater, and on other planets. This gives +3 to Navigation (Air, Land, or Sea) skill. *5 points.*

3D Spatial Sense: As above, but works in three dimensions. This ability *is* useful in deep space. You get the skill bonuses given for Absolute Direction, plus +1 to Piloting and +2 to Free Fall and Navigation (Hyperspace or Space). *10 points.*

Absolute Timing

2 points

You have a mental clock about as good as any common portable timepiece you could buy in your culture, and you can wake up at a predetermined time if you choose. Neither time zone changes nor sleep interfere with your mental clock.

Acute Senses

2 points/level

You have superior senses. Each Acute Sense is a separate advantage that gives +1 per level to all Sense rolls (p. 172) you make – or the GM makes for you – using that one sense. Available types are:

- Acute Hearing
- Acute Taste and Smell
- Acute Touch
- Acute Vision

Ambidexterity

5 points

You can fight or otherwise act equally well with either hand, and never suffer the -4 DX penalty for using the "off" hand (see p. 146).

Animal Empathy

5 points

You are unusually talented at reading the motivations of animals. When you meet an animal, the GM rolls against your IQ and tells you what you "feel." This reveals the beast's emotional state – friendly, frightened, hostile, hungry, etc. – and whether it is under some kind of control. You may also use your Influence skills (p. 162) on animals just as you would on sapient beings.

Combat Reflexes

15 points

You have extraordinary reactions, and are rarely surprised for more than a moment. You get +1 to all active defense rolls (see *Defending,* p. 176) and +2 to Fright Checks (see *Fright Checks,* p. 173). You never "freeze" in a surprise situation, and get +6 on all IQ rolls to wake up.

> *The lead Cetagandan darted into the line of sight of the lead Barrayaran. They both fired instantly, and dropped each other in a heap.*
>
> *"Stunner reflexes," muttered Miles. "S' wonderful."*
>
> **– *Brothers in Arms***

Common Sense

10 points

Any time you start to do something the GM feels is *STUPID,* he will roll against your IQ. A successful roll means he must warn you: "Hadn't you better think about that?"

Danger Sense

15 points

You can't depend on it, but sometimes you get this *feeling* and know something's wrong. The GM rolls once against your Perception, secretly, in any situation involving an ambush, impending disaster, etc. On a success, you get enough of a warning that you can take action. A roll of 3 or 4 means you get a little detail as to the nature of the danger.

Eidetic Memory

5 or 10 points

You have an exceptional memory. Anyone may attempt an IQ roll to recall the general sense of past events, but you automatically succeed at these rolls and get further abilities, which come in two levels:

Eidetic Memory: You can also recall *specific* details by making an IQ roll. *5 points.*

Photographic Memory: As above, but you automatically succeed at even the roll for specific details. *10 points.*

Empathy

15 points

You have a "feeling" for people. When you first meet someone – or are reunited after an absence – you may ask the GM to roll against your IQ. He will tell you what you "feel" about that person. On a failed IQ roll, he will *lie!*

This talent is excellent for spotting imposters, brainwashing, etc., and for determining the true loyalties of NPCs. It also gives +3 to your Detect Lies and Psychology skills.

Fearlessness

2 points/level

You are difficult to frighten or intimidate! Add your level of Fearlessness to your Will whenever you make a Fright Check or must resist the Intimidation skill (p. 162). You also subtract your Fearlessness level from all Intimidation rolls made against you.

Fit

5 points

You are in good physical condition. You get +1 to HT rolls to stay conscious, avoid death, resist disease or poison, etc. (but *not* to HT-based skills). You also recover FP at twice the normal rate.

Flexibility

5 or 15 points

Your body is unusually flexible. This advantage comes in two levels:

Flexibility: You get +3 on Climbing rolls, and on Escape rolls to get free of ropes, handcuffs, etc. You may ignore up to -3 in penalties for working in close quarters (including many Explosives and Mechanic rolls). *5 points.*

Double-Jointed: As above, but more so. You cannot stretch or squeeze yourself abnormally, but any part of your body may bend any way. You get +5 to Climbing, Escape, and attempts to break free. You may ignore up to -5 in penalties for close quarters. *15 points.*

G-Experience

1 to 10 points

You have experience working in one or more gravitational fields other than your native one. When working in a gravity level for which you have experience, you suffer only half the usual DX penalty for different gravity (see *Different Gravity,* p. 171). Each point spent on this advantage gives you experience of working in one other gravity level; if you spend a full 10 points, your experience is wide enough that you are considered experienced in *all* levels.

Hard to Kill

2 points/level

You are incredibly difficult to kill. Each level of Hard to Kill gives +1 to HT rolls made for survival at -HP or below, and on any HT roll where failure means instant death (due to heart failure, poison, etc.). If this bonus makes the difference between success and failure, you collapse, apparently dead (or disabled), but come to in the usual amount of time – see *Recovering from Unconsciousness* (p. 180).

High Pain Threshold

10 points

You are as susceptible to injury as anyone else, but you don't *feel* it as much. You *never* suffer a shock penalty when you are injured. In addition, you get +3 on all HT rolls to avoid knockdown and stunning, and if you are tortured physically, you get +3 to resist. The GM may let you roll at Will+3 to ignore pain in other situations.

Language Talent

10 points

You have a knack for languages. When you learn a language at a comprehension level above None, you automatically function at one level higher.

Lightning Calculator

2 points

You can do math in your head, instantly. You, the *player,* can keep a calculator handy for use at any time.

Longevity

2 points

Your lifespan is naturally very long. See *Aging* (p. 181) for rules.

Luck

Variable

You were born lucky! There are three progressively more "cinematic" levels of Luck:

Luck: Once per hour of *play,* you may reroll a single bad die roll twice and take the best of the three rolls! You must declare that you are using your Luck immediately after you roll the dice. *15 points.*

Extraordinary Luck: As above, but usable every 30 minutes. *30 points.*

Ridiculous Luck: As above, but usable every *10* minutes! *60 points.*

Your Luck only applies to your own success, damage, or reaction rolls, *or* on outside events that affect you or your whole party, *or* when you are being attacked (in which case you may make the attacker roll three times and take the *worst* roll!).

Night Vision

1 point/level

Your eyes adapt rapidly to darkness. Each level of this ability (maximum nine levels) allows you to ignore -1 in combat or vision penalties due to darkness, provided there is at least some light.

Perfect Balance

15 points

You can always keep your footing, no matter how narrow the walking surface (tightrope, ledge, tree limb, etc.), under normal conditions without having to make a die roll. If the surface is wet, slippery, or unstable, you get +6 on all rolls to keep your feet. In combat, you get +4 to DX and DX-based skill rolls to keep your feet or avoid being knocked down. Finally, you get +1 to Acrobatics, Climbing, and Piloting skills.

Peripheral Vision

15 points

You have an unusually wide field of vision. This lets you fight normally against opponents to your side, where others would suffer a penalty. As well, you get +3 to rolls to detect Shadowing attempts or ambushes from behind, and the GM will make a Vision roll for you to spot dangers behind your back.

Perks

1 point/perk

"Perks" are minor advantages that give *small* benefits in highly specific situations – or perhaps give you access to some profession. Examples include *Deep Sleeper* (you can sleep comfortably anywhere), *Jump Pilot Aptitude* (see p. 59), and *No Hangover* (you can still get drunk, but you wake up feeling fine).

Physical Enhancements

Variable

You have somehow acquired useful physical features that ordinary humans lack – perhaps through genetic or cybernetic surgery. This may require an Unusual Background (below). Examples:

Damage Resistance: Your body itself has Damage Resistance – innate armor (see p. 178). This costs 5 points per +1 DR. This DR *does not* protect your eyes or help against nonphysical attacks. If this "armor" is just a thick hide, apply a -40% limitation ("Tough Skin"); such DR doesn't protect against effects that merely require a scratch (e.g., poison) or skin contact (e.g., electrical shock).

Extra Arms: You have extra manipulator arms, or something that serves the same purpose. This *doesn't* permit you to attack more often, but you can hold spare weapons or equipment ready for use, or hang onto something with some of your hands while fighting or working with the others. This costs 10 points per added arm. If your extra "arms" are actually legs and feet that are flexible and dexterous enough to double as manipulators, this is a -30% limitation ("Foot Manipulators"); using one of these "extra arms" means standing on one leg, while using two is only possible when sitting, lying, or floating.

Radiation Tolerance: You suffer much less harm from radiation (see p. 183). For 5 points, *halve* the effective dose in rads you receive from any source; for 10 points, divide it by 5; and for 15 points, divide it by 10.

Sharp Claws: Your punches and kicks do *cutting* damage rather than crushing. *5 points.*

Sharp Teeth: Your bite does *cutting* damage rather than crushing. *1 point.*

Rapid Healing

5 points

Whenever you roll to recover lost HP (see p. 180), you get +5 to your effective HT. You must have at least HT 10 to take this advantage.

Resistant

Variable

You are naturally resistant (or even immune) to diseases, poisons, or some specific drug. *Resistant* gives you a bonus on all HT rolls to resist the effects of such things. Total *Immunity* to a broad range of effects usually requires very advanced medical technology or similar.

Resistant to Specific Item (one drug, disease, or poison): You may take a +3 bonus for 1 point, a +8 bonus for 2 points, or Immunity for 5 points.

Resistant to Disease: You may take a +3 bonus for 3 points, +8 for 5 points, or Immunity for 10 points.

Resistant to Poison: You may take a +3 bonus for 5 points, +8 for 7 points, or Immunity for 15 points.

Talent

Variable

You have an aptitude for a set of closely related skills. Talents come in levels, and give a bonus of +1 per level with all affected skills, even for default use. This effectively raises your attribute scores for the purpose of *those skills only;* thus, this is an inexpensive way to be adept at small class of skills.

You may never have more than four levels of a particular Talent. However, overlapping Talents *can* give skill bonuses (only) in excess of +4.

The cost of a Talent depends on the size of the group of skills affected. Some examples:

Artificer covers Engineer, Repair Skills, and others. *10 points/level.*

Mathematical Ability covers Mathematics, sciences that lean heavily on mathematics (e.g., Astronomy or Physics), Accounting, Engineer, and so on. *10 points/level.*

Musical Ability covers any skill related to the composition or performance of music. *5 points/level.*

Outdoorsman covers Camouflage, Naturalist, Navigation, Survival, and Tracking. *10 points/level.*

Smooth Operator covers all Influence skills, as well as Acting, Carousing, Leadership, and Public Speaking. *15 points/level.*

There are many other possibilities! GMs are encouraged to create their own Talents as needed.

Unfazeable

15 points

Nothing surprises you! You are exempt from Fright Checks (p. 173), and Intimidation (p. 162) doesn't work on you.

Unusual Background

Variable

This is a "catch-all" trait that the GM can use to adjust the point total of any character with special abilities that aren't widely available in the game world, such as unique powers resulting from a one-off genetic experiment. Not every unusual character concept merits an Unusual Background! The GM should only charge points when the character enjoys a tangible benefit. For instance, it would be unusual for a human to be raised by wolves, but unless this gave him capabilities that opponents wouldn't expect or for which employers would pay a large premium (such as the ability to speak to wolves), it would merely be background color, worth 0 points.

DISADVANTAGES

A "disadvantage" is a problem or imperfection that renders you less capable than your attributes, advantages, and skills would indicate. In addition to the traits in this section, this includes anything with a negative point cost described earlier: low Status, below-average Wealth, etc.

You are probably wondering, "Why would I want to give my character disadvantages?" Each disadvantage has a *negative* cost in character points. Thus, disadvantages *give you extra character points,* which let you improve your character in other ways. And an imperfection or two makes your character more interesting and realistic, and adds to the fun of roleplaying!

Restrictions on Disadvantages

Your GM might wish to "cap" the extra points you can gain from disadvantages – see *Disadvantage Limit* (p. 143).

Negated Disadvantages: You cannot take a disadvantage that one of your advantages would mitigate or negate! For instance, if you have Acute Hearing, you cannot take Hard of Hearing.

Villain Disadvantages: Some disadvantages – Sadism, for instance – are not at all suitable for a "hero," and the GM is free to forbid them to PCs. But they are often found in the more fiendish villains of adventure fiction, so they are included in the interest of good NPC creation.

Self-Control

Some mental disadvantages don't affect you constantly. An asterisk (*) appears next to the name of any disadvantage that gives you a chance to control your urges. In circumstances likely to trigger your problem, roll 3d against a target number of 12. A roll of 12 or less means you succeed and shrug off your disadvantage. A roll of 13 or higher means you fail and suffer its effects! This is a *self-control roll.* You never *have* to roll – it's good roleplaying to give in willingly.

Option – Variable Self-Control: If the GM doesn't mind added complexity, he may permit characters to have worse or better self-control rolls. A target number of 6 doubles disadvantage value; a target of 9 multiplies it by 1.5; and a target of 15 halves it. Drop all fractions. Record the self-control number with the disadvantage; e.g., "Overconfidence (9)."

Disadvantage List

Absent-Mindedness

-15 points

You have trouble focusing on anything not of immediate interest. You have -5 on IQ and IQ-based skill rolls except for the task you are currently concentrating on. If no engaging topic presents itself, your attention will drift and you will ignore your immediate surroundings until something brings you back. Once adrift, you must roll against Perception-5 in order to *notice* anything short of personal injury. You may attempt to rivet your attention on a boring topic (small talk, guard duty, driving down a straight highway, etc.) by making a Will-5 roll once every five minutes.

In addition, the GM may call for an IQ-2 roll for you to remember to do something small but significant, such as reloading your gun after firing it.

*Berserk**

-10 points

You tend to run amok when you or a loved one is harmed, making frenzied attacks against whatever you see as the cause of the trouble. Make a self-control roll any time you suffer damage over 1/4 your HP in the space of one second, and whenever you witness equivalent harm to a loved one. Failure means you go berserk. You go berserk automatically if you fail a self-control roll for Bad Temper!

While berserk, you make All-Out Attacks and never take extra time to aim. If you run out of ammunition, you either draw another weapon or charge into melee. You are immune to stun and shock, and your injuries cause no penalty to your Move score. You make HT rolls to remain conscious or alive at +4. If you don't fail any rolls, you remain alive and madly attacking until you reach -5×HP. Then you fall dead!

Whenever you down a foe, you may (if you wish) attempt another self-control roll. If you fail (or don't roll), you go onto the next foe. Treat any friend who attempts to restrain you as a foe! You get one extra roll when no more foes remain; if you are still berserk, you start to attack your friends. Once you snap out of the berserk state, all your wounds immediately affect you. Roll at normal HT to see whether you remain conscious and alive.

Callous

-5 points

You are merciless. You can decipher others' emotions, but do so only to manipulate them – you don't *care.* This gives you -3 on Teaching skill, on Psychology rolls made to help others (as opposed to deduce weaknesses or conduct scientific research), and on any skill roll made to interact with those who have previously suffered from your callousness. Past victims, and anyone with Empathy, will react to you at -1. But you do get an extra +1 to Interrogation and Intimidation rolls when you use threats or torture.

Code of Honor

-5 to -15 points

You take pride in a set of principles that you follow at all times. The specifics can vary, but they always involve "honorable" behavior. You will do nearly anything – perhaps even risk death – to avoid the label "dishonorable."

The point value of a particular Code of Honor depends on how much trouble it is liable to get you into and how arbitrary and irrational its requirements are. Examples:

Pirate's: Always avenge an insult, regardless of the danger; your buddy's foe is your own; never attack a fellow crewman or buddy except in a fair, open duel. Anything else goes. *-5 points.*

Gentleman's: Never break your word. Never ignore an insult to yourself, a lady, or your flag; insults may only be wiped out by an apology or a duel (*not* necessarily to the death!). Never take advantage of an opponent in any way; weapons and circumstances must be equal except in open war. This only applies between gentlemen; discourtesy from anyone of Status 0 or less calls for a whipping, not a duel! *-10 points.*

Soldier's: An officer should be tough but fair, lead from the front, and look out for his men; an enlisted man should look out for his buddies and take care of his kit. Be willing to fight and die for the honor of your unit, service, and country; follow orders; obey the "rules of war"; treat an honorable enemy with respect (a dishonorable enemy deserves a bullet); wear the uniform with pride. *-10 points.*

Vor: See p. 59. *-15 points.*

*Compulsive Behavior**

-5 to -15 points

You have a habit or a vice that wastes a good deal of your time or money. You *must* indulge at least once per day if possible, and do so *any* time you have the opportunity unless you can make a self-control roll. You avoid situations where you will be unable to indulge for more than a day. You must make a self-control roll to enter into such a situation; if you succeed (or are forced into the situation), you suffer from Bad Temper (p. 157) the whole time, with the same self-control roll as your Compulsive Behavior. Some people may be amused by your habits, but anyone who disapproves will react to you at -1 or worse.

The value of this disadvantage depends on the trouble it causes. Examples include Compulsive Carousing (you never miss a party and always hit the bars when in town; -5 points, or -10 points in puritanical settings), Compulsive Gambling (-5 points),

and Compulsive Lying (-15 points, because even your friends and allies can't know whether to trust *anything* you say).

Delusions

-5 to -15 points

You believe something that simply is not true. Other people may consider you insane – and they may be right! You *must* roleplay your belief at all times. Point value depends on the Delusion's nature:

Minor Delusions affect your behavior, and anyone around you will soon notice them (and react at -1), but don't keep you from functioning more-or-less normally. *-5 points.*

Major Delusions strongly affect your behavior, but still don't keep you from living a fairly normal life. Others react to you at -2. *-10 points.*

Severe Delusions affect your behavior so much that they may keep you from functioning in the everyday world. Others react to you at -3, but are more likely to fear or pity you than to attack. *-15 points.*

Two specific examples:

Megalomania is the Major Delusion that you are destined for greatness. Choose some grand goal, and let nothing stand between you and destiny! Young or naive characters, and fanatics looking for a new cause, may actually react to you at +2; others react at the usual penalty.

Paranoia is the Major Delusion that everyone is plotting against you. You trust no one except old friends – and you keep an eye on *them.* Paranoid NPCs react at -4 to *any* stranger, and any "legitimate" reaction penalty (e.g., for an unfriendly nationality) is *doubled.*

Duty

Variable

You have an official responsibility to a cause or an organization, and can't easily avoid it. This isn't just an ordinary job – a real Duty is likely to be hazardous, and is often inconvenient. Military service, however, *is* often a Duty as well as a job.

The GM rolls at the beginning of each adventure to see whether your Duty comes into play. Being "called to duty" could delay your plans, or be the *reason* for the adventure – or your master might give you a secret agenda to pursue.

A Duty's basic point value depends on the frequency with which it arises in play:

Almost all the time (15 or less): *-15 points.* At this level, the GM may rule that you are *always* on duty.
Quite often (12 or less): *-10 points.*
Fairly often (9 or less): *-5 points.*
Quite rarely (6 or less): *-2 points.*

Modify this if the Duty is more or less dangerous than average:

Extremely Hazardous: You are *always* at risk of death or serious injury when your Duty comes up. *-5 points.*

Nonhazardous: Your Duty never *requires* you to risk your life. *+5 points.* (If this raises the cost to 0 points or more, the obligation is too trivial to qualify.)

Fearfulness

-2 points/level

Fearfulness gives -1 per level to Will whenever you must make a Fright Check (p. 173) or resist Intimidation (p. 162), and +1 per level to all Intimidation rolls made against you. You may not reduce your Will roll below 3; e.g., if you have Will 11, you are limited to Fearfulness 8.

Flashbacks

Variable

When under stress, you sometimes experience vivid hallucinations, full-participation replays of memories, etc. Choose the *type* of flashbacks you experience when you take this disadvantage; the *content* of each episode is up to the GM. In any situation that he feels is stressful, which will often include failed Fright Checks (p. 173) and incidents that trigger other mental disadvantages, he will roll 3d. On a 6 or less, you suffer a flashback *in addition to* any other results of the stress! Point value depends on severity:

Mild: The hallucinations last 2d seconds and give -2 on all skill rolls, but they are minor – you realize that you are experiencing a flashback. *-5 points.*

Severe: The hallucinations last 1d minutes, give -5 on all skill rolls, and seem *real. -10 points.*

Crippling: The flashbacks are so severe that they preclude all skill use for 3d minutes, and seem 100% real. They can potentially be fatal, as you are receiving *no* input from reality. *-20 points.*

*Gullibility**

-10 points

There's one born every minute, and you're it. You'll swallow even the most ridiculous story, if it's told with conviction. Make a self-control roll, modified by the plausibility of the story, whenever you are confronted with a lie – or an improbable truth, for that matter. If you fail, you believe what you were told. You suffer a -3 penalty on any Merchant skill roll, or in any situation in which your credulity might be exploited. You can *never* learn the Detect Lies skill.

Ham-Fisted

-5 points

You have poor fine motor skills, and suffer a -3 penalty to skill rolls for any kind of small-detail work. You also tend to be badly groomed and messy, giving -1 to reaction rolls when this matters.

Intolerance

Variable

You dislike and distrust some (or all) people who are different from you. You may be prejudiced on the basis of class, ethnicity, nationality, religion, or sex. Victims of your Intolerance will react to you at -1 to -5 (GM's decision). Point value depends on the *scope* of your Intolerance.

If you are thoroughly intolerant, you react at -3 toward *anyone* not of your own class, ethnicity, nationality, or religion (pick one). Total Intolerance of this kind is worth -10 points.

Intolerance directed at only one *specific* class, ethnicity, nationality, religion, or sex is worth from -5 points for a commonly encountered victim to -1 point (a nasty quirk) for a rare victim.

Jealousy is Intolerance of anyone who seems smarter, more attractive, or better off than you! This is worth -10 points, because it often affects you very badly. You resist any plan proposed by such a "rival," and *hate* it if someone else is in the limelight.

Klutz

-5 points

You have a talent for physical blunders. You cannot have DX higher than 13, and you must make a DX roll to get through the day without at least one annoying or embarrassing accident. You should avoid laboratories, explosives, and china shops.

Laziness

-10 points

You are violently averse to work, especially physical labor. Your chances of getting a raise or promotion in *any* job are halved. If you are self-employed, halve your monthly pay. Roleplay it!

Noisy

-2 points/level

For whatever reason – a physical problem, clumsiness, uncontrollable muttering – you make a lot of noise, unless you're actually comatose. Each level (to a maximum of five) gives +2 to Sense rolls to hear you or -2 to your Stealth rolls, as the situation warrants. In some places (e.g., the opera), each level might also give -1 to reactions!

Obsessive Ideas

-5 to -15 points

You place *something* ahead of all other concerns. This can take many forms. Examples:

Fanaticism: You focus on a country, organization, philosophy, or religion. Fanaticism doesn't make you mindless or evil; a wild-eyed priest may be a fanatic, but so is a kamikaze pilot, and so is a devoted patriot who dies for his country. *-15 points.*

Obsession:* Your entire life revolves around a single objective. Make a self-control roll whenever it would be wise to deviate from this path. Failure means you continue to pursue your Obsession, regardless of consequences. Point value depends on the time needed to realize your goal. A short-term goal (e.g., assassinating someone) is worth -5 points, while a long-term goal (e.g., becoming President) is worth -10 points.

*Overconfidence**

-5 points

You believe that you are far more powerful, intelligent, or competent than you really are. You may be proud and boastful, or just quietly determined, but you *must* roleplay this!

You must make a self-control roll any time the GM feels you show an unreasonable degree of caution. If you fail, you *must* go ahead as though you were able to handle the situation.

You receive +2 on reaction rolls from young or naive individuals (who believe you *are* that good), but -2 on reactions from experienced NPCs.

Pacifism

Variable

You are opposed to violence. This can take three forms:

Reluctant Killer: You get -4 to hit a person (not a monster, machine, etc.) with a deadly attack, or -2 if you can't see his face. If you kill someone, roll 3d – you're morose and useless for that many days. *-5 points.*

Cannot Harm Innocents: You may fight, and even start fights, but you may only use deadly force on a foe that is attempting to do you serious harm. *-10 points.*

Self-Defense Only: You only fight to defend yourself or those in your care, using only as much force as necessary (no pre-emptive strikes!). You must do your best to discourage others from starting fights. *-15 points.*

*Phobias**

Variable

A "phobia" is fear of an item, creature, or circumstance. The more common the thing, the greater the point value of the fear. If you have a phobia, you may temporarily master it by making a successful self-control roll . . . but the fear persists. Even if you master a phobia, you will be at -2 to all IQ, DX, and skill rolls while the cause of your fear is present, and you must roll again every 10 minutes to see if the fear overcomes you. If you fail the self-control roll, you will cringe, flee, panic, or otherwise react in a manner that precludes sensible action.

Even the mere threat of the feared object requires a self-control roll at +4. If your enemies actually inflict the feared object on you, you must make an unmodified self-control roll.

Some common phobias:

Blood (Hemophobia): *-10 points.*
Darkness (Scotophobia): *-15 points.*
Heights (Acrophobia): *-10 points.*
Number 13 (Triskaidekaphobia): Roll at -5 if Friday the 13th is involved! *-5 points.*
Spiders (Arachnophobia): *-5 points.*

Physical Problems

Variable

Your have a serious but not completely crippling disability or permanent injury. Examples:

Bad Sight: This is normally corrected with glasses, contact lenses, etc. Without these, though, you have -6 to Vision rolls and -2 to hit in combat. *-10 points.*

Crippled Legs: You are at -3 to use any skill that requires the use of your legs, including all Melee Weapon and unarmed combat skills (but not *ranged* combat skills). You *must* reduce your Basic Move to half your Basic Speed (round down) or less, but get another -5 points per level of Move reduction (see *Secondary Characteristics,* p. 144). *-10 points.*

Epilepsy: You are subject to seizures during which your limbs tremble uncontrollably and you cannot speak or think clearly. Make a HT roll whenever you are in a stressful situation. Failure means a seizure that lasts 1d minutes and costs you 1d FP. *-30 points.*

Hard of Hearing: You are at -4 on any Hearing roll, and on any skill roll where it is important that you understand someone (if *you* are the one talking, this disadvantage doesn't affect you). *-10 points.*

Physiological Oddities

Variable

Your body or biochemistry has some strange, inconvenient features. You may be a genetic mutant, suffer from an exotic medical condition, etc. Point value depends on the inconvenience the disadvantage causes. The ***GURPS Basic Set*** has extensive rules for such things. A few examples:

Increased Consumption: You need twice as much food per level of this disadvantage. *-10 points/level.*

Self-Destruct: As soon as you reach your aging threshold (age 50 for normal humans), you will start to age rapidly, making aging rolls every *day* at -3 to HT. *-10 points.*

Short Lifespan: Each level of this disadvantage (maximum four) *halves* the ages at which you reach maturity and at which aging effects start to apply (see *Ageing,* p. 181). *-10 points/level.*

Unusual Biochemistry: You can subsist on human food, but drugs and medicines intended for normal humans don't work on you or have unpredictable effects. Treatments *designed* for your biochemistry cost 10 times as much as usual, and aren't available everywhere. *-5 points.*

Vulnerability: You take extra damage from a particular attack form. Point value depends on how much extra and how common the attack mode; e.g., ×2 damage from ultraviolet lasers is worth -10 points, whereas ×4 damage from all energy attacks is worth *-80 points.*

The GM may prohibit Self-Destruct and Short Lifespan in a campaign that won't run for long enough for aging to be an issue!

*Poor Impulse Control**

-5 to -15 points

You have incomplete control over some of your base urges. When exposed to an appropriate stimulus, you must make a self-control roll (see p. 154) or do something *unwise.* The GM may penalize your roll for unusually strong temptations. Even if you don't give in, you should roleplay your struggle! Those who witness your behavior, whether the result of a failed self-control roll or good roleplaying, will often react poorly; the GM may opt to make a reaction roll at -1 per -5 points the disadvantage is worth.

Examples:

Bad Temper: Roll in any stressful situation. Failure means you must insult, attack, or otherwise act against the cause of the stress. *-10 points.*

Bloodlust: An enemy is always an enemy, and should *die!* Roll whenever you must accept a surrender, evade a sentry, take a prisoner, etc. Failure means you attempt to kill your foe instead. *-10 points.*

Bully: Roll whenever you have a chance to degrade another person – physically, mentally, or socially – to make yourself look "better." Failure means you do that . . . and usually make yourself look worse. *-10 points.*

Cowardice: Roll whenever you are called on to risk physical danger (-5 if you face *death*). Failure means you refuse to endanger yourself (unless threatened with *greater* danger), and perhaps even flee! You also suffer a penalty to Fright Checks whenever physical danger is involved: -1 for every -5 points the disadvantage gives you. *-10 points.*

Curious: Roll whenever you're presented with an interesting item or situation. Failure means you try the experimental drug, press the big red button, ask impertinent questions, etc. *-5 points.*

Gluttony: Roll whenever food or drink is present, or anytime you have the chance to acquire provisions. Failure means you partake when you shouldn't, burden yourself with extra rations, etc. *-5 points.*

Greed: Roll whenever wealth is offered (-5 for large sums). Failure means you do whatever it takes to get the payoff – even if that means crime. *-15 points.*

Impulsiveness: Roll whenever debate and planning threaten to hold up action, and any time you should stop to think about what you're doing. Failure means you must act immediately! *-10 points.*

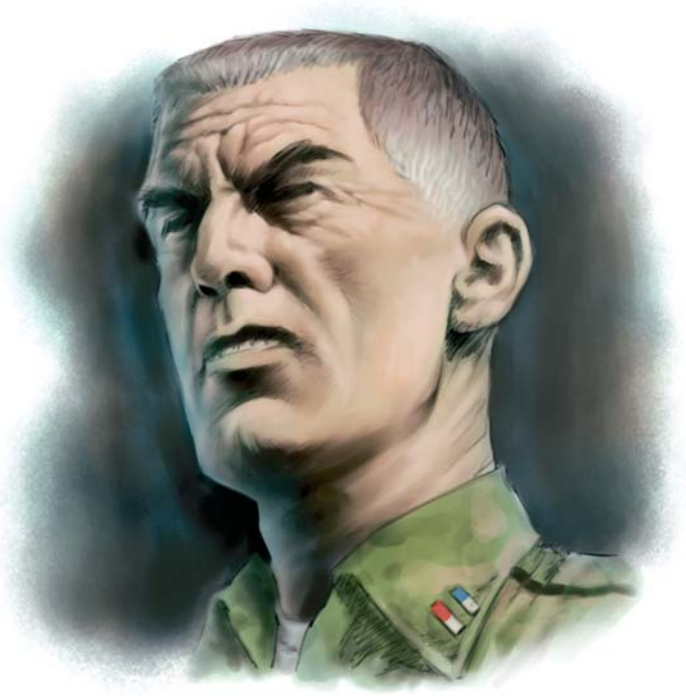
Lecherousness: Roll whenever you have contact with an appealing member of the sex you find attractive (-5 if Handsome/Beautiful, -10 if Very Handsome/Very Beautiful). Failure means you make a "pass." *-15 points.*

Sadism: Roll whenever you have an opportunity to engage in physical or mental cruelty for its own sake. Failure means you behave in an evil, villainous way. The GM may wish to disallow this trait for PCs, who are normally the heroes. *-15 points.*

Secret

Variable

You have a secret that you *really* don't want revealed. Point value varies from -5 points (exposure would be really embarrassing) to -30 points (run for your life or you are *dead*). The GM decides when your Secret may be threatened; if in doubt, a roll of 6 or less on 3d at the start of a game session is reason enough. You should always bear this problem in mind, though – just in case. If for whatever reason the Secret *is* revealed, the GM gives you new, permanent disadvantages equal to twice the value of the Secret now gone.



Sergeant Konstantine Bothari

Secret Identity: A "double life" is one interesting type of Secret. If you have Status 3+, this is worth an extra -10 points, because you are watched more closely and have more to lose, but the problem comes up on a roll of 7 or less, not 6 or less!

Sense of Duty

-2 to -20 points

You feel a strong sense of commitment toward a particular class of people. You will never betray them, abandon them when they're in trouble, or let them suffer or go hungry if you can help. This isn't the same as an externally imposed Duty (p. 155) – a Sense of Duty comes from within. Point value is based on the size of the group:

Individual (the President, your wingman, etc.): *-2 points.*
Small Group (e.g., your close friends, your squad): *-5 points.*
Large Group (e.g., a nation, a religion, everyone you know personally): *-10 points.*
Entire Race (all humanity): *-15 points.*
Every Living Being: -20 points.

Shyness

-5, -10, or -20 points

You are uncomfortable around strangers. Roleplay it! This disadvantage comes in three levels:

Mild: You have -1 on skills that require you to deal with people, including Acting, Carousing, Diplomacy, Fast-Talk, Intimidation, Leadership, Merchant, Panhandling, Politics, Public Speaking, Savoir-Faire, Sex Appeal, Streetwise, and Teaching. *-5 points.*

Severe: You tend to be quiet even among friends, and have -2 to the above skills. *-10 points.*

Crippling: You may not learn the skills listed above *at all,* and are at -4 on default rolls on such skills. *-20 points.*

*Split Personality**

-15 points

You display two or more distinct personalities, who may interpret their memories differently, use different names, and even have different disadvantages; e.g., one may be a callous killer, another a mild-mannered bureaucrat. You must make a self-control roll in any stressful situation, but no more than once per hour of game time. Failure means you shift personalities. If you have several, the GM should either choose one appropriate to the situation or roll randomly.

All your personalities appear shallow and affected, giving -1 to all reactions. Those who witness the change will see you as a dangerous nutcase, and react to you at -3.

> *His emerging aspects became personas . . . There was Gorge, and Grunt, and Howl, and another, quiet one that lurked on the fringes, waiting . . .*
>
> *– Mark meets his "Black Gang" in* ***Mirror Dance***

Timesickness

-10 points

Time travel, dimension travel, teleportation, etc., make you ill. You cannot have personal powers or technological skills relating to such things. You must make a HT roll whenever you journey through time, cross dimensions, or teleport. Failure means you are stunned and helpless for 1d hours (doubled on a critical failure!). Success means you are only stunned for 1d×10 minutes.

This is a "generic" disadvantage for use in settings with dimension travel, teleportation, time travel, etc. The Vorkosigan universe has a version called "Jumpsickness" (see p. 60).

Unluckiness

-10 points

Things go badly for you, persistently. Once per play session, the GM will arbitrarily and maliciously make something go wrong for you: you miss a vital die roll, the enemy shows up at the worst possible time, etc. If the plot of the adventure calls for something bad to happen to someone, it's *you.* The GM may *not* kill you outright with "bad luck," but anything less is fine.

Unsociable Flaws

Variable

These are personality flaws that make you hard to live with. Roleplay it! Others react to you at -1 per -5 points in the disadvantage when they have to put up with it.

No Sense of Humor: You never get jokes, think everyone is earnestly serious at all times, and never joke yourself. *-10 points.*

Stubbornness: You always want your own way. Your friends may have to make a lot of Fast-Talk rolls to get you to go along with reasonable plans. *-5 points.*

Workaholic: You drive yourself past your limits, finding it hard to relax. You always work at least half again as long as a normal working day, often resulting in missed sleep. People may regard you with respect at first (+1 to reactions), but you eventually suffer the reaction penalty, especially from loved ones who rarely get time with you. *-5 points.*

*Virtuous Flaws**

Variable

A few traits usually regarded as virtues are considered *disadvantages* because they severely limit your options:

Honesty: You *must* obey the law, and do your best to get others to do so, too. In areas with little or no law, you don't "go wild" – you act as though the laws of your own home were in force. You also assume that others are honest unless you *know* otherwise. Make a self-control roll when faced with unreasonable laws; if you fail, you *must* obey them, whatever the consequences. If you resist your urges and break the law, make a second self-control roll afterward. Failure means you must turn yourself in to the authorities! *-10 points.*

Selfless: You are deeply altruistic and self-sacrificing. You must make a self-control roll to put your needs – even survival – before those of someone else. *-5 points.*

Truthfulness: You hate to tell a lie, or are just very bad at it. Make a self-control roll whenever you must keep silent about an uncomfortable truth (lying by omission), at -5 if you actually have to *tell* a falsehood! If you fail, you blurt out the truth, or stumble so much that your lie is obvious. You have a permanent -5 to Fast-Talk skill, and your Acting skill is at -5 when your purpose is to deceive. *-5 points.*

Vow

-5 to -15 points

You have sworn an oath to do (or not do) something. You take this *seriously* – if you didn't, it wouldn't be a disadvantage. Point value depends on the inconvenience this causes you; the GM is the final judge. Examples:

Minor Vow: Silence during daylight hours; vegetarianism; chastity (yes, for game purposes, this is *minor*). *-5 points.*

Major Vow: Use no edged weapons; keep silence at all times; own no more than you can carry with you. *-10 points.*

Great Vow: Never refuse any request for aid; always fight with the wrong hand; hunt a certain dangerous foe until you destroy him. *-15 points.*

ENHANCEMENTS

Decreased Immunity

+50%/level or +20%

Some advantages offer a form of "immunity" to those who successfully resist, making it more difficult, or even impossible, to use your ability on them again. Each level of Decreased Immunity makes this resistance more difficult, shifting it down one level on the chart below. It does not affect the rules for repeated attempts (p. 142). Note that some levels have two equally limiting effects; you must choose which alternative applies when buying this enhancement.

Level	*Effect*
4	Permanently immune
3	Immune for one day *or* Permanent, cumulative -2 penalty
2	Immune for one hour *or* Cumulative -2 penalty lasting one day
1	Cumulative -2 penalty lasting one hour
0	No effect

Example: Mind Reading normally has a cumulative -2 penalty lasting one hour (level 1) for those who resist, while subjects gain immunity for a day (level 3) on a critical

failure. A psi could buy Mind Reading (Decreased Immunity 1, +50%) to completely remove the penalty for a subject resisting. This would also let him decide (in advance, when buying this ability) whether a critical failure granted immunity for an hour or a cumulative -2 penalty lasting one day.

Switching between two alternatives on the same level is a +20% enhancement. Note it as "Decreased Immunity 0" along with the new effects chosen.

Use *Increased Immunity* (below) to move up on the chart.

Limitations

Backlash: Headache

-20%

You suffer a severe headache when you use your ability. You are incapacitated for a minute, and then may make a HT roll once per minute to recover. Or, for only a 20% reduction, you may make a HT roll to resist the headache; if you fail, the effects last for minutes equal to your margin of failure.

In the default version of this limitation, the headache causes moderate pain, and you are at -2 on all DX, IQ, skill, and self-control rolls. Double the limitation's value for severe pain, which makes the penalty -4. Triple the value for *horrible* pain, which makes the penalty -6.

This is an example of a "nuisance effect." See p. B112 and ***GURPS Powers,*** p. 104, for more.

Increased Immunity

-10%/level

Each level of this enhancement shifts your immunity effects up by one level, making it more difficult for you to affect subjects who resist your ability. See *Decreased Immunity* (above) for details.

Quirks

A "quirk" is a minor personal trait. It's not an advantage and it's not necessarily a disadvantage – it's just something unique about your character. For instance, a major trait like Greed is a disadvantage. But if you insist on being paid in gold, that's a quirk.

You may take up to five quirks at -1 point apiece . . . and if you do, you will have five more points to spend. You can also "buy off" a quirk later on by *paying* 1 point, but as a rule, you shouldn't do that. Quirks might have a small cost, but they are a big part of what makes a character seem "real"!

Mental Quirks are minor personality traits. You *must* roleplay them. If you take the quirk "Dislikes heights," but blithely climb trees and cliffs whenever you need to, the GM will penalize you for bad roleplaying. To qualify as a mental quirk, a personality trait must meet one of two criteria: it requires a specific action, behavior, or choice on your part from time to time; or it gives you a *small* penalty very occasionally, or to a narrow set of actions.

Physical Quirks are physical disadvantages that are only mildly or rarely limiting. They do not require roleplaying, but they give specific, *minor* penalties in play.

Skills

A "skill" is a particular kind of knowledge; for instance, karate, physics, or auto mechanics. Every skill is separate, though some skills help you to learn others. Just as in real life, you start your career with some skills and can learn more if you spend time training.

A number called "skill level" measures your ability with each of your skills: the higher the number, the greater your skill. For instance, "Shortsword-17" means a skill level of 17 with the shortsword. When you try to do something, you (or the GM) roll 3d against the appropriate skill, modified for that particular situation. If the number you roll is *less than or equal to* your modified score for that skill, you succeed! But a roll of 17 or 18 is an automatic failure. For more on skill rolls, modifiers, success, and failure, see p. 141.

Controlling Attribute

Each skill is based on one of the basic attributes, or occasionally on Per or Will. Your skill level is calculated directly from this "controlling attribute": the higher your attribute score, the more effective you are with *every* skill based on it! If your character concept calls for *many* skills based on a given attribute, you should consider starting with a high level in that attribute, as this will be most cost-effective in the long run.

DX-based skills rely on coordination, reflexes, and steady hands.

IQ-based skills require knowledge, creativity, and reasoning ability.

HT-based skills are governed by physical fitness.

Per-based skills involve spotting subtle differences.

Will-based skills hinge on mental focus and clarity of thought.

Difficulty Level

Some fields demand more study and practice than others. ***GURPS Lite*** uses three "difficulty levels" to rate the effort required to learn and improve a skill. The more difficult the skill, the more points you must spend to buy it at a given level.

Easy skills are things that *anyone* could do reasonably well after a short learning period.

Average skills include most combat skills, mundane job skills, and the practical social and survival skills that ordinary people use daily.

Hard skills require intensive formal study or training.

Technological Skills

Certain skills are different at each tech level (see *Technology Level,* p. 146) and are designated by "/TL." When you learn such a skill, you must learn it at a specific tech level (TL). Always note the TL when you write down such a skill. Navigation/TL2 (consult the stars and an astrolabe) is nothing like Navigation/TL8 (get your location off a GPS receiver).

You learn technological skills at your personal TL. You may also choose skills from a *lower* TL. You can only learn skills from a *higher* TL in play – and only if you have a teacher *and* the skill is not based on IQ. To learn IQ-based technological skills from a higher TL, you must first raise your personal TL.

Buying Skills

In order to learn or improve a skill, you must spend character points. When you spend points on a skill, you are getting training to bring that skill up to a useful level. Skills are easy to learn at first – a little training goes a long way! But added improvement costs more.

The point cost of a skill depends on two things: its difficulty and the final skill level you wish to attain. Use the *Skill Cost Table* to calculate a skill's point cost.

The first column shows the skill level you are trying to attain, *relative to the skill's controlling attribute* – DX for DX-based skills, IQ for IQ-based skills, and so forth. For instance, if your DX were 12, a level of "Attribute-1" would be DX-1, or 11; "Attribute+0" would be DX, or 12; and "Attribute+1" would be DX+1, or 13.

The next three columns show the character point costs to learn skills of different difficulties – *Easy, Average,* and *Hard* – at the desired skill level. Harder skills cost more points to learn!

Skill Cost Table

Your Final	*Difficulty of Skill*		
Skill Level	***Easy***	***Average***	***Hard***
Attribute-3	–	–	–
Attribute-2	–	–	1
Attribute-1	–	1	2
Attribute+0	1	2	4
Attribute+1	2	4	8
Attribute+2	4	8	12
Attribute+3	8	12	16
Extra +1	+4	+4	+4

Skill Defaults: Using Skills You Don't Know

Most skills have a "default level": the level at which you use the skill if you have *no* training. A skill has a default level if it is something that everybody can do . . . a little bit. As a general rule, a skill defaults to its controlling attribute at -4 if Easy, -5 if Average, or -6 if Hard.

Some skills have *no* default level. For instance, Karate is complex enough that you cannot use it *at all* without training.

The Rule of 20

If a skill defaults to a basic attribute that is higher than 20, treat that attribute as 20 when figuring default skill. Superhuman characters get *good* defaults, but not *super* ones.

Who Gets a Default?

Only individuals from a society where a skill is known may attempt a default roll against that skill. For instance, the default for Environment Suit skill assumes you are from a world where such gear exists and where most people would have *some* idea – if only from TV – of how to use it. A medieval knight transported to Barrayar would not get a default roll to use environmental protection gear the first time he saw it!

Skill List

The skill list is sorted alphabetically by skill name. Each entry gives the following information:

Name: The skill's name. Technological skills are noted as such; e.g., "Mechanic/TL."

Type: The skill's controlling attribute and difficulty level.

Default: The attribute to which the skill defaults if you haven't studied it. "None" means *no* default – you *cannot* attempt to use the skill if you don't know it.

Description: An explanation of what the skill is for and how it works in play.

Some skills require the player to specify a particular specialty when he buys them – a category of technology, a geographical area, etc. Characters may buy such skills more than once, for multiple specialties. Record the chosen specialty in parentheses after the skill name; e.g., "Mechanic (Lightflyer)" or "Surgery (Neurosurgery)."

Acrobatics

DX/Hard

Default: DX-6.

This is the ability to perform gymnastic stunts, roll, take falls, etc.

Acting

IQ/Average

Default: IQ-5.

This is the ability to counterfeit moods, emotions, and voices, and to lie convincingly over a period of time.

Administration

IQ/Average

Default: IQ-5.

This is the skill of running a large organization, required by government officials, industrialists, military staff officers, etc. A successful roll gives a +2 reaction bonus when dealing with a bureaucrat and/or tells you how best to deal with a bureaucracy.

Animal Handling

IQ/Average

Default: IQ-5.

This is the ability to train and work with one type of animal. When working with a trained animal, roll against skill for each task you give it.

Area Knowledge

IQ/Easy

Default: IQ-4.

This skill represents familiarity with the people, places, and politics of a given region. You usually only have a default for the area you consider your "home base."

Artillery/TL

IQ/Average

Default: IQ-5.

This is the skill of operating a heavy indirect-fire weapon – one that you don't simply point at a visible target. Choose a type of weapon: beams, cannon, guided missiles, etc.

Artistic Skills

Varies

Default: Special.

All manner of skills exist to represent artistic accomplishments. These can earn the character a living, act as satisfying hobbies, or impress other people. Some have defaults; others do not. Examples include Artist (choose a medium; IQ/Hard, defaults to IQ-6), Dancing (DX/Average, defaults to DX-5), Musical Instrument (one skill per instrument; IQ/Hard, no default), and Singing (HT/Easy, defaults to HT-4). Roll to produce a competent artwork or performance.

Brawling

DX/Easy

Default: None.

This is the skill of "unscientific" unarmed combat. Roll against Brawling to hit with a punch, or Brawling-2 to hit with a kick.

Camouflage

IQ/Easy

Default: IQ-4.

This is the ability to use natural materials, special fabrics and paints, etc., to hide yourself, your position, or your equipment.

Carousing

HT/Easy

Default: HT-4.

This is the skill of socializing, partying, etc. A successful Carousing roll, under the right circumstances, gives you a +2 bonus on a request for aid or information, or just on a general reaction. A failed roll means you made a fool of yourself in some way; you get -2 on any reaction roll made by those you caroused with.

Climbing

DX/Average

Default: DX-5.

This is the ability to climb mountains, rock walls, trees, the sides of buildings, etc. See *Climbing* (p. 170) for details.

Computer Operation/TL

IQ/Easy

Default: IQ-4.

This is the ability to use a computer: call up data, run programs, play games, etc. It is the only computer skill needed by most end users.

Computer Programming/TL

IQ/Hard

Default: None.

The ability to write and debug computer software. Roll to write, debug, or figure out a program.

Crewman/TL

IQ/Easy

Default: IQ-4.

This is the ability to serve as *crew* aboard a large vehicle, including familiarity with "shipboard life" and knowledge of safety measures and damage control. There is a separate skill for each class of vessel: Seamanship for oceangoing ships, Spacer for spaceships, etc.

Criminology/TL

IQ/Average

Default: IQ-5.

This is the study of crime and the criminal mind. A successful skill roll allows you to find and interpret clues, guess how criminals might behave, and so on.

Detect Lies

Per/Hard

Default: Per-6.

This is the ability to tell when someone is lying to you. It isn't the same as Interrogation (p. 162); Detect Lies works in a casual or social situation. When you ask to use it, the GM rolls a secret Quick Contest: your skill vs. your subject's IQ (or Fast-Talk or Acting skill). If you win, the GM tells you whether the subject is lying. If you lose, the GM may lie to you about whether you were lied to, or just say, "You can't tell."

Disguise/TL

IQ/Average

Default: IQ-5.

This is the art of altering your appearance using clothing, makeup, and prosthetics. A *good* disguise requires a Disguise roll and 30 minutes to an hour of preparation.

Electronics Operation/TL

IQ/Average

Default: IQ-5.

This skill lets you use electronic equipment. Make a skill roll in an emergency situation or for "abnormal" use of the hardware – not for ordinary, everyday use. You must choose the type of electronics your skill covers: communications, electronic warfare, medical, security, sensors, surveillance, etc.

Engineer/TL

IQ/Hard

Default: None.

This is the ability to design and build technological devices and systems. A successful roll lets you design a new system, diagnose a glitch, identify the purpose of a strange device, or improvise a gadget to solve a problem. You must choose a particular branch of engineering in which you are skilled: civil engineering, combat engineering, electrical engineering, electronics, robotics, a type of vehicle, etc.

Environment Suit/TL

DX/Average

Default: DX-5.

This is training in the use of a specific class of protective suit. Suits designed against environmental or battlefield hazards are so complex that you do not merely wear such gear – you *operate* it.

Battlesuit/TL: Powered battle armor and exoskeletons.

NBC Suit/TL: All forms of hazardous materials ("HazMat") gear.

Vacc Suit/TL: Any kind of spacesuit.

Erotic Art

DX/Average

Default: DX-5.

This represents general knowledge of advanced sexual technique. Game effects are left to the GM's discretion. Many non-Betans assume all Betans have this skill.

Escape

DX/Hard

Default: DX-6.

This is the ability to slip out of ropes, handcuffs, and similar restraints. The first attempt to escape takes one minute; each subsequent attempt takes 10 minutes.

Explosives/TL

IQ/Average

Default: IQ-5.

This is the skill of working with explosives and incendiaries. Choose a category of work: demolition (setting explosives), explosive ordnance disposal (disarming and disposing of bombs), underwater demolition, etc.

Forgery/TL

IQ/Hard

Default: IQ-6.

This is the ability to create falsified documents (identity cards, passports, etc.). When you use a forged document, make your Forgery roll *each time* it is inspected – unless you roll a critical success on your first attempt. Failure means someone spots the forgery.

Free Fall

DX/Average

Default: DX-5.

This is the ability to operate in zero gravity; see *Zero G* (p. 171) for some applications. In addition, whenever you make a DX or DX-based skill roll in free fall, use the *lower* of Free Fall and your DX or skill. For instance, if you had Free Fall-14 and Karate-16, you would roll at 14 or less to land a punch.

Gambling

IQ/Average

Default: IQ-5.

This is skill at playing games of chance. A successful Gambling roll can (among other things) tell you if a game is rigged, identify a fellow gambler in a group of strangers, or "estimate the odds" in *any* tricky situation.

Heraldry

IQ/Average

Default: IQ-5.

This represents knowledge of coats of arms, flags, etc., in your culture. Use it to recognize a known crest or badge, analyze the significance of a design, or create appropriate symbolism. A Barrayaran with Heraldry, for instance, would know the crests and colors of all the District Counts and would recognize prominent ones from the past.

Hiking

HT/Average

Default: HT-5.

This skill represents training for endurance walking, hiking, and marching. Make a Hiking roll before each day's march; on a success, increase the distance traveled by 20%.

Holdout

IQ/Average

Default: IQ-5.

This is the skill of concealing items on your person or on other people (usually with their cooperation). An item's size and shape govern its concealability, from +4 for a BB-sized jewel or a postage stamp, to -6 or worse for a heavy sniper rifle.

How do you think you'd look in a House cadet's uniform of chartreuse and scarlet, like poor Vorharopulos . . . ?
– A Civil Campaign

Humanities

IQ/Hard

Default: IQ-6.

Each academic "humanity" or "arts" subject is a separate skill: Literature, Philosophy, Theology, etc. Another example is History, which is further divided by period and theme (e.g., "19th-Century Social").

Influence Skills

Varies

Default: Varies.

There are several ways to influence others; each is a separate skill. A successful roll will result in a good reaction from an NPC. Failure results in a bad reaction (except for Diplomacy, which is relatively safe). To actually coerce or manipulate an NPC, you must win a Quick Contest of your skill versus his Will. Methods of influencing others include:

Diplomacy (IQ/Hard): Negotiation and compromise. Defaults to IQ-6.

Fast-Talk (IQ/Average): Lying and deceit. Defaults to IQ-5.

Intimidation (Will/Average): Threats and violence. Defaults to Will-5.

Savoir-Faire (IQ/Easy): Manners and etiquette. Mainly useful in "high society" situations, but other versions of the skill may apply to the military, organized crime, etc. Defaults to IQ-4.

Sex Appeal (HT/Average): Vamping and seduction, usually of the opposite sex. Defaults to HT-3.

Streetwise (IQ/Average): Contacts and (usually) subtle intimidation. Only useful in "street" and criminal situations. Defaults to IQ-5.

Interrogation

IQ/Average

Default: IQ-5.

This is the ability to question a prisoner. Roll a Quick Contest of Interrogation vs. the prisoner's Will for each question. This requires 5 minutes per question. If you win, you get a truthful answer. If you tie or lose, the victim remains silent or lies. If you lose by more than 5 points, he tells you a *good, believable* lie!

In the Vorkosigan background, Interrogation would include knowledge of how to administer fast-penta (p. 83).

Judo

DX/Hard

Default: None.

This skill represents *any* advanced training at unarmed throws and grapples, not just the eponymous martial art. You may use it to attempt unarmed parries and the moves described under *Judo Throws* (p. 177). Any hand with which you wish to use Judo must be empty. Judo also relies heavily on quick footwork; all Judo skill rolls *and* Judo parries take a penalty equal to your encumbrance level (see p. 168).

Additional rules for such combat are given in the ***GURPS Basic Set.*** In ***GURPS Lite,*** simply note that you can use Judo for many purposes in close combat, often replacing DX when the skill is higher.

Jumping

DX/Easy

Default: None.

This skill represents trained jumping ability. When you attempt a difficult jump, roll against the *higher* of Jumping or DX. In addition, you may use half your Jumping skill (round down) instead of Basic

Move when calculating jumping distance. See *Jumping* (p. 170).

Karate

DX/Hard

Default: None.

This skill represents *any* advanced training at unarmed striking, not just the Okinawan martial art of *karate.* Roll against Karate to hit with a punch (at no -4 for the "off" hand), or Karate-2 to hit with a kick.

Karate improves damage: if you know Karate at DX level, add +1 *per die* to basic thrust damage when you calculate damage with Karate attacks – punches, kicks, elbow strikes, etc. Add +2 per die if you know Karate at DX+1 or better! However, Karate relies heavily on quick footwork; all Karate skill rolls *and* Karate parries take a penalty equal to your encumbrance level (see p. 168).

Law

IQ/Hard

Default: IQ-6.

This skill represents knowledge of one specific set of legal codes and jurisprudence. Roll against skill to remember, deduce, or figure out the answer to a question about the law, or to present a case in court.

Leadership

IQ/Average

Default: IQ-5.

This is the ability to coordinate a group. Make a Leadership roll to lead NPCs into a dangerous or stressful situation. (PCs can decide for themselves if they want to follow you!)

Lockpicking/TL

IQ/Average

Default: IQ-5.

This is the ability to open locks without the key or combination. Each attempt requires one minute. If you make the roll and open the lock, each point by which you succeeded shaves five seconds off the required time.

Mathematics/TL

IQ/Hard

Default: IQ-6.

This is the scientific study of quantities and magnitudes, and their relationships and attributes, through the use of numbers and symbols. Mathematics has many branches, including pure mathematics, 5-space mathematics, and statistics, among others. Each specialty is a separate skill. Most *applications* of mathematical knowledge require more practical skills, such as Engineer or Navigation.

Medical Skills

IQ/Varies

Default: Special.

This is a *set* of skills related to healing:

First Aid/TL (IQ/Easy): The ability to patch up injuries in the field (see *Recovery,* p. 180). Make a skill roll to halt bleeding, give artificial respiration, etc. Defaults to IQ-4.

Diagnosis/TL (IQ/Hard): The ability to tell what is wrong with a sick or injured person, or what killed a corpse. It might not determine the exact problem, but it always gives hints, rule out impossibilities, etc. Defaults to IQ-6.

Hypnotism (IQ/Hard): This is the skill of inducing a suggestible state in another person. What is possible varies depending how cinematic the game is, but realistically, hypnotism *may* be useful as a substitute for anesthetics or to help with psychological treatments. No default.

Physician/TL (IQ/Hard): The ability to aid the sick and the injured, prescribe drugs and care, etc. Make a skill roll to hasten natural recovery from injury (see *Recovery,* p. 180), and whenever the GM requires a test of general medical competence or knowledge. Physician can also always be used in place of First Aid. Defaults to IQ-7.

Psychology (IQ/Hard): This is the skill of *applied* psychology regarding a particular species, whether learned by academic study or lengthy observation. Roll against skill to predict the *general* behavior of an individual or small group in a particular situation, especially under stress. Psychological *therapy* also requires social skills, to influence the subject's behavior; *psychiatry* usually also requires Physician, to prescribe drugs or other treatments. Defaults to IQ-6.

Surgery/TL (IQ/Hard): The skill of using invasive techniques to repair damage to the body, transplant organs, etc. There are many different types of surgery, each of which represents a *separate* skill: cosmetic surgery, microsurgery, surgery relating to a specific organ, etc. No default.

Melee Weapon

DX/Varies

Default: Special.

This is not one skill, but a *collection* of skills – one per class of closely related melee weapons. Melee Weapon skills are based on DX, and default to DX-4 if Easy, DX-5 if Average, or DX-6 if Hard.

Fencing Weapons

Fencing weapons are light, one-handed, and usually hilted blades, optimized for parrying. Fencing relies heavily on quick footwork; all fencing skill rolls *and* parries take a penalty equal to your encumbrance level (see p. 168). *Skills:* Rapier (A) and Saber (A). Main-Gauche (A) is also classed as a fencing skill; this is the use of a knife or dagger in the "off" hand for defense. Parrying with Main-Gauche skill takes no penalty for use in the "off" hand; *attacks* are still at -4.

Impact Weapons

An *impact* weapon is any rigid, unbalanced weapon with most of its mass concentrated in the head. Such a weapon cannot parry if you have already attacked with it on your turn. *Skills:* Axe/Mace (A).

Pole Weapons

Pole weapons have long shafts, possibly with striking heads. *Skills:* Spear (A) and Staff (A; also gives +2 to Parry). A rifle with fixed bayonet counts as a spear, but must be used two-handed.

Swords

A *sword* is a rigid, hilted blade. All swords are balanced, and can attack and parry without becoming unready. *Skills:* Broadsword (A), Knife (E; also gives -1 to Parry), and Shortsword (A).

Merchant

IQ/Average

Default: IQ-5.

This is the skill of buying, selling, and trading retail and wholesale goods. It involves bargaining, salesmanship, and an understanding of trade practices. In the Vorkosigan universe, this skill is associated with the worlds of Komarr and Jackson's Whole, with the Komarrans being the (mostly) *honest* merchants.

Meteorology/TL

IQ/Average

Default: IQ-5.

This is the study of the weather and how to predict it, preferably using appropriate equipment or data sources. At one point in his career Miles had this skill, but he was delighted when he no longer needed it . . .

Missile Weapon

DX/Easy

Default: DX-4.

This is a *collection* of skills – one per class of closely related missile weapons.

Beam Weapons

Beam Weapons skills cover use of small arms that fire beams of energy or particles. There are two specializations relevant to the armory of the Vorkosigan universe:

Pistol: Handgun-sized beam weapons, such as stunners and nerve disruptors.

Rifle: Long arm-sized beam weapons. In the Vorkosigan universe, this means plasma arc rifles and the occasional antique laser rifle.

Gunner

Gunner skills cover use of heavy weapons, usually mounted on tripods or vehicles, to make *direct-fire* attacks – that is, to aim and fire at targets to which you have a line of sight.

Beams: Any kind of heavy directed-energy weapon: laser, plasma cannon, etc.

Cannon: Any kind of heavy single-shot projectile weapon – e.g., the main gun of a tank or a railgun on a starship.

Machine Gun: Any kind of heavy projectile weapon capable of firing bursts.

Guns

Guns skills cover use of handheld chemical-propellant or mass-driver projectile weapons.

Light Anti-Armor Weapon (LAW): All forms of rocket launchers and recoilless rifles.

Pistol: Needle guns, as well as all other types of hand guns . . . obsolete firearms like derringers, pepperboxes, revolvers, and automatics, but *not* machine pistols.

Rifle: Any kind of *rifled* long arm – assault rifle, hunting rifle, sniper rifle, etc. – that fires a solid projectile. Needler rifles would fall into this category.

Shotgun: Any kind of *smoothbore* long arm that fires multiple projectiles (flechettes, shot, etc.). Such weapons are obsolete in the Vorkosigan universe.

Submachine Gun (SMG): All short, fully automatic weapons that fire pistol-caliber ammunition, including machine pistols.

Natural Sciences/TL

IQ/Hard

Default: IQ-6.

Natural Sciences skills include Astronomy, Astrophysics, Botany, Chemistry, Ecology, Genetics, Geology, Nuclear Physics, and any others the GM approves. Note that broad categories such as "biology" or "physics" are subdivided!

Naturalist

IQ/Hard

Default: IQ-6.

This skill represents practical knowledge of nature – notably, how to tell dangerous plants and animals from benign ones, how to locate a cave to shelter in, and how to "read" weather patterns to know when to take shelter.

Navigation/TL

IQ/Average

Default: IQ-5.

This is the ability to find your position through careful observation of your surroundings and the use of instrumentation. A successful roll tells you where you are or lets you plot a course. Each environment – sea, air, land, space, and hyperspace – requires its own skill.

Net

DX/Hard

Default: None.

The ability to use a net as a thrown or melee weapon. The only use for it in the Vorkosigan universe is to throw a tangle-net (p. 89).

Observation

Per/Average

Default: Per-5.

This skill lets you observe dangerous or "interesting" situations without letting others know that you are watching. Use Observation to monitor a location, a group of people, or your immediate surroundings for concealed or tactically significant details.

Officer Skills

IQ/Hard

Default: IQ-6.

These skills are used mainly by military officers to plan successful operations and predict enemy actions – although some civilians pick them up, too.

Intelligence Analysis: Analyzing and interpreting intelligence data, evaluating sources, and deducing enemy plans and capabilities.

Strategy: Planning successful large-scale operations. There are several types of Strategy: land, naval, space, etc.

Tactics: Outmaneuvering the enemy in small-scale combat. When commanding a small unit, roll against Tactics to place your troops correctly for an ambush, know where to post sentries, etc. In personal combat, you may make a Tactics roll before the fight begins if you had *any* time to prepare. On a success, you start the fight in an advantageous position – e.g., behind cover or on higher ground – as determined by the GM.

Photography/TL

IQ/Average

Default: IQ-5.

This is the ability to use a camera competently; use a darkroom (TL5+), digital imaging software (TL8+), etc.; and produce recognizable and attractive photos. You may roll at default to use a camera, but not to develop film or prints in a darkroom.

Pickpocket

DX/Hard

Default: DX-6.

This is the ability to steal a purse, knife, etc., from someone's person – or to "plant" something on him.

Piloting/TL

DX/Average

Default: IQ-6.

Each type of aircraft or spacecraft requires a different Piloting skill. Roll once to get under way and again each time a hazard is encountered; failure indicates lost time or even an accident. Types in the Vorkosigan universe include Starship for jump pilots (see p. 90), High-Performance Spacecraft for shuttles and in-system craft (see p. 91), and Float-Bike and Contragravity for personal aircraft (see p. 92),

Piloting defaults to IQ, since it takes intelligence to figure out the controls in an emergency, but when you learn the skill, base it on DX. The GM may allow a slightly improved default to a character who has a different Piloting skill.

Politics

DX/Average

Default: IQ-5.

This is the ability to get into office and to get along with other politicians. A successful skill roll gets you a +2 reaction bonus from fellow politicians.

Professional Skills

Varies

Default: Varies.

Many skills are possible beyond those specifically listed here. Most serve mainly to support an ordinary job, but some can come in handy on adventures. Such skills are usually IQ/Average, but may be easier or harder – or DX-based, if very physical. They include Accounting (IQ/Hard), Bartender, Cooking, Farming, Panhandling (the IQ/Easy skill of begging on the streets without too many legal or violent problems), Teaching, and a huge variety of "craft" skills.

Public Speaking

IQ/Average

Default: IQ-5.

This is general talent with the spoken word. A successful skill roll lets you (for instance) give a good political speech, entertain a group around a campfire, incite or calm a riot, or put on a successful "court jester" act.

Repair Skills

IQ/Average

Default: IQ-5.

This is the broad *class* of abilities used to maintain and repair technological items, or even construct them from standard components. It is divided into several skills. In each case, choose the specific type of item to which the skill applies. A successful roll lets you find a problem, if it isn't obvious, *or* fix something. Time and equipment required are up to the GM.

Armoury/TL: Repairing weapons or armor. Types include force shields, heavy weapons, small arms, and vehicle armor.

Electronics Repair/TL: Repairing electronic equipment. Types include communications, computers, medical, and sensors.

Mechanic/TL: Repairing mechanical devices. Types include life support, machine tools, mining machinery, robotics, or one specific type of power plant, space drive, or vehicle.

Research/TL

IQ/Average

Default: IQ-5.

This is the ability to do library and file research. Roll to find a useful piece of data in an appropriate place of research . . . *if* the information is there to be found.

Riding

DX/Average

Default: DX-5.

This is the ability to ride a specific kind of mount. Make a skill roll when you first try to mount a riding animal, and again each time something happens to frighten or challenge the creature (e.g., a jump).

Running

HT/Average

Default: HT-5.

This represents training in both sprints and long-distance running. Roll against the *higher* of Running or HT to avoid fatigue or injury due to running. When racing someone of equal Move on foot, a Quick Contest of Running skill determines the winner.

Scrounging

Per/Easy

Default: Per-4.

This is the ability to find, salvage, or improvise useful items that others can't locate. Each attempt takes an hour. You don't necessarily steal your booty; you just locate it – somehow – and then acquire it by any means necessary.

Search

Per/Average

Default: Per-5.

This is the ability to search people, baggage, and vehicles for items that aren't in plain sight. The GM rolls once – *in secret* – per item of interest. For *deliberately* concealed items, this is a Quick Contest of your Search skill vs. the Holdout or Smuggling skill used to hide the item. If you fail, the GM simply says, "You found nothing."

Shadowing

IQ/Average

Default: IQ-5.

This is the ability to follow another person through a crowd without being noticed. Roll a Quick Contest every 10 minutes: your Shadowing vs. the subject's Vision roll. If you lose, you lost the subject; if you lose by more than 5, you were seen.

Shiphandling/TL

IQ/Hard

Default: IQ-6.

This is the ability to act as the *master* of one type of large vessel: oceangoing ship, spaceship, etc. It covers directing the crew, standing watch on the bridge, etc. Before learning this skill, you must spend at least a point each on Leadership and the appropriate Crewman and Navigation skills for the vessel type. Note that while Shiphandling (Spaceship) grants basic familiarity with the controls of large craft, complex high-speed maneuvers require an appropriate version of Piloting (p. 164).

Smuggling

IQ/Average

Default: IQ-5.

This is the ability to conceal items in baggage and vehicles. You can also use it to hide an object in a room or a building. Roll against skill to hide an item from casual inspection. In an active search, the searchers must win a Quick Contest of Search vs. your Smuggling skill to find the item.

Social Sciences

IQ/Hard

Default: IQ-6.

Each "social science" is a separate skill: Anthropology, Archaeology, Economics, Sociology, etc.

Soldier/TL

IQ/Average

Default: IQ-5

This covers basic military training and experience, including battlefield discipline and routine equipment use and care. Roll to perform standard military tasks correctly when ordered, and to avoid minor inconveniences in battle or on the march.

Stealth

DX/Average

Default: DX-5.

This is the ability to hide and to move silently. A successful roll lets you conceal yourself practically anywhere, or move so quietly that nobody will hear you, or follow someone without being noticed. If someone is *specifically* on the alert for intruders, the GM will roll a Quick Contest between your Stealth and his Perception.

Survival

Per/Average

Default: Per-5.

This is the ability to "live off the land," find food and water, build shelter, etc. To live safely in a wilderness situation, you must make a successful Survival roll once per day. Failure inflicts 2d-4 injury on you and anyone in your care. There are many different types of Survival skill, which must be learned independently.

Swimming

HT/Easy

Default: HT-4.

This is the skill of swimming (on purpose or to keep afloat in emergencies) and lifesaving. Roll against the *higher* of Swimming or HT to avoid fatigue or injury due to aquatic misfortunes.

Throwing

DX/Average

Default: DX-3.

This is the ability to throw any small, relatively smooth object that fits in the palm of your hand. Examples include baseballs, hand grenades, and rocks.

Thrown Weapon

DX/Easy

Default: DX-4.

This is the ability to hurl any one type of thrown weapon. Common types include Thrown Weapon (Knife) and Thrown Weapon (Spear).

Tracking

Per/Average

Default: Per-5.

This is the ability to follow a man or an animal by its tracks. Make a Tracking roll to pick up the trail, then roll every 15 minutes to avoid losing it, at a modifier ranging from 0 for soft terrain to -6 for city streets.

Traps/TL

IQ/Average

Default: IQ-5.

This is the skill of building and nullifying traps. For the purposes of the skill, detection devices are "traps." Thus, this skill covers everything from covered pits to elaborate electronic security systems.

Vehicle Skills

DX/Varies

Default: Special.

Each class of vehicle requires a different skill to operate it. Roll once to get under way and again each time a hazard is encountered; failure indicates lost time or even an accident.

Vehicle skills default to DX at -4 if Easy, -5 if Average, or -6 if Hard; motor vehicles also default to IQ, at similar penalties. Types of vehicle include Bicycling (DX/Easy), Boating (DX/Average) for small boats, Driving (DX/Average) for ground-cars and motorbikes, and so on.

For aircraft and spacecraft, use Piloting (p. 164).

Writing

IQ/Average

Default: IQ-5.

The ability to write in a clear or entertaining manner. A successful roll means the work is readable and accurate. The report of a spy, soldier, or private investigator is far more useful if it is well-written!

Character Improvement

At the end of each session, the GM may award bonus character points for good play. These are the same kind of points you used to create your character.

Bonus points are used to develop and improve your character. Record them as "unspent" on your character sheet. Then spend them the same way as during character creation, as follows:

To *improve one of your basic attributes,* you must spend character points equal to the point-cost difference between the old score and the new one. Note that improving basic attributes will also affect secondary characteristics!

Most *advantages* are inborn, and cannot be "bought" later on. Exceptions include Combat Reflexes and Languages, which can be learned, and social advantages like Status, which can be earned (in some societies). To add an advantage, you must pay the appropriate character points.

A character may *get rid of most beginning disadvantages* by "buying them off" with points equal to the bonus earned when the disadvantage was taken, as long as the player and GM can agree on a logical explanation for this.

Bonus Character Points

At the end of each play session, the GM should award bonus character points for good play. "Good play" is anything that advances the heroes' mission or shows good roleplaying – preferably both. But roleplaying trumps mission success! If a player did something totally outside his character's personality (for instance, if a total coward performed a brave act), this should not be worth *any* points, even if it saved the day for the rest of the group!

The GM is free to award *any* number of points . . . but in general, he should give each player between zero and five points, averaging two or three points, *per session.*

The GM might also wish to give an award – perhaps equal to that for a successful play session – upon the conclusion of a lengthy adventure, story arc, or major plot thread.

Earned character points can be used to *increase your skills or add new ones.* When you improve a skill, the cost is the difference between your current skill level and the cost of the new skill level.

Equipment

Now you need to decide what equipment you have. Usually, the GM sets a reasonable cost and weight for each item a player requests; see Chapter 6 for an assortment of gear. Weapons and armor are a special case, however, since their use involves more intricate game mechanics. This section will give you enough information to let you choose your combat gear intelligently.

A Note on Buying Things: You start with money equal to the campaign starting wealth (p. 167), modified by your personal wealth level (p. 147). The GM will supply equipment lists that give cost, weight, and other information about important items, and give you a ruling about anything else you request. Subtract the price of each item you buy from your starting wealth to determine how much money you have left.

Armor

A single sword thrust or bullet can incapacitate or kill you . . . but armor might give you a second chance. Your armor's Damage Resistance (DR) subtracts *directly* from the damage inflicted by your enemies' weapons. Most armor requires no skill to use – you just wear it! Effective armor is *heavy,* though. Its weight can

Starting Wealth

"Starting wealth" covers both money and property. Start with the amount of money your wealth level entitles you to for the game world. Buy the possessions you want to start with. Any unspent money is your "bank account."

All prices in ***GURPS*** appear in "$": a convenient abbreviation for any baseline unit of currency suitable to the setting. One $ may be one dollar, one credit, one copper piece, or whatever else is appropriate. In ***GURPS Vorkosigan,*** $ means the Betan dollar, which is the hardest currency in the wormhole nexus. Prices assume a typical sale made by an ordinary merchant.

Campaign tech level (p. 146) determines starting wealth, as technologically advanced societies tend to be richer. Suggested starting wealth for different campaign TLs is as follows:

TL8	$20,000
TL9	$30,000
TL10	$50,000

Realistically, if you have a settled lifestyle, you should put 80% of your starting wealth into home, clothing, etc., which leaves only 20% for "adventuring" gear. If you are a wanderer (pioneer, Free Trader, etc.), or Poor or worse, the GM might allow you to spend *all* your starting wealth on movable possessions.

hinder you (see *Encumbrance and Move,* p. 168), reducing your Dodge and your fencing, Judo, and Karate abilities.

Armor Table

This table includes an article of light, common clothing to wear underneath – or padding, if this is usual for the armor. The statistics already reflect this; you do not have to buy clothing or padding separately, or account for its DR and weight.

The tables give the following information for each suit of armor:

Armor: The item's name.

DR: The amount of Damage Resistance the item gives. Subtract this from any blow that strikes the armored location. For instance, if you're wearing a DR 4 mail and are hit in the torso for 6 points of damage, only 2 points penetrate and affect you.

Cost: The item's price, in $.

Weight: The item's weight, in pounds.

Armor	*DR*	*Cost*	*Weight*	*Notes*
Padded Cloth	1	$150	12	
Leathers	2	$340	19.5	
Mail	4	$645	58	
Ballistic Vest	8	$400	2	
Tactical Vest	12	$900	9	
Vacc Suit	6	$12,000	30	[1]
Battlesuit	70/50	$90,000	165	[2]

[1] This general-purpose civilian spacesuit requires Vacc Suit skill to use correctly. It includes a 12-hour air supply, vacuum protection, a short-range radio, and biomedical monitors.

[2] This powered military combat suit requires Battlesuit skill to operate. It gives DR 70 to the torso and skull, but only DR 50 to other body parts. It adds +10 to ST for lifting and striking purposes, and doubles the distance the wearer can jump. Features include a 12-hour air supply, vacuum and full hostile-environment protection, a military-grade communicator, and biomedical monitors.

Weapons

Adventurers often carry a weapon of some sort, whether it's a swashbuckler's saber, a detective's snub-nosed pistol, or a space mercenary's laser.

First, decide *why* you want a weapon. Is it for self-defense, intimidation ("Stop or I'll shoot!"), battle, or hunting? Review your skills and Strength. High-tech weapons (such as guns) work equally well for anyone who knows how to use them. Low-tech weapons – clubs, swords, etc. – do much more damage if wielded by a strong person. Missile weapons let you strike from a distance . . . until you run out of ammo.

Finally, look at the weapon's statistics. A weapon's damage rating is the basic measure of its effectiveness, but there are other factors to consider, such as range, rate of fire, and accuracy.

Weapon Statistics

Weapons are described in the table as explained below. A given column will only appear on a table if it is germane to the weapons on that table. In all cases, "–" means the statistic does not apply, and "var." means the value varies.

On all the tables, weapons are listed under the skill required to use them. Skill names appear in capital letters, with defaults in parentheses; e.g., "**AXE/MACE (DX-5)**."

TL (Tech Level)

The tech level at which the weapon first becomes widespread. You may only buy weapons of your campaign's TL *or less,* unless you have the High TL trait (p. 146).

Weapon

The general class of weapon in question; e.g., "shortsword" or "laser rifle." Each entry represents a range of individual types.

Damage

For muscle-powered melee and missile weapons, such as swords and spears, damage is ST-based and expressed as a modifier to the wielder's basic thrusting (thr) or swinging (sw) damage, as given on the *Damage Table* (p. 145). For example, a spear does "thr+2," so if you have ST 11, which gives a basic thrusting damage of 1d-1, you inflict 1d+1 damage with a spear. Swung weapons act as a lever, and so do more damage.

For firearms and similar, damage is given as a fixed number of dice plus adds; e.g., a pistol might list "2d+2," meaning that any user would roll 2d and add 2 to get damage.

Armor Divisors: A parenthetical number after damage – e.g., (2) – is an *armor divisor.* Divide the target's DR from armor or other sources by this number before subtracting it from your damage (or adding it to the target's HT roll to resist an affliction). For instance, an attack with a divisor of (2) would halve DR.

Damage Type: An abbreviation indicating the *type* of injury or effect the attack causes.

Abbreviation	*Damage Type*
aff	affliction
burn	burning
cr	crushing
cut	cutting
imp	impaling
pi-	small piercing
pi	piercing
pi+	large piercing
spcl	special

A victim loses HP equal to the damage that penetrates his DR. Halve this for small piercing attacks; increase it by 50% for cutting and large piercing attacks; and double it for impaling.

Acc (Accuracy)

Ranged weapons only. Add Accuracy to your skill if you took an Aim maneuver on the turn prior to your attack. If the weapon has a built-in scope, the bonus for this appears as a separate modifier after the weapon's base Acc; e.g., "7+2."

Range

Ranged weapons only. If a weapon has only one range number, this is the *Maximum Range* (Max) in yards at which it can attack a target. If two numbers appear, separated by a slash, the first is *Half-Damage Range* (1/2D) and the second is Max. Damaging attacks on targets at or beyond 1/2D inflict half damage.

Muscle-powered weapons usually list 1/2D and Max as multiples of the wielder's ST, not as a fixed range. For example, "×1/×1.5" means 1/2D is 1×ST and Max is 1.5×ST, so someone with ST 10 would have 1/2D 10 and Max 15.

RoF (Rate of Fire)

Ranged weapons only. The maximum number of shots an ordinary shooter can fire in a one-second turn. A weapon can normally fire fewer shots (to a minimum of 1), if you wish, but some can *only* fire bursts. Of course, you can't fire more shots than you currently have left in the weapon.

Encumbrance and Move

"Encumbrance" is a measure of the total weight you are carrying, *relative to your ST.* The effects of encumbrance are divided into five "encumbrance levels." All but the lowest level will reduce your actual Move to a fraction of your Basic Move and give a penalty to certain skills and defenses, as follows:

No Encumbrance (0): Weight up to Basic Lift (see p. 144). Move = Basic Move.

Light Encumbrance (1): Weight up to 2×BL. Move = Basic Move×0.8.

Medium Encumbrance (2): Weight up to 3×BL. Move = Basic Move×0.6.

Heavy Encumbrance (3): Weight up to 6×BL. Move = Basic Move×0.4.

Extra-Heavy Encumbrance (4): Weight up to 10×BL. Move = Basic Move×0.2.

Drop all fractions. Encumbrance can never reduce Move (or Dodge) below 1.

Note that these levels are numbered from 0 to 4. When a rule tells you to add or subtract your encumbrance level from a die roll, this is the number to use. For instance, encumbrance gives a penalty to Climbing and Karate skills, to Dodge, and to some parries.

Shots

Ranged weapons only. The number of shots the weapon can fire before you must reload or recharge it. "T" means the weapon is *thrown.* To "reload," pick it up or ready a new weapon!

The parenthetical number following Shots indicates the number of one-second Ready maneuvers needed to reload *all* of the weapon's shots (e.g., by changing magazines) – or, for a thrown weapon, the time needed to ready another weapon. An "i" next to this means you must load shots individually: the time listed is *per shot* rather than for all shots.

Cost

The price of a new weapon, in $. For swords and knives, this includes a sheath or a scabbard. For firearms, this includes the minimal necessary cleaning kit.

Weight

The weight of the weapon, in pounds. For missile weapons with Shots 2+, this is *loaded* weight. The weight of one full reload appears after a slash.

ST (Strength)

The minimum Strength required to use the weapon properly. If you try to use a weapon that requires more ST than you have, you will be at -1 to weapon skill per point of ST you lack *and* lose one extra FP at the end of any fight that lasts long enough to fatigue you.

For a melee weapon, your effective ST for damage purposes cannot exceed *triple* the weapon's minimum ST. For instance, a large knife has minimum ST 6, so its "maximum ST" is 18; if your ST were 19+, you would compute your damage as if you had ST 18.

Natural weapons (e.g., a punch or kick) have neither minimum nor maximum ST.

"†" means the weapon requires two hands. If you have at least 1.5 times the listed ST (round *up*), you can use a weapon like this in one hand, but it becomes *unready* after you attack. If you have at least *twice* the listed ST, you can wield it one-handed with no readiness penalty. But if it requires one hand to hold it and another to operate a moving part, like a bow or a pump shotgun, it *always* requires two hands, regardless of ST.

"B" indicates a firearm with an attached bipod. When firing from a prone position using a bipod, treat the weapon as if it were braced *and* reduce its ST requirement to 2/3 of the listed value (round *up*); e.g., ST 13 becomes ST 9.

"M" means that the weapon is usually mounted on a vehicle or a heavy tripod. *Ignore* the listed ST and Bulk when firing from such a mount.

Bulk

Ranged weapons only. A measure of weapon size and handiness. Bulk modifies your weapon skill when you Move and Attack (see p. 174), and serves as a penalty to Holdout skill when you attempt to conceal the weapon.

Rcl (Recoil)

Firearms only. A measure of how hard the weapon is to control when firing rapidly. Rcl 1 means the weapon is recoilless, or nearly so, or very easy to control. When firing more than one shot in a round, every *full* multiple of Rcl by which you make your attack roll means you score one extra hit, to a maximum equal to total shots fired; see *Rapid Fire* (p. 176). (Firearms with RoF 1 still list Rcl, for use with certain advanced rules.)

LC (Legality Class)

A measure of how strictly the weapon is controlled in most places, ranging from LC4 (available in most societies, but possibly restricted in repressive cultures or settings; e.g., fighting knives) down to LC0 (banned almost everywhere; e.g., biological weapons). Every society has a *Control Rating* (CR), ranging from 0 (anarchy) to 6 (total control); as a general rule, a weapon is legal if its LC is greater than the local CR, restricted in some way if they are equal, and banned if the LC is lower.

Notes

The numbers listed here refer to applicable footnotes (if any) at the end of the table.

Melee Weapons

If there is more than one way to use a weapon, each method gets its own line. Melee weapons are usually LC4, although large blades will usually be looked on askance in peaceful settings.

Melee Weapon Table

AXE/MACE (DX-5)

TL	*Weapon*	*Damage*	*Cost*	*Weight*	*ST*	*Notes*
0	Axe	sw+2 cut	$50	4	11	

BROADSWORD (DX-5)

TL	*Weapon*	*Damage*	*Cost*	*Weight*	*ST*	*Notes*
2	Thrusting Broadsword	sw+1 cut	$600	3	10	
	or	thr+2 imp	–	–	10	

KNIFE (DX-4)

TL	*Weapon*	*Damage*	*Cost*	*Weight*	*ST*	*Notes*
0	Large Knife	sw-2 cut	$40	1	6	
	or	thr imp	–	–	6	[1]

RAPIER (DX-5)

TL	*Weapon*	*Damage*	*Cost*	*Weight*	*ST*	*Notes*
4	Rapier	thr+1 imp	$500	2.75	9	

SABER (DX-5)

TL	*Weapon*	*Damage*	*Cost*	*Weight*	*ST*	*Notes*
4	Saber	sw-1 cut	$700	2	8	
	or	thr+1 imp	–	–	8	

SHORTSWORD (DX-5)

TL	*Weapon*	*Damage*	*Cost*	*Weight*	*ST*	*Notes*
0	Baton	sw cr	$20	1	6	
	or	thr cr	–	–	6	
2	Shortsword	sw cut	$400	2	8	
	or	thr imp	–	–	8	

SPEAR (DX-5)

TL	*Weapon*	*Damage*	*Cost*	*Weight*	*ST*	*Notes*
0	Spear	thr+2 imp	$40	4	9	[1]
	two hands	thr+3 imp	–	–	9†	

STAFF (DX-5)

TL	*Weapon*	*Damage*	*Cost*	*Weight*	*ST*	*Notes*
0	Quarterstaff	sw+2 cr	$10	4	7†	
	or	thr+2 cr	–	–	7†	

Notes

[1] Can be thrown. See *Thrown Weapons* (below).

Thrown Weapons

Thrown Weapon Table

THROWN WEAPON (KNIFE) (DX-4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*Cost*	*ST*	*Bulk*
0	Large Knife	thr imp	0	×0.8/×1.5	1	1	T(1)	$40	6	-2

THROWN WEAPON (SPEAR) (DX-4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*Cost*	*ST*	*Bulk*
0	Spear	thr+3 imp	2	×1/×1.5	4	1	T(1)	$40	9	-6

Firearms

A "firearm" is any gun, rocket, or beam weapon that doesn't rely on muscle power. Guns are commonly available by TL4 and ubiquitous at TL5+. The firearms commonly available in a setting depend on its technology. The standard firearms available in the Vorkosigan universe are described in Chapter 6.

Playing the Game

We've seen the rules for creating and equipping characters. Now here's how to do things. The GM describes a situation and asks each of the players what his character is doing. The players answer, and the GM tells them what happens next. At some point, the GM won't be certain that the characters can automatically do what the players say they are doing . . . "You're carrying *what* and jumping the chasm?" . . . and the dice come out.

Physical Feats

Below are rules for common physical tasks of importance to adventurers. For tasks not listed here, make DX rolls for matters of precision and HT rolls for feats of endurance. To determine weight moved or work done, use Basic Lift. Movement speed should generally be proportional to Basic Move.

Climbing

To climb anything more difficult than a ladder, roll against Climbing skill (p. 161). Modify this according to the climb's difficulty. In all cases, subtract your encumbrance level from your skill as well.

Make one roll to start the climb and another roll every five minutes. Any failure means you fall (see *Falling,* p. 181). If you secured yourself with a rope, you will fall only to the end of the rope unless you critically failed.

Climbers on difficult surfaces can usually only manage a few feet per minute, but can increase speed considerably (GM's option – perhaps a few *yards* per minute) by spending 1 FP per Climbing roll.

Hiking

Sustainable cross-country speed on foot depends on ground Move. Start with Basic Move and reduce it for encumbrance (see *Encumbrance and Move,* p. 168), injury (see *General Injury,* p. 179), and exhaustion (see *Lost Fatigue Points,* p. 180), as applicable. The distance in miles you can march in one day, under ideal conditions, equals 10×Move.

A successful roll against Hiking skill (p. 162) increases marching distance by 20%. Roll daily. A group led by someone with Leadership skill at 12+ may make a single roll against the group's *average* Hiking skill. (Hiking defaults to HT-5 for those who haven't studied it.) Success lets the entire group march 20% farther; failure means the whole group must forgo the bonus.

Once you know your ideal daily mileage, modify it for circumstances as follows:

Very Bad: Deep snow, dense forest, jungle, mountains, soft sand, or swamp. ×0.2.

Bad: Broken ground (including streams), forest, or steep hills. ×0.5.

Average: Light forest or rolling hills ×1.

Good: Hard-packed desert or level plains. ×1.25.

Adverse weather conditions – rain, snow, or ice – often reduce these values further.

Jumping

When you want to jump over something much smaller than you, the GM should say, "Okay, you jumped over it," and get on with play. Such jumps succeed automatically. But when the obstacle seems really significant, or if the GM put it there as a deliberate hazard, use the following rules.

Settling Rules Questions

In any question of rules, the GM's word is *law.* The GM decides which optional rules to use, and settles any specific questions that come up. A good GM discusses important questions with the players before deciding – and a good player accepts the GM's decisions.

The GM should know the rules thoroughly. When the rules do not cover a situation – or when a decision about the "real world" is needed – the GM can use several techniques:

Success rolls. A "success roll" is a roll that tests one of a character's attributes, skills, etc. – see p. 141. Use a success roll when a question arises about someone's ability to do some particular thing.

Random rolls. A random roll is often best for a question like "Are the keys in the car?" or "Does one of the soldiers have a horse the same color as mine?" The GM decides what the chances are, then rolls the dice.

Arbitrary fiat. You don't have to use the dice at all. If there is only one "right" answer to fit the plot of the adventure – then that's the answer. "Luckily for you, the grenade bounced down the stairwell. Nobody was hurt. But now the guards are alerted!"

Jumping Distance

Your Basic Move determines jumping distance, as follows:

High Jump: (6×Basic Move) – 10 inches. For example, a Basic Move of 6 lets you jump 26" straight up. For a *running* jump, add the number of yards you run to Basic Move in this formula. Maximum running high-jump height is twice standing high-jump height.

Broad Jump: (2×Basic Move) – 3 feet. For example, a Basic Move of 6 lets you jump 9 feet from a standing start. For a *running* jump, add the number of yards you run to Basic Move in this formula. Maximum running broad-jump distance is twice standing broad-jump distance.

Lifting and Moving Things

Basic Lift (p, 144) governs the weight you can pick up and move. The GM may let multiple characters add their BL (*not* their ST) whenever it seems reasonable; e.g., to carry a stretcher or pull a wagon.

One-Handed Lift: 2×BL (takes two seconds).

Two-Handed Lift: 8×BL (takes four seconds).

Shove and Knock Over: 12×BL. *Double* this if you have a running start. The GM can also make allowances for precariously balanced objects, to make them easier to tilt.

Carry on Back: 15×BL. Thus, you can carry more than you can lift by yourself . . . but every *second* that your encumbrance is over 10×BL (that is, Extra-Heavy encumbrance), you lose 1 FP.

Shift Slightly: Depending on your footing and the way you are braced, you could shift or rock 50×BL.

Running

Your running speed, or ground Move, is equal to your Basic Move score modified for encumbrance – see *Encumbrance and Move* (p. 168). Sprinting is all-out running. It is very fast, but also fatiguing. You can sprint if you run *forward* for two or more seconds. Add 20% to your Move *after one second*. For instance, with a Move of 7, you could sprint at 8.4 yards/second after running for one second at 7 yards/second.

If you need to run a long distance, you will want to pace yourself to avoid exhaustion. Paced running averages exactly *half* the sprinting speed calculated above.

After every 15 seconds of sprinting or every minute of paced running, roll against HT or Running skill. On a failure, you lose 1 FP. Once you are reduced to less than 1/3 your FP, halve your Move for any kind of running; see *Fatigue* (p. 180).

Swimming

Make a roll against Swimming skill (p. 165) any time you enter water over your head, and again every 5 minutes. Subtract *twice* your encumbrance level; add +3 if you entered the water intentionally. If you fail, lose 1 FP and roll again in 5 seconds, and so on until you reach 0 FP and drown, get rescued, or succeed at a roll. If you recover, roll again in 1 minute. If you succeed, go back to rolling every 5 minutes.

Humans have water Move equal to Basic Move/5 (round down), minimum 1 yard/second. After every minute of top-speed swimming, roll against the *higher* of HT or Swimming skill. On a failure, you lose 1 FP. Once you are reduced to less than 1/3 your FP, halve your water Move; see *Fatigue* (p. 180).

Throwing

You can throw anything you can pick up – that is, anything with a weight of 8×BL or less. If the object you wish to throw is not already in your hands, you must take one or more Ready maneuvers to pick it up. See *Lifting and Moving Things* (above) for details.

Throwing an object during combat – whether as an attack or not – requires an Attack maneuver. You can throw objects that weigh up to 2×BL using one hand; heavier objects require a two-handed throw. Roll against DX-3 to hit a specific target, or against DX to lob something into a general area; if you have the Throwing skill, you can use it in either case. Apply the usual modifiers for target size, speed, and distance.

Throwing Distance Table

To avoid slowing down the game with math, the GM should allow any throw he deems reasonable . . . but when you *need* to know the exact distance you can throw an object, use the following procedure:

Different Gravity

Gravity is measured in "Gs." Earth has 1G on its surface; its moon has 0.17G. Working in a gravity level different from the one to which you're accustomed can be tricky – you may misjudge how things will move, or simply be weighed down.

Encumbrance: If local gravity is more than 1G, multiply the sum of your body weight and the weight of everything you're carrying by (local gravity)-1. This is the extra weight you're carrying; add it to your total encumbrance. If gravity is less than 1G, multiply the weight of your gear by the local gravity level for encumbrance purposes; the reduction in your own body weight doesn't affect encumbrance, but does help with jumping (see below).

Jumping and Throwing: Multiply jumping and throwing distances by the ratio of 1G to local gravity. For example, in 0.2G, you can jump five times as far. Throwing *damage* isn't affected; neither is the bonus you get to high jump distance for a running start. Note that in very low gravity, you may get around faster by taking a series of leaps than by running.

Skill Penalties: Differing gravity levels reduce your effective skills for a variety of reasons. For every full 0.2G by which the local level varies from your home level (whether it's higher or lower), you take a -1 penalty to DX and all DX-based skills. For every full 0.4G by which the local level is *greater* than your home level, you take -1 to IQ and HT, and all skills based on them.

Zero G

Situations with *no* gravity are a special case. If you aren't native to zero gravity (and some people, like quaddies, are!), you must roll against the *higher* of HT or Free Fall skill when you first enter free fall. On a success, you are unaffected. On a failure, you are nauseated: -2 to attribute and skill rolls, -1 to active defenses, and you're likely to vomit (GM's option), which is messy at best and potentially deadly inside a vacc suit. Roll against the *better* of HT or Free Fall every 8 hours to recover and adapt to the conditions until the next time.

Once you're adjusted to zero G, if you can't fly and don't have technological aids, you can only get around by pushing off from solid surfaces. This gives you a Move of ST/2, rounded down, and you keep going until you hit something else.

1. Divide the object's weight in pounds by your Basic Lift to get the weight ratio.

2. Find the weight ratio in the "Weight Ratio" column of the table. If it falls between two values, use the *higher* value.

3. Read across to the "Distance Modifier" column and find the distance modifier.

4. Multiply your ST by the distance modifier to find the distance in yards you can throw the object.

Weight Ratio	*Distance Modifier*	*Weight Ratio*	*Distance Modifier*
0.05	3.5	2.0	0.30
0.10	2.5	2.5	0.25
0.15	2.0	3.0	0.20
0.20	1.5	4.0	0.15
0.40	1.0	6.0	0.10
0.50	0.8	10	0.06
1.0	0.60	12	0.05
1.5	0.40		

Throwing Damage Table

Thrown objects inflict *thrust* damage for your ST (see *Damage Table,* p. 145), modified for weight as shown on the table below. Damage is usually crushing. A fragile object (or a thrown character) takes the same amount of damage it inflicts; roll damage separately for the object and the target.

Weight	*Damage*
Up to BL/8	Thrust, -2 per die
Up to BL/4	Thrust, -1 per die
Up to BL/2	Thrust
Up to BL	Thrust, +1 per die
Up to 2×BL	Thrust
Up to 4×BL	Thrust, -1/2 per die (round down)
Up to 8×BL	Thrust, -1 per die

Mental Feats

Sense Rolls

"Sense rolls" include Vision rolls, Hearing rolls, and Taste/Smell rolls. To notice something using a given sense, roll against your Perception score.

Comprehension Rolls: A successful Sense roll means you noticed something. That is often sufficient, but in some cases, the GM may require a second roll to *understand* what you have sensed; e.g., to realize that the "owl hoot" you heard is really an Indian warrior, or that the faint scent you noticed belongs to the flower of a man-eating plant. This roll is against IQ for details that anyone could figure out, or against an appropriate skill if the significance would be lost on anyone but an expert.

Danger Sense: If you have the Danger Sense advantage (p. 151) and fail a Sense roll or comprehension roll to notice something *dangerous,* the GM will secretly make a Perception roll for you. On a success, you sense the danger anyhow!

Vision

Make a Vision roll whenever it is important that you *see* something.

When you try to spot something that is deliberately hidden, the GM may treat this roll as a Quick Contest against a concealment skill (Camouflage, Holdout, etc.), and may allow – or *require* – a skill such as Observation or Search to replace Perception for the roll.

Hearing

Make a Hearing roll whenever it is important that you hear a sound. The GM will often require a separate IQ roll to make out speech, especially in a foreign language.

When you try to hear someone who is attempting to move silently, the GM may treat this roll as a Quick Contest against his Stealth skill. If you are *actively* listening for such activity, the GM may allow you to substitute Observation skill for Perception.

Taste/Smell

Taste and smell are two manifestations of the same sense. Make a Taste roll to notice a flavor, or a Smell roll to notice a scent.

Influence Rolls

An "Influence roll" is a *deliberate* attempt to ensure a positive reaction from an NPC. A PC with an appropriate "Influence skill" can always elect to substitute an Influence roll for a regular reaction roll in suitable circumstances (GM's decision). See *Reaction Rolls* (p. 142) for more on NPC reactions.

Decide which Influence skill you are using: Diplomacy, Fast-Talk, Intimidation, Savoir-Faire, Sex Appeal, or Streetwise. Choose wisely! The GM may allow other skills to work as Influence skills in certain situations (e.g., Law skill, when dealing with a judge). Then roll a Quick Contest: your Influence skill vs. the subject's Will.

If you *win,* you get a "Good" reaction from the NPC – "Very Good," if you used Sex Appeal. On any other outcome, the NPC resents your clumsy attempt at manipulation. This gives you a "Bad" reaction – "Very Bad," if you attempted Intimidation. *Exception:* If you used Diplomacy, the GM will also make a regular reaction roll and use the *better* of the two reactions. Thus, Diplomacy is relatively safe . . .

> *I must say, the months Miles spent immobilized in that spinal brace did teach him how to do charm. The most efficient long-term way to control those about you, and thus exert your will.*
>
> *– Cordelia about the young Miles, in* ***Barrayar***

Will Rolls

When you are faced with a stressful situation or a distraction, the GM may require you to roll against your Will to stay focused. On a success, you may act normally. On a failure, you submit to the fear, give in to the pressure, are distracted from your task, etc.

Fright Checks

A Fright Check is a Will roll made to resist *fear.* Fright Checks can occur as often or as rarely as the GM wishes. In a horror campaign where ordinary people meet shockingly gruesome Things, Fright Checks might be very common! With only minor adaptation, the GM can use these rules for awe, confusion, etc., as well as fear.

As a general rule, "ordinary" frightening things do not require Fright Checks. Fright Checks are for events so unusual and terrifying that they might stun or even permanently scar someone.

A Fright Check is subject to any number of modifiers, including ones derived from appropriate advantages or disadvantages, and the circumstances surrounding the roll.

A failed Fright Check results in the character being stunned (see p. 179) for a number of seconds equal to margin of failure plus 2d. On a critical failure, the victim faints, and cannot be revived for a number of *minutes* equal to margin of failure plus 1d. Hope the thing that scared you isn't hungry . . .

COMBAT

The GM decides when to start using the combat rules. This will generally be when fighting seems likely and combatants begin maneuvering for tactical advantage. The GM may also use these rules to resolve "action" situations such as chases and tournaments.

COMBAT TURN SEQUENCE

Combat takes place second by second. Each character actively involved in the combat gets one opportunity to act per second, referred to as his "turn." After everyone has taken his turn, one second has passed.

The GM shouldn't feel constrained by the one-second time scale. This is just a way of breaking a battle into manageable chunks! He should feel free to drop out of combat time whenever dramatically appropriate, and to resume combat time when non-combat action gives way to more fighting.

The "turn sequence" is the order in which active characters take their turns. It is set at the start of the fight and does not change during combat. The combatant with the highest Basic Speed goes first and takes his turn, then the one with the next-highest Basic Speed, and so on, in descending order by Basic Speed. Once every active character has taken his turn, one second has passed and another second begins.

Tied Speeds: If multiple NPCs on the same side have the same Basic Speed, the GM simply decides who goes first – it isn't really important. If PCs are involved, ties go to the highest DX. If there's still a tie, GM should roll randomly at the start of the combat to determine who acts first, and use that order throughout the combat.

A given participant's turn is the one-second period that stretches from when he chooses a maneuver until his next opportunity to select a maneuver. This overlaps the turns of other characters.

Free Actions

"Free actions" are things you can do during *any* maneuver. Some examples:

Talk. You can *always* talk. If the GM wants to be realistic, he should allow only one sentence of communication per second . . . but it is usually more fun when you ignore this limitation! For a character with Fast-Talk skill . . . such as, for instance, Miles Vorkosigan . . . this is often a lifesaver.

Drop an item. You can drop any "ready" item at any time during any maneuver. If you're moving, you may drop it at any point within your reach during your movement.

Crouch. If standing, you may opt to crouch (to make yourself a smaller target for ranged attacks) at the *beginning* of your turn. This will usually slow your movement speed (see the *Posture Table,* p. 174), and you *cannot* crouch and sprint. If you were already crouching, it is a free action to rise from a crouching position at the start of your turn.

MANEUVERS

A "maneuver" is an action that you can take on your turn. Each turn, you must choose *one* of the following maneuvers: Aim, All-Out Attack, All-Out Defense, Attack, Change Posture, Concentrate, Do Nothing, Move, Move and Attack, or Ready. Your choice determines *what you can do* on your turn, and sets your options for movement and active defense (see *Defending,* p. 176).

For the purpose of active defenses, your maneuver is considered to be in effect until you select another maneuver on your next turn. For instance, if you chose All-Out Defense (which gives a defensive advantage), its benefits would apply if you were attacked after you took your turn, and would persist until it was your turn again and you took a different maneuver.

If you're attacked before you've had a chance to choose a maneuver – usually at the start of combat – you're considered to be taking a Do Nothing maneuver (p. 174).

Maneuver Table

Active Defense: Whether the maneuver allows active defenses (p. 176).

Movement: Movement allowed, if any.

Maneuver	*Active Defense*	*Movement*
Aim	Any*	Step
All-Out Attack	None	Half Move
All-Out Defense	Any†	Step
Attack	Any	Step
Change Posture	Any	None
Concentrate	Any*	Step
Do Nothing	Any‡	None
Move	Any	Full Move
Move and Attack	No Parry	Full Move
Ready	Any	Step

* Taking an active defense may spoil aim (roll Will) or concentration (roll Will-3).

† Gives bonuses under *All-Out Defense* (p. 174).

‡ Defenses are at -4 if taking Do Nothing due to stun or surprise.

Do Nothing

Anyone who is just standing still is assumed to be *doing nothing.* When combat begins, anyone who has not yet taken a turn is treated as if he took this maneuver before entering combat.

Someone who is conscious but stunned or surprised *must* take this maneuver. On each turn of Do Nothing, he may attempt a HT roll to recover from physical stun or an IQ roll to recover from mental stun. On a success, he recovers at the *end* of his turn – that is, he Does Nothing this turn, but may act normally next turn.

Move

Move, but take no other action except those specified under *Free Actions* (p. 173). You may move any number of yards up to your full Move score. Most other maneuvers allow at least some movement on your turn; take this maneuver if *all* you want to do is move.

Players must tell the GM exactly where their PCs move to so that he can keep track of the combat. The GM decides where NPCs move, and will inform any players whose PCs are in a position to witness the movement.

Change Posture

This maneuver lets you switch between any two "postures" (stances in which you can pose your body). Valid postures are *standing, sitting, kneeling, crawling, lying prone* (face down), and *lying face up.* Any posture other than standing slows your movement and penalizes your attack and defense rolls, but also makes you a smaller target for ranged attacks.

You cannot stand up directly from a lying position. If you are lying (prone or face up), you must take a Change Posture maneuver to rise to a crawling, kneeling, or sitting posture first. A second Change Posture maneuver lets you stand from any of these postures. (Going from standing up to lying down, however, only takes one maneuver – or none at all, if the change was involuntary!)

You can switch between kneeling and standing (only) as the "step" portion of any maneuver that allows a step (see the *Maneuver Table,* p. 173) – you don't need Change Posture for that. This is *instead* of using the step to move. Thus, you could go from prone to kneeling with a Change Posture maneuver on one turn, and stand up in place on your next turn by taking a maneuver that allows a step.

Crouching does *not* require a Change Posture maneuver; see *Free Actions* (p. 173).

Posture Table

Attack: The modifier when making a *melee* attack from this posture.

Defense: The modifier to all active defense rolls.

Target: The modifier to hit you with a *ranged* attack.

Movement: The effect on movement.

Posture	*Attack*	*Defense*	*Target*	*Movement*
Standing	Normal	Normal	Normal	Normal; may sprint
Crouching	-2	Normal	-2	2/3
Kneeling	-2	-2	-2	1/3
Crawling	-4	-3	-2	1/3
Sitting	-2	-2	-2	None
Lying Down	-4	-3	-2	1 yard/second

Aim

This maneuver is used to aim a ranged weapon (or a device such as a camera or a telescope). You must choose a specific target. You can't aim at something that you can't see or otherwise detect.

Specify the weapon you're aiming with and your target. If you follow an Aim maneuver with an Attack or All-Out Attack with the *same* weapon against the *same* target, you get a bonus to hit. Add the weapon's Accuracy (Acc) to your skill.

If you *brace* a gun or beam weapon, you get an extra +1 to Acc. A weapon is braced if you can rest it on a sandbag, low wall, car, etc. A one-handed firearm (e.g., a stunner) is considered braced if used two-handed. A two-handed firearm (e.g., a rifle) is considered braced if you are prone and using a bipod.

If you Aim for more than one second, you receive an additional bonus: +1 for two seconds of Aim, or +2 for three or more seconds.

Attack

Use this maneuver to make an armed or unarmed attack in melee combat, or to use a thrown or missile weapon in ranged combat. To use a weapon to attack, it must be ready.

If you are using a melee weapon or unarmed attack, your target must be within reach. Resolve the attack as explained under *Melee Attacks* (p. 175).

If you are using a ranged weapon, your target must be within the weapon's Max range. Resolve the attack according to *Ranged Attacks* (p. 175). If you took an Aim maneuver last turn, you will have a bonus to hit.

All-Out Attack

Attack any foe with a ready weapon, making no effort to defend against enemy attacks. If you are making a melee attack, you must specify *one* of these three options before you attack:

- *Determined:* Make a single attack at +4 to hit!
- *Double:* Make two attacks against the same foe, *if* you have two ready weapons or one weapon that does not have to be readied after use. Attacks with a second weapon held in the off hand are at the usual -4 (see *Handedness,* p. 146) unless you have Ambidexterity (p. 151).
- *Strong:* Make a single attack, at normal skill. If you hit, you get +2 to damage – or +1 damage per die, if that would be better. This only applies to melee attacks doing ST-based thrust or swing damage.

If making a ranged attack, your only option is a single attack at +1 to hit.

Move and Attack

Move as described for the Move maneuver (above), but during or after your move, make a single, poorly aimed attack – either unarmed or with a ready weapon.

You attack as described for the Attack maneuver (above), but at a penalty. If making a ranged attack, you lose all bonuses for Aim, and the penalty is -2 or your weapon's Bulk rating, whichever is *worse.* If making a melee attack, your penalty is -4, and your adjusted skill cannot exceed 9.

All-Out Defense

This is the maneuver to choose when you're beset by foes – especially foes who like All-Out Attacks! You must specify *one* of the following two options:

- *Increased Defense:* Add +2 to *one* active defense of your choice: Dodge or Parry. This bonus persists until your next turn.
- *Double Defense:* Apply two *different* active defenses against the same attack. If you fail your defense roll against an attack, you may try a second, different defense against it. For instance, if you fail a parry, you may try a dodge. If you try a parry (armed or unarmed) with one hand and fail, a parry using the other hand *does* count as a "different defense."

Concentrate

You *concentrate* on one primarily mental task. Examples include making a Sense roll to spot a hidden sniper, making a Leadership roll to give orders, making an Electronics Operation roll to operate a sensor, and most other IQ-based skill rolls. Some activities require you to Concentrate for multiple seconds. If you are forced to use an active defense, knocked down, injured, or otherwise distracted before you finish, you must make a Will-3 roll. Failure means you lose your concentration and must start over.

Ready

Take a Ready maneuver to pick up or draw *any* item and prepare it for use; e.g., to pull a sword from its sheath or a gun from its holster, or to reload a firearm. In some cases, you may also need a Ready maneuver to regain control of an unwieldy weapon after a swing.

You can use a Ready maneuver to perform physical actions other than fighting: opening or closing a door, picking a lock, digging, lifting, etc.

Unarmed Combat

Sometimes you have to fight without weapons, or with improvised weapons. This is *unarmed combat*. Anyone can engage in unarmed combat, but certain skills make you a more effective unarmed fighter. The following table gives the relevant game details.

BRAWLING, KARATE, or DX

TL	*Weapon*	*Damage*	*Cost*	*Weight*	*ST*	*Notes*
–	Punch	thr-1 cr	–	–	–	[1]
1	Brass Knuckles	thr cr	$10	0.25	–	[1]

BRAWLING-2, KARATE-2, or DX-2

TL	*Weapon*	*Damage*	*Cost*	*Weight*	*ST*	*Notes*
–	Kick	thr cr	–	–	–	[1, 2]
–	Kick w. Boots	thr+1 cr	–	–	–	[1, 2]

BRAWLING or DX

TL	*Weapon*	*Damage*	*Cost*	*Weight*	*ST*	*Notes*
–	Bite	thr-1 cr	–	–	–	
1	Blackjack or Sap	thr cr	$20	1	7	

Notes

[1] Karate (p. 163) improves damage with punches and kicks.
[2] If you miss with a kick, roll vs. DX to avoid falling.

Attacking

An "attack" is an attempt to hit a foe or other target. If you execute an Attack, All-Out Attack, or Move and Attack maneuver, you may try to hit a foe. You can only attack with a weapon if it's ready.

The GM always has the option of ruling, for any reason having to do with the situation, that some fighters cannot attack certain opponents. For instance, eight attackers could not hit one human-sized foe at the same time. (Even three or four attackers at once would be unlikely, unless their victim had no allies!)

There are two basic types of attacks: melee attacks and ranged attacks. Your target must be within reach if you're making a melee attack, or within range if you're making a ranged attack. Resolving either type of attack takes three die rolls:

- First is your *attack roll*. If your roll is successful, your attack was a good one.
- Now your foe must make a *defense roll* to see if he can defend against your blow. If he makes this roll, he evaded or stopped the attack, and is not hit.
- If he misses his defense roll, your blow struck home and you *roll for damage*.

Attack Roll

Your "attack roll" is a regular success roll. Figure your *effective skill* (base skill plus or minus any appropriate modifiers) with the weapon you are using.

If your roll is *less than or equal to* your "effective" skill, your attack will hit unless your foe successfully defends (see *Defending*, p. 176). If he fails to defend – or if he can't – you've hit him.

If your roll is *greater than* your effective skill, you missed!

No matter what your skill, a roll of 3 or 4 always hits, and is a *critical hit*. If your effective skill is 15 or more, then a roll of 5 or less is a critical hit. If your effective skill is 16 or more, then a roll of 6 or less is a critical hit.

On a critical hit, the blow automatically hits home – your foe does not get a defense roll. As well, on an attack roll of 3, you do not roll for damage – your blow automatically does the most damage it could do. For instance, maximum damage for a 1d+2 blow would be 6+2, or 8 points. Other critical hits bypass the defense roll, but roll normally for damage.

Regardless of skill, a roll of 17 or 18 always misses.

Melee Attacks

When you take a maneuver that lets you make a melee attack, you must specify who you are attacking, and with what weapon. You can make a melee attack using any *ready* melee weapon (including a natural weapon such as a kick, bite, or punch).

A one-handed weapon is ready if it's being held in your hand. A two-handed weapon is ready if you are gripping it with *both* hands. To draw a new weapon from a sheath, scabbard, or sling, you must take a Ready maneuver (above).

A natural weapon (punch, kick, etc.) is *always* ready unless the body part in question is occupied or restrained; e.g., you can't punch if you are holding a weapon with the same hand.

You can use some weapons in more than one way; e.g., you can swing or thrust with a shortsword. Such weapons have multiple lines on the weapon tables (p. 169). When you attack with a weapon like this, you must indicate how you are using it before you roll.

Ranged Attacks

A "ranged attack" is any attack with a weapon used at a distance, from a thrown rock to a laser rifle.

You can only make a ranged attack on a target that falls within your weapon's *range*. To find this, see the relevant weapon table. Most ranged attacks list Half Damage (1/2D) range and Maximum (Max) range, in yards. Your target must be no farther away than Max range; 1/2D range only affects damage.

All ranged weapons have an Accuracy (Acc) statistic. This is the bonus you get if you take one or more Aim maneuvers immediately before you attack. When you Aim, you can receive other bonuses for extra seconds of aim, bracing your weapon, or using a scope.

"Thrown weapons" are weapons you must physically hurl at the target: rocks, hand grenades, ninja stars (*shuriken*), etc. You can also throw certain melee weapons, such as hatchets, knives, and spears. Treat a thrown weapon just like any other ranged attack.

Rapid Fire

Firearms have a listed Rate of Fire (RoF), which is the maximum number of shots that they can fire per round. If you fire more than one shot, this is treated as *one* attack, but with a bonus to hit.

Shots	*Bonus to Hit*	*Shots*	*Bonus to Hit*
2-4	+0	17-24	+4
5-8	+1	25-49	+5
9-12	+2	50-99	+6
13-16	+3	Each ×2	+1 to hit

More than one shot *may* hit. Compare your margin of success to the weapon's Recoil. For every *full* multiple of Recoil by which you made the attack roll, score one extra hit. For example, if you succeed by 5 and your weapon has Recoil 2, you hit with one shot plus two extras, for a total of three (assuming you fired that many).

General Attack Modifiers

Attacker's Maneuver

Move and Attack: -4

Attacker's Situation

Bad footing: -2 or more (GM's option)
Major distraction (e.g., all clothes on fire): -3 or more (GM's option)
Minor distraction (e.g., part of clothes on fire): -2
ST below that required for weapon: -1 per point of deficit

Target Size

The target's Size Modifier (below) is a modifier to all attack rolls.

Visibility

Blind, target completely invisible, or in total darkness: -10
Cannot see foe: -6, or -4 if you know his location to within 1 yard
Partial darkness, fog, smoke, etc.: -1 to -9 (GM's option)

Melee Attack Modifiers

Attacker's Maneuver

All-Out Attack (Determined): +4

Other Actions by Attacker

Off-hand attack: -4 (no penalty w. Ambidexterity)

Ranged Attack Modifiers

Attacker's Maneuver

All-Out Attack (Determined): +1

Other Actions by Attacker

Aim for one turn: +Accuracy of weapon
Braced weapon: +1 if stationary *and* took a turn to Aim
Extra Aim: +1 for 2 seconds, +2 for 3+ seconds
Multiple shots: see *Rapid Fire* (above)
Off-hand attack: -4 (no penalty with Ambidexterity)

Targeting Systems

Scope: +1 per second of Aim, to a maximum of the scope's bonus

Size and Speed/Range Table

The main use for this table is ranged combat – but size affects melee combat as well, and the GM can also use the table for Sense rolls and other success rolls that size, speed, and/or range might believably affect.

The table uses the same progression for size as it does for the sum of speed and range, but the modifiers for size have the *opposite sign* from those for speed/range: large size gives a bonus, while large speed and range give a penalty. Thus, if a target is twice as big but also twice as far away and twice as fast, the net modifier to hit stays the same.

Size of Target: The larger the target, the easier it is to hit, in melee or at range. The modifier to hit an object due to its size is its "Size Modifier" (SM). Normal humans have SM 0. Objects larger than man-sized give a bonus to hit; smaller objects give a penalty.

Find a creature or object's SM using the table. Simply look up the being or object's longest dimension (e.g., height, for a humanoid) in the "Linear Measurement" column, and then read across to the "Size" column to find SM. If size falls between two values, base SM on the next-highest size. If an object is much smaller in *two* of three dimensions (e.g., a steel cable 100 yards long but only 2" thick), use the *smallest* dimension instead of the largest.

Target's Speed and Range: Speed and range only affect ranged combat. Add the target's speed in yards/seconds to its range in yards. Find the total in the "Linear Measurement" column. Read across to the "Speed/Range" column to find the speed/range modifier. If the total falls between two values, use the higher; e.g., treat 8 yards as 10 yards. For fighters on foot, assume speed is 0 and use range by itself; for vehicles, speed in yards/second is half speed in mph.

Speed/Range	*Size Modifier*	*Linear Measurement*
0	-5	1 ft
0	-2	1 yd
0	0	2 yd
-1	+1	3 yd
-2	+2	5 yd
-4	+4	10 yd
-5	+5	15 yd
-6	+6	20 yd
-7	+7	30 yd
-8	+8	50 yd
-9	+9	70 yd
-10	+10	100 yd
-11	+11	150 yd
-12	+12	200 yd
-13	+13	300 yd
-14	+14	500 yd
-15	+15	700 yd

Examples: A man 8 yards away is -4 to hit. A motorcycle rider 40 yards away, traveling at 30 yards/second (60 mph), has a speed/range of 40 + 30 = 70, which gives -9 to hit.

DEFENDING

If you make your attack roll, you have not (yet) actually struck your foe, unless you rolled a critical hit. Your attack is *good enough* to hit him – *if he fails to defend.*

There are two "active defenses" that a fighter can use to evade or ward off an attack: Dodge (see *Dodging*) and Parry (see

A blur of grappling and blows and messy joint fall resolved suddenly in an arm lock, with Bothari in charge. Vorkosigan unwisely attempted a break, and Bothari, quite expressionlessly, dislocated his elbow with an audible pop. Vorkosigan yelled and tapped out . . .

"Put it back, Sergeant," Vorkosigan groaned from his seat on the ground, and Bothari braced one foot on his former captain and gave the arm an accurately aligned yank . . .

"And that," said Vorkosigan, still catching his breath, "is how we used to play the game aboard the old General Vorkraft."

– Barrayar

Parrying). Calculate these active defense scores in advance and record them on your character sheet.

An active defense is a deliberate attempt to avoid a particular attack. It's only possible if the defender is aware of the possibility of an attack from his assailant *and* is free to react . . . by moving out of the way of the attack (a dodge), or by deflecting the attack with a weapon or a hand (a parry).

If a foe makes a successful attack roll against you, you may choose *one* active defense and attempt a "defense roll" against it. *Exception:* The All-Out Defense (Double Defense) maneuver lets you attempt a second defense against a particular attack if your first defense fails, while the All-Out Attack maneuver leaves you *no* defense.

Unarmed Defense

If you are fighting without weapons, or with at least one hand free, you may choose to parry barehanded. Beings that lack hands (like most animals) can't parry unarmed – they can only dodge. You can use Brawling, Judo, or Karate skill – or DX, if higher – to parry with one hand. Your Parry active defense is 3 + *half* your skill or DX, dropping all fractions.

There's no penalty to parry another unarmed attack. You are at -3 to parry weapons, unless the attack is a *thrust* or you are using Judo or Karate; in those cases, use your full Parry.

The active defense you choose depends on your situation – *especially* the maneuver you chose last turn. Some maneuvers restrict your available defenses; see the *Maneuver Table* (p. 173). You also get no active defense if you're unaware of the attack, unconscious, immobilized, or otherwise unable to react.

Defense Roll

The defender rolls 3d against his active defense score, modified according to *Defense Modifiers* (p. 178). If his roll is *less than or equal to* his effective defense, he dodged or parried the attack. Otherwise, his active defense was ineffective and the attack struck home. If this occurs, roll for damage.

An active defense roll of 3 or 4 is *always* successful – even if your effective defense score was only 1 or 2! A roll of 17 or 18 always fails.

On the other hand, no defense roll is allowed against a critical hit.

Dodging

A "dodge" is an active attempt to move out of the perceived path of an attack. This is often the best defense when you're not skilled with your weapon, or when you're attacked multiple times.

Dodge is normally the *only* active defense you can take against firearms. This doesn't mean you can actually dodge bullets! A dodge against this kind of attack represents an attempt not to be where you think your opponent will shoot, by weaving or ducking at the right moment.

Your Dodge active defense is Basic Speed + 3, dropping all fractions, less a penalty equal to your encumbrance level (see *Encumbrance and Move,* p. 168). List Dodge on your character sheet for quick reference.

You may dodge *any* attack except one that you did not know about! You only get one Dodge roll against a given attack.

You only get one active defense against each attack, unless you use All-Out Defense (Double Defense), but there is no limit to the number of times you may dodge *different* attacks during your turn.

If a single rapid-fire attack scores multiple hits, a successful Dodge roll lets you avoid one hit, plus additional hits equal to your margin of success. Critical success means you dodge *all* hits from that attack. For example, if you're about to be hit by four bullets, and you make your Dodge roll by 2, you dodge three of them; just one hits.

Judo Throws

On the turn immediately after you successfully use a Judo parry, you may attempt to throw your attacker. This counts as an attack. Roll vs. Judo skill to hit. (In an All-Out Attack, you cannot attempt two throws, but you can make one attempt at +4.) Your foe may use any active defense – he *can* parry your hand with a weapon. If his defense fails, you throw him and he falls. He must roll against HT; failure means he is stunned!

Parrying

A "parry" is an attempt to deflect a blow using a weapon or your bare hands. You cannot parry unless your weapon is *ready* – or, if you are unarmed, you have an empty hand. You may attempt to parry only one attack per turn.

You can use most melee weapons to parry. A few long, well-balanced weapons (e.g., the quarterstaff) get a bonus to parry due to their ability to keep a foe at bay. Your Parry active defense with a given weapon is 3 + *half* your skill with that weapon, dropping all fractions. For instance, Broadsword-13 would give a Parry of 9.

A parry won't stop anything except melee attacks or thrown weapons. *Exception:* If a foe attacks you with a missile weapon *and* he is within reach of your melee weapon, you may parry. You're parrying the weapon, not the projectile! For example, if an attacker fired a pistol at you from only one yard away, you could attempt to parry barehanded. Success would mean that you slapped his arm or gun aside, causing him to fire wide of your body.

You can parry thrown weapons, but at a penalty: -1 for most thrown weapons, or -2 for *small* ones such as knives, shuriken, and other weapons that weigh 1 lb. or less.

If you successfully parry an unarmed attack (bite, punch, etc.) with a weapon, you may injure your attacker. Immediately roll against your skill with the weapon you used to parry. This roll is at -4 if your attacker used Judo or Karate. If you succeed, your parry struck the attacker's limb squarely. He gets no defense roll against this! Roll damage normally.

Retreating

If you are on your feet in melee and can step back one yard from your opponent, you get a bonus to defense rolls: +3 to Dodge, and to Parry with Judo, Karate, or fencing skills; +1 to other Parry scores. You can only retreat once per turn, from *one* opponent, but you get these bonuses on *all* defense rolls against that foe that turn. Your enemy can choose to follow you as you retreat, driving you back, and the GM can rule that you eventually run into a wall, are obstructed by other people or things, or must otherwise stop retreating.

Dodge and Drop: You can drop to the ground when dodging *ranged* attacks, earning a +3 bonus to all Dodge rolls against one opponent that turn (and possibly putting you behind low cover on *subsequent* turns). However, this leaves you lying on the ground!

Defense Modifiers

Defender's Equipment

Parrying with dagger or knife: -1 to Parry
Parrying with quarterstaff: +2 to Parry
Unarmed parry vs. weapon: -3 to Parry (0 vs. thrust, or with Judo or Karate)

Defender's Maneuver

All-Out Attack: no defense possible!
All-Out Defense (Increased Defense): +2 to *one* of Dodge or Parry
Move and Attack: dodge only; you cannot parry

Defender's Situation

Bad footing: -1 or more (GM's option)
can't see attacker: -4, and a parry requires a Hearing-2 roll
Distraction (e.g., clothes on fire): -1 or more (GM's option)
Encumbered: penalty equal to encumbrance level to Dodge, or to fencing, Judo, or Karate Parry
Stunned: -4

Nature of Attack

Attack from behind, or critical hit: no defense possible!
Thrown weapon: -1 to Parry, or -2 to Parry if *small* (1 lb. or less)

Other Actions by Defender

Retreat: +3 to Dodge, or to fencing, Judo, or Karate Parry; +1 otherwise

Damage and Injury

If your attack roll succeeds and your target fails his defense roll (if any), you hit him! If your attack is one that can do damage, you must now make a "damage roll." This tells you how much *basic damage* you deal to your target.

Your weapon (and, for muscle-powered weapons, your ST) determines the number of dice you roll for damage. If your target has any Damage Resistance (DR) – from armor, tough skin, etc. – he subtracts this from your damage roll.

If your damage roll is less than or equal to your target's effective DR, your attack *fails to penetrate* – it bounces off or is absorbed. If your damage roll *exceeds* your target's DR, the excess is the *penetrating damage.* If your foe has no DR, the entire damage roll is penetrating damage.

Once you know your attack's penetrating damage, apply the wounding modifier for damage type (this matters only for cutting, impaling, and certain types of piercing damage; see below). This gives the *injury* the foe suffers, which is subtracted from his Hit Points.

Damage Roll

You usually make your own damage rolls, and the GM rolls for NPCs. Damage rolls are expressed as a number of dice, sometimes with a modifier; e.g., "6d-1" or "1d+2." A negative modifier can't reduce damage below 0 if the attack does *crushing* damage, or below 1 if it does *any other type* of damage.

The result of the damage roll (*after* any modifiers, as explained above) is the hit's "basic damage."

If a ranged weapon has two range statistics, the first is its Half Damage (1/2D) range, in yards. If the target is at or beyond 1/2D range, *divide basic damage by 2,* rounding down.

Damage Resistance and Penetration

Damage Resistance (DR) rates the degree of protection that tough skin, body armor, force fields, etc., afford against damage. Objects and vehicles have their own DR values that protect against any damage *they* suffer – and if you take cover behind or inside them, their DR also protects *you*.

Subtract DR from basic damage. The result is the "penetrating damage" that punched through or deformed the armor enough to cause a significant injury. For instance, if you are hit by an attack that inflicts 6 points of basic damage and you're wearing mail with DR 4, you take 2 points of penetrating damage.

In general, DR from multiple sources is additive; e.g., if you have a natural DR of 2 and put on a tactical vest with DR 12, your total DR is 14. Exceptions will always be noted.

Wounding Modifiers and Injury

Any damage left over after subtracting DR from basic damage is "penetrating damage." If there is any penetrating damage, multiply it by the attack's "wounding modifier." This is a multiplier that depends on damage type:

- Small piercing (pi-): ×*0.5*.
- Cutting (cut) and large piercing (pi+): ×*1.5*.
- Impaling (imp): ×*2*.

The damage after this multiplier determines the injury: the HP lost by the target. Round fractions *down,* but the minimum injury is 1 HP for any attack that penetrates DR at all. Reduce the victim's current HP total by the injury sustained.

Effects of Injury

The wound's severity and type indicate what happens next. See *Injury, Illness, and Fatigue* (below) for rules on injuries and recovery.

Afflictions and Special Damage

Some exotic attacks don't do normal damage, but are flagged as causing "afflictions" or "special" damage. Affliction attacks inflict some unpleasant but usually temporary effect on the victim, and often allow a HT roll to resist; the exact effect will be described in the notes on the weapon, but might include moderate pain (-2 to all DX, IQ, skill, and self-control rolls) or severe pain (-4 to those rolls). Special attacks have effects described on a case-by-case basis.

Injury, Illness, and Fatigue

The life of an adventurer is not all song and glory. You get tired. You get your clothes dirty. You might actually get *hurt* – or even worse, *killed!*

Fortunately, all these problems can be cured. Even death . . .

Injuries

Wounds and ailments cause "injury": a (usually) temporary loss of Hit Points. Thus, your HP score measures your ability to sustain injury; see *Secondary Characteristics* (p. 144).

If any injury reduces you to 0 or fewer HP, you will soon fall unconscious. You can even go to *negative* HP . . . but if you go too far, you risk death. For the average man, the difference between full HP and negative HP is one or two sword blows or bullets.

General Injury: Lost Hit Points

Repeated wounding eventually causes *anyone* or *anything* to weaken and collapse, even if no single injury is very great. The chart below summarizes the effects of being at low or negative HP. All effects are cumulative.

Less than 1/3 your HP left – You are reeling from your wounds. Halve your Move and Dodge (round *up*).

0 HP or less – You are in immediate danger of collapse. In addition to the above effects, make a HT roll at the start of your next turn, at -1 per *full* multiple of HP below zero. Failure means you fall unconscious (or simply stop working, if you weren't truly alive or conscious in the first place); see *Recovering from Unconsciousness* (p. 180). Success means you can act normally, but must roll again *every turn* to continue functioning. *Exception:* If you choose Do Nothing on your turn, and do not attempt any defense rolls, you can remain conscious without rolling. Roll only on turns during which you attempt a defense roll or choose a maneuver other than Do Nothing.

-1×HP – In addition to the above effects, make an *immediate* HT roll or die. (If you fail by only 1 or 2, you're dying, but not dead – see *Mortal Wounds,* below). If you succeed, you can still talk, fight, etc., as above (until you fail a HT roll and collapse). Roll again each time you suffer injury equal to a further multiple of your HP, whether as a result of one wound or many. For instance, if you have 11 HP, you must roll to avoid death at -11 HP. If you survive, you must roll again at -22 HP, -33 HP, and so on . . .

-5×HP – You die immediately. You have lost a total of *six times your HP!* Nobody can survive that much injury.

-10×HP – Total bodily destruction, if this makes sense given the source of the damage – 200 points of needle gun wounds leave a messy but recognizable corpse; 200 points of plasma arc damage leaves nothing but an unrecognizable lump of charcoal. The difference can be important in places where high-tech medical resurrection is possible!

Shock

Whenever you suffer injury, reduce your DX and IQ by the number of HP you lost – to a maximum penalty of -4, regardless of your injuries – *on your next turn only.* This effect, called "shock," is temporary; your attributes return to normal on the turn after that.

Shock affects DX- and IQ-based skills, but *not* active defenses or other defensive reactions.

Major Wounds

A "major wound" is any *single* injury of greater than 1/2 your HP. Any major wound requires a HT roll to avoid knockdown and stunning (see below).

Knockdown and Stunning

Whenever you suffer a *major wound,* you must make an immediate HT roll to avoid knockdown and stunning. On a success, you suffer no penalty beyond ordinary shock.

On a failure, you're stunned. You fall prone (if you weren't already), and if you were holding anything, you drop it. This effect is called "knockdown." On a failure by 5 or more, or any critical failure, you fall unconscious! See *Recovering from Unconsciousness* (below). If you are stunned, you must Do Nothing on your next turn. You may perform any active defense while stunned, but your defense rolls are at -4.

At the end of your turn, you may roll against HT. On a success, you recover from stun and can act normally on subsequent turns. On a failure, you remain stunned; your next maneuver must also be Do Nothing, but you get another roll at the end of that turn . . . and so on, until you recover from stun.

Mortal Wounds

If you fail a HT roll to avoid death by 1 or 2, you don't drop dead, but suffer a "mortal wound." This is a wound so severe that your internal injuries might kill you even after you stop bleeding.

If you are mortally wounded, you are instantly incapacitated. You may or may not be conscious (GM's decision). If you suffer further injury and must make another HT roll to avoid death, *any* failure kills you.

While mortally wounded, you must make a HT roll every half-hour to avoid death. On any failure, you die. On a success, you linger for another half-hour – then roll again. On a critical success, you pull through miraculously: you are no longer mortally wounded (but you are still incapacitated). You can also recover

from a mortal wound with a successful HT roll whenever medical treatment restores any number of hit points – even if you're still in the negatives.

If you recover from a mortal wound, make a HT roll. On a failure, you lose a point of HT permanently. On a critical failure, the GM may apply an appropriate physical disadvantage or some other effect (e.g., reduced Appearance due to scarring).

Death

If your character is killed, you may still wish to keep track of further injury. Given sufficiently advanced technology, the dead can be brought back to life by prompt treatment, as long as the body is mostly intact (not reduced to -10×HP).

Decapitation, a cut throat, etc., can kill anyone, regardless of HT and HP. If a *helpless* or *unconscious* person is attacked in an obviously lethal way, he's dead. don't bother to roll for damage, calculate remaining HP, etc. Just assume that he drops to -5×HP.

This does not apply to a merely *unaware* victim. If you sneak up behind a sentry with a knife, you can't automatically kill him. Game it out realistically. Since it's a surprise attack, he won't be hitting back: make an All-Out Attack! Your attack roll will almost certainly succeed. Your victim gets no active defense at all. You will probably inflict enough injury to incapacitate or kill him. But it isn't *automatic*.

When a PC or an important NPC is killed in any but the most sudden and thorough fashion, the GM should allow a "dying action." If this is a final blow at the enemy, it should take no more than a turn. If it's a deathbed speech, the GM should stretch time a little bit for dramatic purposes! This has nothing to do with realism, it's just fun.

RECOVERY

The *Injuries* rules may seem harsh, but don't despair . . . you can get better!

Recovering from Unconsciousness

Failure by 5 or more on a knockdown roll, a failed HT roll to stay conscious at 0 HP or less, and many other things can leave you unconscious. It is up to the GM to decide whether you are *truly* unconscious or just totally incapacitated by pain and injury – but either way, you can't *do* anything. You recover as follows:

- If you have 1 or more HP remaining, you awaken automatically in 15 minutes.
- At 0 HP or worse, but above -1×HP, make a HT roll to awaken every hour. Once you succeed, you can act normally. But since you are below 1/3 your HP, you are at half Move and Dodge.
- At -1×HP or below, you are in bad shape. You get a *single* HT roll to awaken after 12 hours. If you succeed, you regain consciousness and can act as described above. But if you fail, you won't regain consciousness without medical treatment; make a HT roll whenever you regain hit points that way, with success meaning you awaken and can act as above. Until you receive help, you must roll vs. HT every 12 hours; if you fail, you *die*.

Natural Recovery

Rest lets you recover lost HP, unless the damage is of a type that specifically does not heal naturally (for an example, see *Disease,* p. 181). At the end of each day of rest and decent food, make a HT roll, at +1 if in the care of someone with the Physician skill (p. 163). Success means you recover 1 HP. The GM may give a penalty if conditions are bad – or a bonus if conditions are very good.

First Aid

The two main uses for First Aid skill (p. 163) are *bandaging* and *treating shock*.

It takes one minute to apply pressure or a tourniquet to stop bleeding. This restores 1 HP.

After bandaging, the aid-giver may take extra time to apply a more elaborate dressing and treat the victim for shock. He must keep the victim warm, comfortable, calm, and still. After the time indicated on the *First Aid Table,* he may roll against First Aid skill.

On a success, the medic rolls as indicated on the table to see how many HP the victim recovers – minimum 1 HP. Critical success restores the maximum possible HP! This roll *includes* the 1 HP for bandaging; thus, a roll of 1 HP restores no further HP.

On a critical failure, the victim *loses* 2 HP instead of recovering any HP at all!

First Aid Table

Tech Level	*Time per Victim*	*HP Restored*
6-7	20 minutes	1d-1
8	10 minutes	1d
9+	10 minutes	1d+1

FATIGUE

Running or swimming long distances, being suffocated, and many other things can cause "fatigue": a temporary loss of Fatigue Points (FP). Your Fatigue Points score starts out equal to your HT. Just as injury represents physical trauma and comes off of HP, fatigue represents lost energy and reduces FP. When you lose FP, keep track of it on your character sheet.

Lost Fatigue Points

The chart below summarizes the effects of being at low or negative FP. All effects are cumulative.

Less than 1/3 your FP left – You are very tired. Halve your Move, Dodge, and ST (round *up*). This does *not* affect ST-based quantities, such as HP and damage.

0 FP or less – You are on the verge of collapse. If you suffer further fatigue, each FP you lose also causes 1 HP of injury. To do anything besides talk or rest, you must make a Will roll; in combat, roll before each maneuver other than Do Nothing. On a success, you can act normally. If you are drowning, you can continue to struggle, but you suffer the usual 1 HP per FP lost. On a failure, you collapse, incapacitated, and can do *nothing* until you recover to positive FP.

-1×FP – You fall unconscious. While unconscious, you recover lost FP at the same rate as for normal rest. You awaken when you reach positive FP. Your FP can *never* fall below this level. After this stage, any FP cost comes off your HP instead!

Fatigue Costs

The following activities commonly result in FP loss.

Combat: Any battle that lasts more than 10 seconds will cost FP – you expend energy quickly when fighting for your life! Those who make *no* attack or defense rolls during the fight are exempt from this fatigue, but other actions still have their usual FP cost. At the *end* of the battle, assess a cost of 1 FP *plus* a number of FP equal to the encumbrance modifier.

These costs are *per battle,* not per 10 seconds of battle. A very long battle may cost more (GM's decision), but it would have to run for 2 or 3 minutes (120 to 180 turns!) before extra FP costs would be realistic.

Hiking: Use the FP costs for fighting a battle, but assess them *per hour* of road travel; e.g., one hour of marching with light encumbrance costs 2 FP.

Overexertion: Carrying more than Extra-Heavy encumbrance, or pushing/pulling a very heavy load, costs 1 FP *per second* (see *Lifting and Moving Things*, p. 171).

Running or Swimming: Every 15 seconds of sprinting, or minute of paced running or swimming, requires a HT roll to avoid losing 1 FP.

Starvation: A human needs three meals per day. For each meal you miss, take 1 FP.

Dehydration: A human needs 2 quarts of water a day – 3 in hot climates, 5 in the heat of the desert! If you get less than you need, you lose 1 FP every eight hours. If you drink less than a quart a day, you lose an *extra* 1 FP and 1 HP per day. You can regain all FP lost to dehydration after a day of rest with ample water supplies. You recover lost HP at the usual rate.

Missing Sleep: If you've been awake for more than your normal day (typically 16 hours), you start to get tired. You lose 1 FP if you fail to go to sleep, and 1 FP per quarter-day (usually four hours) you stay awake after *that*.

If you've lost half or more of your FP to lack of sleep, you must make a Will roll every two hours you spend inactive (e.g., standing watch). On a failure, you fall asleep, sleeping until you are awakened or get a full night's sleep. On a success, you have -2 to DX, IQ, and self-control rolls.

If you're down to less than 1/3 your FP due to lack of sleep, roll as above once per 30 minutes of inaction or two hours of action. This can be very dangerous!

Recovering From Fatigue

You can recover "ordinary" lost FP by resting quietly. Reading, talking, and thinking are all right; walking around, or anything more strenuous, is *not*. Lost FP return at the rate of 1 FP per 10 minutes of rest. The GM may allow you to regain one extra FP if you eat a decent meal *while resting.* Certain drugs and technological treatments may also restore missing FP.

You can only recover from fatigue caused by *missed sleep* by sleeping for at least 8 hours. This restores 1 FP. Further uninterrupted sleep restores 1 FP per hour.

You need food or water to recover FP lost to starvation or dehydration; see above.

Other Hazards

Besides the ordinary combat risks of sabers, lasers, and plasma arcs, adventurers commonly face other hazards.

Cold

Cold can be deadly. Armor must be insulated or heated to shield against prolonged exposure to ambient cold.

Make a HT roll every 30 minutes in "normal" freezing weather. For most humans, this means temperatures below 35°F. In light wind (10+ mph), roll every 15 minutes. In strong wind (30+ mph), roll every 10 minutes. Additionally, strong wind can dramatically reduce the effective temperature (the "wind chill factor"). Also see the modifiers below.

Situation	*Modifier to HT Roll*
Light or no clothing	-5
Ordinary winter clothing	+0
"Arctic" clothing	+5
Heated suit	+10
Wet clothes	*additional* -5
Every 10° below 0°F *effective* temperature	-1

Failure costs 1 FP. Once you go below 0 FP, you will start to lose 1 HP per FP. Recovery of FP or HP lost to cold requires shelter and a heat source (flame, electric heat, body warmth, etc.).

Collisions and Falls

An object or person's *Hit Points* and *velocity* determine collision damage. "Velocity" is how fast the character or object is moving in yards per second (2 mph = 1 yard per second).

An object in a collision inflicts dice of crushing damage equal to (HP × velocity)/100. If this is less than 1d, treat it as 1d-2.

If a moving object hits a stationary object that is too big to push aside – like the ground, a mountain, or an iceberg – it inflicts its usual collision damage on that object and on *itself*. If the obstacle is breakable, the moving object cannot inflict or take more damage than the obstacle's HP + DR.

Falling

A fall is a collision with an immovable object: the ground. Find your velocity (in yards per second) when you hit on the table below.

Falling Velocity Table

Fall	*Velocity*	*Fall*	*Velocity*
1 yard	5	20 yards	21
2 yards	7	30 yards	26
3 yards	8	40 yards	30
4 yards	9	50 yards	33
5 yards	10	75 yards	40
10 yards	15	100 yards	47
15 yards	18	1,000 yards	146

If an object falls *on* someone, find its velocity on the table above and calculate damage as for an ordinary collision.

Aging

People who live past 50 must make four HT+6 rolls a year: one for each of ST, DX, IQ, and HT. Aging rolls are modified by the character's current medical TL, minus 3.

Failure means the stat drops by 1, or by 2 on a roll of 17 or 18. Individuals with Longevity (p. 152) only fail if they roll 18, and even then their stat only drops by 1.

Death occurs if any score reaches 0 due to aging.

Disease

Maladies and strange diseases may affect adventurers on far-off worlds . . . or even at home. The search for a cure – whether for the Princess' wasting disease or a terrorist's bioweapon – is a wonderful plot device.

The important things to know about a given disease are:

Resistance Roll: The HT roll to avoid the disease. Most diseases allow a roll at HT to HT-6. On a success, the victim does not contract the disease. On a failure, he does, but he gets further rolls – once per "cycle" – to throw off the disease.

Delay: This is the incubation period – the time between initial exposure to the disease and the appearance of the first symptoms in those who fail to resist. This is 24 hours for a "generic" disease, but can vary considerably for real-life diseases.

Damage: The disease's effects in game terms. This is typically 1 HP of injury, but it might be higher – up to 1d – for virulent diseases. DR does not protect against disease. Symptoms (fever, sneezing, coughing, spots, rash, etc.) appear after the subject starts to suffer injury. Injury from disease will *not* heal naturally until the victim makes his HT roll to recover!

Cycles: A disease damages its victim at regular intervals until he makes a HT roll *or* a maximum number of cycles passes. The "default" interval between HT rolls is one day. The number of cycles varies with the deadliness of the disease; for instance, a potentially fatal disease might only inflict 1 HP per cycle but endure for 20-30 cycles.

Once a disease's symptoms become apparent, make a Diagnosis roll to identify it. This cannot identify a totally new illness, but a good roll might give enough information to allow treatment. Appropriate remedies – drugs, etc. – can provide a bonus to the cyclic HT rolls to shake off certain diseases. Effective antibiotics give +3 to recover from most bacterial diseases.

> *I was told that I might be dealing with a possible Cetagandan-designed bioweapon in hot mode, that had killed three so far with one survivor. The part about there being a survivor really made me wonder about the first assertion.*
>
> **– *Diplomatic Immunity***

Electricity

The effects of electrical shock are *highly* variable, ranging from momentary stunning to instant death. The following are general rules. Specific weapons or situations may produce other effects.

All electrical damage is either *nonlethal* or *lethal.* Against either, uninsulated metallic armor provides only DR 1 – and if the wearer is grounded, he actually *attracts* electrical attacks, giving them +2 to hit.

Nonlethal Damage: High-voltage, low-power shocks are unlikely to kill, but can stun. The GM should require an immediate HT roll when someone is zapped, with a modifier from +2 for an accidental short-circuit to -4 or -5 for a specially designed weapon (which may even *paralyze* rather than just stunning). Nonmetallic armor gives a bonus equal to its DR – but *surface* shocks (e.g., from a cattle prod) tend to flow over armor rather than through it, and have an armor divisor of (0.5), while energy weapons designed to arc through armor have an armor divisor of (2) or even (5). On a failure, the victim is stunned and helpless.

An instantaneous jolt stuns for one second, after which time the victim may roll vs. HT once per second to recover. A continuous shock (stun gun, electric fence, etc.) stuns for as long as the victim is in contact with the source, and for (20 – HT) seconds after that (minimum 1 second). After this time, the victim may roll vs. HT each second to recover. The basic HT modifier for the strength of the shock (but *not* for DR) applies to all recovery rolls.

Lethal Damage: High-power shocks inflict *burning* damage: only 1d-3 to 3d for household current, but 6d on up for lightning bolts, transmission lines, etc. A victim who suffers *any* injury must make a HT roll at -1 per 2 points of injury suffered. On a failure, he falls unconscious for as long as the current is applied, and for (20 – HT) minutes afterward, with a minimum of 1 minute. He will be at -2 DX for *another* (20 – HT) minutes when he recovers. Failure by 5 or more, or any critical failure, results in a heart attack, possibly deadly or at least requiring hospitalization (GM's option). Electrical equipment is also likely to be fried by such damage.

Flame

If you spend *part* of a turn in a fire (e.g., running through the flames), you take 1d-3 burning damage. If you spend *all* of a turn in a fire of ordinary intensity – or if you are on fire – you take 1d-1 damage per second. Very intense fires inflict more damage; for instance, molten metal or a furnace would inflict 3d per second!

Continued exposure to a fire can result in intense heat that can rapidly fatigue you even if the flames themselves cannot penetrate your DR. See *Heat* (below).

A *single* hit that inflicts at least 3 points of basic burning damage ignites *part* of the victim's clothing. This does 1d-4 burning damage per second and is distracting (-2 to DX, unless the damage simply cannot harm the target). To put out the fire, the victim must beat it with his hands. This requires a DX roll, and each attempt takes a Ready maneuver.

A *single* hit that inflicts 10 or more points of basic burning damage ignites *all* of the victim's clothes. This does 1d-1 burning damage per second and is *very* distracting (-3 to DX, except when rolling to put out the fire). To put out the fire, the victim must roll on the ground. This requires a DX roll, and each attempt takes *three* Ready maneuvers. Jumping into water takes only one second, and automatically extinguishes the fire.

In all cases, remember to apply shock penalties to DX if the flame inflicts injury!

Heat

In ordinary hot weather, you will experience no ill effects if you stay in the shade and don't move around much. But if you are *active* in temperatures in the top 10° of your comfort zone or above – over 80°F for humans – make a HT roll every 30 minutes.

Failure costs 1 FP. On a critical failure, you suffer heat stroke: lose *1d* FP. As usual, if you go below 0 FP, you start to lose 1 HP per FP. You cannot recover FP or HP lost to heat until you move into cooler surroundings.

As well, at temperatures up to 30° over your comfort zone (91-120° for humans), you lose an extra 1 FP whenever you lose FP to exertion or dehydration. At temperatures up to 60° over your comfort zone (121-150° for humans), this becomes an extra *2* FP.

Lack of Air

Sometimes, characters find themselves wanting to breathe when they can't – because they're being strangled, drowning, trying to avoid the effects of poison gas, or spacewalking without a suit.

Holding Your Breath

Your HT determines the length of time you can hold your breath:

No Exertion (e.g., sitting quietly or meditating): HT×10 seconds.

Mild Exertion (e.g., operating a vehicle, treading water, or walking): HT×4 seconds.

Heavy Exertion (e.g., climbing, combat, or running): HT seconds.

These times assume you have one second to take a deep breath (requires a Concentrate maneuver in combat). Multiply all times by 1.5 if you hyperventilate first – or by 2.5 if you hyperventilate with pure oxygen.

At the end of this time, you start suffocating (see below), or must breathe whatever it was you were trying to avoid.

Suffocation

If you *completely* lack air, you lose 1 FP per second. If you are drowning after a failed Swimming roll, you can get *some* air, but you also inhale water: roll vs. Swimming every five seconds; failure costs 1 FP (see *Swimming,* p. 171).

At 0 FP, make a Will roll every second or fall unconscious. Regardless of FP or HP, you die after four minutes without air.

If you get clean air before you die, you stop losing FP and start to recover FP at the usual rate (see *Recovering from Fatigue,* p. 181). If you are unconscious, you awaken once you have 1 FP. If you were drowning, a rescuer must *also* make a First Aid roll to get the water out of your lungs in order to save you.

If you went without air for more than two minutes, roll vs. HT to avoid permanent brain damage: -1 to IQ.

Vacuum

Vacuum is the total absence of air, but the following rules also apply in trace atmospheres where there is nothing like enough air for human survival.

Breathing Vacuum: You can't hold your breath in vacuum, and you may rupture your lungs if you try (1d of injury). If you exhale and leave your mouth open, you can operate on the oxygen in your blood for *half* the time listed for *Holding Your Breath* (above). After that, you begin to suffocate, as above.

Explosive Decompression: When an area *suddenly* goes from normal pressure to little or none (a "blowout"), body fluids boil, blood vessels rupture, and eardrums pop. Take 1d of injury immediately, and roll vs. HT. On a critical success, you're fine. On an ordinary success, you're incapacitated by what divers call "the bends": you can't do anything but try to scream in pain until you're helped; once you're back in a normal atmosphere, roll vs. HT+4 every five minutes to recover. On an ordinary failure, you suffer the bends and are also immediately rendered unconscious; you don't recover until you make that HT+4 roll in atmosphere, and each failure causes 1d of injury. And on a critical failure, you die immediately. Also roll vs. HT+2 for each eye; failure means you lose sight in that eye. Lastly, roll vs. HT-1 to avoid gaining the Hard of Hearing disadvantage (p. 156). Vision and hearing loss are usually long-lasting or permanent, although advanced hospital treatment may be able to cure them.

Extreme Temperatures: Vacuum itself is neither "cold" nor "hot," but in the absence of air, surfaces in shadow will eventually grow very cold, while those in sunlight will become extremely hot. For example, on Earth's moon – with its month-long "day" – the temperature can range from -243°F (at night) to 225°F (at noon). See *Cold* (p. 181) and *Heat* (p. 182) for rules for extreme temperatures.

Poison

Poison can show up on weapons, in food or drink offered by treacherous foes, and anywhere else you didn't expect it. The important things to know about a given poison are:

Delay: Most poisons require a few seconds to several hours to take effect. This is nearly *always* true for digestive agents.

Resistance: Some poisons give the victim a HT roll to resist. Make this roll after the delay, if any, has passed. There is often a modifier: a mild poison might call for a HT+2 roll, while one that is almost impossible to resist might require a HT-8 roll! HT to HT-4 is typical. DR never affects this roll.

If you're in a poisonous *environment* (like a gas cloud or toxic atmosphere) and make your initial HT roll, you must roll again once per second until the poison affects you or you leave the area. If the poison has a delay, roll after each delay period instead.

Effects: The most common effect of poison is injury or fatigue. Mild poisons might only inflict 1 HP or FP; more severe poisons might inflict 1d or more. DR has no effect on this damage. These HP and FP losses heal normally.

Radiation

Radiation exposure is measured in *rads.* Unshielded space travel inflicts 1 rad a week; nuclear fallout inflicts 2-5 rads/minute within a few hours of the blast, and several rads/hour over the next day; a fission plant accident means 1,000 rads an hour or more; a one-megaton air- or space-burst nuke at 2,000 yards means 6,600 rads. Whenever a character is exposed to radiation, the GM should note both the dose and the date. Each dose diminishes separately from all others; it starts to heal after 30 days, at the rate of 10 rads per day. However, 10% of the original dose *never* heals except via very advanced ultra-tech medicine.

Low doses (up to 10 rads or so) require a HT roll when first irradiated. Failure means 1d of injury, Low Pain Threshold for a week, and extra HT rolls to avoid sterility and long-term illness. Doses in the tens to a hundred rads or so require a HT roll at penalties, with minor problems (1d damage, sickness, etc.) on a *success,* and severe health problems on a failure. Doses in the thousands of rads mean death within days or hours.

In addition, a *single* dose of 200+ rads causes sterility and blindness for 1d months; a dose of 500+ rads makes it permanent. An *accumulated* dose of 100+ rads increases the risk of birth defects. Should you become a parent, make a HT roll, at +3 if you are male. Failure means the child has some sort of birth defect (GM's option). Remember, Barrayarans are prejudiced against "mutants" . . .

Appendix B
Spacecraft

These rules for spacecraft systems – adapted from ***GURPS Spaceships*** – explain what spaceships can do and enable you to design craft suitable for Miles' universe. Skip right to *Sample Spacecraft* (p. 203) to see some worked examples.

Technology Overview

The normal TL for ship components in the Vorkosigan background is TL10^ (the ^ means "superscience"; see p. B513), with limited TL11^ force screens, tractor beams, and artificial gravity and anti-grav. Power comes from TL9 fusion plants, although TL8 fission reactors (for older ships) and TL10 antimatter plants (for ships where power is at a premium) are also available.

Ships normally accelerate at several Gs. Thrusters produce no significant exhaust, but flare brightly when operating at high power. Jump drives are used for FTL travel. Faster-than-light (FTL) sensors and communications *aren't* available, although there are detectors for wormholes and ship jump "trails."

Nearly all ships and stations have artificial gravity generators between decks, which double as acceleration compensators. Anti-grav systems ("contragravity" in ***GURPS Space***) are common everywhere; even very tiny units, less than an inch across, are available.

Design

When creating a vessel, first consider its mission. Who's building it, and why? Is it a shuttle, an in-system ship, or a jumpship? A commercial ship, a courier, or a warship? See *Ships* (p. 91). These rules let you assign statistics to spacecraft that range from 30 to 3,000,000 tons mass.

Next, decide how large the ship is by choosing a hull Size Modifier, from SM +5 to SM +15, and whether the hull is *streamlined* or *unstreamlined*. See *Spacecraft Hulls* (p. 185).

A spacecraft hull has three hull sections – the *front hull,* the *central hull,* and the *rear hull.* Each represents approximately 1/3 of the vessel's total *mass* (not volume). don't take this too literally; the actual shape may be more complex. For instance, the "front hull" could include forward-facing parts of the ship that are actually part of multiple different sub-hulls, pods, or wings.

Into the three hull sections are placed 20 *systems.* Each system is a set of components representing 5% of the ship's total loaded mass. Choose any combination of systems from those listed under *System Descriptions* (p. 185). A spacecraft can have multiple instances of the same system.

The front, central, and rear hull sections must each contain six systems; number these systems [1] to [6]. Two additional systems, buried deep inside the spacecraft's hull, are designated [core], and may be placed in any two different hull sections. The numbers are

Scaling Statistics

To improve playability, some statistics in these rules are scaled differently from those in the ***GURPS Basic Set:***

acceleration: This is always measured in gravities, abbreviated G. To convert to a Move in yards per second per second, multiply it by 10.

dDamage: This is decade-scale damage; that is, 1 point is 10 points of damage. For an explanation of decade-scale, see *Scaling Damage* (p. B470).

dDR: This is decade-scale Damage Resistance.

delta-V: The maximum velocity change a spacecraft can perform without running out of reaction mass; see *Space Travel* (p. B466). Each acceleration or deceleration "costs" a vessel a fraction of its delta-V reserve. Delta-V is measured in miles per second, abbreviated mps. To convert to a Top Speed in yards per second, multiply by 1,800.

dST/HP: Spaceship ST/HP values are also decade-scale.

sAcc: The Space Accuracy statistic combines the weapon's Acc bonus, the range penalty for firing at typical ranges, and a bonus for aimed fire over several turns with the aid of active targeting systems and targeting programs.

used for hit location rolls, while core systems are similar to the "vitals" hit location of a human. Record system statistics – tons of cargo capacity for a hold, acceleration for an engine, etc. – as you select systems.

Spacecraft can have various optional *design features* (p. 198). These don't count toward the 20 systems.

See *Completing the Spacecraft* (p. 200) to determine how all these choices affect the spacecraft's statistics. Refer to *Spacecraft Statistics* for advice on how to record everything.

Example: We decide to create a Betan passenger liner capable of both interstellar jumps. We give it an SM +11 streamlined hull (so the ship masses 30,000 tons). We then select the six systems for each hull section and two core systems, placing one core system in the central section and one in the rear, and making these choices (systems marked "!" require power):

The *front hull* will have *nanocomposite armor* [1] for minimal protection. 25 super-luxury cabins make up one habitat [2]. The merely first-class passengers occupy four *habitats* [3-6], which have the equivalent of 400 cabins total. We convert this into 175 luxury cabins, 10 briefing rooms, 15 establishments, and 10 offices.

The *central hull* will have *nanocomposite armor* [1], too. A *fusion power plant* [2] provides power (two Power Points) for the various systems (if more power is needed, we can come back and change this). The vessel is controlled from a *control room* [3] with 20 control stations and a Complexity 8 computer network. Two *habitats* [4-5] hold 200 business-class cabins. The crew (including service staff) lives in one *habitat* [6] with 100 cabins. Half of the ship's *Necklin drive* [core!] rounds out this portion.

The *rear hull* will have *nanocomposite armor* [1]. A *hangar bay* [2] provides room for up to 1,000 tons of shuttles. The rest of the rear hull consists of two *fuel tanks* [3-4], an *antimatter thruster* [5], a mass-shield *force screen* [6], and the other half of the *Necklin drive* [core!].

We refer to the individual system descriptions to learn cost and important statistics. We then examine *Design Features* (p. 198) and decide that the liner has artificial gravity. Lastly, we finalize the design, add up all the costs, and record the ship's statistics. See p. 204 for the finished ship.

Spacecraft Hulls

A spacecraft hull is rated for its Size Modifier (SM), which determines the ship's mass, dimensions, dST/HP, and base Handling and Stability Rating. A hull will either be *streamlined* (that is, aerodynamic) or *unstreamlined:*

Unstreamlined: This might be a spherical, cylindrical, cubical, or humanoid hull, or a complex collection of spheres, saucers, cylinders, booms, and pods. It's only suitable for space operations; it might be able to fly in atmosphere, with enough thrust, but has poor aerodynamics. For rules purposes, unstreamlined spaceships, like submarines, are assumed to maximize internal volume within the scope of all other constraints, making the surface area as small as possible. If an unstreamlined hull is actually a wild collection of tacked-together shapes, rather than a regular globe or cylinder, its surface area will be increased and it should be assessed a DR penalty as for a streamlined hull.

Streamlined: This is a wedge, lifting body, cone, disk, teardrop, bullet, or needle-like shape, optimized for high atmospheric speed. A streamlined spacecraft must have at least one armor system for its front hull or central hull (if it's a multi-stage design, only the uppermost section need be armored). All of its armor will have lower DR than an ideal unstreamlined hull, due to the greater surface area.

The hull's SM determines its other characteristics, per the *Hull Size Table* (p. 186).

Off-Size Systems

Shipbuilders often need to cram *several* components into a small space. Since each step up in hull SM represents a rough tripling of loaded mass, there's an easy way to squeeze multiple, inferior systems into the same location: use the stats for hardware for a vessel one SM smaller, and install *three* systems.

A few systems require special treatment:

Banned Systems: You can't use a smaller Necklin drive or soft-landing system with a larger ship. At least, not successfully.

Defenses: Use 1/3 the dDR or reflected damage dice of the original system. It's very inefficient to spread a smaller ship's defenses over a larger vessel! This includes armor, force screens, plasma mirrors, and Sword-Swallower systems.

Fuel and Thrusters: Use 1/3 the delta-V reserve of a smaller fuel tank and 1/3 the acceleration of a smaller thruster. A scaled-down ramscoop can only provide unlimited fuel to a smaller thruster.

Power: Smaller power plants *don't* provide sufficient power for normal-sized systems. Optionally, though, a smaller power plant *can* power another scaled-down system that shares the same location.

In addition, some systems can be *half-sized* at half cost: cargo holds (halve capacity), factories (halve output), fuel tanks (halve delta-V reserve), habitats (halve cabin-equivalents), mining and refinery systems (halve output), open spaces (halve areas), passenger seating (halve seats), and power plants (fusion and antimatter only – halve Power Points).

Larger Systems

While it's more common to cram in smaller systems, sometimes a *small* ship needs a *big* gun – or a system that isn't normally available at its size. A system that's one SM larger occupies *three times* its usual number of locations, and has the statistics of a system for a larger ship.

One class of systems requires special treatment:

Defenses: Use *twice* the dDR or reflected damage dice of the original system.

Other components that *might* have additional effects are better handled by using three normal-sized components.

Scaling Up Spacecraft

These rules cover SM +5 to +15 spacecraft. However, the GM may permit larger vessels. All tables follow a logical progression, and the GM should feel free to extrapolate larger sizes and statistics if desired.

To create a spacecraft whose mass falls between the values listed, just pick whichever hull size is closest to the desired mass or dimensions.

Hull Size Table

SM	Loaded Mass	Length	dST/HP	Hnd/SR
SM +5	30 tons	15 yards (45 ft)	20	0/4
SM +6	100 tons	20 yards (60 ft)	30	0/4
SM +7	300 tons	30 yards (90 ft)	50	-1/5
SM +8	1,000 tons	50 yards (150 ft)	70	-1/5
SM +9	3,000 tons	70 yards (200 ft)	100	-1/5
SM +10	10,000 tons	100 yards (300 ft)	150	-2/5
SM +11	30,000 tons	150 yards (450 ft)	200	-2/5
SM +12	100,000 tons	200 yards (600 ft)	300	-2/5
SM +13	300,000 tons	300 yards (900 ft)	500	-3/5
SM +14	1,000,000 tons	500 yards (1,500 ft)	700	-3/5
SM +15	3,000,000 tons	700 yards (2,000 ft)	1,000	-3/5

Loaded Mass: The spacecraft's approximate loaded mass, in short tons (2,000 lbs. per ton). To keep things simple, mass values follow a "1-3-10" progression that scales with SM.

Length: An average for a typical unstreamlined cylindrical spacecraft, or for many complex shapes like saucer-boom-and-pod designs. Length is only an approximation; feel free to vary it. Streamlined vessels may be up to twice as long. Stubby cylinders, teardrops, saucers, and other more complex shapes average about 50%-75% of this length. A sphere will be less than half this length. In all cases, this refers to the ship's *longest* dimension.

dST/HP: The spacecraft's *decade-scale* ST and basic HP value.

Hnd/SR: The base Handling and Stability Rating of a spacecraft of that size.

A hull has no cost of its own – that depends on the armor or other systems added to it.

System Descriptions

A variety of different systems may be built into spacecraft. Cost and many other statistics vary according to the vessel's hull SM, as indicated in the tables in this section. The TL in the title of each system description indicates when that system became available; actual TL for *installed* systems is rarely less than the ship's (usually TL10^), except as noted.

Location and Other Restrictions

Some systems can only be placed in certain hull section locations:

[any] means the system can go anywhere.
[hull] means it can go in any of the 18 hull locations, but cannot be a core system.
[rear] means it can only go in the rear hull and cannot be a core system.
[front] means it can only go in the front hull and cannot be a core system.
[core!] means it *must* be a core system.

Dollar Cost and Other Statistics

Most systems have a cost that increases with SM, as shown in the system's table. Many systems have other statistics, such as capacity for a cargo hold or acceleration for thrusters. Large numbers are abbreviated K for thousand, M for million, B for billion, and T for trillion; e.g., a dollar cost of 30M is $30 million.

High-Energy Systems and Power Points

Certain systems are "high-energy systems" that require a great deal of power. These are indicated with an exclamation point (!) next to their location. Each high-energy system operated simultaneously must be assigned one *Power Point* to power it. Power Points are produced by power systems, such as fission power plants. You can design the vessel with enough Power Points to operate every high-energy system that needs to run simultaneously, or install less power, which forces the crew to carefully decide what systems they want powered up at any given time. (Excess power is useful for redundancy in case of damage to power plants.)

Spacecraft *without* high-energy systems don't require Power Points. It's assumed that built-in auxiliary power supplies or energy banks factored into the systems are sufficient.

Workspaces

Many systems (especially on larger spacecraft) have a specified number of "workspaces." This determines how many technicians are required to man and maintain that system. Thus, if a system specifies three workspaces, it's normally manned by three crewmen, who are busy inside that system performing such duties as monitoring or maintenance. Workspaces include duty stations for they required crew, allowing them to maintain and repair that type of system (or *all* shipboard systems, for engine rooms). The Automation (p. 199) design feature can reduce or eliminate workspace requirements.

Free Equipment

Along with their 20 systems, all spacecraft get the following equipment:

Airlocks for entering the vessel. Assume that a spacecraft has (SM-4) airlocks, which work as described under *Airlock* (p. 211).

Auxiliary power systems that power all systems not requiring Power Points.

Landing gear in the form of retractable runners or landing legs if the spacecraft is either streamlined or capable of 0.1G or greater acceleration, or retractable wheels if the spacecraft is winged.

Routine equipment for safety – lights, fire extinguishers, pressure doors, etc. If the ship is SM +7 or larger, there will be many ducts, corridors, and passageways. If it is SM +9 or larger, there will be elevators, grav tubes, or other internal rapid-transit systems connecting all crewed or inhabited systems and cargo or hangar areas.

Additional Equipment

Gamers with ***GURPS Ultra-Tech, High-Tech,*** or other ***GURPS*** tech catalogs may install extra equipment from these books in Cargo (p. 188) or Habitat (p. 191) systems. Large items use up space based on their mass in tons.

Repair Skill

Systems that can be disabled or destroyed list the skill required to repair them. This is also the skill that crew will need for routine maintenance.

Armor Systems

Armor systems are rated for the decade-scale DR (dDR) that they provide to the hull section in which they're installed. Thus, armor on the front hull protects the front of the spacecraft, armor on the central hull protects the central hull (the sides), and armor on the rear hull protects the back. To fully armor a spacecraft, add armor systems to the front, central, and rear hull.

The dDR of armor systems also varies depending on whether the ship is streamlined. Two values are listed for most armor systems: US (unstreamlined) and SL (streamlined). The lower dDR for streamlined vessels represents the same mass of armor spread over a greater surface area. A streamlined spacecraft must be given at least one armor system on its front or central hull.

Multiple armor systems ("layers") can protect the same hull section; the dDR of all armor systems on a given hull section is cumulative. If it becomes important (such as when a layer of armor is destroyed), armor layers from outer to innermost protect in the order in which they're numbered.

Most nonmilitary spacecraft have light or no armor, relying entirely on force screens and other energy defenses for protection. Well-designed military vessels usually have enough armor so that one or two attacks that penetrate the energy defenses won't kill the ship. *Older* military craft may have heavy armor – once the only good defense against laser weapons.

If a hull section is entirely unarmored, it has dDR 0. When not using decade-scale damage (e.g., in personal combat), assume that the thin, nonstructural walls of a dDR 0 hull section have DR 2 if streamlined or DR 3 if unstreamlined.

Armor, Ice (TL0) [Hull]

This is armor made from frozen water. It may be used to represent spacecraft built from hollowed-out comets or Kuiper Belt objects, although ice is sometimes added atop other armor as cheap shielding for space stations. Ice armor isn't available for SM +5 to +7 hulls, nor for streamlined hulls. Cost is negligible.

Ice Armor Table

SM	*+8*	*+9*	*+10*	*+11*	*+12*	*+13*	*+14*	*+15*
US dDR	1	2	2	3	5	7	10	15

Repair Skill: Armoury (Vehicle Armor), at -4 for unfamiliarity if the technician isn't from a region where ice armor is commonly used.

Armor, Stone (TL0) [Hull]

This is rock armor for vessels that are hollowed-out asteroids, or covered with a layer of rock or slag. Stone dDR isn't available for SM +5 or +6 hulls, or for streamlined hulls. Cost is negligible.

Stone Armor Table

SM	*+7*	*+8*	*+9*	*+10*	*+11*	*+12*	*+13*	*+14*	*+15*
US dDR	1	2	2	3	5	7	10	15	20

Repair Skill: Armoury (Vehicle Armor), at -4 for unfamiliarity if the technician isn't from a region where stone armor is commonly used.

Armor, Metallic Laminate (TL8) [Hull]

This is titanium, aluminum, beryllium, or ultra-hard steel alloy, further reinforced by the addition of carbon fibers, ceramic fibers, or intermetallic laminates.

Metallic Laminate Armor Table

SM	*+5*	*+6*	*+7*	*+8*	*+9*	*+10*	*+11*	*+12*	*+13*	*+14*	*+15*
US dDR	3	5	7	10	15	20	30	50	70	100	150
SL dDR	2	3	5	7	10	15	20	30	50	70	100
Cost ($)	30K	100K	300K	1M	3M	10M	30M	100M	300M	1B	3B

Repair Skill: Armoury (Vehicle Armor).

Armor, Advanced Metallic Laminate (TL9) [Hull]

This is armor similar to metallic laminate, but the alloy is reinforced through the addition of super-strong carbon nanotubes, boron nanotubes, or diamond whiskers. Many modern ships use these laminates, and older ships almost always do.

Advanced Metallic Laminate Armor Table

SM	*+5*	*+6*	*+7*	*+8*	*+9*	*+10*	*+11*	*+12*	*+13*	*+14*	*+15*
US dDR	5	7	10	15	20	30	50	70	100	150	200
SL dDR	3	5	7	10	15	20	30	50	70	100	150
Cost ($)	60K	200K	600K	2M	6M	20M	60M	200M	600M	2B	6B

Repair Skill: Armoury (Vehicle Armor).

Armor, Nanocomposite (TL10) [Hull]

This armor uses ultra-strong carbon or boron nanotube-reinforced polymers. Nanocomposites are expensive, but indispensable for the best and brightest ships.

Nanocomposite Armor Table

SM	*+5*	*+6*	*+7*	*+8*	*+9*	*+10*	*+11*	*+12*	*+13*	*+14*	*+15*
US dDR	7	10	15	20	30	50	70	100	150	200	300
SL dDR	5	7	10	15	20	30	50	70	100	150	200
Cost ($)	150K	500K	1.5M	5M	15M	50M	150M	500M	1.5B	5B	15B

Repair Skill: Armoury (Vehicle Armor).

Cargo Hold [Any]

This is ordinary cargo space. The table below rates each system for tons of cargo capacity. Cost is negligible (See p. 212).

Cargo Table

SM	*+5*	*+6*	*+7*	*+8*	*+9*	*+10*	*+11*	*+12*	*+13*	*+14*	*+15*
Tons	1.5	5	15	50	150	500	1.5k	5k	15k	50k	150k

Repair Skill: Mechanic (High-Performance Spacecraft).

Options

Refrigerated: Each ton of cargo space made refrigerated costs $0.5K.

Shielded: Cargo capacity may be exchanged for half as much concealed and scan-shielded cargo capacity. This costs $4K per ton. (The actual effectiveness of scan-shielding against any particular searcher is up to the GM.)

Control Room (TL7) [Any]

Spacecraft capable of maneuvering require a control room; multi-stage craft only need this in the uppermost stage. Although the system includes the actual control room and computers, most of the mass and cost – especially on large ships – is devoted to hardware distributed about the vessel's hull: a basic comm/sensor array for navigation, and the attitude thrusters or gyros used to alter facing.

The control room's basic array is embedded in the hull, providing a communications and sensor suite with the comm/sensor array level (see *Comm/Sensor Arrays,* p. 213) shown on the table below. Many civilian vessels use only this minimal installation. For specialized systems, see *Enhanced, Multipurpose, Science, and Tactical Comm/Sensory Arrays* (p. 189).

The control room is also rated for the Complexity (see p. B472) of its *computer network.* This network is hardened vs. electromagnetic pulse and radiation.

The control room is further rated for the number of *control stations* installed; you can always install fewer than this if you wish. Each station is an acceleration couch or seat, plus a multifunction console for controlling shipboard operations such as command, piloting, engineering, navigation, gunnery, sensor operation, or communications. The more control stations, the less work for any one individual. All stations are configurable; there's no need to specify what each one does. Each station comes with 24 hours of limited life support for the operator; thus, a short-range fighter, shuttle, etc., doesn't need a habitat.

Control Room Table

SM	*+5*	*+6*	*+7*	*+8*	*+9*	*+10*	*+11*	*+12*	*+13*	*+14*	*+15*
Complexity	C4	C5	C5	C6	C6	C7	C7	C8	C8	C9	C9
Comm/Sensor	4	5	6	7	8	9	10	11	12	13	14
Control Stations	1	2	3	4	6	10	15	20	30	40	60
Workspaces	0	0	0	0	0	1	3	10	30	100	300
Cost ($)	60K	200K	600K	2M	6M	20M	60M	200M	600M	2B	6B

Complexity is the system's computer network Complexity.

Comm/Sensor is the system's basic comm/sensor array level. Apply a -1 for older (TL9) arrays.

Control Stations is the typical number of control stations. You may install fewer (or *none,* for an autonomous bridge); each station removed saves $50K.

Repair Skill: Electronics Repair (Computers) and Computer Programming.

Defensive ECM (TL7) [Any]

This array of automatic self-defense jamming antennae, decoy systems, and so on protects the spacecraft from being hit by enemy fire. Each system gives -2 to ranged attacks against the vessel – but *only* if the defensive ECM system has a TL equal to or greater than the TL of the spacecraft or missile targeting it. No more than three can be installed.

Defensive ECM Table

SM	*+5*	*+6*	*+7*	*+8*	*+9*	*+10*	*+11*	*+12*	*+13*	*+14*	*+15*
Workspaces	0	0	0	0	0	1	3	10	30	100	300
Cost ($)	300K	1M	3M	10M	30M	100M	300M	1B	3B	10B	30B

Repair Skill: Electronics Repair (EW).

Engine Room (TL7) [Any]

Small spacecraft (SM +5 to +9) whose crew wish to perform repairs and maintenance without leaving the vehicle should have an engine room system. An engine room includes space, tools, and parts sufficient to maintain and repair the craft. It isn't required on an SM +5 to +9 craft, but lacking one lowers HT and makes repairs harder.

An engine room should be placed in the same or adjacent hull section as the majority of drives or power plants. An SM +10 or larger spacecraft *doesn't* require an engine room system, since all systems that require maintenance include workspaces integral to them (manned by their listed tech-crew requirement).

An engine room comes with one control station.

Engine Room Table

SM	*+5*	*+6*	*+7*	*+8*	*+9*
Workspaces	1	1	1	1	2
Cost ($)	15K	30K	100K	300K	1M

Repair Skill: Mechanic (High-Performance Spacecraft).

Enhanced, Multipurpose, Science, and Tactical Comm/Sensor Arrays (TL7) [Hull]

Many spacecraft have only a basic comm/sensor array (see *Control Room,* p. 188), but some have more sophisticated equipment. These are large multifunction sensor and communications suites that use an embedded phased array or rotating antenna. Only scout ships, survey craft, and observatories are likely to have multiple sensor systems, which come in four varieties:

Enhanced Array: A larger and more capable version of the basic array that's included with a control room system.

Science Array: An enhanced array that also incorporates highly sensitive instruments for use in astronomical and physics surveys.

Tactical Array: An enhanced array that also has the ability to actively jam transmissions and overcome defensive ECM.

Multipurpose Array: A combined science and tactical array.

All varieties integrate active sensors, passive sensors, and a comm suite into a single system. Each array is rated for its type and comm/sensor array level, which among other things determines the Telescopic Vision level of its passive sensors. Level is the same for all four types; the only differences are their special abilities. For further details, see *Comm/Sensor Arrays* (p. 213).

Enhanced, Science, Multipurpose, and Tactical Array Table

SM	*+5*	*+6*	*+7*	*+8*	*+9*	*+10*	*+11*	*+12*	*+13*	*+14*	*+15*
Array Level	6	7	8	9	10	11	12	13	14	15	16
Workspaces	0	0	0	0	0	1	3	10	30	100	300
Cost ($)	60K	200K	600K	2M	6M	20M	60M	200M	600M	2B	6B

Array Level assumes TL10. Apply a -1 for older (TL9) arrays.
Cost is ×1 for enhanced, ×5 for science or tactical, or ×10 for multipurpose.
Repair Skill: Electronics Repair (Communications) and Electronics Repair (Sensors).

External Clamp (TL7) [Hull]

This is a system of clamps or grapples that allows the vessel to attach itself to a station or to another spacecraft or object. Attachment takes at least 20 seconds; the subject must be cooperative or drifting. A clamped spacecraft can be towed or pushed. To determine performance, calculate the tons of thrust. A vessel's tons of thrust are equal to its acceleration (or FTL rating) times its mass. If it pulls or pushes a vessel or other heavy object (such as an asteroid), divide by their combined mass to get the new acceleration or rating. The two vessels may also combine their acceleration or FTL ratings – add their thrust or FTL rating together before dividing by combined mass.

External clamps are not required for routine docking; every ship comes with appropriate airlocks.

External Clamp Table

SM	*+5*	*+6*	*+7*	*+8*	*+9*	*+10*	*+11*	*+12*	*+13*	*+14*	*+15*
Cost ($)	3K	10K	30K	100K	300K	1M	3M	10M	30M	100M	300M

Repair Skill: Mechanic (High-Performance Spacecraft).

Factory (TL8) [Any!]

This is an industrial machine shop capable of fabricating spare parts or other goods. Use Machinist skill (an IQ/A Professional Skill) to operate it. The $/hr entry on the table shows its production capacity in dollars worth of goods it can assemble per hour when provided with appropriate blueprints and component parts. Parts are equal in mass to the manufactured goods and cost 40% of the goods' value. Factories aren't available for SM +5 craft.

Factory Table

SM	*+6*	*+7*	*+8*	*+9*	*+10*	*+11*	*+12*	*+13*	*+14*	*+15*
$/hr	5k	15k	50k	150k	500k	1.5M	5M	15M	50M	150M
Workspaces	0	0	0	0	1	3	10	30	100	300
Cost ($)	5M	15M	50M	150M	500M	1.5B	5B	15B	50B	150B

Repair Skill: Mechanic (Machine Tools).

Force Screen (TL11^) [Any!]

This system generates a protective field around the *entire* vessel – it protects *all* hull sections, not just the one in which it's installed. The table shows the dDR and cost per (high-energy) system. Subtract force-screen dDR first, and then any armor dDR on the hull section struck.

Force screens were originally designed to protect against *physical* threats, particularly collisions with debris at large fractions of the speed of light, and provide *significantly* higher dDR against these dangers than against beam weapons. Physical attacks include collisions, conventional gun or missile warheads, and crushing damage from explosions (including nuclear or antimatter blasts in atmosphere).

Screens have several power settings:

Low Power: Provides 1/10 its listed dDR but requires no Power Points to maintain.

Regular Power: Provides the listed dDR and costs one Power Point to maintain.

High Power: Provides *double* dDR but costs *two* Power Points to maintain.

Most military vessels also install a Sword-Swallower (p. 195) to defeat lasers. Some newer ships include a plasma mirror (p. 193) to handle plasma weapons.

Force Screen Table

SM	*+5*	*+6*	*+7*	*+8*	*+9*	*+10*	*+11*	*+12*	*+13*	*+14*	*+15*
dDR vs. Beams	10	15	20	30	50	70	100	150	200	300	500
dDR vs. Physical	1,000	1,500	2,000	3,000	5,000	7,000	10,000	15,000	20,000	30,000	50,000
Workspaces	0	0	0	0	0	1	3	10	30	100	300
Cost ($)	300K	1M	3M	10M	30M	100M	300M	1B	3B	10B	30B

Repair Skill: Armoury (Force Shields).

Options

All this assumes a combination mass shield and plasma shield, but ships built before the rise of plasma arcs may *only* have mass shields:

Mass Shields Only (TL10^): The shield provides *no* dDR against beams! Protection against physical damage is unchanged. Cost is 1/3 normal.

Ancient Mass Shields (TL10^): The oldest mass shields not only provide no dDR against energy attacks, but *only* have a low-power setting! Cost is 1/10 normal.

Fuel Tank (TL7) [Any]

This is a tank for reaction mass for thrusters. A spacecraft with one or more thruster systems requires at least one fuel tank with appropriate reaction mass to supply those drives. A high-tech alternative to fuel tanks for drives that use hydrogen is a ramscoop (p. 194).

The *Fuel Tank Table* shows the tons of fuel stored in each fuel tank system, and the cost of each fuel tank system without fuel. See *Refueling* (p. 201) for the cost to refuel a tank.

The more fuel tanks that can supply a particular set of thrusters, the greater the ship's delta-V, as indicated in the description of each thruster type. This is the spaceship's *delta-V reserve* – the maximum total velocity change it can make. For example, a spacecraft that's using any number of antimatter thrusters for propulsion receives a delta-V of 10,000 mps per fuel tank. If it has four fuel tanks, its delta-V reserve is 40,000 mps.

A spacecraft's performance improves if it has a high ratio of fueled to "dry" mass, since it gets lighter as tanks are emptied. If *six or more* fuel tanks supply a particular set of thrusters, multiply delta-V per tank as shown on the *Delta-V Increase Table.*

Delta-V Increase Table

Tanks	*Delta-V*	*Tanks*	*Delta-V*
6-8	×1.2	16	×2
9-12	×1.4	17	×2.2
13-14	×1.6	18	×2.5
15	×1.8	19	×3

Example: A ship with an antimatter thruster (p. 195) with delta-V 10,000 mps per tank has 10 fuel tanks, so delta-V per tank is ×1.4: 14,000 mps per tank (140,000 mps total – about 75% the speed of light).

Fuel Tank Table

SM	*+5*	*+6*	*+7*	*+8*	*+9*	*+10*	*+11*	*+12*	*+13*	*+14*	*+15*
Fuel (tons)	1.5	5	15	50	150	500	1,500	5,000	15K	50K	150K
Cost ($)	10K	30K	100K	300K	1M	3M	10M	30M	100M	300M	1B

Repair Skill: Mechanic (High-Performance Spacecraft).

Habitat (TL7) [Any]

A habitat provides living quarters and extended life support for crew during long voyages. It includes a pressurized hull, radiation shielding, and a variety of standard features such as airlocks, hatches, compartmentalization, and elevators. It can contain several different types of facilities:

Bunkroom: Cramped accommodations with bunk beds for up to four people. Often used for enlisted crew, troops, or colonists.

Cabin: Quarters for one person in comfort, or shared by two occupants.

Cell or Cage: Spartan accommodations equivalent to bunks, but with fewer amenities. Includes barred door, electronic lock, and surveillance camera.

Luxury Cabin: A suite with very comfortable quarters for one or two occupants.

Specialized Rooms: See *Specialized Rooms for Habitats* (below).

Steerage Cargo: Unused tonnage in a habitat is usually assigned to cargo. This makes good use of excess capacity. Steerage cargo is pressurized and climate-controlled, and so can be used for livestock or delicate goods.

Cabins, cells, and bunkrooms are *accommodations* that provide sleeping quarters and full life support, permitting occupancy for an indefinite period. They have sanitary, galley, and dining facilities appropriate to their size and quality. For example, a habitat with 10 luxury cabins will likely have a well-appointed kitchen and a sumptuous dining room; one with a single bunkroom might have a microwave oven and a mini-fridge.

Life support provides air, climate control, and water for occupants. Accommodations may optionally replace this with *total life support* that grows or manufactures food. Total life support doubles space required (e.g., each cabin counts as *two* cabins). Alternatively, vessels with one or more open spaces devoted to gardens, farms, or hydroponics can be assumed to be able to manufacture all necessary food (see *Open Space,* p. 193).

The *Habitat Table* shows the number of cabins that each habitat system provides. Cabins may be exchanged for bunkrooms, cells, or cages at a 1:1 ratio. Luxury cabins count as *two* cabins. Each cabin traded for steerage yields five tons of cargo capacity. Specialized rooms have their own "exchange rates".

Habitats aren't available for Small (SM+5) craft. Crew occupy a control room (p. 188) or an engine room (p. 193), while passengers occupy passenger seats (p. 189).

Habitat Table

SM	*+6*	*+7*	*+8*	*+9*	*+10*	*+11*	*+12*	*+13*	*+14*	*+15*
Number of Cabins	1	2	6	20	60	200	600	2,000	6,000	20,000
Workspaces	0	0	0	0	1	3	10	30	100	300
Cost ($)	100K	300K	1M	3M	10M	30M	100M	300M	1B	3B

Repair Skill: Mechanic (Life Support). If a habitat has total life support, Gardening or Farming (if SM +12 or more).

Specialized Rooms for Habitats

Habitats often include specialized rooms. Multiple facilities can be combined to represent larger (and usually more-capable) examples. The number of cabins that must be exchanged for each specialized room appears in parentheses.

Briefing Room (1): A conference room with a table and up to 10 chairs.

Establishment (2): A facility such as a bar, brothel, casino, classroom, gym, massage parlor, nursery, retail store, or salon. Each has standing or seating room for up to 20 patrons, usually manned by one to three staffers.

Lab (2): A scientific laboratory usable by up to two people at once. Fulfills equipment requirements for a scientific skill (e.g., Biology, Chemistry, or Physics) and gives a +1 equipment bonus. Each lab costs an *extra* $1M ($10M for a Physics lab). A set of 10+ identical labs qualifies as a "large lab," giving a +2 bonus; a group of 100+ identical labs qualifies as a "major lab," giving +TL/2.

Minifac (1): A miniaturized version of a factory system (p. 190). It has 1/10 the cost and production capacity of an SM +6 factory.

Office (1): Contains a desk and a display terminal that enable one or two administrators, analysts, etc., to use a skill such as Administration, Computer Operation, Computer Programming, Intelligence Analysis, or Strategy. A habitat with 10+ offices devoted to the same activity qualifies as an "ops center," giving +1 to the relevant skill; one with 100+ identical offices is a "large ops center," and grants +2.

Sickbay (1): Medical facilities – e.g., stabilized diagnostic bed, trauma maintenance, and surgery – for diagnosis and treatment of one patient at a time (or First Aid for 1-4 patients). Fulfills equipment requirements for the Diagnosis, First Aid, Physician, and Surgery skills, and gives a +2 equipment bonus. A 10-bed or larger sickbay ("clinic") increases this bonus to +3; a 100-bed sickbay ("hospital") makes it +TL/2.

Repair Skills: Add Electronics Repair (Computers) for offices; Electronics Repair (Medical) for cryo-chambers and sickbays; Electronics Repair (Scientific) for labs; or Mechanic (Machine Tools) for minifacs.

Hangar Bay (TL7) [hull]

A bay capable of storing, launching, and retrieving other vehicles – spacecraft, trucks, etc. Hangar bays include airlocks so that they can be depressurized without spilling the vessel's air. They can even be flooded and used to launch watercraft or submarines. They can also be used for cargo, but their specialized facilities make them less mass-efficient than cargo holds.

The table shows the *capacity* of the bay in tons, which is the maximum mass of craft that can be stowed inside. This can also be used as a cargo hold for "roll-on/roll-off" cargo. *Launch rate* is the maximum tons of craft that can be released or recovered per minute. Craft heavier than this can still be launched or recovered at a slower pace; e.g., an SM +13 bay, with a launch rate of 1,000 tons/minute, could launch a 3,000-ton ship in 3,000/1,000 = 3 minutes. See p. 212 for operation rules.

Multiple systems placed in the same hull section may be designated as a single larger hangar of greater capacity; e.g., an SM +9 vessel could have "three hangar bays [3-5]" with a combined 300 tons capacity. Launch rate is unchanged.

Workspace crews are assumed to be maintaining both the bay machinery *and* the vehicles in the bay.

Hangar Bay Table

SM	*+5*	*+6*	*+7*	*+8*	*+9*	*+10*	*+11*	*+12*	*+13*	*+14*	*+15*
Capacity (tons)	1	3	10	30	100	300	1,000	3,000	10K	30K	100K
Launch Rate (tons/min.)	1	3	10	20	50	100	200	500	1,000	2,000	5,000
Workspaces	0	0	0	0	0	1	3	10	30	100	300
Cost ($)	3K	10K	30K	100K	300K	1M	3M	10M	30M	100M	300M

Repair Skill: Mechanic (High-Performance Spacecraft).

Mining and Refinery (TL7) [any!]

These systems require a crewmember using an appropriate Mechanic specialty to supervise operations from a control station. Failure reduces output by 10% times margin of failure.

Chemical Refinery (TL7): There are many different kinds of refineries, but the most common spacecraft type processes ice or water into hydrogen for thrusters. It's rated for the tons/hour of fuel refined. The supervisor uses Mechanic (Refinery).

Mining (TL7): This heavy-duty mining and processing system can extract ore from rock. It's rated for the tons/hour of ore it can extract. The supervisor requires Mechanic (Mining Machinery).

Mining and Refinery Table

SM	*+5*	*+6*	*+7*	*+8*	*+9*	*+10*	*+11*	*+12*	*+13*	*+14*	*+15*
Tons/hr:											
If Mining	0.15	0.5	1.5	5	15	50	150	500	1,500	5,000	15K
If Refinery	0.5	1.5	5	15	50	150	500	1,500	5,000	15K	50K
Workspaces	0	0	0	0	0	1	3	10	30	100	300
Cost ($)	30K	100K	300K	1M	3M	10M	30M	100M	300M	1B	3B

Repair Skill: Mechanic (Mining Machinery) or Mechanic (Refinery).

Necklin Drive (TL10^) [special!!]

To traverse a wormhole into 5-space, a jumpship must be equipped with a combination of Necklin rods and a vortex focusing mirror. Necklin rods run the ship's entire length – straight down the housing on each side. For design purposes, they occupy the two [core] locations.

Plotting a route through a wormhole requires a Navigation (Hyperspace) roll, while following the route calls for a Piloting (Starship) roll. Success on both rolls indicates a successful and near-instantaneous jump. Critical failures on both indicate the complete loss of the ship; any less severe failure will mean a failed jump, causing delay but no harm. For details and further operational notes, see *Necklin Drives and Wormholes* (p. 210).

Necklin Drive Table

SM	*+5*	*+6*	*+7*	*+8*	*+9*	*+10*	*+11*	*+12*	*+13*	*+14*	*+15*
Damage	1d-2	1d	1d+2	2d	3d	4d+1	6d	2d×5	3d×5	4d×5	6d×5
Workspaces	0	0	0	0	0	1	3	10	30	100	300
Cost ($)	1M	3M	10M	30M	100M	300M	1B	3B	10B	30B	100B

Damage is decade-scale damage (minimum 1 point), applied to a random location on the ship. It bypasses all dDR (armor and force screens), and always requires the HT roll for penetrating damage indicated under *Necklin Drives and Wormholes* (p. 210).

Cost and *Workspaces* are for the combination of *both* systems that make up the drive.

Repair Skill: Mechanic (Necklin Drive).

Open Space (TL7) [Any]

This system is a pressurized hall or other large, open space. It contains one or more *open areas* such as an auditorium, farm, garden, pool, theater, or zoo with room for up to 100 people to congregate. The *Open Space Table* shows the number of areas per system; multiple systems can be combined. Twenty areas are equal to an acre of land (a football field-sized area).

Open spaces used as gardens, farms, or hydroponics may meet food requirements for the vessel's occupants. One area is sufficient to feed 20 people (this may be simplified to "one open space module feeds one habitat module"). Any excess provides a surplus.

Open Space Table

SM	*+8*	*+9*	*+10*	*+11*	*+12*	*+13*	*+14*	*+15*
Areas	1	2	5	10	20	50	100	200
Techs	0	0	1	3	10	30	100	300
Cost ($)	100K	200K	500K	1M	2M	5M	10M	20M

Repair Skill: Housekeeping – or Gardening or Farming, if used to grow food.

Passenger Seating (TL7) [Any]

Short-voyage or small spacecrafts, such as shuttles, may have passenger seating instead of a regular habitat. Rows of passenger seats are separated by aisles, as in a bus or airliner. (Two seats may be replaced by one stabilized *stretcher* for casualty evacuation.) It includes 24 hours of limited life support per passenger seat or stretcher. The table shows number of seats.

Passenger Seating Table

SM	*+5*	*+6*	*+7*	*+8*	*+9*	*+10*	*+11*	*+12*	*+13*	*+14*	*+15*
Seats	2	6	20	60	200	600	2,000	6,000	20K	60K	200K
Cost ($)	10K	30K	100K	300K	1M	3M	10M	30M	100M	300M	1B

Repair Skill: Mechanic (Life Support).

Plasma Mirror (TL11^) [Any!]

This system generates a field that reflects plasma fire back at the attacker, drawing some power for the shield from the incoming fire. Damage returned to the attacker is at -2, or -1 per die, whichever is *worse.* Two mirror-equipped ships bouncing plasma back and forth will soon reduce the returned energy to nil – when damage reaches -6, or -3 per die, reflection ceases.

A plasma mirror *can* be overloaded. The table shows the maximum *dice* of decade-scale damage it can reflect in a turn. Apply excess damage to the ship normally.

Plasma Mirror Table

SM	*+5*	*+6*	*+7*	*+8*	*+9*	*+10*	*+11*	*+12*	*+13*	*+14*	*+15*
dDamage Dice:											
20-second turn	400	600	1K	1.5K	2K	3K	4K	6K	10K	15K	20K
1-minute turn	1.5K	2K	3K	4K	6K	10K	15K	20K	30K	40K	60K
3-minute turn	4K	6K	10K	15K	20K	30K	40K	60K	100K	150K	200K
10-minute turn	15K	20K	30K	40K	60K	100K	150K	200K	300K	400K	600K
Workspaces	0	0	0	0	0	1	3	10	30	100	300
Cost ($)	300K	1M	3M	10M	30M	100M	300M	1B	3B	10B	30B

Repair Skill: Armoury (Force Shields).

Power Plant (TL8) [Any]

Several kinds of reactors are used in modern spacecraft:

Fission (TL8): This is a high-performance nuclear fission reactor (or on very large vessels, several reactors). Each system provides *one* Power Point. It will operate for 75 years on internal fuel.

Fusion (TL9): Uses a thermonuclear fusion reaction; each system provides *two* Power Points. It has internal fuel for 200 years. The reactor may be *de-rated* to provide only *one* Power Point, doubling endurance and halving cost.

Antimatter (TL10): Uses a matter-antimatter reaction. If damaged, it may explode (see *Volatile Systems,* p. 227). Each system provides *four* Power Points. Internal fuel gives two years' endurance. It may be de-rated; each -1 Power Point reduces cost by 25% and adds 25% to endurance. An antimatter reactor puts a lot of power into a small space, but makes it likelier that the ship will explode completely if it takes much punishment. This design philosophy might suggest that the builders really trust their defensive systems . . . or that they consider individual ships expendable.

Reactor Table

SM	*+5*	*+6*	*+7*	*+8*	*+9*	*+10*	*+11*	*+12*	*+13*	*+14*	*+15*
Workspaces	0	0	0	0	0	1	3	10	30	100	300
Cost ($):											
Fission reactor	100K	300K	1M	3M	10M	30M	100M	300M	1B	3B	10B
Fusion reactor	300K	1M	3M	10M	30M	100M	300M	1B	3B	10B	30B
Antimatter	600K	2M	6M	20M	60M	200M	600M	2B	6B	20B	60B

Repair Skill: Mechanic (Fission, Fusion, or Antimatter).

Ramscoop (TL10) [Front]

An electromagnetic scoop to capture interstellar hydrogen molecules for fuel and reaction mass. Once the spacecraft has accelerated to ramscoop velocities (1800 mps or more) one ramscoop system provides unlimited reaction mass for *one* thruster system. Thus, a ship with three fusion thrusters would need three ramscoops to supply all of them with unlimited reaction mass. Each ramscoop requires one Power Point to power up, but no power to maintain.

Ramscoop Table

SM	*+5*	*+6*	*+7*	*+8*	*+9*	*+10*	*+11*	*+12*	*+13*	*+14*	*+15*
Workspaces	0	0	0	0	0	1	3	10	30	100	300
Cost ($)	3M	10M	30M	100M	300M	1B	3B	10B	30B	100B	300B

Repair Skill: Mechanic (High-Performance Spacecraft).

Robot Arm (TL8) [Hull]

This system is a hand- or gripper-equipped arm – proportionately sized to the ship – that can grab and manipulate spacecraft or other objects using the vessel's ST. A robot arm can also function as an external clamp (p. 189).

The controls sense the position of the user's arms, and the robot "fingers" give touch feedback. A user can control up to two arms, but no more! To use arms for routine purposes like docking, use Spacer skill. The GM may allow robot arms to be used for anything that real arms could do, applying a penalty if one seems appropriate.

Robot Arm Table

SM	*+5*	*+6*	*+7*	*+8*	*+9*	*+10*	*+11*	*+12*	*+13*	*+14*	*+15*
Workspaces	0	0	0	0	0	1	3	10	30	100	300
Cost ($)	300K	1M	3M	10M	30M	100M	300M	1B	3B	10B	30B

Repair Skill: Mechanic (Robotics).

Soft-Landing System (TL7) [Hull]

A reentry shield, airbags, or parachutes designed to allow a vessel that lacks wings, thrust, or anti-grav to land safely from low orbit. The system is deployed automatically and must be replaced each time it's used.

Soft-Landing System Table

SM	*+5*	*+6*	*+7*	*+8*	*+9*	*+10*	*+11*	*+12*	*+13*	*+14*	*+15*
Cost ($)	50K	100K	200K	500K	1M	2M	5M	10M	20M	50M	100M

Repair Skill: Mechanic (High-Performance Spacecraft).

Solar Panel Array [Hull]

A solar power system. If exposed to sunlight equivalent to that encountered in Earth orbit, it generates *one* Power Point. A solar panel array is an exposed system and not protected by spacecraft armor!

If the star is very bright or nearby, solar panels can offer up to twice as much energy. Panels that can handle higher energy density would be nonstandard and costly, at the GM's discretion. A dim or far-off star will reduce available power: doubling distance from the star reduces power by a factor of 4. Eventually, a point is reached at which solar panels are not cost-effective.

Solar Panel Array Table

SM	*+5*	*+6*	*+7*	*+8*	*+9*	*+10*	*+11*	*+12*	*+13*	*+14*	*+15*
Cost ($)	150K	500K	1.5M	5M	15M	50M	150M	500M	1.5B	5B	15B

Repair Skill: Electrician (an IQ/A Professional Skill).

Sword-Swallower (TL11^) [Any]

This system generates a field that reflects laser energy back at the attacker, drawing its power from the incoming fire. Damage returned to the attacker is at -2, or -1 per die, whichever is *worse.* Two ships with Sword-Swallower systems bouncing a laser beam between them will rapidly dissipate the beam; when damage reaches -6, or -3 per die, reflection ceases.

The Sword-Swallower *can* be overloaded by a powerful enough attack. The table shows the maximum *dice* of decade-scale damage it can return to attackers in a turn. Excess damage affects the ship as usual.

Sword-Swallower Table

SM	*+5*	*+6*	*+7*	*+8*	*+9*	*+10*	*+11*	*+12*	*+13*	*+14*	*+15*
dDamage Dice:											
20-second turn	400	600	1K	1.5K	2K	3K	4K	6K	10K	15K	20K
1-minute turn	1.5K	2K	3K	4K	6K	10K	15K	20K	30K	40K	60K
3-minute turn	4K	6K	10K	15K	20K	30K	40K	60K	100K	150K	200K
10-minute turn	15K	20K	30K	40K	60K	100K	150K	200K	300K	400K	600K
Workspaces	0	0	0	0	0	1	3	10	30	100	300
Cost ($)	300K	1M	3M	10M	30M	100M	300M	1B	3B	10B	30B

Repair Skill: Armoury (Force Shields).

Thrusters (TL9^) [Rear]

Thrusters use a variety of superscience technologies to attain incredible performance. The oldest systems – designed prior to the invention of artificial gravity – used built-in fusion reactors to heat hydrogen into plasma, and then expelled it using magnetic fields. These required massive ships and provided sluggish acceleration, but fuel efficiency was quite decent for the era. With the invention of artificial gravity, antimatter propulsion, and high-performance tractor beams, modern designs achieve incredible acceleration and fuel efficiency, although some tradeoffs are still necessary.

Fusion Thruster (TL9^): Each engine gives 0.01G acceleration. Each fuel tank of hydrogen gives a delta-V of 100 mps. *Note:* Most spacecraft in the Vorkosigan universe are classified as "high-performance spacecraft," but for vessels using fusion thrusters, substitute "(Low-Performance Spacecraft)" anywhere a skill lists a specialty of "(High-Performance Spacecraft)."

Fusion Torch Thruster (TL10^): A fusion torch uses modern technology to improve the old fusion rockets. While it lacks the raw power of an antimatter thruster, the fuel efficiency is unbeatable. Each engine gives 0.5G acceleration. Each fuel tank of hydrogen gives a delta-V of 25,000 mps.

Antimatter Thruster (TL10^): Uses micrograms of antimatter to heat tons of liquid hydrogen into hot plasma, expelled for thrust. Each engine provides 1G acceleration. Each fuel tank of antimatter-boosted hydrogen gives a delta-V of 10,000 mps.

Thrusters and Delta-V

Thrusters propel the spacecraft through normal space according to Newtonian principles, expelling mass to generate thrust. They can only operate if the vessel has at least one *fuel tank* (p. 1900) with appropriate reaction mass. They're rated for acceleration in gravities (G) *per engine;* e.g., three thruster systems (representing a bigger engine or engine cluster) triple acceleration.

A thruster-propelled spacecraft's top speed, or delta-V, doesn't depend on the number of engines, but rather on the type of engine and number of fuel tanks of reaction mass the vessel has. For example, a ship propelled by one or more TL9^ fusion thrusters can achieve a maximum delta-V of 100 mps per fuel tank of hydrogen reaction mass available.

Most *modern* thrusters with even a single fuel tank have more delta-V than is needed for the majority of missions. Multiple fuel tanks can allow some systems to thrust continuously for days or weeks!

Thrusters Table

SM	*+5*	*+6*	*+7*	*+8*	*+9*	*+10*	*+11*	*+12*	*+13*	*+14*	*+15*
Workspaces	0	0	0	0	0	1	3	10	30	100	300
Cost ($)	100K	300K	1M	3M	10M	30M	100M	300M	1B	3B	10B

Cost is ×3 for fusion torch thrusters or antimatter thrusters.

Repair Skill: Mechanic (Fusion Engine) or Mechanic (Antimatter Engine).

Options

Thrusters can be *high thrust* (2× acceleration, 1/2× delta-V per tank) and/or can replace hydrogen with *water* (3× acceleration, 1/3× delta-V).

More fuel tanks mean longer thrust times.

Upper Stage (TL7) [special]

The entire front section of a spacecraft (that is, six systems) may be designated as an "upper stage." (The rest of the spacecraft is the lower stage.) Instead of systems, an upper stage is occupied by a different spacecraft that's one SM smaller than the lower stage, which can be ejected at any time. While an upper stage is still attached, it may not use any fuel tanks or engines installed in it, nor may it use any weapons or arrays that were installed in its rear hull. All other systems are operational. Upper stages may themselves have upper stages in their forward hulls, etc. The lower stages of a spacecraft are usually disposable, typically containing only fuel tanks and drives.

The main advantage of upper stages is to allow reaction-drive spacecraft to boost performance by using each stage's delta-V in turn.

Weapons, Major Battery (TL7) [hull!]

This is a single mount for a powerful weapon. It also includes targeting systems for aiming the battery's weapons once the vessel's array has detected a target.

First, decide if the weapon will be in a *fixed mount* or a single *turret:*

- *Fixed mounts* can only fire at targets that are facing the hull section in which the battery is installed (e.g., a weapon in the front hull fires forward). However, superior focusing or stabilization systems give fixed mounts better range and fire control (+2 to hit).
- *Turrets* have a wide firing arc: batteries in the front or rear hull can also fire at targets that are facing the central hull; batteries in the central hull can fire at *any* target. Each turret also includes an integral dedicated control station that allows it to be manually controlled from within the system.

There are three broad classes of weapon that can be installed in a major battery: *beams, launchers,* and *guns.* Each type is divided into several subtypes.

Beams: These are directed-energy weapons. They're rated for energy output in KJ (kilojoules), MJ (megajoules), GJ (gigajoules), or TJ (terajoules). Refer to *Beam Types* (p. 198) and choose weapon type; this can modify output.

Guns: These are shell-firing cannons. They're rated for caliber (projectile diameter in centimeters) and number of gun shots carried. Refer to *Gun Types* (p. 198) and choose weapon type; this may modify caliber and shots.

Launchers: These fire self-propelled missiles. They're rated for the diameter of missile they fire (in cm) and number of missile shots carried. See *Launchers* (p. 198) and the *Guns and Launchers Table* (p. 230).

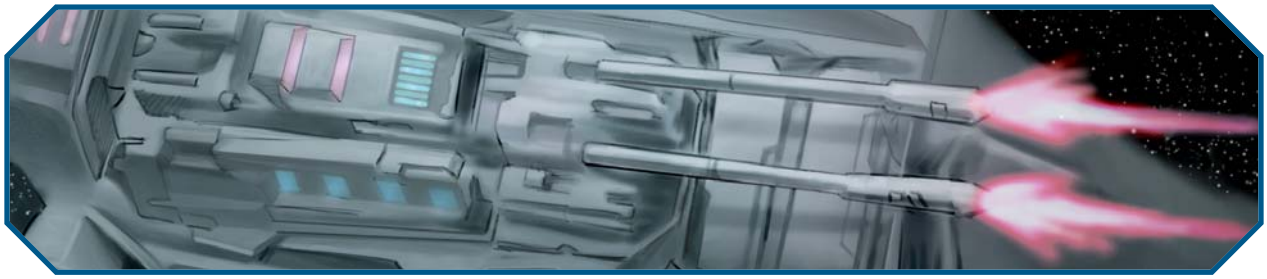
Virtually all military ships currently in service use plasma weapons – although the Betan plasma mirror (p. 193) has resulted in these being slowly phased out in favor of the gravitic imploder lance. Modern defenses have made guns, launchers, and laser weapons obsolete, but these are included here for historical purposes (and some have other uses, such as clearing debris from wormholes).

For reference, the table also shows the dice of decade-scale damage (dDamage) of a typical beam weapon such as a laser. Actual damage varies by weapon type; see *Weapon Tables* (p. 230).

Major Battery Table

SM	***+5***	***+6***	***+7***	***+8***	***+9***	***+10***	***+11***	***+12***	***+13***	***+14***	***+15***
Beam Output	10MJ	30MJ	100MJ	300MJ	1GJ	3GJ	10GJ	30GJ	100GJ	300GJ	1TJ
dDamage	4d	6d	2d×5	3d×5	4d×5	6d×5	4d×10	6d×10	2d×50	3d×50	2d×100
Gun Caliber	10cm	12cm	14cm	16cm	20cm	24cm	28cm	32cm	40cm	48cm	56cm
Launchers	20cm	24cm	28cm	32cm	40cm	48cm	56cm	64cm	80cm	96cm	112cm
Gun Shots	70	100	150	200	300	500	700	1,000	1,500	2,000	3,000
Missile Shots	7	10	15	20	30	50	70	100	150	200	300
Workspaces	0	0	0	0	0	1	3	10	30	100	300
Cost ($)	150K	600K	1.5M	6M	15M	60M	150M	600M	1.5B	6B	15B

Repair Skill: Armoury (Heavy Weapons).



Weapons, Medium Battery (TL7) [hull!]

This system uses the same rules as a major battery (above), but the weapons are less powerful and there may be up to *three* fixed-mount or turreted weapons in the battery. It's possible to mix weapon types in the battery.

Medium Battery Table

SM	*+5*	*+6*	*+7*	*+8*	*+9*	*+10*	*+11*	*+12*	*+13*	*+14*	*+15*
Beam Output	3MJ	10MJ	30MJ	100MJ	300MJ	1GJ	3GJ	10GJ	30GJ	100GJ	300GJ
dDamage	3d	4d	6d	2d×5	3d×5	4d×5	6d×5	4d×10	6d×10	2d×50	3d×50
Gun Caliber	8cm	10cm	12cm	14cm	16cm	20cm	24cm	28cm	32cm	40cm	48cm
Launchers	16cm	20cm	24cm	28cm	32cm	40cm	48cm	56cm	64cm	80cm	96cm
Gun Shots	50	70	100	150	200	300	500	700	1,000	1,500	2,000
Missile Shots	5	7	10	15	20	30	50	70	100	150	200
Workspaces	0	0	0	0	0	1	3	10	30	100	300
Uninstalled	0.5	1.5	5	15	50	150	500	1,500	5,000	15K	50K
Cost ($)	150K	600K	1.5M	6M	15M	60M	150M	600M	1.5B	6B	15B

Cost is for the maximum three weapons; fewer are 1/3 cost each. Each weapon not installed allows carrying tons of cargo equal to the Uninstalled number.

Repair Skill: Armoury (Heavy Weapons).

Weapons, Secondary Battery (TL7) [Hull!]

This uses the same rules as a major battery (p. 196), except that the weapons are less powerful and there may be a mix of up to *10* fixed-mount or turreted weapons in the battery.

Secondary Battery Table

SM	*+6*	*+7*	*+8*	*+9*	*+10*	*+11*	*+12*	*+13*	*+14*	*+15*
Beam Output	3MJ	10MJ	30MJ	100MJ	300MJ	1GJ	3GJ	10GJ	30GJ	100GJ
dDamage	3d	4d	6d	2d×5	3d×5	4d×5	6d×5	4d×10	6d×10	2d×50
Gun Caliber	8cm	10cm	12cm	14cm	16cm	20cm	24cm	28cm	32cm	40cm
Launchers	16cm	20cm	24cm	28cm	32cm	40cm	48cm	56cm	64cm	80cm
Gun Shots	50	70	100	150	200	300	500	700	1,000	1,500
Missile Shots	5	7	10	15	20	30	50	70	100	150
Workspaces	0	0	0	0	1	3	10	30	100	300
Uninstalled	0.5	1.5	5	15	50	150	500	1,500	5,000	15K
Cost ($)	600K	1.5M	6M	15M	60M	150M	600M	1.5B	6B	15B

Cost is for the maximum 10 weapons; fewer are 1/10 cost each. Each weapon not installed allows carrying tons of cargo equal to the Uninstalled number.

Repair Skill: Armoury (Heavy Weapons).

Weapons, Tertiary Battery (TL7) [Hull!]

This uses the same rules as a secondary battery (above), except that the weapons are less powerful and there may be any mix of up to *30* fixed-mount or turreted weapons in the battery.

Tertiary Battery Table

SM	*+7*	*+8*	*+9*	*+10*	*+11*	*+12*	*+13*	*+14*	*+15*
Beam Output	3MJ	10MJ	30MJ	100MJ	300MJ	1GJ	3GJ	10GJ	30GJ
dDamage	3d	4d	6d	2d×5	3d×5	4d×5	6d×5	4d×10	6d×10
Gun Caliber	8cm	10cm	12cm	14cm	16cm	20cm	24cm	28cm	32cm
Launchers	16cm	20cm	24cm	28cm	32cm	40cm	48cm	56cm	64cm
Gun Shots	50	70	100	150	200	300	500	700	1,000
Missile Shots	5	7	10	15	20	30	50	70	100
Workspaces	0	0	0	1	3	10	30	100	300
Uninstalled	0.5	1.5	5	15	50	150	500	1,500	5,000
Cost ($)	1.5M	6M	15M	60M	150M	600M	1.5B	6B	15B

Cost is for the maximum 30 weapons; fewer are 1/30 cost each. Each weapon not installed allows carrying tons of cargo equal to the Uninstalled number.

Repair Skill: Armoury (Heavy Weapons).

Weapons, Spinal Battery (TL7) [Special!]

This is a single fixed mount that's similar to a major battery (p. 196) except that it runs through the entire spacecraft. A spinal battery is actually *three* systems – one system may occupy any non-core front hull location, one system is located in the core of the central hull, and one system may be in any non-core rear hull location.

The weapon fires out of the front hull (unless specifically noted as being rear facing, in which case it fires out the rear hull). A spinal battery needs *three* Power Points to energize – one for each system.

Use the rules for major batteries for spinal battery installation, with the exception that all spinal batteries are always fixed mounts. If the battery is rear-facing, note this.

If any one system in a spinal battery is disabled or destroyed, the *entire* battery is nonfunctional. For purposes of determining if ammunition explosions occur as a result of damage, missiles or shots in the battery are assumed to be in central and rear systems.

Spinal Weapon Battery Table

SM	*+5*	*+6*	*+7*	*+8*	*+9*	*+10*	*+11*	*+12*	*+13*	*+14*	*+15*
Beam Output	30MJ	100MJ	300MJ	1GJ	3GJ	10GJ	30GJ	100GJ	300GJ	1TJ	3TJ
dDamage	6d	2d×5	3d×5	4d×5	3d×10	4d×10	6d×10	2d×50	3d×50	2d×100	3d×100
Gun Caliber	12cm	14cm	16cm	20cm	24cm	28cm	32cm	40cm	48cm	56cm	64cm
Launchers	24cm	28cm	32cm	40cm	48cm	56cm	64cm	80cm	96cm	112cm	–
Gun Shots	70	100	150	200	300	500	700	1,000	1,500	2,000	3,000
Missile Shots	7	10	15	20	30	50	70	100	150	200	300
Workspaces	0	0	0	0	0	3	9	30	90	300	900
Cost ($)	500K	1.5M	5M	15M	50M	150M	500M	1.5B	5B	15B	50B

Cost and *Workspaces* are for the combination of all *three* systems that make up the mount.
Repair Skill: Armoury (Heavy Weapons).

Weapon Types

Various armaments can be installed in weapons batteries. For detailed statistics, see *Weapon Tables* (p. 230).

Note: If conventional guns or missile launchers are mixed with other weapons in the same battery, one Power Point is still required to energize the other weapons. However, if the Power Point isn't spent, the battery's conventional weapons *will* still be able to fire.

Beam Types

These are directed-energy weapons. Use Gunner (Beams) skill.

Laser (TL9): A beam laser operating in visible-light or near-ultraviolet frequencies. Obsolete by Miles' time due to the Sword-Swallower (p. 195).

Plasma Cannon (TL10^): This shoots superscience plasma bolts. In ***GURPS Ultra-Tech,*** it's equivalent to a TL11 blaster firing a field-jacketed beam. Note that plasma cannons aren't the same as TL10-11^ plasma guns! This is the most common ship weapon in Miles' time.

Tractor (TL11^): Uses a ranged gravity effect to pull or manipulate objects over a distance, but inflicts no damage at all.

Gravitic Imploder Lance (TL11^): This is a tightly focused, high-intensity gravitic beam weapon that *ignores* force screens. It's a cutting-edge weapon in Miles' time.

Options

Two mutually incompatible options are available for lasers and plasma cannon (but *not* for tractor beams or gravitic imploder lances). Both increase RoF (see *RoF Table,* p. 223).

Rapid Fire: Has 10% of the listed output (e.g., a 3 MJ beam becomes a 300KJ rapid-fire beam).

Very Rapid Fire (VRF): Has 1% of the listed output (e.g., a 3 MJ beam becomes a 30 KJ VRF beam).

Gun Types

Guns are rated for their caliber in centimeters (cm). The projectiles fired are often slower than the spacecraft – especially with conventional guns. Range is theoretically *unlimited* in vacuum, but ability to hit is severely limited at a distance. To compensate, guns fire shell packages with small thrusters and guidance systems for limited course correction. Even so, they're best used in against non-maneuvering targets (e.g., planets or space stations). Use Gunner (Cannon) skill.

Conventional Gun (TL7): A large-caliber conventional cannon similar to a modern tank or heavy naval gun, with a mechanical autoloader. This *isn't* a high-energy system.

Electromagnetic Gun (TL9): A coil gun or railgun with much higher muzzle velocity.

Grav Gun (TL11^): A superscience weapon with an *extreme* muzzle velocity.

Options

Two mutually incompatible options are available for any gun. Both increase RoF (see *RoF Table,* p. 223).

Rapid Fire: Has half the caliber (e.g., a 20cm conventional gun becomes a 10cm rapid-fire conventional gun).

Very Rapid Fire (VRF): A multi-barrel or fast electromagnetic gun. Has 1/4 the caliber (e.g., a 20cm conventional gun becomes a 5cm VRF conventional gun).

Launchers

Missile launchers (TL7) are rated for their caliber in cm. They fire self-propelled guided missiles, and aren't high-energy systems. Use Artillery (Guided Missile) skill.

Design Features

These additional options can be added to systems or entire vessels. They *don't* count as systems.

Artificial Gravity (TL10^)

Spacecraft may have superscience artificial-gravity generators that create a gravity field that can be varied from 0G to 20G. Most designs only generate the higher values to compensate for thrust; failsafes prevent manually setting the gravity that high.

Artificial gravity may be set for each hull section. In habitats and workspaces, gravity can be set for each room from within the room. While artificial gravity is distributed through the vessel, it will fail locally in systems that are destroyed; individuals moving

through a wrecked area won't enjoy artificial gravity. If the lights are off, the gravity is probably off too.

Automation

Many systems on large vessels have a "Workspaces" entry that represents the crew and facilities that maintain the system. To reduce the requirement for technical crew, a spacecraft can have *automation:*

High Automation is available for vessels of SM +12 or larger. It reduces the number of workspaces (and technicians) by a factor of 10.

Total Automation is available for any system that requires workspaces. It eliminates that requirement.

This feature's cost is the number of workspaces required *before* reduction, multiplied by $1M for high automation or $5M for total automation.

Example: For an SM +13 ship that requires 90 workspaces (and technicians), total automation would cost $450M.

Emergency Ejection

On an SM +5 to +8 vessel, a control room that wasn't installed in a [core] location may incorporate ejection capability to facilitate rapid escape. Ejection takes only one second (a free action in space combat turns) as long as the control room wasn't destroyed. Treat an ejected control room as a *life pod* (***GURPS Ultra-Tech,*** p. 232), except that it holds the control-room crew and a backup of the computer. Emergency ejection adds an extra $500K to cost.

Spin Gravity

Larger *unstreamlined* spacecraft may be designed so that part or all of the ship can spin to simulate interior gravity via the Coriolis effect. Maximum gravity (G) possible is shown on the *Spin Gravity Table;* the vessel can spin more slowly for lower G. Spin gravity doesn't provide simulated gravity to core systems. A spacecraft using spin gravity has -2 to Handling while spinning.

Stealth Hull

A stealth hull is harder to detect with sensors. This option gives -8 to rolls to detect the spacecraft.

Winged

A *streamlined* spacecraft of up to SM +12 may be designated as *winged.* It has a wing (and perhaps a tail) and structural strengthening, providing extra lift and better handling when flying in atmosphere.

Artificial Gravity Table

SM	***+5***	***+6***	***+7***	***+8***	***+9***	***+10***	***+11***	***+12***	***+13***	***+14***	***+15***
Cost ($)	30K	0.1M	0.3M	1M	3M	10M	30M	100M	300M	1B	3B

Spin Gravity Table

SM	***+8***	***+9***	***+10***	***+11***	***+12***	***+13***	***+14***	***+15***
Max G	0.1G	0.15G	0.2G	0.3G	0.5G	0.7G	1G	1.5G
Cost ($)	0.1M	0.3M	1M	3M	10M	30M	100M	300M

Stealth Hull Table

SM	***+5***	***+6***	***+7***	***+8***	***+9***	***+10***	***+11***	***+12***	***+13***	***+14***	***+15***
Cost ($)	200K	500K	1M	2M	5M	10M	20M	50M	100M	200M	500M

Winged Table

SM	***+5***	***+6***	***+7***	***+8***	***+9***	***+10***	***+11***	***+12***
Cost ($)	150K	500K	1.5M	5M	15M	50M	150M	500M

Crew

On vessels organized along hierarchical lines, 10% of the technicians and most of the control-room crew are usually officers, often provided with better quarters.

In cultures that use artificial intelligences, control-room crew, gunners, and administrators may be sapient programs resident in the computers themselves; others must be live crew or independent robots.

Control-Room Crew

Each control station needs one crewman. If there's only one or two control crew, they're usually styled as "pilot" and "co-pilot." If more, generalize them as "control-room crew," or specify particular duties or combinations as desired. Examples include commanding the ship ("captain," and possibly also "executive officer"); maneuvering the vessel ("pilot"); plotting courses, especially for a jumpship ("navigator"); controlling drives and power plants ("chief engineer"); operating comm/sensor arrays (variously "communications officer," "sensor operator," "tactical officer," or "science officer," depending on array type); and operating weapons batteries ("gunner").

Turret Gunners

Weapons battery turrets can be controlled from the control room, but also include their own dedicated control station. They're often assigned one gunner per turret.

Technicians for Workspaces

Add up the number of workspaces on the vessel, modified for automation (above), to find the number of technicians required. List the total number of technicians – or, for greater detail, specify them by job title based on the repair skill required (e.g., "armorers" or "life-support mechanics") and/or system ("habitat techs"). Warships sometimes carry 2-3× that number of technicians, for extra damage-control parties and to replace casualties.

Medics

If a spacecraft has a habitat with a sickbay or passenger seating with stretchers, it should have one medic per 10 sickbay beds or 20 stretchers (or fraction thereof). A military vessel often carries a medic even if it has fewer sickbay beds.

Passenger Care and Entertainment

Accommodations assigned to paying passengers usually have a passenger attendant for every two luxury-class, five first-class, or 20 economy-class passengers.

Small Craft

Spacecraft may have dedicated crews for shuttles, fighters, or other small craft carried in hangar bays. Craft used only occasionally (e.g., lifeboats) may not have dedicated crews; control crew or others will man them as needed. Small craft are maintained by hangar workspace techs.

Specialists

Spacecraft whose habitats contain labs, establishments, offices, ops centers, and so on may need appropriate workers (entertainers, administrators, scientists, computer operators, etc.); see *Specialized Rooms for Habitats* (p. 191).

Completing the Spacecraft

Determine and record the spaceship's statistics based on the design decisions. If a spaceship lacks propulsion systems (e.g., because it's a station), omit the Hnd/SR and Move statistics.

Cost

Total the cost of all systems and design features to get the base cost for mass production. Limited production, which will apply to most spacecraft larger than fighters and shuttles, multiplies cost by a factor of 100 to 1,000!

Buying Spacecraft

Characters with appropriate Rank and Duty may get spacecraft from the organization for which they work (which can also *take away* such vessels). Wealthy adventurers may buy spacecraft outright, or share the cost between them. Common alternatives are Debt (p. B26) against Wealth (representing bank loans to buy the vessel) and Signature Gear (p. B85).

Basic Statistics Block

If the vessel has thrusters, determine the skill used to pilot it. This is Piloting (High-Performance Spacecraft) for most craft, but Piloting (Low-Performance Spacecraft) for older ships with fusion thrusters. Then note the following statistics:

TL: Record the TL (usually 10^).

dST/HP: Record the value from the *Hull Size Table* (p. 186) that corresponds with the chosen SM. It's also convenient to record a damage threshold equal to 10% of basic dHP. When using the space-combat rules, each multiple of 10% of dHP lost due to penetrating damage causes the vessel to suffer one system damage roll.

HT: This starts at HT 13. Apply -1 if the vessel is SM +5 to +9 with no engine room, +1 if it has at least one factory system aboard.

Hnd/SR: If the spacecraft has no thrusters, omit this. Otherwise, record the Hnd/SR value from the *Hull Size Table* (p. 186) and then adjust as follows:

Hnd Modifier

Acceleration	*Modifier*	*Acceleration*	*Modifier*
0.001G	-3	10G	+1
0.01G	-2	100G	+2
0.1G	-1	1,000G+	+3
1G	0		

If acceleration falls between two values, use the *lower;* e.g., 4G gives a 0 modifier.

Move: Record the combined acceleration of all the vessel's thrusters in G and then, as its top speed, the delta-V calculated under *Fuel Tank* (p. 190). If fitted with more than one type of thruster, the ship will have different performance statistics depending on which drive is in use; add explanatory notes as necessary.

SM: Record the spacecraft hull's SM.

LWt: Refer to the *Hull Size Table* (p. 186) and record the loaded weight that corresponds with the vessel's SM.

dDR: Add up the total dDR from the armor systems protecting each hull section. Record front dDR, central dDR, and rear dDR, separated by slashes, in that order – or just one dDR if they're identical.

Occ: Occupancy is simply a summary of the vessel's personnel capacity. First, decide if this statistic will refer to long-term accommodations or short-term occupancy. Usually, long-term accommodations are listed if they vessel has them; otherwise, record short-term occupancy. If none, record 0.

Long-term accommodations provide full life support for an indefinite period. Occupancy is two per cabin or luxury cabin, or four per bunkroom, cell, or cage. Record occupancy followed by the suffixes A (accommodations), S (Sealed) and V (Vacuum Support); e.g., 20ASV.

Short-term occupancy provides limited life support for one man-day times occupancy. It's split into crew + passenger occupancy. Crew occupancy is one person per control station, turret, or workspace, and two per lab, establishment, or office. Passenger occupancy is one per seat, stretcher, or sickbay bed, 10 per briefing room, 30 per establishment, 100 per open space. Usually this statistic is recorded only if the vessel has no long-term accommodations. Record occupancy as "crew + passengers" followed by the suffixes SV (omitting A); e.g., 2+6SV.

Load: This is the sum of the capacities, in tons, of all cargo hold, steerage cargo, and hangar bay systems, plus 0.1 ton per occupant.

Cost: Record the total cost of all systems and design options.

Notes may be added for extra details; e.g., force screens, or ground or air performance.

Air Performance

This is the vessel's aerial performance in a "very thin" or denser atmosphere (see p. B429); that is, not trace or vacuum conditions. A ship can fly in atmosphere if it is winged or has an acceleration greater than local gravity. Use Piloting (Aerospace).

Speed depends on the acceleration of all drives used in atmosphere. The table below shows speeds in mph for streamlined craft with accelerations of 1G to 10G; divide by 10 for unstreamlined craft. For craft with different accelerations, find the square root of acceleration in G; then multiply by 2,500 if streamlined or 250 if

unstreamlined, and round to the nearest 100 mph (nearest 1,000 mph, if speed is 10,000+ mph).

Air Performance Table

G	Speed	G	Speed
1G	2,500 mph	6G	6,100 mph
2G	3,500 mph	7G	6,600 mph
3G	4,300 mph	8G	7,100 mph
4G	5,000 mph	9G	7,500 mph
5G	5,600 mph	10G	7,900 mph

Relevant air performance statistics to record are Move and Hnd/SR.

Move: As per p. B463, the first number for air Move is acceleration and the second is top speed in yards per second. For air acceleration, multiply acceleration in G of all drives used in atmosphere by 10. To get top speed, halve the calculated air speed in mph.

Hnd/SR: Use the spacecraft's Hnd/SR but add +4 to Hnd and +1 to SR if winged. Maximum Hnd is +5 regardless of bonuses!

CONSUMABLES

Spacecraft may require various consumables – fuel, food, ammunition, etc. These *aren't* included in a vessel's base cost.

REFUELING

Thrusters consume reaction mass from fuel tanks as the spacecraft uses up its delta-V. Some power plants require periodic refueling, too.

Refueling Fuel Tanks

Fuel tanks are rated for their tons of fuel and the delta-V reserve they provide. The cost to refill a tank completely depends on the quantity and type of reaction mass stored in it.

Reaction Mass Cost Table

Reaction Mass	Cost per Ton
Water	$20
Hydrogen	$200
Antimatter-boosted hydrogen or water	$1,200

The cost to refill a tank *partially* to replace 1 mps of delta-V is:

Cost of 1 mps delta-V = (complete refill cost)/(full tank's delta-V)

Fuel Transfers

If two spacecraft with different sizes or different thrusters transfer tons of reaction mass between them, adjust the delta-V reserve of each:

Current delta-V (mps) = (remaining tons/full tons) × full delta-V

Remaining tons is the tons of reaction mass the spacecraft has left after the transfer.

Full tons is the tons of reaction mass the spacecraft has with full tanks.

Full delta-V is the spacecraft's delta-V with full tanks.

A spacecraft can transfer up to 10% of its total reaction mass every three minutes (1% every 20-second turn).

Power Plant Refueling

For power plants, which have endurances measured in *years*, the fuel for the listed endurance *is* included in spacecraft cost. Should refueling be necessary, the procedure must be combined with a major reactor overhaul (since the core is radioactive). This requires a shipyard of the power plant's TL or greater. The cost, with maintenance, is a fraction of the power plant's cost: 10% for a fission or fusion reactor, or 50% for an antimatter plant.

FOOD

Spacecraft with limited or full life support must carry food supplies. Spacecraft with total life support, or with open spaces devoted to farms, may omit food supplies (though they might stock it for variety). Each 500 man-day supply is $1,000 and 1 ton. Gourmet supplies suitable for first-class passengers are 10× as expensive.

AMMUNITION

Guns and launchers require ammunition. The *mass* of the number of gun or missile shots given on the relevant table is included in weapon batteries, but extra ammunition can be carried as cargo. The *cost* of ammunition *isn't* included.

The *Gun and Missile Ammunition Table* shows the mass in tons per gun shot or missile; e.g., 1/4,000 means one ton will allow storage of 4,000 shots.

Gun and Missile Ammunition Table

Caliber	Conventional Gun	Electromagnetic Gun, Grav Gun	Missile	SM
2cm	1/4,000	1/8,000	–	-7
2.5cm	1/2,000	1/5,000	–	-7
3cm	1/1,600	1/3,200	–	-6
3.5cm	1/1,200	1/2,400	–	-6
4cm	1/800	1/1,600	–	-5
5cm	1/400	1/800	–	-5
6cm	1/200	1/400	–	-4
7cm	1/125	1/250	–	-4
8cm	1/80	1/160	–	-3
10cm	1/40	1/80	–	-3
12cm	1/25	1/50	–	-2
14cm	1/16	1/32	–	-2
16cm	1/10	1/20	1/10	-1
20cm	1/5	1/10	1/5	-1
24cm	1/3	1/6	1/3	0
28cm	1/2	1/4	1/2	0
32cm	1	1/2	1	+1
40cm	2	1	2	+1
48cm	3	1.5	3	+2
56cm	4	2	4	+2
64cm	7.5	4	7.5	+3
80cm	–	–	15	+3
96cm	–	–	25	+4
112cm	–	–	40	+4

Ammunition costs $100K per ton for guns or $1M per ton for missiles.

SM is used when the projectile is attacked with point defense fire.

Conventional Warheads

Missile and gun ammunition costs assume conventional warheads. Such a warhead may either impact and penetrate the target, or be proximity-fused to explode at a distance into a shotgun-like blast of high-velocity fragments.

Unconventional Warheads

Missile and gun ammunition may be given other warheads:

Nuclear (TL7): A typical fission or multistage fission-fusion warhead. Nuclear missiles can be used in a "sun wall" attack, a brute-force attempt to destroy everything in a volume of space. The attacking ship is usually a casualty.

Antimatter (TL10): A "clean" antimatter-catalyzed fusion warhead, which can be smaller in size than a standard nuclear warhead.

For either, there's an extra cost *per warhead* (per missile or gun shot) rather than per ton, as well as a minimum gun or launcher caliber necessary to use the warhead; see the *Unconventional Warhead Table.*

Unconventional Warhead Table

TL	Warhead	Minimum Size	Cost
7	25 kiloton nuclear	16cm	$50K
7	100 kiloton nuclear	20cm	$100K
7	2.5 megaton nuclear	40cm	$500K
7	10 megaton nuclear	56cm	$1M
10	25 kiloton antimatter	10cm	$100K
10	100 kiloton antimatter	16cm	$200K
10	2.5 megaton antimatter	24cm	$1M
10	10 megaton antimatter	40cm	$2M

Drop Capsules

These are designed to let their occupants enter atmosphere safely. They have small rocket engine clusters that provide limited maneuverability, but careful landing is a matter of good navigation. De-orbiting takes two or three rotations around a planet with an Earthlike atmosphere (more for a planet with a thinner atmosphere). During this time, radio, radar, and all passive sensors will be blinded due to plasma effects.

For more information, see ***GURPS Ultra-Tech*** (p. 232).

Spacecraft Statistics

Spacecraft are described using a standardized format. The description begins with the ship's name and TL. Following this is a description of the vessel's intended mission and uses – possibly with design notes. Its *systems list* comes next, followed by its *statistics*. Notes on design features, suggested crew complement, and so on often accompany the tables.

Systems

As explained under *Design* (p. 184), spacecraft are divided into three hull sections – front, central, and rear – that contain six systems apiece. Two sections also have core systems, bringing the total to 20. This information is summarized in a table that lists locations [1] through [6], and possibly [core], for each hull section, specifying the system at each location.

System entries often have parenthetical notes on their capabilities, such as a rocket's acceleration, a cargo hold's capacity, or a habitat's number and type of cabins; e.g., "Cargo Hold (150 tons)." For complete details on a system, consult its entry under *System Descriptions* (p. 186).

Locations expressed as a range (e.g., "[4-6]") indicate multiple *identical* systems. For instance, "[4-6] Cargo Holds (450 tons total)" designates three 150-ton cargo holds – at locations [4], [5], and [6] – with a total 450-ton capacity.

Locations marked with exclamation points (e.g., "[1!]") contain *high-energy systems* (p. 186). These systems must be allocated power – one Power Point per system – to operate. In the case of a range (e.g., "[1-3!]"), *each* separate system requires a Power Point.

Statistics

A spacecraft's key performance statistics are summarized using a modified version of *Vehicle Statistics* (pp. B462-463). See *Scaling Statistics* (p. 184) and *Scaling Damage* (p. B470) for important notes on units and scale.

dST/HP: The ST/HP statistic in *decade scale.*

Hnd/SR: The usual Handling and Stability Rating statistics.

HT: The usual HT statistic.

Move: Acceleration in G (Earth gravities) followed by delta-V in miles per second (mps); see *Space Travel* (p. B466). A "+" sign is added if the vessel is an upper stage of a multi-stage vehicle.

LWt.: The typical loaded weight in tons under Earth gravity.

Load: The maximum load in tons the spacecraft carries. This is the sum of the rated capacities of all payload systems (cargo holds, hangar bays, etc.).

SM: The spacecraft's Size Modifier.

Occ: The occupancy rating. This is the number of people the spacecraft supports, derived from its chosen systems. For vessels with short-term accommodations (e.g., passenger seating), occupancy is split into crew + passengers, followed by the suffix "SV" to show that they have limited life support (Sealed and Vacuum Support) for 24 hours. Vessels with long-term accommodations (e.g., cabins) just list the number of people for whom they can provide ongoing full life support, followed by the suffix "ASV."

dDR: The *decade-scale* Damage Resistance of the front hull/central hull/rear hull armor. If identical, only one figure appears.

Cost: The dollar cost of a new spacecraft in millions (M), billions (B), or trillions (T).

Footnotes cover exceptions; e.g., force screens that add to armor.

Space Stations

In general, a space station is built just like a spaceship, but with no jump capability and with little or no thruster capability.

To represent a large, old station, such as Graf Station, design it as *several different* ships and assume they have been kludged together. They may have been built hundreds of years apart, with different functions, different armor, even different tech levels.

Stations, like ships, fall into different categories; see p. 00.

Graf Station was a vast jumbled aggregation, an apparent chaos of design not surprising in an installation in its third century of expansion. Somewhere buried in the core of this sprawling, bristling structure was a small metallic asteroid, honeycombed both for space and the material used in building this very oldest of the quaddies' many habitats.

– Diplomatic Immunity

Sample Spacecraft

Below are some sample designs for the Vorkosigan universe.

Ariel (TL10^)

A jump-capable light cruiser, designed to be a fast and deadly raider, but also suitable as a command platform. Its flight deck includes a tactics room, a command center, and an open multi-station bridge.

The hangar bay usually carries an SM +5 drop shuttle (see the Small *Drop Shuttle,* entry, p. 206), and the *Ariel* can carry a small army (20+ crew, and at least two squads).

Systems Table

Front Hull	*System*
[1]	Antimatter Power Plant (four Power Points).
[2]	Sword-Swallower.
[3!]	Force Screen (dDR 50/5,000).
[4]	Armor, Advanced Metallic Laminate (dDR 10 *streamlined*).
[5!]	Weapons, Major Battery (plasma cannon).
[6]	*Two* half-sized systems: Cargo Hold (75 tons). Hangar Bay (50 tons; launch 50 tons per minute).
Central Hull	*System*
[1]	Armor, Advanced Metallic Laminate (dDR 10 *streamlined*).
[2-4]	Flight Deck (Control Room) (18 control stations; Complexity 6 computer network; comm/sensor level 8).
[5]	Engine Room (2 workspaces).
[6]	Habitat (2 cabins, 15 bunkrooms, 1 briefing room, 2 sickbay beds).
[core!]	Necklin Drive.
Rear Hull	*System*
[1-3]	Antimatter Thrusters (high thrust, total 6G acceleration).
[4!]	Weapons, Major Battery (tractor beam)
[5]	Fuel Tanks (total 150 tons of antimatter-boosted hydrogen, delta-V 10,000).
[6]	Armor, Advanced Metallic Laminate (dDR 10 *streamlined*).
[core!]	Necklin Drive.

Statistics Table

TL	*Spacecraft*	*dST/HP*	*Hnd/SR*	*HT*	*Move*	*LWt.*	*Load*	*SM*	*Occ*	*dDR*	*Cost*
PILOTING/TL10 (HIGH-PERFORMANCE SPACECRAFT)											
10^	*Ariel* Light Cruiser	100	-1/5	14	6G/10,000 mps	3,000	131.2	+9	62ASV	10	$381.3M

Force screens provide an extra dDR 50 against beam weapons, dDR 5,000 against physical weapons. Ship includes artificial gravity feature.

Belt Freighter (TL10^)

This good-sized cargo vessel consists mostly of engines and cargo space. The hull is old and cheap; the only technologies updated regularly are the thrusters (to compete with newer freighters) and computer systems. The belt freighter is designed for runs within asteroid belts, hauling distant ores to central processing centers, and perhaps rescuing derelict ships. It has a very high acceleration on its own but is typically loaded down with two SM +10 container ships (below); see *External Clamp* (p. 189) for rules.

For a *much* older ship with fusion torch thrusters (using hydrogen rather than water) and no artificial gravity, Move changes to 2.5G/25,000 mps and cost drops to $120.6M.

Systems Table

Front Hull	System
[1-3]	Armor, Metallic Laminate (total dDR 45 *unstreamlined*).
[4]	Fission Power Plant (one Power Point).
[5]	Control Room (six control stations; Complexity 7 computer network; comm/sensor level 9).
[6]	Habitat (eight cabins; one briefing room; one office; one SM +6 factory).
Central Hull	**System**
[1]	Armor, Metallic Laminate (dDR 15 *unstreamlined*).
[2-3]	External Clamps (×2).
[4!]	*Three* SM +8 systems: Weapons, Major Battery (fixed mount, tractor beam, 30 tons). Force Screen (mass shields only, dDR 3,000). Cargo Hold (50 tons).
[4-6]	Cargo Holds (450 tons total).
[core]	Engine Room (two workspaces).
Rear Hull	**System**
[1]	Armor, Metallic Laminate (dDR 15 *unstreamlined*).
[2-6]	Antimatter Thrusters (*water,* total 15G acceleration).
[core]	Fuel Tank (150 tons of water, delta-V 3,333 mps).

Statistics Table

TL	Spacecraft	dST/HP	Hnd/SR	HT	Move	LWt.	Load	SM	Occ	dDR	Cost
PILOTING/TL10 (AEROSPACE, HIGH-PERFORMANCE SPACECRAFT)											
10^	Belt Freighter	100	-1/5	14	15G/3,333 mps	3,000	501.6	+9	16ASV	45/15/15	$223.6M

Force screens provide an extra dDR 3,000 against physical weapons. Ship includes artificial gravity feature.

Belt Container Ship (TL10^)

This is the massive, oblong box that most belt freighters haul around. Aside from a tiny power supply and a force screen to protect it from debris, it is *just* a box.

Systems Table

Front Hull	System
[1-2]	Armor, Metallic Laminate (total dDR 40 *unstreamlined*).
[3!]	*Three* SM +9 systems: Fission Power Plant (one Power Point). Force Screen (mass shields only, dDR 5,000). Cargo Hold (150 tons).
[4-6]	Cargo Holds (1,500 tons total).
Central Hull	**System**
[1]	Armor, Metallic Laminate (dDR 20 *unstreamlined*).
[2-6]	Cargo Holds (2,500 tons total).
[core]	Cargo Hold (500 tons).
Rear Hull	**System**
[1]	Armor, Metallic Laminate (dDR 20 *unstreamlined*).
[2-6]	Cargo Holds (2,500 tons total).
[core]	Cargo Hold (500 tons).

Statistics Table

TL	Spacecraft	dST/HP	Hnd/SR	HT	Move	LWt.	Load	SM	Occ	dDR	Cost
PILOTING/TL10 (AEROSPACE, HIGH-PERFORMANCE SPACECRAFT)											
10^	Belt Cargo Ship	150	–	13	–	10,000	7,650	+10	–	40/20/20	$150M

Force screens provide an extra dDR 5,000 against physical weapons.

Betan Passenger Liner (TL10^)

This is a space-going cruise ship, traveling between Beta Colony and its major trade partners. The bow decks are functionally a luxury hotel, with 25 super-ritzy suites and another 175 merely opulent ones, a variety of small businesses catering to the passengers, special offices and briefing rooms for business travelers, sumptuous baths, and more. Centrally located are the power plant, control room, and another 200 more modest accommodations, as well as crew quarters. The drive and other ship systems are sternward.

It includes artificial gravity for comfort, and can handle its own wormhole jumps.

A typical trip involves 2-3 wormhole jumps (2 AU between jumps, burning about 60% of the ship's fuel capacity) over 2-3 months, with 300-500 passengers. Tickets typically cost at least $30,000 per month of voyage; luxury cabins and super-luxury cabins cost significantly more. This covers food, fuel, payroll, service costs, reasonable taxation, and a decent profit.

A less luxurious passenger ship (change luxury cabins to cabins; reduce the hangar bay to fit more cabins; and eliminate the briefing rooms, offices, "extra" service crew, and on-ship businesses) can easily carry a thousand passengers in reasonable comfort, bringing the monthly travel cost down to $3,000. For the truly cheap, "bunk berth" ships can cut the ticket cost down to about $1,000 per month of travel.

Systems Table

Front Hull	System
[1]	Armor, Nanocomposite (dDR 70 *unstreamlined*).
[2]	Habitat (25 super-luxury cabins*).
[3-6]	Habitats (175 luxury cabins; 10 briefing rooms; 15 establishments; 10 offices).
Central Hull	**System**
[1]	Armor, Nanocomposite (dDR 70 *unstreamlined*).
[2]	Fusion Power Plant (two Power Points).
[3]	Control Room (20 control stations; 10 workspaces; Complexity 8 computer network; comm/sensor level 11).
Central Hull	**System**
[4-6]	Habitat (300 cabins).
[core!]	Necklin Drive.
Rear Hull	**System**
[1]	Armor, Nanocomposite (dDR 70 *unstreamlined*).
[2]	Hangar Bay (1,000 tons; launch 200 tons per minute; three workspaces).
[3-4]	Fuel Tanks (total 3,000 tons of antimatter-boosted hydrogen, delta-V 20,000).
[5]	Antimatter Thrusters (total 1G acceleration).
[6!]	Force Screen (Mass Shields Only) (dDR 100/10,000).
[core!]	Necklin Drive.

* These apartments are the height of Betan luxury. They take up four cabin slots each, instead of the usual two.

Statistics Table

TL	Spacecraft	dST/HP	Hnd/SR	HT	Move	LWt.	Load	SM	Occ	dDR	Cost
PILOTING/TL10 (HIGH-PERFORMANCE SPACECRAFT)											
10^	Betan Passenger Liner	200	-2/5	13	1G/20,000 mps	30000	1055	11	1,050ASV	70	$2,473M

Force screens are mass-only, providing dDR 10,000 against physical weapons, and no dDR against beam weapons. Ship includes artificial gravity feature.

Drop Shuttle (TL10^)

This is a very large military shuttle. It has space for 40 soldiers, but could hold up to 200 people in an emergency evacuation. It has weapons sufficient to hold a position on the ground, enough defenses to give it a chance to flee if necessary, and enough range to shuttle back and forth between ground and orbit more than once.

Note that the drop shuttle has no listed fuel tanks. The delta-V required to reach or return from orbit several times is negligible compared to the fuel – 50 mps of delta-V would comprise 0.1% of a fuel tank module! This tiny amount of fuel (roughly 30 pounds of antimatter-boosted hydrogen) can be assumed to be part of the thrusters.

Systems Table

Front Hull	System
[1-2]	Fission Power Plants (two Power Points total).
[3]	Sword-Swallower.
[4!]	Force Screen (dDR 20/2,000).
Front Hull	**System**
[5]	Armor, Advanced Metallic Laminate (dDR 7 *streamlined*).
[6]	Flight Deck (Control Room) (three control stations; Complexity 5 computer network; comm/sensor level 6).
Central Hull	**System**
[1]	Armor, Advanced Metallic Laminate (dDR 7 *streamlined*).
[2-4]	One SM +8 Open Space (up to 100 people cramped).
[5-6, core]	One SM +8 Open Space (up to 100 people cramped).
Rear Hull	**System**
[1-3]	Antimatter Thrusters (high thrust, total 6G acceleration).
[4!]	Weapons, Major Battery (tractor beam)
[5!]	Weapons, Major Battery (plasma arc)
[6]	Armor, Advanced Metallic Laminate (dDR 7 *streamlined*)
[core]	Cargo Hold (15 tons)

Statistics Table

TL	Spacecraft	dST/HP	Hnd/SR	HT	Move	LWt.	Load	SM	Occ	dDR	Cost
PILOTING/TL10 (AEROSPACE, HIGH-PERFORMANCE SPACECRAFT)											
10^	Drop Shuttle	50	-1/5	12	6G/50 mps	300	20	+7	200SV	7	$29.6M
	air performance	–	+3/5	–	60/3,050	–	–	–	–	–	–

Force screens provide an extra dDR 20 against beam weapons, dDR 2,000 against physical weapons. Ship includes artificial gravity feature.

Small Drop Shuttle (TL10^)

This is a compact drop shuttle, usable for a single squads or small tactical strikes. The *Ariel* (p. 203) typically carries one.

Although there is only *comfortable* seating for up to 19 people, almost twice that number can be crammed onto the seating benches (and the hangar bay can be pressurized for another 10-15 people standing, if needed).

Like the larger drop shuttle, this craft requires no separate fuel tanks.

Systems Table

Front Hull	*System*
[1]	Flight Deck (Control Room) (one control station; Complexity 4 computer network; comm/sensor level 4).
[2-5]	Passenger Seating (8 people).
[6]	Armor, Advanced Metallic Laminate (dDR 3 *streamlined*).
[Core]	Fission Power Plant (one Power Point).
Central Hull	***System***
[1-5]	Passenger Seating (10 people).
[6]	Armor, Advanced Metallic Laminate (dDR 3 *streamlined*).
Rear Hull	***System***
[1]	Antimatter Thrusters (high thrust, total 2G acceleration).
[2-3]	Hangar Bay (2 tons; launch 2 tons per minute).
[4]	Force Screen (dDR 10/1,000).
[5!]	Weapons, Major Battery (plasma cannon)
[6]	Armor, Advanced Metallic Laminate (dDR 3 *streamlined*).
[core]	Fission Power Plant (one Power Point).

Statistics Table

TL	*Spacecraft*	*dST/HP*	*Hnd/SR*	*HT*	*Move*	*LWt.*	*Load*	*SM*	*Occ*	*dDR*	*Cost*
PILOTING/TL10 (AEROSPACE, HIGH-PERFORMANCE SPACECRAFT)											
10^	Small Drop Shuttle	20	0/4	12	2G/50 mps	30	4.9	+5	19SV	3	$1.4M
	air performance	–	+3/6	–	20/1,750	–	–	–	–	–	–

Force screens provide an extra dDR 20 against beam weapons, dDR 2,000 against physical weapons. Ship includes artificial gravity and wing features.

Military Courier (TL10^)

With lots of legs and little else, the very fastest jumpships are the couriers. Some couriers can also take off and land like shuttles, for maximum speed in getting from one planetary surface to another.

Described below is a military scout/courier designed to get through a potential "hot zone." It can outrun any warship; if taken by surprise, it has a good chance of surviving a lucky hit or two, though it can't shoot back. It can make a 2 AU run in roughly 17 hours, but will need to refuel shortly thereafter.

Range can be gained at the expense of defense, or sacrificed for other options. A fuel tank can be swapped for a larger or more luxurious habitat or for more cargo space. An empire like Barrayar will have a variety of specialized scout/couriers in its fleet, to safely deliver anything from an elderly VIP to a planet's worth of vaccine.

Systems Table

Front Hull	*System*
[1]	*Two* half-sized systems: Cargo Hold (0.75 ton). Antimatter Power Plant (two Power Points).
[2]	Control Room (1 control station; Complexity 4 computer network; comm/sensor level 4; emergency ejection feature).
[3!]	*Three* SM +4 systems: Force Screen (dDR 3/300). Plasma Mirror (reflects 300 dice over 20-second turns). Sword-Swallower (reflects 300 dice over 20-second turns).
[4-6]	Fuel Tanks (total 4.5 tons of antimatter-boosted water, delta-V 5,000 mps).
Central Hull	***System***
[1-6]	Fuel Tanks (total 9 tons of antimatter-boosted water, delta-V 10,000 mps).
[core!]	Necklin Drive.
Rear Hull	***System***
[1-6]	Antimatter Thrusters (high thrust, uses water, total 36G acceleration).
[core!]	Necklin Drive.

Statistics Table

TL	*Spacecraft*	*dST/HP*	*Hnd/SR*	*HT*	*Move*	*LWt.*	*Load*	*SM*	*Occ*	*dDR*	*Cost*
PILOTING/TL10 (AEROSPACE, HIGH-PERFORMANCE SPACECRAFT)											
10^	Military Courier	20	+1/4	12	36G/15,000 mps	30	0.95	+5	2SV	–	$6,030K
	air performance	–	+5/5	–	360/7,500	–	–	–	–	–	–

Force screens provide an extra dDR 3 against beam weapons, dDR 300 against physical weapons. Ship includes artificial gravity (twice, to compensate for its enormous thrust), wings, and stealth hull features.

Appendix C
Space Travel and Combat

Now that you *have* a spaceship, what can you *do* with it? Travel, routine operations (sensor scans, maintenance, etc.), and combat all play important roles in the Vorkosigan universe.

Distance and Speed Units

astronomical unit (AU): The basic unit of interplanetary measurement, equal to the average distance between the Earth and its sun. One AU is about 93 million miles.

miles per second (mps): The basic unit of velocity and delta-V in these rules. One mile per second is approximately a Move of 1,800 yards/second.

parsec (Pc): This is the unit of interstellar measurement used in ***GURPS Space.*** One parsec is about 3.26 light-years or 206,000 AU.

Thrusters

Thrusters (p. 195) propel a spacecraft through normal space, and can let it lift off from a planet or maneuver through an atmosphere.

Interplanetary Voyages

The distance separating two planets in a star system may be as short as the difference between their distances from their star or longer than the sum of those distances, depending on their orbital positions. As an approximation, assume that the distance between two worlds is equal to the average orbital radius (distance from its star) of the world *furthest* from that star.

The *Solar System Travel Table* (below) shows the orbital radii of planets and other significant bodies in *our* solar system. It also gives gravity (G), escape velocity, and escape *time* at 1G acceleration – all useful information for ships leaving orbit. For other star systems, the GM can make up numbers using the table as a guideline.

Solar System Travel Table

Planet	*Orbital Radius*	*Gravity*	*Escape Velocity*	*Escape Time (1G)*
Sun	–	28G	383 mps	17.2 hr
Mercury	0.39 AU	0.38G	2.7 mps	7.3 min
Venus	0.72 AU	0.91G	6.4 mps	17.3 min
Earth	1 AU	1G	6.96 mps	18.8 min
– Luna	1 AU	0.16G	1 mps	2.7 min
Mars	1.5 AU	0.38G	3.1 mps	8.4 min
Ceres*	2.7 AU	0.03G	0.32 mps	52 sec
Jupiter	5.2 AU	2.36G	37 mps	1.7 hr
Saturn	9.5 AU	0.92G	22 mps	1 hr
Uranus	19 AU	0.89G	13.2 mps	35.6 min
Neptune	30 AU	1.19G	14.6 mps	39.4 min
Pluto*	40 AU	0.067G	0.68 mps	1.8 min
Oort Cloud (comets)*	about 10,000 AU	neg.	neg.	neg.

* Ceres is the largest main-belt asteroid. Pluto is a large Kuiper Belt object. Oort cloud statistics are for a typical long-period comet.

Travel Times

Thrusters in the Vorkosigan Saga are astoundingly powerful, and capable of boosted acceleration for long periods of time (days or even weeks!). Prior to artificial gravity, the primary limitation was *human frailty.* With artificial gravity, the main limitation is fuel costs.

Travel time is the sum of time spent getting *into* space, travel time between planets (or between a planet and a wormhole), and time spent landing on the destination planet. Not all journeys will involve all three components, of course.

Getting Into Space and Landing

To leave an Earth-sized planet with Earthlike gravity requires a *delta-V* of about 7 mps and an acceleration of at least 1G – neither of which is a problem in Miles' time. Most ships also have anti-grav units, which require *power* but provide no delta-V. For all practical purposes, ships can leave planets easily. For more detailed rules, see *Newtonian Space Flight* (p. 209).

Landing on a planet is even easier. A ship can either use a soft-landing system (p. 194) or simply perform the same action as leaving the planet, but in reverse.

Most inhabited planets in the Vorkosigan universe are Earthlike in these respects. For non-Earthlike planets, make estimates based on comparable planets in our solar system (see the *Solar System Travel Table,* p. 207). To find out how long it takes, first determine the escape velocity of the planet: at 1G of acceleration, it takes 2.7 minutes per 1 mps of escape velocity (on the *Solar System Travel Table,* this is already calculated for planets in our solar system). Divide that time by the ship's acceleration in G, and you're done.

Example: A military courier (p. 206) is leaving a Barrayar shuttleport quickly, for reasons we are not at liberty to discuss. It has 36G acceleration. Since Barrayar is, in size and gravity, nearly identical to Earth, the GM simply uses Earth's escape velocity; at 1G of acceleration it would take 18.8 minutes. With thrusters at full throttle, the shuttle can get from the ground to orbit in just over 30 seconds.

Long Voyages

Once a spacecraft has left orbit, the time in hours (or days) required to travel a distance measured in AU – including acceleration and deceleration – is shown on the *Long Voyages Table* (below). This assumes constant acceleration and deceleration! For acceleration over only *part* of a trip, or for more detailed calculations of time spent, see *Newtonian Space Flight* (p. 209).

For a *very* long voyage, you'll want to know the delta-V required:

Required delta-V (mps) = 1,482 × square root of (distance in AU × acceleration in G)

Short Voyages

For *short* distances, such as from Earth to Luna, or moving about within a planetary orbit, distances in miles are more useful. The time in *minutes* required to travel a distance measured in *miles* – including acceleration and deceleration – is given on the *Short Voyages Table* (below). For more detailed calculations of time spent, see *Newtonian Space Flight* (p. 209).

C-Fractional Velocity

Vessels with TL10^ thrusters and *many* fuel tanks may be able to approach lightspeed (*c*). If one assumes that superscience can somehow bypass relativity, then accelerating to *just shy* of lightspeed takes approximately 8,500 hours – that's a little less than a year – at 1G acceleration, and costs 186,000 mps of delta-V reserve. The same time and delta-V are needed to come to a stop!

For fractions of lightspeed, use the same fraction of the above time and delta-V. For greater acceleration, divide time by acceleration in G. For more detailed equations, see *Newtonian Space Flight* (p. 209).

At lightspeed, it takes 3.261 years to travel 1 Pc, 500 seconds to travel 1 AU, and *one second* to travel 186,000 miles.

Long Voyages Table

AU	*0.5G*	*1G*	*2G*	*3G*	*4G*	*5G*	*6G*	*8G*	*10G*
0.1	30 hrs	22 hrs	15 hrs	12 hrs	11 hrs	10 hrs	9 hrs	8 hrs	7 hrs
0.2	43 hrs	30 hrs	22 hrs	18 hrs	15 hrs	14 hrs	12 hrs	11 hrs	10 hrs
0.5	3 days	2 days	34 hrs	28 hrs	24 hrs	22 hrs	20 hrs	17 hrs	15 hrs
1	4 days	3 days	2 days	39 hrs	34 hrs	30 hrs	28 hrs	24 hrs	22 hrs
2	6 days	4 days	3 days	2 days	2 days	43 hrs	39 hrs	34 hrs	30 hrs
5	9 days	6 days	4 days	4 days	3 days	3 days	3 days	2 days	2 days
10	13 days	9 days	6 days	5 days	4 days	4 days	4 days	3 days	3 days
20	18 days	13 days	9 days	7 days	6 days	6 days	5 days	4 days	4 days
50	28 days	20 days	14 days	12 days	10 days	9 days	8 days	7 days	6 days
100	40 days	28 days	20 days	16 days	14 days	13 days	12 days	10 days	9 days

Short Voyages Table

Miles	*0.5G*	*1G*	*2G*	*3G*	*4G*	*5G*	*6G*	*8G*	*10G*
1	36 sec	26 sec	18 sec	15 sec	13 sec	11 sec	10 sec	9 sec	8 sec
2	51 sec	36 sec	26 sec	21 sec	18 sec	16 sec	15 sec	13 sec	11 sec
5	81 sec	57 sec	41 sec	33 sec	29 sec	26 sec	23 sec	20 sec	18 sec
10	1.9 min	81 sec	57 sec	47 sec	41 sec	36 sec	33 sec	29 sec	26 sec
20	2.7 min	1.9 min	81 sec	66 sec	57 sec	51 sec	47 sec	41 sec	36 sec
50	4.3 min	3 min	2.1 min	1.7 min	91 sec	81 sec	74 sec	64 sec	57 sec
100	6 min	4.3 min	3 min	2.5 min	2.1 min	1.9 min	1.7 min	91 sec	81 sec
200	8.5 min	6 min	4.3 min	3.5 min	3 min	2.7 min	2.5 min	2.1 min	1.9 min
500	14 min	9.6 min	6.8 min	5.5 min	4.8 min	4.3 min	3.9 min	3.4 min	3 min
1,000	19 min	14 min	9.6 min	7.8 min	6.8 min	6 min	5.5 min	4.8 min	4.3 min

Newtonian Space Flight

A spaceship's top speed using thrusters is really its *delta-V:* the maximum velocity change it can perform before running out of reaction mass (hydrogen, water, etc.). Each acceleration or deceleration "costs" a fraction of this delta-V.

In the detailed calculations below, the important statistics for a spacecraft are its thrusters' acceleration and its fuel tanks' delta-V reserve for those thrusters. You'll also need to know the distance from origin to destination (in miles or AU), and the escape velocity (in mps) and gravity (in G) of the origin and destination worlds.

Acceleration and Delta-V

Shuttlecraft in the Vorkosigan universe use a combination of thrusters and anti-grav to reach orbit. Since anti-grav cancels weight without affecting mass, it does not produce actual thrust or directional control. However, anti-grav allows shuttles to take off without a runway.

The ship must have either acceleration that exceeds gravity (1G, for Earth) or wings (in atmosphere). To take off from a planet and reach a *low orbit* around it requires a delta-V equal to 80% of the planet's escape velocity. This is 5.6 mps for Earth orbit.

To reach low orbit around a celestial body and then break orbit, escaping its gravity, requires a delta-V equal to escape velocity. This is about 7 mps for Earth.

A spacecraft that's *already* in low orbit uses delta-V equal to approximately 30% of escape velocity to break orbit. This is about 2 mps to leave Earth orbit.

A winged spacecraft with thrusters in a very thin or denser atmosphere (p. B429) needs less delta-V to reach orbit or escape velocity. Calculate air speed (see *Air Performance,* p. 200) in mph, divide by 3,600 to get mps, and subtract this from required delta-V.

If a planet's escape velocity is unknown, determine this from its mass and radius relative to Earth's. Multiply the above velocities by the square root of (Me/Re), where *Me* is the planet's mass in Earth masses and *Re* is its radius in Earth radii.

Stars and Escape Velocity: The sun's escape velocity is 383 mps. For other stars, multiply this by the square root of (Ms/Rs), where Ms is the star's mass in solar masses and Rs is its radius in solar radii.

Time required to lift off or break orbit is:

T = dV × 0.045/A

T is time in hours.
dV is the total delta-V required, in mps.
A is the spacecraft's acceleration in G.

Space Travel with Thrusters

Orbital maneuvers, or interplanetary travel once a spacecraft has escaped orbit, require accelerating to the desired cruising velocity, coasting through space, and then decelerating to the velocity required to orbit the destination.

To plot a space journey, decide how much of the spacecraft's delta-V reserve will be used to accelerate. This delta-V is the cruising velocity. An equal amount, minus the destination's escape velocity, must then be used to decelerate, unless the spacecraft is to fly past or impact the destination.

The full travel time breaks down into acceleration, cruise, and deceleration steps.

1. *Acceleration (Deceleration) Time.* Determine the time the spacecraft will spend accelerating to the desired cruising velocity. This is the acceleration time:

Ta = dV × 0.0455/A

Ta is acceleration time in hours.
dV is the delta-V required for the acceleration (deceleration), in mps.
A is the spacecraft's acceleration in G.

The spacecraft will normally spend the same time decelerating.

2. *Distance Traveled During Boost.* A complication that's important during short voyages is the distance traveled *during* the journey's acceleration (and deceleration) phases.

Da = Ta² × A × 0.00042

Da is the distance traveled during acceleration, in AU.
Ta is acceleration time in hours, calculated above.
A is acceleration in G.

It's simplest to assume the deceleration distance is the same: double the distance.

3. *Cruise Time.* If the distance traveled during acceleration and deceleration is less than the total distance to the destination, the spacecraft will also spend time coasting (in zero-gravity, if the spacecraft lacks spin gravity or artificial gravity!). Calculate this time as follows:

Tc = Dc × 1,076/V

Tc is the coasting time in days.
Dc is the distance to the destination, *minus the distance traveled during acceleration and deceleration,* in astronomical units (AU).
V is the cruising velocity in mps.

Special Case: Continuous Acceleration

A vessel with enough delta-V can accelerate to midpoint, turn around, and then decelerate, thrusting all the way. Calculate delta-V and time required as follows:

dV = 1,482 × square root of (D × A)
T = dV/(21.8 × A)

dV is the required delta-V in mps.
D is the *total* distance in AU.
A is acceleration in G.
T is *total* voyage time in hours.

Special Case: Ramscoops

Spacecraft with ramscoops (p. 194) must accelerate to 1,800 mps, consuming 1,800 mps of delta-V reserve, to use their ramscoops. At or above that velocity, further delta-V requirements don't consume delta-V reserve.

Atmospheric Flight

Spacecraft with anti-grav, wings, or a streamlined hull *and* acceleration greater than local gravity can fly in an atmosphere. See *Air Travel* (p. B466) for rules. Use Piloting (Aerospace) rather than the usual Piloting skill.

Atmospheric Landings

In a very thin or denser atmosphere (p. B429), a streamlined winged spaceship can glide down from orbit and land like an airplane, even without engines. The same goes for any spacecraft with a soft-landing system (p. 194). Roll against Piloting (Aerospace) as described on p. B214.

Modifiers: Handling modifier. Terrain and weather modifiers: -1 (mountains), -2 (skyscrapers, strong winds, thin atmosphere), -3 (electrical storm), -4 (hail, very thin atmosphere), -5 (blizzard), -6 (hurricane), etc. Spacecraft sensors generally mean that simple visibility (fog, night, etc.) *isn't* a problem.

Failure means the approach wasn't perfect and the ship must abort and double back, or land in the wrong place. In busy airspace, the pilot may get into trouble for violating regulations. Critical failure, or any failure by more than the vessel's SR, indicates a crash landing that inflicts damage as per a 0.1 mps collision (p. 225) to one location. Roll 1d: 1-3 means the front hull, 4-6 means the central hull.

"You don't understand!" Mayhew waved his arms in the air. "They're bent. The Necklin rods."

"Are you sure?" said Baz. "The housings –"

"You can stand in the housings and look up the rods and see the warp. Actually see it! They look like skis!" Mayhew wailed.

– The Warrior's Apprentice

Necklin Drives and Wormholes

The typical jumpship voyage involves using thrusters to travel through normal space to a wormhole, activating the Necklin drive to "jump" through 5-space to a different star system, and further travel through normal space to reach a world or (more often) another wormhole in the destination system. The normal-space legs account for nearly all of the travel time, and use *Interplanetary Voyages* (p. 207). Jumps don't take any appreciable time, and use the rules below.

Choosing the correct route through a wormhole is a 5-space mathematics problem solved using the Navigation (Hyperspace) skill. Following the route requires the Piloting (Starship) skill *and* a piloting implant (p. 80) appropriate to the jumpship model. Success on both rolls allows a near-instantaneous jump.

Not all wormhole jumps are successful. About 1 jump in 10,000 results in the utter loss of the ship and everything aboard. In game terms, this requires a critical failure on *both* Navigation and Piloting rolls. Otherwise, either the jump pilot or the ship computer he's interfaced to will catch the problem before jump, and there will be no disaster.

- If one roll succeeded and the other was an ordinary failure, the ship won't jump. The pilot will run a systems check and be ready for another attempt, at no penalty, in (1d × 10) minutes.
- If *both* rolls were ordinary failures, the ship won't jump. The captain will be concerned. Triple the system check time, and subtract 1 from the worried pilot's next attempt.
- If one roll was a critical failure, and the other was a success or an ordinary failure, the ship won't jump. The captain will be extremely concerned, and will probably assign a relief pilot if he has one. The pilot (original or replacement) will run a very detailed systems check and be ready for another attempt, at a -1 penalty, in (2d) hours. For every hour which circumstances require him to cut from this system check, he takes a further -1 penalty.

Damage to Necklin Rods

Necklin rods are delicate, and manufactured to *very* tight tolerances. *Any* damage that penetrates the hull requires the vessel to make a HT roll. Failure means the Necklin rods have been damaged by the amount shown on the *Necklin Drive Table* (p. 192). A damaged rod adds substantial penalties – at *least* -8 – to both Navigation and Piloting rolls. Critical failure on these rolls, as described above, will lead to the loss of the ship in 5-space.

For other notes, see *The Wormhole Experience* (p. 91) and *Necklin Drive* (p. 192).

Vanishing Ships

There are persistent rumors of ships surviving a misjump and miraculously appearing at their home port . . . or at a valuable new wormhole nexus . . . or on the other side of the galaxy, from which they adventured their way back home.

There seems to be no truth to these stories. In all documented cases of an alleged "wild jump," it proved that the passengers had been deceived as to the pilot's actual plan. The ship went exactly where he intended it to go, regardless of what the passengers were told.

Space Operations

Most shipboard activities consist of routine tasks such as entering or leaving the vessel, sensor scans, maintenance, and refueling.

Access

The most common way to board a spacecraft is via its airlock, but there are other methods!

Airlock

An airlock allows people to enter or leave a ship in space without decompressing the vessel. It consists of a chamber equipped with air-pressure sensors, a pump, and a heavy, pressure-tight door, valve, or hatch at either end. The outer door connects the chamber to the outside, while the inner door leads to the spacecraft's corridors in the hull location to which the airlock is attached.

Control panels are located outside the spacecraft next to the outer door, in the airlock chamber, and inside the spacecraft near the inner door. Each includes airlock controls, an intercom, and a camera. The airlock can be operated via input from any of these panels, a control station, or the spacecraft's computer. Individual panels may be left "unlocked" so that anyone can access them; otherwise, a visitor must insert some sort of key, supply an access code, submit to a biometric scan, or request permission to enter (procedures will vary for each spacecraft).

Airlock Capacity

An airlock's capacity is the maximum number of human-sized individuals that can occupy it. The table below shows airlock capacity and area (in hexes) by spacecraft SM.

Airlock Doors

Airlock doors have *half* the armor dDR of the hull section in which they're installed. Multiply that section's dDR by 5 to determine the doors' DR (minimum DR is 5). They have HP 75.

Entering via Airlock

1. Access airlock's outer control panel, or call inside. 2+ seconds.
2. Option: Use airlock controls to alter the pressure in the airlock chamber to match the outside environment. This takes 1 minute × pressure differential in atmospheres; e.g., 1 minute to go from standard pressure (1 atm) to vacuum.
3. Unlock and open outer door. The atmosphere in the airlock chamber (if any) and outside will mix. 2 seconds.
4. Enter airlock chamber. 1 second.
5. Use controls to close and lock outer door. 1 second.
6. *Option:* If sensors indicate a foreign atmosphere in the airlock chamber, use controls to pump out existing air and replace it with the spacecraft's own atmosphere. 1 minute + (1 minute × pressure differential).
7. *Option:* If airlock is equipped with decontamination systems, use controls to initiate decontamination. 3 minutes.
8. Use controls to unlock and open inner door. 1 second.
9. Enter spacecraft. 1 second.

Chambers can typically vary their pressure from 0 to 5*n* atmospheres, where *n* is the hull dDR.

Exiting via Airlock

1. From inside the spacecraft, unlock and open inner door. 2 seconds.
2. Enter airlock chamber. 1 second.
3. Close and lock inner door. 2 seconds.
4. *Option:* If airlock is equipped with decontamination systems, use controls to initiate decontamination. 3 minutes.
5. *Option:* If external pressure is less than that of the spacecraft (e.g., vacuum), depressurize the airlock chamber. This will keep the occupants from being blown out into space when the outer door is opened! This takes two seconds to initiate. A depressurization warning sounds. The cycle can be halted or reversed at any time. The pressure starts to drop slowly to the desired level, which takes 1 minute × pressure differential in atmospheres.
6. Unlock and open outer door. The airlock chamber is exposed to the outside environment. If that environment is at a lower pressure than the chamber, any air rushes out, possibly also sucking the occupants out of the airlock chamber. 1 second.
7. Leave airlock (unless blown out already!). 1 second.

Docking

Standard airlock doors are designed so that a spaceship can mate airlocks directly with a station, or so that a small spacecraft can mate directly with a larger one. Airlocks designed by different space-faring cultures are normally incompatible, but regular trade might result in agreements to standardize them.

Docking generally takes about one minute and requires a Piloting roll by the pilot of any vessel that's actively maneuvering. The larger spacecraft will usually hold its course as the smaller one docks (only the pilot of the smaller craft rolls), but if both vessels are maneuvering, both pilots must roll. Failure means that another minute is needed. Critical failure results in an emergency situation. Roll again – any success means that trouble is averted, but *any* failure results in a 0.1 mps collision (p. 225).

Passage Tubes

A passage tube is a flexible tube that connects the airlocks of two spacecraft in space. It holds pressure, allowing the occupants to travel between ships without the need to cycle airlocks. It may be extended out to 30 yards, is about two yards in diameter, and hooks to standard fittings around exterior airlocks. Rigging it takes an hour in free fall (30 minutes with multiple workers), and requires a Mechanic (High-Performance Spacecraft) roll. It is not an airlock; ships connected by a tube are perforce sharing atmosphere.

Emergency Pressure Doors

Spacecraft may have pressure-tight doors to seal off compartments:

- SM +5 and +6 spacecraft lack pressure doors. If the hull is breached or a cargo bay door is opened, the entire vessel is affected!
- SM +7 to +9 spacecraft have pressure doors between *hull sections* – that is, between the front and central hull, and between the central and rear hull. A breach or open bay door affects only the hull section in which it occurs.

Airlock Table

SM	*+5 to +7*	*+8*	*+9*	*+10*	*+11*	*+12*	*+13*	*+14*	*+15*
Capacity	1	2	3	4	5	6	7	8	9
Area (hexes)	1	1	1	1	2	2	2	2	4

• SM +10 and larger spacecraft have pressure doors between *systems*, excluding armor systems. A breach or open bay door affects only that particular system.

Doors have half the hull section's armor dDR, or DR = 5 × hull dDR. Minimum DR is 5.

A door seals shut automatically if emergency sensors detect pressure loss, fire, or smoke in the compartments on either side. Doors seal in two seconds, and inflict (ship SM) dice of crushing damage each turn to anyone caught in them. Someone next to a door can roll vs. DX to try to jam or dive through the door. Failure means he was caught by the door and suffers its usual crushing damage. Roll for hit location – if the door fails to kill the victim (torso or head) or destroy a limb (or whatever was jammed into it), then it's stuck open.

Doors can be manually overridden by an appropriate authorization code input through the vessel's computer or control stations. Authority to do this is usually restricted to engineering damage-control teams or the spacecraft's command crew.

Cargo Bay Doors

If a spacecraft hull section (front, central, or rear) has cargo holds, it will have cargo bay doors. A given hull section has *one* set of cargo bay doors, which provide access to all cargo holds in that section. These doors have the same dDR as the hull section. Such doors *aren't* an airlock – air spilled is lost. It takes two seconds to open or close cargo bay doors, using controls next to the doors on the outside and inside. Computers and control stations can also open, close, or lock them.

The maximum SM object that easily fits through cargo bay doors is hull SM-5 if the hull section has 1-2 cargo holds, or hull SM-4 if it has 3-6 holds. A successful Freight Handling roll can maneuver an object of one SM greater through the door; failure means the item is stuck, requiring minor repairs (dismantling the door or the object) to clear access. The actual width and length of bay doors (in yards) is shown below, and depends on the number of cargo holds in the hull section.

Cargo Bay Doors Table

SM	+5	+6	+7	+8	+9	+10	+11	+12	+13	+14	+15
1-2 holds	1.5	2	3	5	7	10	15	20	30	50	70
3+ holds	2	3	5	7	10	15	20	30	50	70	100

Hangar Bay Doors

If a spacecraft hull section (front, central, or rear) has hangar bays, it has hangar bay doors. These take two seconds to open or close. A given hull section has one set of hangar bay doors, which give access to *all* the hangar bays within.

Hangar bay doors are much larger than cargo bay doors. Moreover, the entire bay is designed to function as a giant airlock! It can be evacuated – storing the air in holding tanks – before the doors are opened. Changing the pressure in a hangar bay takes 1.5 minutes × pressure differential (in atmospheres); e.g., it takes 1.5 minutes to go from 1 atmosphere to vacuum, or vice versa. Standard procedure is to evacuate the bay and *keep* it evacuated during all launch or recovery operations.

The maximum SM object that can be maneuvered through hangar bay doors is equal to hull SM-4 if 1-2 bays or hull SM-3 if 3-6 bays. Squeezing larger objects through *isn't* possible – the airlocks are more complex than cargo bay doors. Actual door diameter (in yards) is shown below.

Hangar Bay Doors Table

SM	+5	+6	+7	+8	+9	+10	+11	+12	+13	+14	+15
1-2 bays	2	3	5	7	10	15	20	30	50	70	100
3+ bays	3	5	7	10	15	20	30	50	70	100	150

He nodded to Elena, manning the big weapon. Not normally an indoor toy, it would stop charging space armor. And blow out the hull beyond.

– *The Vor Game*

Hull Breaches

Another way to get into or out of a spacecraft is through a big hole. The hull is *breached* if any non-core system is disabled or destroyed. The table below gives typical breach diameter (in yards). For disabled systems, this is variable; roll for diameter. For destroyed systems, the breach is automatically the maximum possible size that could be rolled (e.g., instead of an SM +9 hull having a 2d-yard breach, the breach is 12 yards).

See *Emergency Pressure Doors* (p. 211) to determine how much of the hull will be evacuated or exposed to foreign atmosphere by a breach. Most spacecraft systems are designed to survive decompression, but plants in open spaces and delicate furnishings or supplies in habitats (e.g., bottles of wine in bar establishments) will be lost if exposed.

Hull Breaches Table

SM	+5	+6	+7	+8	+9	+10	+11	+12	+13	+14	+15
Disabled	1d-3	1d-2	1d	1d+2	2d	2d+3	4d+1	6d-1	8d+2	12d-2	16d+4
Destroyed	3	4	6	8	12	15	25	35	50	70	100

Cargo Handling

Loading or unloading time for cargo is about one man-hour per 100 tons at a port facility with heavy machinery, or if the vessel is docked in a larger spacecraft's hangar bay. Use a rate of one man-hour per 10 tons otherwise (including moving ammunition from a cargo bay to a gun or a launcher, or to a vessel in a hangar bay). To load cargo properly, roll against Freight Handling – and Hazardous Materials, if necessary. Success means everything is stowed properly. Failure means the cargo was stowed haphazardly, and attempts to unload it will take twice as long. Critical failure means *unsafe* stowage; this triples unloading time, and means the cargo may break, leak, or escape!

Comm/Sensor Arrays

Any vessel with a control room has a basic comm/sensor array. Some spacecraft have enhanced, multipurpose, science, or tactical comm/sensor arrays (p. 189). All arrays are integrated communications and sensor suites whose effectiveness is simplified into a single comm/sensor array *level.* The specific navigational, sensor, and communications capabilities of arrays are described below.

In all cases, detection and communications occur at the speed of light, and over long distances. Time lag is one second per 186,000 miles, or 500 seconds per AU, each way.

Passive Sensors

Comm/sensor arrays include telescopes (ultraviolet, visual, infrared, and radio) for navigation, detection, and targeting. They usually operate in infrared mode for long-range detection, but can also produce telescopic imagery ("on screen") and perform multispectral sensing.

Passive sensors are operated from a control station or by the ship's computer. The operator uses the Electronics Operation (Sensors) skill as described in *Sensors* (p. B471). These vehicular imaging sensors provide 360° Vision (p. B34), Hyperspectral Vision (p. B60) with Extended Low-Band (and Extended High-Band, for science and multipurpose arrays), and Telescopic Vision (p. B92). Telescopic Vision level equals comm/sensor array level.

Passive sensors can also detect and locate any operating active sensor or broadcast signal within twice their own range (see *Signal Detection,* p. 214).

Spacecraft most often use passive sensors to detect other spacecraft. The relevant modifiers appear below. Apply these to Electronics Operation (Sensors) skill and roll vs. skill – although if the modifiers total +10 or better, the GM may assume *automatic* identification. Passive sensors can only detect objects in line of sight; they can't sense something behind a world, larger spacecraft, underwater, etc.

Passive Sensor Modifiers

SM: Add the object or spacecraft's Size Modifier.

Time Spent: Assume a complete scan around the vessel takes 20 seconds. Modifiers for time spent (p. B346) apply; e.g., +3 for a full 3-minute space combat turn, or +5 for 10 minutes or more.

Range: Apply *range* modifiers from the *Size and Speed/Range Table* (p. B550). In space combat: -10 at zero (100 yards), -30 at point-blank (100 miles), -34 at close (500 miles), -38 at short (2,500 miles), -42 at long (10,000 miles), and -46 at extreme (50,000 miles). For astronomical ranges: -50 at 200,000 miles (1 light-second), -54 at 1 million miles (5 LS), -60 at 10 million miles (50 LS), -66 at 100 million miles (1 AU), -72 at 1 billion miles (10 AU), and -77 at 7 billion miles (75 AU; scan entire solar system).

Telescopic Vision: Reduce the above range penalty by Telescopic Vision level. You may "zoom in" and use *twice* this level if you already know your target's approximate location. This includes attempts to get a better look at a detected target, or to spot targets whose orbits are already known (charted satellites, celestial bodies, etc.) or whose radio, radar, or transponder emissions have been detected.

Damage: If an enhanced, multipurpose, science, or tactical array is disabled or destroyed, a vessel can use its basic array. A basic array is only destroyed if the control room or spacecraft is destroyed. All arrays are at -1 if the spacecraft is reduced to 0 HP or less.

Observation: +10 if the object is in plain sight (in space or air, or on a world's surface) rather than concealed, camouflaged, or hidden among debris.

Detection

This information is automatically available about a detected spacecraft:

- Size, mass, and acceleration.
- Type of thruster, if the spacecraft accelerated.
- Power plant and Power Points.

At *point-blank* or *short range,* certain systems will be visible if they're in a hull section on a detected object facing the sensor array:

- Comm/sensor array (any type), habitat, hangar bay, open space, robot arm, thrusters, weapon battery, and any destroyed systems (but *not* what they were).
- Operating force screens.
- Winged features.

Additional information may be available via a Sensor Analysis task (p. 219).

In Space: +2 if the object is silhouetted against a larger celestial body – or +4 if silhouetted against deep space. This *is* cumulative with the +10 for being in plain sight!

IR Signature: Spacecraft often put out a lot of heat and light! If trying to detect a spacecraft or similar object, apply the single highest relevant modifier:

Minimal power: 0*
Auxiliary power: +3*
Solar panels: +4
Flying in atmosphere at 3,600+ mph: +5
Fission reactor or performing a high-speed atmospheric reentry: +6
Antimatter or fusion reactor: +7
Fusion thruster: +8†
Antimatter or fusion torch thruster: +10†

Countermeasures: -8 for a stealth hull *unless* the target's IR signature modifier is +5 or more.

* Auxiliary power permits the operation of all non-high-energy systems (anything but systems marked "!"). Minimal power doesn't permit the use of any life support (except cryo-chambers), active sensors, or ECM.

† Thruster modifiers assume the rear hull (with drive) is facing the sensor array. If it's the central hull, reduce by 1; if it's the front hull, reduce by 2.

Passive Sensor Results

Failure means no contact (*critical failure* may mean a misidentified contact or other error). The operator may repeat the task on later turns if there's reason to believe that something is out there.

Success means detection of the object's presence, range, course, temperature class, and SM, but no other details. Once an object is detected, the sensors will automatically keep track of it (along with anything it launches). It remains detected while it remains in line of sight. If it leaves line of sight and reappears later, a new roll is needed.

Signal Detection

The passive sensors in comm/sensor arrays also incorporate radio, laser, and radar detectors. If a vessel is using radar, broadcasting radio signals, or using a transponder, these sensors automatically detect the signal out to twice the active or broadcast range (1.5× range if the signal was low-probability intercept; see p. B82). Ladar and tight-beam laser comm signals are detected only if the spacecraft using sensors was their target or happened to be in their path. Scanner emissions can only be detected if the vessel also uses scanners; if so, treat them as radar.

The sensor operator will detect the type of signal, the content of any (unencrypted) broadcast, and an approximate bearing. A successful Electronics Operation (EW) roll can also reveal useful details ("That was a scanner of Betan design, almost certainly Type 23, which they aren't known to have sold to any non-Betan forces.").

Active Sensors

Active sensors in a comm/sensor array consist of radar and possibly other emitters used for navigation, detection, and targeting. They can be operated from one of the vessel's control stations or by its computer. All sensors can generate multiple sensor beams capable of tracking any number of targets simultaneously.

Active sensors are less important than passive sensors for spacecraft; usually, the passive sensors detect targets at much longer distances. Active sensors are mainly used as part of targeting systems, for radar mapping of worlds (especially if cloud-covered), and for "sensor scans" to analyze a target.

Active sensor use in space combat is integrated into the combat rules (p. 215). Otherwise, use the vehicular active sensor rules on pp. B471-472.

The individual active sensors in an array count as various types of Scanning Sense (pp. B81-82). *Any* array can be used as Radar with the Extended Arc (360°), Low-Probability Intercept (LPI), and Multi-Mode enhancements. Enhanced, multipurpose, science, and tactical arrays also include Ladar with the Extended Arc (360°) and LPI enhancements. Finally, the arrays of modern vessels in the Vorkosigan Saga incorporate scanners (p. 99), which count as Para-Radar with the Extended Arc (360°) enhancement.

An active sensor's range in light-seconds (1 LS = 186,000 miles) is determined by the array level; see the *Active Sensor and Comm Range Table*. Multiply by 200,000 to quickly estimate range in miles. On a planet, even the feeblest array can see out to the horizon!

Active Sensor and Comm Range Table

Level	Range	Level	Range
3	0.2	10	3
4	0.3	11	5
5	0.5	12	7
6	0.7	13	10
7	1	14	15
8	1.5	15	20
9	2	16	30

Example: A level 8 array has a 1.5 LS-range active sensor and 1.5 AU-range comm suite.

Communications ("Comm Suites")

Comm/sensor arrays include very-long-range laser and radio communicators. Range depends on array level – consult the *Active Sensor and Comm Range Table* and read the range in astronomical units (AU). For complete rules, see *Telecommunication* (p. B91) and *Communicators* (p. B471). An Electronics Operation (Communications) roll will suffice for most purposes.

Spacecraft also have *internal* intercoms in all systems except armor and fuel tanks, as well as next to external airlock, hangar, and cargo doors.

Transponders

Comm suites may be set to automatically broadcast identification codes for traffic-control purposes. Most governments *require* all vessels, except perhaps their own military units, to broadcast their identity at all times. The "civilized laws of war" even require warships to broadcast a warning whenever they're blockading a regular shipping lane. Crews that find this onerous may reprogram their transponders to emit false identity signals. Reprogramming a transponder might be a trivial exercise, or it may require difficult Electronics Operation (EW) or Computer Programming rolls (GM's discretion). The penalty for using a false signal or no signal may be fines, or worse.

Computers and Software

Spacecraft computer networks use the rules on p. B472. Control stations, offices, and ops centers have terminals that give access to the ship's computers. The network *might* also be accessible to computers installed in cabins or carried by occupants, depending on its design.

These rules ignore most software. Normal-space navigation, targeting, and so on are relatively simple for the computers in Miles' time. Even the lowest-Complexity spacecraft systems can simultaneously run all necessary software. Weapon sAcc values *already* take into account targeting programs.

The main advantage of better computers is that they can run higher-Complexity programs for cryptographic analysis, language translation, etc. – or even artificial intelligences that can function as crew members! See ***GURPS Ultra-Tech*** for more on software and AI.

Overloading Life Support

A spacecraft's ability to carry people is normally limited by its rated occupancy, but can be increased *in extremis* by cramming in more people. Make a HT roll once per day of overloading, at a basic +4 but with -1 per full 10% by which the number of people aboard exceeds *current* system capacity. Failure means the system begins to break down, losing 10% of its current capacity per point by which the roll failed. A Mechanic (Life Support) roll can be attempted once per day; success restores a flat 10% of full capacity. Once the life-support system starts to fail, the effect snowballs; if the ship remains overloaded, life support will eventually reach 0% and stop working. At that point, all oxygen will be used up within a few hours. Then everyone who needs to breathe will start to suffocate.

Repair and Maintenance

Spacers spend much of their time maintaining onboard systems. The listed workspace requirements in Appendix B cover the crew (human or robot) needed.

See *Damage Control* (p. 228) for the rolls needed to repair disabled systems and dHP. A destroyed system must be replaced – usually at a shipyard with sufficient hangar space for the vessel – at 110% of original cost. It will normally require one day per spaceship dHP for a full dockyard to replace a destroyed system. Multiply this time by 10 if the space yard doesn't have sufficient hangar space to put the spacecraft in an internal dock. If the vessel has factory systems, it can manufacture replacements onboard.

Space Combat

Spacecraft may contest the space around a planet, station, or wormhole, or do battle in deep space. This combat system is intended to convey the feel of personal combat, but on a larger time scale and for vessels with multiple crewmen. It abstracts movement while focusing on crew tasks.

The Engagement

A space battle should be treated as an important part of the adventure, not a random or mechanical event. The GM should use dramatic license to decide whether a battle actually occurs, guided (if he wishes) by the combatants' relative courses, sensor capabilities, and desire to give battle or to avoid it. The GM may assume that neither side has detected the other, or start the encounter assuming that detection has *already* occurred.

Ambush and Surprise

Before combat can occur, opposing vessels must maneuver into the same area of space – typically within a few hundred to several thousand miles of each other. In some situations, one side may be able to ambush the other. Circumstances that might let spacecraft get close enough to attack without being detected include:

- Ships emerge from a wormhole without warning.
- A seemingly friendly vessel or station suddenly attacks.
- A warship appears unexpectedly from inside a space station, asteroid base, etc.
- A warship was masked by a planet, moon, asteroid, or large space station.
- The detection systems of the target ship or fleet were compromised.

The GM may rule that an ambush does or doesn't occur on the basis of a roleplayed situation, a clever plan, or a Quick Contest of Tactics skill.

Vessels on an ambushed side will have surprised crews (see pp. 217, 218), and the GM may also rule that the encounter will take place at a shorter distance than usual.

Encounter Distance

The GM should select the encounter scale that suits the vessels involved:

Close Combat Scale: Typical engagement range is 20 to 2,000 miles. This is suggested if most important vessels involved have delta-V reserves below 5 mps or if no weapons have ranges greater than Short. It shouldn't be used if vessels have 50G or more acceleration, as they'll race through the engagement area!

Standard Combat Scale: Typical engagement range is 200 to 20,000 miles. This scale works best for vessels with 0.5G or more acceleration, or if no weapons have ranges greater than Long.

Distant Combat Scale: Typical engagement range is 2,000 to 200,000 miles. This scale is recommended if at least some of the spacecraft involved use weapons with Extreme range, or have very fast drives (50G and up).

Turn Length

Space battles are fought in *space combat turns* whose length depends on encounter scale and spacecraft performance. The GM determines turn length by cross-indexing the acceleration of a reference spacecraft with the encounter distance on the *Scale Table.* Ideally, all of the combatants will fall into the same acceleration category. If not, the GM decides on the reference vessel – usually the best-performing craft, the one most typical of the encounter, or the *most important* one (e.g., the PCs' ship).

Scale Table

Acceleration	*Close Scale*	*Standard Scale*	*Distant Scale*
Under 0.05G	10-minute	10-minute*	10-minute*
0.05G+	3-minute	10-minute	10-minute*
0.5G+	1-minute	3-minute	10-minute
10G+	20-second	1-minute	3-minute
50G+	20-second†	20-second	1-minute

* Spacecraft with the reference acceleration or less can't significantly alter course during the fight – gunnery and damage control, not maneuver, will dominate tactics.

† Spacecraft with the reference acceleration are moving too fast for this encounter distance to be optimum, although you may use it if you wish!

Example: A drop shuttle with 6G acceleration is boosting away from Tau Verde IV. In orbit is the hostile patrol ship *Lucky* (8G acceleration). Since both vessels carry Close-Range plasma cannons, the GM decides that this will be a close scale encounter. Their drives both fall into the 0.5G+ category, so the GM cross-indexes that with the close scale and determines that the space combat turn will be one minute long.

Encounter Velocity and Fast Passes

Based on decisions made before the battle begins, the GM should have an idea how fast the vessels are moving. Use the *Fast Pass Threshold Table* to determine whether any spacecraft are making a *fast pass:* moving so quickly that they'll flash right through the encounter area in a turn or two. Cross-index turn length with encounter distance on the table to find a threshold velocity.

Fast Pass Threshold Table

Scale	*Close*	*Standard*	*Distant*
20-second turn	50 mps+	500 mps+	5,000 mps+
1-minute turn	15 mps+	150 mps+	1,500 mps+
3-minute turn	5 mps+	50 mps+	500 mps+
10-minute turn	1.5 mps+	15 mps+	150 mps+

Any spacecraft the GM decides has a velocity exceeding this threshold is making a "fast pass." Others are moving slowly enough to stay in the battle area. This is a *fuzzy* line – if a craft is within ±50%, the GM can opt to treat it as fast or not, as desired.

Example: Continuing from the previous example, the GM decides that the drop shuttle has just exceeded the planet's escape velocity, about 7 mps, while the *Lucky* is at orbital velocity, around 5 mps. Both of these fall under the 15 mps threshold for a close scale encounter with 1-minute turns, so neither spacecraft is making a fast pass.

Pre-Battle Preparation

Crew and Passenger Locations: The GM should know where each PC and important NPC is in the spacecraft, and have a general idea where everybody else is as well. Some tasks can only be properly performed from certain systems (see *Character Actions*, p. 217). On SM +5 and +6 craft, characters may only occupy cargo, control, habitat, hangar, or passenger seat systems. On larger vessels, they may be in any system save armor or (non-empty) fuel tanks. For simplicity, you can assume that everyone is at his duty station and that passengers are in habitats.

Current Delta-V Reserve: If a spacecraft used its thrusters before the combat began, note how much of its delta-V reserve remains.

Formations: Spacecraft may be declared to be either in formation or docked before an engagement begins. See *Formations* (p. 229).

Surprised Crews: If a vessel's crew are surprised, some crewmen may be in the wrong place; that is, not at their action stations. They may have to take one or more space combat turns to reach their actions stations; see *Internal Movement* (p. 228).

Space Combat Turns

As explained in *Turn Length* (p. 215), space combat is fought in a series of *space combat turns* that range from 20 seconds to 10 minutes in length. Each spacecraft takes its turn in sequence, until all vessels have had their turn, and then the sequence starts over. This works just like personal combat, except that turns are ordered by *spacecraft* rather than by character.

The GM determines the sequence in which spacecraft act. In 20-second turns, the default situation is that ships act in order from highest to lowest pilot Basic Speed; use the Basic Speed of the pilots who were controlling the vessels at the start of the battle. Vessels whose pilots have the same Basic Speed act in order from lowest to highest SM. Break any remaining ties with a die roll. Alternatively, the GM can have the first actions go to all spacecraft on the side that won a Quick Contest of Tactics or that performed a successful ambush.

Either way, the sequence is retained each turn, even if the pilot or situation changes (omitting vessels that were destroyed). If a new vessel enters the battle, add it to the end of the sequence. If one is launched from a hangar bay, insert it into the sequence after the launching craft. Objects other than spacecraft can also take turns; e.g., a spaceport on a planet or a moon, with its own sensors, hangars, and weapons, could be treated like a spacecraft.

On each spacecraft's turn, the important characters aboard it each take their own individual turns, performing tasks described below. After they've acted, their vessel's turn is over; proceed to the next ship in the sequence. Once every spaceship has had its turn, begin again, repeating the same sequence with the surviving combatants acting in the exact same order as before.

When Not To Use These Rules

These rules are intended to handle battles at great distances, often involving large crews. don't use them where standard one-second combat turns and range calculations in yards are more appropriate! For instance, if a spaceship is strafing a party of adventurers on the ground, fighting an airplane, or boarded, feel free to switch to the standard ***GURPS Basic Set*** vehicle rules. Refer to the vessel's short-form statistic block (multiplying dDR by 10 and dST/HP by 10 to get standard-scale values) and use *Weapons in Ordinary Combat* (p. 230).

Action During a Turn

During a spacecraft's turn, all PCs aboard – and any NPCs filling important roles – take their own turns. Each crewman gets to decide what duties he'll perform, if these differ from last turn, and whether he'll move about the vessel (which includes boarding small craft) or stay put.

Crewman aboard the spacecraft take their individual turns in the order shown below. Following this order ensures that the commander's skill rolls for handling the ship can affect the crew, that the engineer can provide power to drives and weapons so that the pilot and gunners can use them, and so on. This isn't a war game, though – the GM is free to vary the sequence as dramatically appropriate!

Characters may perform a single task without penalty – or, since each turn represents a lengthy period, they may combine multiple tasks at a penalty (see *Multitasking,* p. 217). There's no need to try to do *every* task. For instance, the lone crewman on a space fighter might decide to perform only a piloting task and a gunnery task, ignoring everything else. Similarly, a station, or a ship that's out of fuel, will usually omit piloting tasks.

1. **Command Tasks –** One character acting as commanding officer (and optionally one acting as executive officer) may perform actions from *Command Tasks* (p. 217).
2. **Engineering Tasks –** One character acting as chief engineer may allocate power (if necessary) and optionally perform an extra action from *Engineering Tasks* (p. 218).
3. **Navigation Tasks –** One character serving as navigator may perform actions from *Navigation Tasks* (p. 218).
4. **Piloting Tasks –** One character serving as pilot may perform actions from *Piloting Tasks* (p. 218). At the start of this phase, any *attack vector* or *collision course* results achieved by another spacecraft against the pilot's vessel are removed (but *engaged* or *rendezvous* results remain); see *Range* (p. 222). If no one is performing a piloting task, the spacecraft performs an Uncontrolled Drift (p. 222). If a collision course result is achieved, the pilot may opt to attempt a collision attack, but need not do so.

5. **Electronics Operation Tasks –** All characters acting as sensor or comm operators may perform actions from *Communications Tasks* (p. 218) or *Sensor Tasks* (p. 219) for the systems they control.
6. **Gunnery Tasks –** All characters controlling functional weapons may perform actions from *Gunnery Tasks* (p. 219).
7. **Crew Tasks –** Remaining crew members may perform tasks or other actions. The only activities given special rules here are described under *Damage Control Tasks* (p. 220), but there are plenty of opportunities for other activity. Medics can treat the injured in their system, stewards can try to calm passengers, boarding parties can rally at airlocks or fight aboard ship, passengers can hide in cabins, don space suits, or try to hijack the ship . . .

Multitasking

An individual can try to perform more than one *different* task in a turn, with certain restrictions. He can only perform tasks that are possible from within the system where he spent the entire turn. He can't perform the *same* task multiple times in a turn.

There's a skill penalty for multitasking, which applies to *all* tasks:

- -2 per task after the first within the *same* category; e.g., two different command tasks.
- -4 per task after the first from a *different* category; e.g., a command task and a piloting task.

Those who wish to multitask must indicate this when they perform their *first* task, so that the penalty can be applied to *all* tasks they perform during their turn.

Functional Systems and Control Stations

Some tasks require systems or control stations to be "functional." A functional system is one that has not been disabled or destroyed. If the system is a high-energy system ("!"), it must also have a Power Point assigned to it (or multiple Power Points, if it requires them). Subsystems such as control stations or weapons are functional if the system in which they're installed is functional.

Pre-Battle Turns

Each spacecraft's first turn is a *pre-battle turn,* which represents what it was doing just before combat started. There are certain restrictions on tasks during a pre-battle turn:

- Pilots cannot perform Closing or Retreat maneuvers.
- Gunners may not perform Aim or Attack tasks.
- A spacecraft may not activate a Necklin drive.

If combat is expected, pilots should usually choose Hold Course or Evasive Action as their pre-battle maneuver, while gunners take Wait (Point Defense) tasks to avoid nasty surprises.

Surprised Crews: If the GM judges that surprise has occurred (see *Ambush and Surprise,* p. 215), he may rule that some or all crew are not at their battle stations. This means they may have to use their pre-battle turn for internal movement (p. 228). Military ships normally make sure that at least some of their crew is on duty at all times, but other vessels may not be as vigilant.

Character Actions

Since each turn is longer than one second, characters don't take maneuvers. Instead, they perform *tasks* that represent multiple maneuvers over a period of time.

As explained above, tasks fall into several categories – command, engineering, etc. These categories determine *when* crewmen can perform certain actions, not *who* can try them. While tasks are often assigned to specific people (e.g., the pilot performs piloting tasks), a title isn't necessary – the ship's cook *could* run to a control station and take over the ship's helm!

Command Tasks

No more than two crew members (usually a "captain" and either an "executive officer" or a "tactical officer") may perform command tasks aboard a spacecraft in a given turn. The crew under them *must* recognize their authority. Command tasks may be performed from any functional control station.

As commanding officer, you can *always* tell the other key crew members what to do! Since each turn represents several seconds to 10 minutes, this is a free action. You can also spend time talking via communicator with someone outside the vessel (e.g., another spacecraft commander) using social skills such as Diplomacy or Intimidation. This will rarely count as a task unless it occupies the entire turn.

In addition to talking and giving orders, you may perform any of the following tasks during the turn. Unless noted otherwise, all effects last until your next turn. Tasks other than Motivate Crewman can be attempted only once *per spacecraft* per turn.

Leadership Task: The spacecraft's commander *or* executive officer (but not both!) may spend the turn inspiring all of his subordinates. This is a use of Leadership skill to improve morale and self-control. In addition to the bonuses noted on p. B204, success by 5+, or a critical success, gives +1 to the average Spacer skill of subordinates (but not the person performing the Leadership task).

Motivate Crewman Task: Motivate a *single* subordinate – such the pilot or engineer – who's performing an important task. Roll against Shiphandling skill, at -2 if you and your subordinate are in different systems (unless either of you is a computer program). Success gives the subject +1 on any tasks he performs during the turn. Failure means you're distracting him, giving -1. *Double* the bonus or penalty on a critical success or failure!

Shiphandling Task: Enable a subordinate to perform piloting tasks with Spacer skill instead of with Piloting skill by directing him. Use the *lower* of his Spacer skill or your Shiphandling skill in lieu of Piloting. You tell him what to do; it's up to the GM which of you makes the skill roll. Unless one of you is a computer program, you must both be in the same system. The main advantage of this task is that it's a command task rather than a piloting task: you can "steer the ship" while doing another command task with a -2 rather than -4 penalty.

Space Tactics Task: Pick a *single* enemy spacecraft or formation, predict what it will do, and relay that plan to any subordinates. You may choose "offensive tactics" (gives your target -1 to Dodge against you) or "defensive tactics" (gives your pilot +1 to Dodge against that target). To claim either benefit, you must succeed at a roll against the *lower* of Navigation (Space) or Tactics (or their defaults), at +1 in a 1-minute turn, +2 in 3-minute turn, or +3 in a 10-minute turn. Critical success doubles the benefit. Critical failure means a bad plan that gives your foe the benefit! *Exception:* If the target vessel (or enemy formation's leader) had someone performing the Space Tactics task last turn, whether focused on your ship or not, treat this as a Quick Contest of skill against him. Neither side gets time bonuses. You must win to succeed.

Engineering Tasks

Allocate all power to the plasma cannons!

These tasks involve allocating Power Points and temporarily upgrading engine or power-plant efficiency. Only one crew member per spacecraft (usually a dedicated chief engineer, on a large vessel) may perform an engineering task in a given turn – he's operating the ship's main engineering console. He must be at a functional control station. Each of the following tasks can be attempted only once per turn.

Allocate Power Task: If the spacecraft has fewer Power Points than it does high-energy systems ("!"), you can reallocate these Power Points, deciding which systems to "power up." This also includes the control of any systems "on" (when powered) or "off" (when not): force screens, Necklin drives, and beam weapons. No skill roll is required. Power allocation counts as a task for multitasking only if the allocation changed from last turn, or if the vessel gained or lost Power Points (e.g., due to power-plant damage).

Increase Power Task: If the spacecraft has one or more Power Points available, you may try to increase their efficiency. Make a Mechanic (Fission, Fusion, or Antimatter) skill roll. Success means careful switching and husbanding of power gives *one* extra Power Point to use this turn. Failure means it doesn't. Critical failure overloads the system, halving (round *down*) the Power Points available this turn. If you attempt this task, roll *before* allocating power.

Emergency Power Task: You may dangerously overstress one or more identical power-plant systems. Roll against the repair skill listed for that system. Success *doubles* the Power Points it can provide this turn, but unless you get a critical success, this also stresses the system: any attempt to use it to increase power during the next hour is at -4. Failure doubles the Power Points but disables the power plant at the start of your next turn. Critical failure disables it immediately without gain! If you attempt this task, roll *before* allocating power.

Emergency Thrust Task: You may overload one or more identical thruster systems. Use the same procedure as Emergency Power, except that success doubles acceleration rather than power. The thrusters will require delta-V commensurate with the increased acceleration.

Navigation Tasks

Just give me another few minutes to plot the course, Captain!

To perform these tasks, a crewman must occupy a functional control station. Each task can be attempted only once per turn.

Navigation and sensor operation are closely related aboard a spacecraft. The same crew member can perform both navigation tasks and sensor tasks (p. 219) with only a -2 multitasking penalty. However, a ship is limited to no more than one navigation task per turn per *functional* array – one task if it has a basic array, two if it has a basic array and another array, and so on – no matter how many navigators or sensor operators it has.

Regardless of arrays, it's *always* possible to attempt one navigation task per turn – even if that means looking out viewports – until the ship is actually destroyed. Such tasks are at -2 if the ship is reduced to 0 or fewer dHP.

Tactical Navigation Task: This involves assisting the pilot by plotting the best course around obstacles or threats. Roll against the *lower* of Electronics Operation (Sensors) or Navigation (Space). Success gives +1 to the pilot's Piloting skill (or Shiphandling or Spacer, if using that instead) this turn. Failure by 1-3 has no effect; failure by 4+ gives the pilot -1. Double the bonus or penalty on a critical success or failure!

Wormhole Navigation Task: Activating a Necklin drive involves allocating power to it. However, the navigator must first plot a course by making a Navigation (Hyperspace) roll. This normally takes 30 minutes, which means *several* turns regardless of time scale. Rushing gives the usual -1 per 10% or fraction thereof shaved off the time required (p. B346); e.g., -7 in a single 10-minute turn.

Piloting Tasks

Prepare for evasive action at 3G!

Piloting tasks involve maneuvering the vessel. Only *one* crew member – the ship's pilot – may perform piloting tasks during a spacecraft's turn (aside from dodging, which doesn't count as a task), and he can perform only one such task. On vessels without thrusters, this can involve using attitude controls or gyros to change facing.

These tasks usually require the Piloting skill. However, a DX-based Spacer roll will suffice if someone uses the Shiphandling command task to supervise the crewman performing the task. The crewman's skill cannot exceed his supervisor's Shiphandling skill.

A pilot must be in a functional control station or be a running computer program.

Move Maneuvers: You're steering the vessel. Pick a piloting maneuver (p. 220) such as Closing or Evasive Action for your spaceship, assigning the vessel's acceleration and facing as per the maneuver. Spacecraft whose Closing maneuver achieves a collision course may elect to ram; if so, resolve this immediately using *Ballistic Attacks* (p. 223). A ramming attempt may be interrupted by point-defense fire if the target's gunners took a Wait (Point Defense) task last turn.

Other Actions: If the spacecraft has robot arms or external clamps, and is in position to use them, you can control them to move, clamp, or manipulate things (using Ready maneuvers, etc.) based on whatever work could be done over the length of the turn.

Communications Tasks

I'm enhancing the signal. Putting it on audio . . .

Any crew member with access to a control station can engage in routine chatter on communications channels and keep a channel open for incoming messages. Comm suites have no difficulty communicating with targets at battle ranges. Electronics Operation (Comm) rolls are necessary only for emergency or abnormal uses of the equipment; see p. B189.

To perform such communications tasks, you must be in a functional control station. This *isn't* a unique position – a spacecraft may have enough channels to allow multiple crew members to attempt communications tasks, although such functionality is only *typical* of command ships, orbital ports, or fighter carriers.

Supervise Damage Control Task: Advise and coordinate a damage-control party by using damage report data from the control station. Roll against the *lower* of Electronics Operation (Comm) or Spacer. Success gives +1 to damage-control rolls made this turn by the team you're assisting; critical success gives +2. Failure has no effect. Critical failure means you distract them, giving -1. This task can be performed only once per damage-control party.

Signal Enhancement Task: If a message is too weak, garbled, or static-filled, make an Electronics Operation (Comm) roll to interpret it. This may require a Quick Contest with another comm operator's Electronics Operation (EW) skill, if he's jamming you. Each spacecraft may add its comm/sensor array level. You can also use this task for *Signal Detection* (p. 214).

Signal Jamming Task: If the spacecraft has a tactical or multipurpose array, you may use it to jam broadcast radio signals within up to 1% of communication range. Jamming succeeds automatically, but another comm operator performing a Signal Enhancement task can get through if he wins a Quick Contest against your Electronics Operation (EW) skill; see above. This task can only be performed once *per array* per turn.

Sensor Tasks

Fusion drive flare at six o'clock!

To perform these tasks, a crewman must occupy a functional control station. Where comm/sensor level matters, enhanced, multipurpose, science, and tactical arrays can only use their level if functional. Assume that the basic array is *always* functional.

A sensor operator can perform multiple Sensor Analysis tasks on *different* targets by multitasking, but a vessel is limited to at most one Sensor Detection task per functional array per turn. Since sensor operation is closely related to navigation, a crewman suffers only a -2 multitasking penalty for performing sensor tasks and navigation tasks (p. 218) at the same time.

Sensor Detection Task: This task allows a crew member to use one of the vessel's comm/sensor arrays to look for objects of interest. He gets to roll for *each* significant object that *hasn't yet been detected,* using the rules under *Passive Sensors* (p. 213). Once something has been detected, the spacecraft's navigation system tracks it automatically; finding it no longer requires a task. Alternatively, the operator can use active sensors (p. 214), although this is rarely as useful.

Sensor Analysis Task: This is an attempt to analyze sensor data for a detected object to determine details. Roll against Engineer (Spaceship) or Engineer (Starship). Repeated attempts in successive turns are possible.

Modifiers: +3 if using scanners (but the emissions can be detected); -6 in a 20-second turn, +1 in a 3-minute turn, or +3 in a 10-minute turn.

Success reveals the basic system type (e.g., "habitat" or "thruster") of all six hull systems [1-6] on the hull section facing your vessel, and whether they're functional, disabled, or destroyed. It *doesn't* reveal details that vary from system to system (e.g., you wouldn't discover what kind of weapon is in a spinal weapon system, or the exact types of cabins in a habitat), the composition of armor beyond the first, outer layer, or anything about *core* systems. Success by 5+ is required to detect any weak points in the hull that can be targeted. Critical success may reveal additional details. On a critical failure, the GM provides misinformation.

Gunnery Tasks

All forward plasma cannons target the lead cruiser.

A gunnery task allows a crew member to control a single turreted weapon, *or* a single spinal weapon, *or* all *identical* fixed-mount weapons in a major, medium, secondary, or tertiary battery. The gunner must be in a functional control station, occupy and control a turret using its dedicated controls, or be a computer program running on the spacecraft's computers. Multiple gunners can't control the same weapon(s).

A gunner may perform *one* of the following tasks with the weapon(s) he controls. No one may perform more than one gunnery task per turn (with the exception of spreading fire – see p. 223).

Aim and Attack Task: Aim and fire at a specified target or targets. You're assumed to be making an All-Out Attack (Determined) after 3+ seconds of Aim; this is *already* factored into the combat tables. Resolve the attacks immediately according to *Weapons Fire* (p. 222). High-energy systems ("!") may only fire if they're powered. (*Exception:* If a weapons battery contains conventional guns or missile launchers, these don't require power.) The rate of fire of weapons is scaled with turn length. An attack represents sustained firing over the turn.

Wait (Aim and Attack) Task: Delay your attack. You may attack a single target on its *own* turn, firing during the *target's* gunnery phase. If the target also fires, the two attacks are considered to be *simultaneous* for damage purposes (although you can roll the dice in any order). The advantage is that this lets you attack after the enemy has moved closer to your vessel; the disadvantage is that your foe can shoot back or move away. You must specify the target you're waiting for. (You can decide to attack another target instead, but then your attack will be at -2.)

Wait (Point Defense) Task: Reserve the weapon(s) you control for defensive fire against incoming ballistic attacks. If any incoming missiles or vessels successfully attack your spacecraft (or one you're in formation with) in the period between when you select this task and your next turn, you may *immediately* interrupt to fire at them; see *Point Defense Attacks* (p. 224). You can opt to use only some of your RoF; if so, you may attack again, firing unused shots to interrupt further ballistic attacks before the start of your next turn.

Damage Control Tasks

You're trying to fix something or rescue someone – by yourself or leading a team. Damage control doesn't take place in a fixed location; you can move from system to system, but you can only perform damage control if in the system that's disabled or (in the case of rescue activities) destroyed. There are four damage control tasks:

Emergency Repairs Task: Perform emergency repairs to a specific disabled system the team is occupying. *Destroyed* systems can't be repaired.

Halt Catastrophe Task: Attempt to shut down a disabled or destroyed volatile system (such as an antimatter reactor) before it explodes (see *Volatile Systems,* p. 227).

Rescue Task: Attempt to rescue occupants trapped in a destroyed compartment. See *Rescue* (p. 229).

Structural Repairs Task: Perform lasting repairs to fix general dHP loss. This is usually only attempted during 10-minute turns. *Destroyed* systems can't be repaired.

These procedures are covered in detail under *Damage Control* (p. 228).

Keeping it Simple: NPC Crew Actions

Character Actions (p. 217) is a full set of rules for situations involving PCs and important NPCs. For lesser NPCs, some streamlining is in order!

First, assign the crew of an NPC-run vessel an average skill level – typically 10 if rookie, 11 if average, 12 if experienced, 13 if veteran, or 14 if elite.

Then simplify crew tasks as follows:

Command: don't worry about this! Assume the NPC commander is busy giving orders.

Engineering: Allocate power if necessary. Ignore the other options.

Piloting: Use the full rules.

Gunnery: Use the full rules.

Damage Control: Use the full rules. Assume that a spacecraft has access to one damage-control party per engine room system (per drive or power plant, at SM +10 and above).

Other Tasks: Ignore these unless the GM thinks they're important to the situation (e.g., Sensor Detection if opposing vessels haven't yet been spotted).

Space Movement

When a pilot chooses a Move maneuver as his piloting task, he must further specify which single *piloting maneuver* (below) he'll use: Closing, Controlled Drift, Evasive Action, Hold Course, or Retreat. Each option represents in an abstract fashion how his spacecraft is moving relative to the other combatants. If no one is piloting the vessel (or it's unable to change course), its movement defaults to Uncontrolled Drift. See *Pre-Battle Turns* (p. 217) for other restrictions.

Fast Pass Status

If a spacecraft begins its turn with fast pass status, it will race out of combat range and leave the battle at the *start* of its *second* turn. This means it gets a pre-battle and *first* turn, and opponents get their own turn to maneuver and attack it.

After the spacecraft leaves the battle area, the GM may use the rules on p. 200 to determine how long it takes to decelerate and return to the battle, based on its velocity. In many instances it may take hours or even days to reverse course, depending on how quickly the vessel was going and the combat's turn length. It's usually easiest to assume the vessel is out of the fight! If there are no other foes, the battle ends (for the moment).

Acceleration Bonus

All maneuvers except Drifts provide the option to accelerate to gain an *acceleration bonus*. This is enough acceleration for a long enough period to achieve a significant position change during the turn. It depends on turn length and encounter scale.

Acceleration: To achieve an acceleration bonus, the spacecraft must be able to accelerate. This requires at least one functional thruster. Drives are rated for maximum acceleration.

Burning Fuel: Vessels have a limited delta-V reserve. To sustain acceleration through the space combat turn, a spaceship must spend some of its delta-V reserve, using up the reaction mass in its fuel tanks.

The *Acceleration Bonus Table* shows the acceleration required for a +2 acceleration bonus and, in parentheses, the delta-V cost per +2 that reaction engines must pay from their fuel tanks' delta-V reserve. A spacecraft must meet *both* requirements. However, each +1 requires only half the listed acceleration and delta-V.

Acceleration Bonus Table

Close-Scale Encounter	***Requirements***
20-second turn	10G (and 1 mps) per +2
1-minute turn	1G (and 0.3 mps) per +2
3-minute turn	0.1G (and 0.1 mps) per +2
10-minute turn	0.01G (and 0.03 mps) per +2
Standard-Scale Encounter	***Requirements***
20-second turn	100G (and 10 mps) per +2
1-minute turn	10G (and 3 mps) per +2
3-minute turn	1G (and 1 mps) per +2
10-minute turn	0.1G (and 0.3 mps) per +2
Distant-Scale Encounter	***Requirements***
20-second turn	1,000G (and 100 mps) per +2
1-minute turn	100G (and 30 mps) per +2
3-minute turn	10G (and 10 mps) per +2
10-minute turn	1G (and 3 mps) per +2

Example: During a standard-scale encounter fought in 3-minute turns, the privateer *Revenge,* equipped with fusion torch thrusters, is using a Closing maneuver to chase the Retreating merchant *Innsmouth*. The *Revenge* knows *Innsmouth* accelerated at 1G last turn, for a +2 acceleration bonus. The *Revenge* wants to be faster. It has three high thrust fusion torch engines with 3G total acceleration, and only 12 mps delta-V left in its tanks. It goes for a +6 bonus, which requires 3G acceleration and costs 3 mps delta-V. This leaves only 9 mps in its tanks!

Piloting Maneuvers

A pilot who takes a Move maneuver must specify which of the following piloting maneuvers he's performing. He can only perform *one* maneuver in a turn. He can't choose a Closing maneuver on the first turn of a battle unless he has fast pass status. Some maneuvers have other specific prerequisites.

An *unpiloted* spacecraft defaults to Uncontrolled Drift.

Maneuver Modifiers: Some maneuvers involve Quick Contests of skill. In addition to any specific modifiers listed, assess the following modifiers to each pilot as applicable:

- Acceleration bonus (p. 220), if his spacecraft accelerated.
- His spacecraft's Handling (Hnd) statistic.
- Multitasking penalties (p. 217).
- A -6 if he's engaged in a Quick Contest with an undetected target.
- Any relevant skill modifiers due to appropriate tasks performed to assist him; e.g., Tactical Navigation (p. 218).

The modifiers of the *maneuvering* spacecraft are based on *this* turn's situation, while those of the *target* vessel are based on its situation during its own *last* turn. The GM will therefore need to keep track of the maneuver (and acceleration) each ship used on its last turn.

Facing: Facing is which of your hull sections – front, central, or rear – faces your opponents. A pilot chooses facing within the limits specified for the maneuver he picked. It remains until his next turn. The major effects are:

- Facing determines which weapons on the spacecraft can fire; see *Bearing* (p. 22).
- Only the hull section that faces your opponents can be targeted by enemy fire aimed at the spacecraft's hull, although certain other exposed systems can also be attacked.

Closing Maneuver

You're attempting to maneuver your vessel close to a particular target. Select a vessel (or other object, such as an asteroid or a spaceport) as the target of your maneuver.

You must either accelerate enough to receive an acceleration bonus (p. 220) or be making a fast pass (p. 220). If your target's last maneuver was Controlled Drift or Uncontrolled Drift, roll against your Piloting skill – adding any maneuver modifiers – to succeed. Otherwise, success requires you to *win* a Quick Contest of Piloting with the target's pilot, and *both* of you add maneuver modifiers. If the target's last maneuver was Evasive Action, he receives double his acceleration bonus.

If you succeed and were not already engaged with your target, your vessel can either achieve an *attack vector* against that target (a quick, close approach) or choose to be *advantaged* against it (outmaneuvering it). If you succeed by 10+, you may combine advantaged *and* an attack vector – or, instead, choose to be either *engaged* (closing and matching velocity) or on a *collision course* (a very close approach) with the target.

If you were already engaged with your target at the start of your turn, success lets you choose to be advantaged against it or perform a collision course. Success by 10+ lets you combine both – or opt instead to *rendezvous* with the target (for docking).

For definitions of these terms, see *Range* (p. 222) and *Advantaged Status* (p. 222).

Facing: If you accelerated, your front hull faces all opponents. Otherwise, decide whether your front, central, or rear hull faces all opponents. *Exception:* If you *lost* the Quick Contest against a foe who was advantaged against you on his last turn, then his vessel is still advantaged against you and he may choose your facing toward him.

Closing Strategies: You may modify a Closing maneuver by choosing one of these options:

- *Dedicated:* You're at +3 to Piloting when performing your Closing maneuver, but your spacecraft cannot dodge until your next turn.
- *Ambush:* You may use this option against a target that performed a Hold Course or Closing maneuver on its last turn, but only if your vessel hasn't yet been detected or if the GM rules that sufficient cover exists (in crowded orbital space, a cinematic asteroid belt, the upper atmosphere of a gas giant, etc.) to make this possible. You need not accelerate; instead, you ambush the opponent as he passes you by. Both commanders may opt to substitute Tactics for Piloting, and the effects of both your acceleration bonus and your target's are halved (round down). Otherwise, use the normal Closing rules

Controlled Drift Maneuver

You don't accelerate, but can use your vessel's attitude controls to change its facing. If you were engaged or rendezvoused with any spacecraft or other objects at the start of your turn, you remain so.

Facing: You can decide whether your front, central, or rear hull faces all opponents; if you don't specify, your central hull is assumed. Optionally, you may be tumbling; if so, *all* hull sections face *all* opponents. Beam or gun attacks you make while tumbling are at -4. Any opponent may choose which section to target – taking the -4 penalty – or roll randomly when he scores a hit (roll 1d: 1-2 is front, 3-4 is central, 5-6 is rear).

Evasive Action Maneuver

You're maneuvering to make it more difficult for opponents to close with or attack your vessel, or to set up a future Retreat maneuver. You must accelerate enough to get an acceleration bonus (p. 220).

You automatically break away from any vessels or other objects engaged or rendezvoused with you. You (and they) lose this position.

You don't make any skill rolls now, but until your next turn, you may add *twice* your acceleration bonus to any Quick Contest made to avoid an opponent taking a Closing maneuver against you. You also have +1 to Dodge.

Facing: Your central or rear hull (decide which) faces all opponents not advantaged against you.

Hold Course Maneuver

You're maneuvering on a steady course without getting near any particular vessel. You must accelerate, but may not exceed a +3 acceleration bonus.

If you began your turn engaged with any spacecraft or other objects, you're still engaged with them. However, rendezvous status is lost unless a vessel is clamped to you (see *External Clamp*, p. 189).

Any opponent Closing with you before your next turn will need to win a Quick Contest of Piloting skill with you, and you'll add your acceleration bonus. See *Closing Maneuver* (above).

Facing: Your front or central hull (your choice) faces all opponents not advantaged against you.

Retreat Maneuver

You're trying to escape! Your last turn's maneuver must have been Evasive Action or Retreat. If it was Evasive Action, your spacecraft must also accelerate enough to receive an acceleration bonus (p. 220).

Any opponent Closing with you before your next turn must win a Quick Contest of Piloting skill with you to close the range, and you'll add your acceleration bonus. See *Closing Maneuver* (above).

You automatically break away from any vessels or other objects engaged or rendezvoused with you. You (and they) lose this position.

You can still be attacked by enemy vessels until the start of your *next* turn. At that point, your vessel escapes the encounter area! Vessels that were Closing may follow you. All others will be left behind. Should multiple spacecraft choose to Retreat and escape, they may opt to escape in the same direction. If so, they and any successful pursuers may form a new engagement (GM's option).

Facing: If you accelerated, your vessel's rear hull faces all opponents not advantaged against you. If you didn't, choose whether your front, central, or rear hull faces them.

Uncontrolled Drift ("Drift") Maneuver

This is the *absence* of a deliberate maneuver. It occurs automatically if a spacecraft begins its piloting phase with no one piloting it. Such a vessel can't dodge.

The GM should also assign Uncontrolled Drift to locations or objects such as asteroid bases, lost spacers, or drifting life pods that are important to the situation. They may still take a turn in the sequence (during which people on them can act).

Uncontrolled Drift is treated exactly like Controlled Drift except for facing.

Facing: Whatever facing you had on your last turn continues to face all opponents not advantaged against your vessel.

Range

Range measures how far apart two spacecraft or formations are. In these rules, range is simplified – it's relative to the situation between the attacking or scanning vessel and the target, as determined by the results of the last maneuver of the vessel whose turn it is. Refer to the row on the *Range Table* (below) corresponding to the appropriate position:

Rendezvous: Use this when spacecraft are docked with or grappled to one another, or achieve a rendezvous result through maneuvering. This position may continue from turn to turn unless broken by the target's own maneuver.

In Formation or Incoming: All vessels in formation with one another are at point-blank range to each other, as are incoming ballistic attacks.

Collision Course: If your spacecraft achieved a collision course result against the target, use this row to find the range to the target and to any vessel with which it was in formation or rendezvoused. This status remains until the piloting phase of each target's turn.

Attack Vector: If your spacecraft achieved an attack vector against a target this turn, use this row to find your range to it and to any vessel with which it was in formation, rendezvoused, or engaged. This status remains until the piloting phase of each target's turn.

Engaged: If your spacecraft engaged a target this turn, use this row to find your range to it and to any vessel with which it was in formation, rendezvoused, or engaged. This position may continue from turn to turn unless broken by the target's own maneuver.

Neutral: This is the default row. Use it to find range if your vessel failed to succeed with a Closing maneuver this turn, or if its last maneuver was Controlled Drift, Evasive Action, Hold Course, Retreat, or Uncontrolled Drift.

Range Table

Position	*Close Scale*	*Standard Scale*	*Distant Scale*
Rendezvous	Zero	Zero	Zero
In Formation or Incoming	Point-Blank	Point-Blank	Point-Blank
Collision Course	Point-Blank	Close	Short
Attack Vector or Engaged	Close	Short	Long
Neutral	Short	Long	Extreme

Example: The battleship *Ares* performs a Closing maneuver and succeeds, achieving an engaged result against the assault ship *Logic of Empire*. The battle is being fought in the standard combat scale, so on *Ares'* turn the range to *Logic of Empire* is Short. The *Logic of Empire* was in formation with the destroyer *Terrible Beauty,* so *Ares'* range to the *Terrible Beauty* is also Short. A third enemy vessel, the cruiser *Talon,* is involved in the battle – but since it wasn't in formation with either of its allies, it's neutral and so at Long range to *Ares*.

On its turn, the *Logic of Empire* performs an Evasive Action maneuver. This breaks engaged status; it's now neutral to *Ares,* and at Long range with respect to it. However, *Terrible Beauty* on its turn chooses a Controlled Drift – which means that without any need for a skill roll, it automatically remains engaged with *Ares* and at Short range to it.

Advantaged Status

If you achieved this result against an opponent, it means you outmaneuvered that foe. You may opt to approach your target from a *different* facing adjacent to the one that would normally face you: front or rear hull instead of central hull, central hull instead of front or rear hull. If the target's last maneuver was Uncontrolled Drift, advantaged status lets you approach from *any* facing; you may approach from the rear even though the target's front was facing all opponents, or vice versa. Advantaged status confers no benefit against a tumbling target.

Advantaged status lasts only until your opponent's next turn – it goes away as soon as he chooses a maneuver. *Exception:* If he chose Uncontrolled Drift, or failed badly on a Closing maneuver, it persists until the start of your next turn.

Weapons Fire

Weapons may fire if the gunner performed an Aim and Attack task. They may also fire at an incoming missile, shell, or ramming vessel if he chose a Wait (Point Defense) task.

Bearing

The firing vessel's facing toward the target determines what weapons can fire:

Spinal battery weapons can only fire at a target their spacecraft's front hull is facing (unless the weapon faces the rear, in which case the rear hull must face the target).

Fixed-mount weapons can only fire at a target if the hull section in which they're installed faces the enemy.

Turret weapons in the front hull can fire at targets that the attacking vessel's front or central hull is facing.

Turret weapons in the rear hull can fire at targets that the attacking vessel's rear or central hull is facing.

Turret weapons in the central hull can fire at any target.

Rate of Fire

Rate of fire (RoF) per weapon appears on the *RoF Table.* These values include time for aiming and/or programming, for beams to cool, and for guns or launchers to reload between shots.

All *identical* fixed-mount weapons in the same battery may be fired simultaneously. Multiply RoF by the number of fixed mounts in the battery.

If a weapon has RoF 2+, the gunner must specify how many shots he'll fire, up to a maximum of the weapon's RoF. Guns and launchers are also limited by the total number of shots remaining – especially in 3-minute and 10-minute turns!

RoF Table

Class of Weapon	20-second	1-minute	3-minute	10-minute
Launcher	1	3	10	30
Beam or Gun	1	3	10	30
Rapid Fire Beam or Gun	10	30	100	300
Very Rapid Fire Beam or Gun	100	300	1,000	3,000

Example: When firing in a 3-minute turn, a medium battery with three fixed mounts, each with rapid fire lasers, has RoF 100 × 3 = 300.

Targets

A gunner has to specify his target before attacking. The chosen target must be within range and within his weapon's bearing. It can be:

- A spacecraft or other object in space.
- An object on a world (or within atmosphere); see *Ground Fire* (p. 230).
- In point defense, a salvo of one or more incoming missiles or shells, or a spacecraft attempting to ram, that's targeting either the gunner's vessel or another spacecraft with which his ship is in formation or rendezvoused.

Hull Section

An attack on a spacecraft is ordinarily assumed to be directed against the section of the target's hull facing the attacker:

- If the target's front or rear hull faces the attacker, this must be targeted.
- If the target's central hull faces the attacker, the attacker may target the central hull (the default target), front hull, *or* rear hull.

A gunner may specify a more precise location in the hull using *Precision Attacks* (p. 230). He can also target certain large exposed systems or features *instead* of the hull; see *Targeting Exposed Systems* (p. 230). He may combine these options with *Spreading Fire* (below).

Spreading Fire

A gunner may choose to divide his shots among *different* targets, either attacking multiple vessels or firing at different parts of a single vessel. He must specify all targets before rolling to hit. This imposes an extra -2 per different target engaged (applied to *all* attack rolls) when firing beams or guns, or -1 per target if using missiles. Make one attack roll for each target.

Note: Multiple incoming missiles or gun shells launched as a single attack *don't* count as different targets! All shots in the salvo count as a *single* target.

Beam Fire

Beams can attack targets out to the maximum range specified on the *Beam Damage and Range Table* (p. 231) – Point-Blank (P), Close (C), Short (S), Long (L), or Extreme (X). Two ranges separated by a slash indicate a "half-damage range"; e.g., S/L means full damage to Short range, half damage to Long range. Only *detected* targets can be attacked.

Beam Attack Rolls

Start with the Gunner (Beams) skill if firing on targets in space, or Artillery (Beams) for space-to-surface fire. Apply the modifiers listed below to find *effective* skill. Finally, roll 3d against effective skill to hit.

These modifiers combine the effects of aiming, targeting systems, and range to arrive at manageable numbers. See *Weapons in Ordinary Combat* (p. 230) for specifics.

Target Size: Add the target's SM.

sAcc: Add the weapon's Space Accuracy. This is 0 for most weapons but -3 for plasma cannons. Add +1 for 1GJ or larger weapons.

Space Range: +20 at zero, 0 at Point-Blank, -4 at Close, -8 at Short, -12 at Long, or -16 at Extreme.

Spinal or Fixed Mount: +2 if firing any spinal or fixed mount.

Damage: -2 if attacking vessel has 0 HP or less (this reflects damage to its distributed sensor and computer network).

Target: -1 if attacking *streamlined* target's front or rear hull; -5 if aiming for a specific spacecraft hit location (see *Precision Attacks,* p. 230), or -10 if aiming for a weak point in armor; -2 per defensive ECM system (or -1 per system if attacker has a functional tactical or multipurpose array).

Surface Targets: If attacking surface targets during space combat, apply any relevant *Target* or *Visibility* modifiers (e.g., for cover) from p. B548.

Multitasking: Apply any multitasking penalties (p. 217). Add -2 per target if spreading fire.

Point Defense: If firing in point defense against a ballistic attack with a relative velocity of 300 mps or more, apply the following modifier: -3 if 300 mps, -6 if 1,000 mps, -9 if 3,000 mps, -12 if 10,000 mps, -15 if 30,000 mps, or -18 if 100,000+ mps.

Rapid Fire: If firing multiple shots at the same target, apply the bonus from the *Rapid Fire Table* (this extends the rapid fire progression on p. B548).

Rapid Fire Table

Shots	Bonus	Shots	Bonus
2-4	0	50-99	+6
5-8	+1	100-199	+7
9-12	+2	200-399	+8
13-16	+3	400-799	+9
17-24	+4	800-1,599	+10
25-49	+5	etc.	etc.

Successful Attacks

A roll equal to or less than effective skill means the target was hit. If firing multiple shots at a single target, score one extra hit per full multiple of Recoil by which you made your attack roll, to a maximum of the number of shots actually fired.

Recoil is normally 1 for all beam weapons. However, the GM may optionally add +1 to Recoil in 3-minute or 10-minute turns to represent gunners pausing to aim and assess the situation. This will reduce hits, which can improve playability!

As usual, critical success means the target cannot dodge. Failure means no hits occur. Critical failure also means the firing system malfunctions; treat as a disabled system, but with no crew casualties.

Except on a critical success, beam attacks may be avoided; see *Dodge* (p. 224).

Ballistic Attacks

Guns, missile launchers, and ramming spacecraft all use these rules. Since the attacker is steering or homing on the target, range modifiers are *irrelevant* – what matters is relative velocity.

When firing a launcher or a gun, be sure to specify the *type* of warhead used, if different types are carried.

Proximity Detonations

The gunner making a missile or gun attack may opt to fuse the missiles or shells for *proximity detonation*. This significantly increases the chance of a hit, but reduces damage (if a nuclear or antimatter warhead) or armor divisor (if a conventional warhead). All shells or missiles in the attack must have the same fusing.

Relative Velocity

Relative velocity is simplified to an "average" value based on the scale chosen and the weapon used. Compare the time and distance scales on the *Base Relative Velocity Table* to find the typical base velocity.

If the attacker has a rendezvous or engaged position with respect to the target, use that table row *instead*.

If the attack is a gun shell or a missile, and base velocity is less than the weapon's minimum velocity, raise it to that value.

If a spacecraft is making a fast pass, use the actual velocity.

Example: In a 3-minute turn in the close combat scale, the typical velocity is normally 1/10 mps. However, the attacker is using a missile, so the velocity is raised to 1 mps.

Base Relative Velocity Table (mps)

Scale	*Close*	*Standard*	*Distant*
20-second turn	1	10	100
1-minute turn	1/3	3	30
3-minute turn	1/10	1	10
10-minute turn	0	1/3	3
If rendezvous	0	0	0
If engaged	1/6	1/3	1/2
Weapon	***Minimum Velocity****		
Conventional Gun	1		
Electromagnetic Gun	2		
Grav Gun	5		
Missile	1 or 2†		

* If firing a gun or a missile and the minimum velocity shown is greater than the typical velocity, raise it to the minimum.

† Use 1 mps if the target is at Point-Blank or Short range, or if the attacking spacecraft took a Retreat maneuver last turn.

Point Defense Fire and Relative Velocity: When missile launchers or guns are fired in point defense against an incoming ballistic attack, the relative velocity is simply the relative velocity already calculated for that ballistic attack.

Ballistic Attack Roll

Base skill is Artillery (Guided Missile) for missile launchers, Gunner (Cannon) for guns, or Piloting for a ramming attack. To determine *effective* skill, apply the modifiers below – which, like those for beams, take into account aiming, targeting systems, etc. Then roll 3d against effective skill to hit.

Target Size: Add the target's SM. If ramming, use the *greater* of your SM or the target's – it's easier to squash small vessels if you're gigantic!

sAcc or Handling: Add the attacking gun or missile's sAcc (see *Guns and Launchers Table,* p. 230). If ramming, add the attacking spacecraft's Handling instead.

Target: -1 if attacking *streamlined* target's front or rear hull; -5 if aiming for a specific spacecraft hit location (see *Precision Attacks,* p. 230), or -10 if aiming for a weak point in armor; -2 per defensive ECM system (or -1 per system if attacker has a functional tactical or multipurpose array).

Proximity Detonation: +4 if using a warhead fused for proximity detonation (above).

Surface Targets: If attacking surface targets during space combat, apply any relevant *Target* or *Visibility* modifiers (e.g., for cover) from p. B548.

Relative Velocity: Based on the relative velocity of the collision: +6 if 0, +3 if 0.3 mps, 0 if 1 mps, -3 if 3 mps, -6 if 10 mps, -9 if 30 mps, -12 if 100 mps, -15 if 300 mps, -18 if 1,000 mps, -21 if 3,000 mps, -24 if 10,000 mps, -27 if 30,000 mps, or -30 if 100,000+ mps.

Rapid Fire or Multiple Incoming: If firing multiple gun shots or missiles, apply the bonus from the *Rapid Fire Table* (p. 223).

Successful Attacks

A roll equal to or less than effective skill means the target was hit. If firing multiple shots at a single target, or if a proximity-fused conventional warhead explodes, score one extra hit per full multiple of Recoil by which you made your attack roll, to a maximum of the number of shots actually fired (or 10× that, if using proximity-fused conventional warheads).

Recoil is 1 for missiles. For guns, see the *Guns and Launchers Table* (p. 230). Add +1 to effective Recoil if any nuclear or antimatter warheads were used in the attack; this is to simulate fratricide (warheads destroying one another if shots are spaced too closely together). The GM may optionally add +1 to Recoil in 3-minute or 10-minute turns.

Critical success means the target cannot dodge. Any failure simply means that no hits occur.

Point Defense Attacks

A defender who performed a Wait (Point Defense) task (p. 219) may interrupt to fire against any incoming missiles, gun shells, or ramming spacecraft. Point defense attacks are announced and resolved immediately *after* a successful ballistic attack roll is made but *before* the target attempts to dodge.

Roll to hit normally. See the *Gun and Missile Ammunition Table* (p. 201) for shell or missile SM. Apply relative velocity modifiers.

Targets of point defense fire may not themselves dodge or use point defense. Each hit against missiles or shells hit kills one projectile. Determine damage as usual against spacecraft.

Dodge

A spacecraft may attempt to dodge any beam or ballistic attack provided that *none* of the following apply:

- It cannot accelerate (no delta-V reserve or no working thrusters).
- Its most recent maneuver was Closing *and* the pilot chose the Dedicated strategy.
- Its most recent maneuver was Controlled Drift or Uncontrolled Drift.
- No one is piloting it.
- The attack is point defense fire. Ramming spacecraft and incoming shells and missiles *can't* dodge point defense fire!
- The attacker scored a critical hit.

Compute Dodge as follows:

Dodge = (Piloting Skill/2) + Handling + Dodge Modifiers

Piloting Skill/2 is half the pilot's skill, including any bonus for a Tactical Navigation task (p. 218), rounded up.

Dodge Modifiers are:

Defensive ECM: +1 per system installed, to a maximum of +3. The ECM must have a TL equal to or greater than the attacker's.
Evasive Action Maneuver (p. 221): +1.
Pilot: +1 for Combat Reflexes or Enhanced Time Sense.
Space Tactics Task (p. 217): Your "defensive tactics" or your foe's "offensive tactics" may modify your Dodge.
Turn Length: +1 in 1-minute turns, +2 in 3-minute turns, or +3 in 10-minute turns.

Roll against Dodge once per attack. If the attack scored multiple hits, success avoids one hit plus additional hits equal to margin of success.

DAMAGE

All damage inflicted under these rules is *decade-scale* – that is, in multiples of 10 points of damage. Roll basic damage for every hit scored against a target.

Exception: If firing in point defense against incoming missiles or shells, don't bother rolling damage! Each weapon hit – including tractor-beam hits – "kills" *one* missile or shell.

Beam Damage

The *Beam Damage and Range Table* (p. 231) gives the basic damage dice and type for beam weapons other than tractor beams, based on their output. If a beam weapon fires at a target at or beyond its half-damage range, *halve* basic damage (round down). Tractor beams have a special effect; see *Tractor Beams in Combat* (p. 230).

Plasma Mirrors and Sword-Swallowers

Functional plasma mirror (p. 193) and Sword-Swallower (p. 195) systems reflect plasma cannon and laser fire, respectively. They protect the *entire* vessel. Subtract dDamage dice from such attacks – up to the system's rated maximum for the turn – *before* rolling damage or applying the rules under *Damage Resistance* (below). This damage is returned to the attacker, affecting him as described for the relevant system.

Ballistic Attack Damage

Use these rules for missiles, gun shells, and collisions.

Nuclear and Antimatter Warheads

Damage depends on the warhead's yield, as shown on the *Nuclear and Antimatter Warhead Damage Table* (p. 231).

Conventional Warheads, Ramming, and Collisions

Gun shells and missiles with *conventional* warheads – and spacecraft that ram or that accidentally collide – inflict decade-scale damage (dDamage) based on the collision's relative velocity. In a ramming or collision situation, *both* parties involved take the same dice of damage. When a gun shot or missile hits, it is destroyed and damages its target.

To calculate dDamage, use the appropriate formula, rounding to the nearest die:

Gun Shell or Missile dDamage = Weapon dDamage × V
Ramming or Collision dDamage = 6d × 3 × Lesser dST × V

Weapon dDamage is found on the *Conventional Warhead Damage Table* (p. 231).

V depends on relative velocity in miles per second (mps), as calculated under *Ballistic Attacks* (p. 223).

Lesser dST is *lower* of the two dST (or basic dHP) scores involved – or either of them, if identical. For example, if a 30-ton fighter with dST 20 collides with a 10,000-ton freighter with dST 150, each inflicts damage on the other based on dST 20. If a spaceship crashes into a world or other immovable object, use the ship's dST.

Hit Location

Attacks may strike various locations on a vessel.

Hull Section

An attack normally strikes a particular hull section (front, central, or rear hull). If so, determine the specific system struck.

If making a precision attack, the attacker can specify which of the six hull systems is hit; see *Precision Attacks* (p. 230).

Otherwise, roll 1d to determine which (non-core) system in the attacked section was hit. As explained under *Design* (p. 184), the systems in each hull section are numbered [1] to [6] for this purpose.

A destroyed system *can* be hit – the damage will pass through and affect another system, as detailed in *Damage to Hull Sections* (p. 226). *Exception:* If *every* system in a hull section has been destroyed, the attack instead hits the same-numbered system in the *adjacent* hull section. The front and rear hull are *both* adjacent to the central hull (roll 1d: 1-3 is front, 4-6 is rear). The attack ignores all armor dDR!

Exposed Systems

If attacking an exposed system, see *Targeting Exposed Systems* (p. 230).

Damage Resistance

Spacecraft Damage Resistance is decade-scale, abbreviated dDR. Force screen dDR comes before armor dDR, as explained below. For defenses that sometimes precede *all* dDR, see *Plasma Mirrors and Sword-Swallowers* (above).

As indicated in the *Weapon Tables* (p. 230), many spacecraft weapons have armor divisors; e.g., (2). Divide dDR by the armor divisor, rounding down.

Force Screens

If the target is protected by a functional force screen, subtract the screen's dDR first. Force screens protect the *entire* vessel.

The shattered ship hung in space, a black bulk in the darkness. It still turned, imperceptibly slowly; one edge eclipsed and swallowed the bright point of a star. The lights of the salvage crew arced over the skeleton.

– Shards of Honor

Armor

If a system in a hull section was hit, subtract the cumulative dDR of that section's armor systems from the damage. (Combined dDR will be noted in the spacecraft's dDR statistic.) *Exception:* If the initial system hit location roll happens to be a *destroyed* armor system, ignore that system's dDR. Disabled armor systems protect normally.

Armor doesn't protect *exposed* systems.

Penetrating Damage

If any basic damage remains after subtracting force screen and armor dDR, this is the penetrating dDamage. If no basic damage remains, the hit failed to penetrate. If a system within a hull section was hit, see *Damage to Hull Sections* (below). For exposed systems, see *Targeting Exposed Systems* (p. 230).

Damage to Hull Sections

Penetrating damage reduces the spacecraft's dHP. If the damage was great enough, it may also disable one or more spacecraft systems.

If penetrating damage was at least 10% but less than 50% of dHP, the system hit is *disabled*. A system that was already damaged is *destroyed*. If it was already destroyed, the next undestroyed numbered system in that hull section is damaged, counting upward; e.g., if system [4] is rolled but both it and system [5] have already been destroyed, system [6] is disabled (or destroyed, if already disabled) instead. After system [6], go on to any undestroyed [core] system, if one exists in that section; if not, start again with system [1].

If penetrating damage was at least 50% of dHP, the system hit is *destroyed*, regardless of whether it was originally damaged. If it was already destroyed, the next undestroyed numbered system is destroyed, following the sequence described above. In addition, one other random system in that hull section suffers a damage result; roll hit location, skipping upward for systems already destroyed, as described above.

If penetrating damage was enough to reduce the vehicle's dHP to -1 × dHP or worse, check to see if the *vessel* was destroyed (see below). If it was, don't bother applying individual system damage! Otherwise, apply the results detailed above.

Negative HP and Destruction

A vessel reduced to 0 or fewer dHP is badly damaged but may still function. Above -1 × dHP, don't make HT rolls to see if the ship is still working. The state of its systems determines exactly how well it can operate.

When a spacecraft reaches -1 × basic dHP, though, it has suffered so much damage to its structural integrity that it must make a HT roll to avoid destruction. Failure means it's destroyed. If it survives, further HT rolls are required each time the vessel is reduced to another multiple of -1 × dHP. At -5 × dHP, the ship is automatically destroyed.

A destroyed vessel is just wreckage, but some types of systems might still be functional. Armor, cargo, habitats, hangars, missile batteries, open spaces, passenger seating, and upper stages are still functional if they haven't yet suffered damage. All other systems stop functioning as data, power, and fuel lines are cut. If further damage reduces a destroyed vessel to -10 × dHP, it's *shattered*.

Effects of 0 dHP

A vessel at 0 dHP or below suffers these penalties as a result of damage to distributed systems:

- All comm/sensor array levels drop by 1.
- Handling drops by 2.
- Gunners have -2 to hit when making beam attacks.

Upper Stage

If a spacecraft with an attached upper stage system takes damage to its front hull, apply it to the upper-stage spacecraft rather than to the rest of the spacecraft. If the upper stage separates, treat the front hull section of the lower stage as destroyed for damage purposes. It has no armor dDR and system damage goes to the central hull.

Disabled Systems

If a system is disabled, it's normally no longer functional. The capabilities described for it in Appendix B won't work and it can't be used for any task described as requiring a "functional" system. If there are occupants in the system, check for injury; see *Casualties* (p. 227). Below are some special cases.

Disabled Armor

If an attack to that hull section – not just that location – targets weak points in the armor, it completely *ignores* the armor system's dDR. Other armor dDR is still only halved. See *Precision Attacks* (p. 230).

Disabled Cargo

If a cargo hold is disabled, half of the cargo in it is destroyed. At the GM's option, certain types of hazardous cargo (e.g., ammunition or antimatter) may be considered volatile systems (p. 227).

Disabled Control Rooms

If a control room is disabled, half of its control stations (round *up*) cease to function and the Complexity of the vessel's computer network drops by 1. The remaining control stations are lost only if the system is *destroyed*.

> *The independents make blind jumps into possible death hoping for a staggering fortune. The Survey . . . makes blind jumps into possible death for a salary, benefits, and a pension.*
>
> *– Lord Miles Vorkosigan,* ***Komarr***

Disabled Fuel Tank

If a fuel tank that provides delta-V reserve is disabled (or destroyed), the spaceship loses **N/F** of its *remaining* delta-V reserve (round *up*), where *N* is the number of fuel tanks that were just disabled or destroyed, and *F* is the number of functional fuel tank systems (with that type of reaction mass) that it had left before the damage.

Example: A vessel with four fuel tanks of hydrogen has a remaining delta-V reserve of just 63 mps. One of its four tanks is disabled, so it loses 1/4 of its total remaining delta-V reserve (rounded up), or 16 mps. It's now down to a delta-V reserve of 47 mps. Suppose it uses up 17 mps, leaving 30 mps, and is hit again – this time losing *two* tanks. Losing two of three tanks means it loses 2/3 of its 30 mps reserve, or 20 mps. This leaves it with only 10 mps in its single, remaining tank.

Emergency repairs to a fuel tank won't restore delta-V reserve but will let the tank be refueled.

Disabled Habitat or Passenger Seating

In addition to rendering its facilities nonfunctional, disabling (or destroying) one of these systems will affect life support as various cabins, seats, and so on are lost. See *Overloading Life Support* (p. 215). Since there's usually no immediate effect (there's a few hours of residual air, etc.), don't worry about it until later. There's a 2-in-6 chance that any cells or cages will open, allowing survivors to escape.

Disabled Hangar Bays

All vehicles are unable to launch.

Disabled Medium, Secondary, or Tertiary Battery

Disabling a battery renders half of the system's turrets or fixed mounts (round *up*) nonfunctional. The others can still function.

Destroyed Systems

A system that's disabled again is *destroyed.* It stops working and cannot be fixed. Again, there are a few special cases.

Destroyed Armor

A destroyed armor system still provides dDR to the hull section – the holes aren't *that* big. *Exception:* Any *initial* hit location roll against that system ignores its dDR.

Destroyed Hangar

All vehicles and cargo in the hangar are also destroyed, unless there's a good reason to believe that won't happen.

Destroyed Volatile Systems

See *Volatile Systems* (below).

Volatile Systems

Certain systems are highly *volatile*. Volatile systems include any system holding missiles, or missiles or gun shells with antimatter warheads; any fuel tanks with antimatter-boosted hydrogen; an antimatter power plant; or a cargo hold whose contents the GM determines are volatile (e.g., full of explosives).

If a volatile system is disabled, roll against the spacecraft's HT. Failure means the spacecraft will explode (reducing it to -10 × HP) at the *end* of its next turn. Critical failure means it explodes immediately (unless PC-occupied). If a volatile system is *destroyed,* roll at -5!

If a spacecraft explodes, it inflicts (6d × basic dHP) crushing explosive damage to any spacecraft docked with it. Multiply this by 10, make it burning instead of crushing, and add the surge and radiation modifiers if antimatter warheads, power plants, or fuel are exploding!

Casualties

People inside a system when it's disabled or destroyed may be injured or killed, as follows:

Most NPCs: Assume that half of the NPCs (round up) in a *disabled* system are either incapacitated (reduced to 0 HP or worse) or dead; the rest have light or no injuries. All NPCs in a *destroyed* system are seriously injured or dead. Animals, plants, etc., suffer comparable casualties.

PCs and Major NPCs: Roll 1d on the *Casualty Table* for each character in a disabled *or* destroyed system. The roll is at +1 if the system or entire vessel was *destroyed* rather than merely disabled, or +5 if it was *shattered* (-10 × dHP). Those in [core] systems roll at -1.

In either case, if a system is destroyed, any survivors will be trapped in the wreckage until rescued, unless blown outside (see the note under the table).

Anyone who's blown out of the spacecraft *or* in a destroyed system is exposed to vacuum, and – if the ship wasn't already depressurized – to explosive decompression (p. B437). This is why all crew and passengers usually suit up in dangerous situations! Ignore these special effects if the spacecraft isn't in vacuum.

If the spacecraft is *shattered* (-10 × HP), PC survivors should be left floating in the debris field, regardless of casualty table results.

Casualty Table

Roll	*Effect*
2 or less	No effect
3	2d-1 burning damage (lethal electrical damage, p. B342)*
4	3d-2 cutting damage*
5	3d-2(10) burning damage*
6	6d×6 crushing damage*
7	Blown outside the spacecraft; also roll again with no modifiers†
8 or more	3d×5(10) burning damage*

* DR from advantages or armor protects normally.

† Someone who's blown out must roll 1d again on the table, with no modifiers, to determine whether he took any damage as he was blown out. He (or his corpse) will be floating 1d×10 yards outside the vessel and drifting away from it at a velocity of 1d yards/second. He's otherwise traveling in the same direction and speed as the spacecraft, but will be left behind if it accelerates before he can get aboard. If the ship accelerates, he has time equal to the length of the space combat turn to be rescued or get back himself (usually possible only if he has a thruster pack, line gun, etc.). Otherwise, he'll be left behind!

Damage Modifiers

The *Weapon Tables* (p. 230) give certain weapons *damage modifiers* that cause special effects. The GM may skip these rules to speed up combat.

Explosive (ex)

Except as noted under the *Nuclear and Antimatter Warhead Damage Table* (p. 231), *ignore* this modifier. Explosions are too small to catch multiple targets at space-combat scales, but become important when attacking surface targets.

Radiation (rad)

If an attack with this modifier results in damage to an occupied system, all occupants also suffer 3d×10 rads. The vessel's radiation PF doesn't apply – this is scatter from an attack that *already* penetrated such protection! See *Radiation* (p. B435).

Surge (sur)

Weapons with this damage modifier can fry electrical systems. If a surge attack does *any* penetrating damage, the ship must roll vs. HT. On a failure, make one extra system damage roll for that hull section; ignore the result if the system rolled is armor, cargo hold, engine room, fuel tank, hangar bay, soft-landing system, or a previously disabled system. Critical failure means all systems in that section *except* those mentioned above are disabled!

Emergency repairs can fully restore surge-disabled systems. Such systems can still be damaged normally, too – physically disabled on the first roll, destroyed on the second.

Personnel occupying a system disabled by surge damage *don't* roll for injuries.

Action Aboard

Certain activities in combat require crew members to move about – or even to leave their spacecraft.

Internal Movement

The length of the space combat turn determines whether movement in the spacecraft counts as a crewman's task for the turn. Cross-index vessel SM with turn length on the *Internal Movement Table* to find the time needed to move about.

0: Crewman can move *without* taking a space combat turn, but must specify which spacecraft system he occupies at the start of each turn.

1-10: Crewman must spend this many space combat turns moving between systems within the same hull section – or *double* this number to travel between hull sections. He can perform no other tasks during this time. If space combat is likely to use 20-second turns, you don't want to be caught in your cabin's bathroom!

If the spacecraft is in microgravity, the crewman must roll against Free Fall to navigate through the vessel. Failure means he doesn't reach his destination in time; reroll at the start of each future turn until he succeeds.

If the ship was accelerating at 3× or more the crewman's home gravity, he won't be able to move unless provided with assistance (e.g., an exoskeleton) or the spacecraft has artificial gravity (p. 198).

Movement is dangerous if the spacecraft is dodging! If the vessel performs a dodge while the crewman is transit, roll against his Spacer skill. Success means he's able to secure himself. Otherwise, he suffers the equivalent of a fall of 10 yards – 20 yards, on a critical failure – *per G* of acceleration the spacecraft was using (modified for artificial gravity).

Crew members can use airlocks or cargo hatches to enter or leave the vessel (possibly boarding a docked spacecraft). This takes an entire turn. If a spacer is outside the vessel, specify which system he's outside of. If that system is the first location hit by an attack, the crewman suffers the attack's *full* damage!

Internal Movement Table

Hull SM	20-second	1-minute	3-minute	10-minute
SM +5 to +7	1	0	0	0
SM +8 or +9	2	1	0	0
SM +10 to +12	5	2	1	0
SM +13 or more	10	3	1	0

Damage Control

Each damage-control party may attempt one of four tasks: *emergency repairs*, *structural repairs*, *rescue*, or *halt catastrophe*. In a given turn, no more than *one* party can work on a particular system, perform structural repairs, or try to avert the same catastrophe.

Aboard small spacecraft, a damage-control "party" may be one person. On large ones, a party of several crewmen is usual. If a group is involved, the team leader makes all skill rolls, using the *lower* of his skill (usually the required repair skill) or his team's average skill. When calculating average skill, each team member uses the *higher* of Spacer-2 or the specific repair skill.

A very small or large party, relative to the vessel's size, modifies skill. To find the modifier, cross-index the number of spacers in the party with spacecraft SM on the *Damage-Control Party Modifier Table* (below).

Emergency Repairs

It's possible to repair a disabled system quickly by swapping in parts, switching to backup systems, and replacing blown electronics. The required repair skill is specified in the system's description in Appendix B.

Damage-Control Party Modifier Table

	Hull SM						
Party Size	+5 to +9	+10	+11	+12	+13	+14	+15
One spacer	0	-3	-5	-7	-9	-10*	-10*
2-5 spacers	+1	0	-3	-5	-7	-9	-10*
6-19 spacers	+1	+1	0	-3	-5	-7	-9
20-59 spacers	No	+1	+1	0	-3	-5	-7
60-199 spacers	No	No	+1	+1	0	-3	-5
200-599 spacers	No	No	No	+1	+1	0	-3
600+ spacers	No	No	No	No	+1	+1	0

* Can be attempted only by PCs or PC-led parties in cinematic games.
"No" means the party is too large to fit into a system.

Damage Control Time Modifier Table

This table shows the modifier for damage control tasks during different turn lengths.

Turn Length	Emergency Repairs	Structural Repairs	Rescue	Halt Catastrophe
20 seconds	-10*	No	-9	0
1 minute	-9	-10*	-3	0
3 minutes	-3	-9	0	0
10 minutes	0	-3	+1	0
30 minutes†	+1	0	+3	N/A

* Can be attempted only by PCs or PC-led parties in cinematic games.
† For tasks performed out of combat.

Apply modifiers from the *Damage-Control Party Modifier Table* and the *Damage Control Time Modifier Table*. Spare parts help: add +1 per functional factory system the spacecraft has. The Supervise Damage Control task (p. 228) provides its usual modifier.

If emergency repairs succeed, the system is jury-rigged and no longer disabled – it will be functional again at the start of the spacecraft's *next* turn. Critical success means it's fixed immediately. Failure means it isn't fixed yet, but you can try again on later turns. Critical failure means the system can't be fixed without major repairs; there's no chance of doing so until after combat is over.

A jury-rigged system is fixed, but counts as *two* systems for maintenance purposes until fully repaired. Repairs will hold for at least a few hours, but at the start of any *future* combat or other stressful situation in which a jury-rigged system is used, roll against the spacecraft's HT. Roll only once for the entire combat, when the system is first used. Failure means the system is disabled.

A system is fully repaired only after *all* dHP lost by the vessel are repaired.

Structural Repairs

Usually performed after combat is over, this represents general repairs to the vessel's structural integrity. It's normally performed by teams working throughout the vessel. Use Mechanic (Vehicle Type) skill. Apply the same modifiers as for emergency repairs, using the "Structural Repairs" column of the *Damage Control Time Modifier Table,* with an additional -2 if the spacecraft is at 0 dHP or less. Success restores dHP equal to margin of success.

Rescue

Survivors of a *destroyed* system that remain in the spacecraft will be trapped in the wreckage and might need medical attention. A damage-control party may attempt to get them out. The leader rolls against the team's average Spacer skill, with the party size and time modifiers. Critical success rescues everyone. Success rescues half of the victims (round up). Failure rescues no one. Critical failure means a disaster injures or kills half of the survivors (round up); PCs and important NPCs roll again on the *Casualty Table* (p. 227) instead.

Halt Catastrophe

It's possible to try to prevent the ship from blowing up due to a destroyed volatile system (p. 227). The damage-control party must be in the volatile system or the same hull section. Roll against the repair skill for that system (for volatile cargo, the GM decides), with the party size modifier and an extra -4 if in the same hull section but a different system; the time modifier is always 0. Success averts the disaster. Failure doesn't . . .

Boarding

A drifting spacecraft can be boarded if another ship's pilot has achieved a rendezvous position with it. This means the vessels have matched velocities at zero or near-zero range. They may be any distance from in contact to several miles apart; default is 100 yards.

On future turns, boarding is possible; see *Access* (p. 211) for various ways to get in. Boarding actions should use the normal combat rules. If a boarding action takes place, pause the space combat until the action is resolved or the time represented by the turn length has passed.

Deliberate attacks, sabotage, stray shots, and so on may damage, disable, or destroy systems from within. Use the normal rules for damage to objects. Remember to convert between decade scale and normal scale. Assume that spacecraft have only DR 2 against internal attacks – but since spacecraft HP are decade-scale, divide damage by 10 before applying it to dHP. If internal attacks do enough damage to force a system damage roll, apply the results to the system where the fighting or sabotage is occurring – don't roll randomly.

Launching Small Craft

Occupants may board spacecraft that are docked or inside a hangar bay in the same time it takes to move to a new system. This means that in a sufficiently long turn, it's possible to board *and* launch a vessel in a single turn.

Spacecraft can maneuver out of an open hangar bay during the piloting phase of their vessel's turn. When a new craft is launched, add it to the turn sequence. Instead of acting in accordance with pilot Basic Speed, it takes its turn immediately after the launching spacecraft and begins in formation with that vessel.

Hangar bays have a launch rate that limits the maximum number of vessels they can launch or recover in a minute (representing surface-area considerations). To get turns, divide minutes by 3 in 20-second turns, or multiply by 3 in 3-minute or 10 in 10-minute turns. Minimum time required is one turn.

A pilot in formation with a larger spacecraft with an open hangar bay may use his turn to maneuver into the bay, provided it has sufficient capacity to accept his vessel. Again, the time required depends on the hangar bay's launch rate.

A Piloting skill roll is required for recovery operations. Out of combat, spacecraft usually take extra time (see *Time Spent*, p. B346) – a commercial ship often spends 30× time (for +5 to skill) while docking! Failure results in an "abort"; no recovery occurs. Critical failure results in a 0.5 mps collision. The GM may ignore critical failures if the pilot's effective skill is 16+, treating them as aborts instead.

Special Rules

A variety of special situations may arise in combat.

Formations

A spacecraft may maneuver in formation with another friendly vessel (the *leader*). To enter formation, its pilot must declare that he's doing so and choose *exactly* the same maneuver and acceleration that the formation leader did. If the leader was Closing, the pilot must do so as well, selecting the same target (or its wreckage, if the target was destroyed!). He must also achieve the same result against the target that the formation leader did. If a spaceship fails at *any* of these requirements, it isn't in formation.

For as long as spacecraft are in formation, the following rules apply to them all:

- Attack vector, rendezvous, and engaged results on one member are assumed to apply to every member of the formation.

• They're treated as being at point-blank range to other vessels in their formation, which means that they may be able to fire defensively against incoming missiles or ramming attempts.

Ground Fire

If the battle is taking place in the vicinity of a planet, moon, or asteroid, vessels in orbit may direct fire down onto that body, or vice versa. Treat the distance from low orbit to the surface as Short range. Higher orbits may be at Long range. Against lasers (only), clouds provide dDR equal to 20× the planet's atmospheric pressure in atmospheres; e.g., dDR 20 on Earth.

Weapons in Ordinary Combat

All weapon statistics are scaled for space combat. If using these weapons in ordinary combat with one-second turns (e.g., if the spaceship is fighting in the air or while in port) make these changes:

Damage is dDamage multiplied by 10.

Accuracy is sAcc+18. The space range modifiers assume an Acc 18 weapon fired by a gunner performing an All-Out Attack (Determined) with 3+ seconds Aim, assisted by a +9 vehicular targeting system for a net +30. As Point-Blank range is actually assumed to be 100 miles for a -30 range modifier, the sAcc and Point-Blank modifiers are assumed to cancel out, providing a net 0 modifier for Acc 18.

Range will vary, as these values are abstractions, but P is about 100 miles, P/C is about 100/300 miles, C is about 100/300 miles, C/S is about 300/1,000 miles, S is about 1,000/3,000 miles, S/L is about 3,000/10,000 miles, L is about 10,000/30,000 miles, L/X is about 30,000/100,000 miles, and X is about 100,000 miles.

Tractor Beams in Combat

Tractor beams may be used at the range indicated on the *Beam Damage and Range Table* (p. 231). Roll against the operator's Gunner (Beams) skill. Success doesn't inflict damage. Instead, it exerts a pull on the target, measured in gravities (G):

Tractor Force = 0.1 ton per MJ output (100 tons per GJ, 100,000 tons per TJ)

Tractor Pull (in G) = (Tractor Force/Target Mass)

Multiple beams working on the same target combine their force. For example, if 10 tractor beams, each with 3GJ output (300 tons force each, for a total of 3,000 tons), lock onto a freighter massing 10,000 tons, they'll collectively exert a pull of 0.3G.

This has no *immediate* effect . . . but on the target's *next* turn, it must subtract the pull of the tractor beam(s) from any acceleration it uses before calculating its acceleration rating. If it doesn't accelerate, or if it uses less acceleration than the beam's pull, then it's captured. The tractor beam's operator may choose the captured spacecraft's next move, using beam pull in excess of the vessel's acceleration as its effective acceleration, and his Gunner (Beams) skill at -4 instead of the target's Piloting skill.

Note: These rules assume that the tractor beam is operating in space, where it exerts thrust. In a gravity well, it's more useful to know the beam's ST. To find this, take the square root of the tractor force in tons and multiply by 100.

Precision Attacks

Any attack (beam or ballistic) may target a specific numbered hull location (from [1] to [6]) in the facing hull section – e.g., "location [3], front hull" – at -5 to hit. The gunner might not know what system occupies that location unless he is at zero, Point-Blank, or Close range; his vessel has performed a successful Sensor Analysis task (p. 219) against the target; or he has blueprints of the target.

A gunner performing a precision attack may also target weak points in a spacecraft's armor (hatches, ducts, etc.) at -10 to hit. This is *only* possible at zero, Point-Blank, or Close range, or if his vessel performed a successful Sensor Analysis task. The GM may allow precision attacks without these prerequisites against a vessel whose blueprints are on file ("We have plans of the enemy monitor – aim for the exhaust duct!"). Use *half* armor dDR (round down), and then apply any armor divisors. *Exception:* If the target has disabled or destroyed armor systems in the attacked hull section, targeting weak points lets the gunner ignore their dDR completely.

Near Miss and Hit Location: If an attack that took the penalty for a precision attack misses by just 1, a *single shot* still hits a random location on the hull section facing the attacking spacecraft.

Targeting Exposed Systems

Deployed solar panel systems – and any similar huge gizmos that the GM attaches to a vessel's exterior for plot reasons – are *exposed systems*. Beams or guns can target them separately. Use the spacecraft's SM+3.

If hit, armor dDR doesn't protect – but due to the systems' large size and diffuse construction, *ignore* damage less than 10% of spacecraft dHP. Damage equal to or greater than the spacecraft's full dHP will disable the system, or destroy it if already disabled. No other damage is done to the spacecraft.

A successful attack with a nuclear or antimatter warhead will *automatically* destroy any deployed exposed systems in addition to its other effects.

Weapon Tables

These tables give range, damage, and other statistics for beams, guns, and missiles.

Guns and Launchers Table

This table indicates the sAcc, Range, and Recoil (Rcl) of guns and missile launchers. Damage depends on the warhead used – conventional, nuclear, or antimatter – while RoF and Shots depend on the weapons battery system.

sAcc: Space Accuracy.

Range: The maximum range, in the usual range bands. Raise range from C to S, from S to L, or from L to X if firing on a target whose last maneuver was Controlled Drift or Uncontrolled Drift.

Rcl: Recoil.

TL	*Weapon*	*sAcc*	*Range*	*Rcl*
7	Conventional Gun, 2-6cm	-10	C	3
7	Conventional Gun, 7-14cm	-9	C	4
7	Conventional Gun, 16cm+	-8	C	5
9	Electromagnetic Gun, 2-6cm	-8	S	2
9	Electromagnetic Gun, 7-14cm	-7	S	3
9	Electromagnetic Gun, 16cm+	-6	S	4
11^	Grav Gun	-5	S	2
7	Missile Launcher, 16-28cm	+2	L	1
7	Missile Launcher, 32cm+	+3	X	1

Beam Damage and Range Table

This table indicates the damage dice and Range of beam weapons. All beam weapons except plasma cannons have sAcc 0; plasma cannons have sAcc -3. All of these weapons have Recoil 1.

dDam: The decade-scale damage inflicted, based on beam output, followed by armor divisor, damage type (*burn* for tight-beam burning, *cr* for crushing), and any damage modifiers (*sur* for surge). Tractor beams do no damage; see *Tractor Beams in Combat* (p. 230).

Range: The beam weapon's range in terms of the range bands used in these rules. P is Point-Blank, C is Close, S is Short, L is Long, and X is Extreme.

	Laser		*Plasma Cannon*		*Gravitic Imploder Lance*		*Tractor*
Output	***dDam***	***Range***	***dDam***	***Range***	***dDam***	***Range***	***Range***
3 KJ	1d-4(2) burn	C	1d-4(5) burn sur	P	–	–	P/C
10 KJ	1d-3(2) burn	C	1d-3(5) burn sur	P	–	–	P/C
30 KJ	1d-2(2) burn	C	1d-2(5) burn sur	P	1d-4* cr	P	P/C
100 KJ	1d(2) burn	C/S	1d(5) burn sur	P/C	1d-3* cr	P	C
300 KJ	1d+2(2) burn	C/S	1d+2(5) burn sur	P/C	1d-2* cr	P	C
1 MJ	2d(2) burn	C/S	2d(5) burn sur	P/C	1d* cr	P	C
3 MJ	3d(2) burn	S	3d(5) burn sur	C	1d+2* cr	P	C/S
10 MJ	4d(2) burn	S	4d(5) burn sur	C	2d* cr	P	C/S
30 MJ	6d(2) burn	S	6d(5) burn sur	C	3d* cr	P	C/S
100 MJ	2d×5(2) burn	S/L	2d×5(5) burn sur	C/S	4d* cr	P	S
300 MJ	3d×5(2) burn	S/L	3d×5(5) burn sur	C/S	6d* cr	P	S
1 GJ	4d×5(2) burn	S/L	4d×5(5) burn sur	C/S	2d×5* cr	P	S
3 GJ	3d×10(2) burn	L	3d×10(5) burn sur	S	3d×5* cr	P	S/L
10 GJ	4d×10(2) burn	L	4d×10(5) burn sur	S	4d×5* cr	P/C	S/L
30 GJ	6d×10(2) burn	L	6d×10(5) burn sur	S	3d×10* cr	P/C	S/L
100 GJ	2d×50(2) burn	L/X	2d×50(5) burn sur	S/L	4d×10* cr	P/C	L
300 GJ	3d×50(2) burn	L/X	3d×50(5) burn sur	S/L	6d×10* cr	C	L
1 TJ	2d×100(2) burn	L/X	2d×100(5) burn sur	S/L	2d×50* cr	C	L
3 TJ	3d×100(2) burn	X	3d×100(5) burn sur	L	3d×50* cr	C	L/X

* Gravitic imploder lances *completely ignore* the dDR of force screens! Hull armor protects with only 1/10 dDR. Each artificial gravity unit provides dDR 1.

Conventional Warhead Damage Table

This table shows the damage done by *conventional* warheads fired by guns or launchers.

Caliber: Missile launcher or gun diameter.

dDamage: Basic dice of damage. Multiply this by velocity; e.g., a 10 mps attack by a 56cm missile does 6d × 14 × 10 = 6d × 140 damage. A warhead fused for proximity detonation has no armor divisor. Otherwise, damage has a (2) armor divisor.

Caliber	***dDamage***	***Caliber***	***dDamage***
2cm	3d	16cm	6d×4
2.5cm	3d+2	20cm	6d×5
3cm	4d	24cm	6d×6
3.5cm	5d	28cm	6d×7
4cm	6d	32cm	6d×8
5cm	7d	40cm	6d×10
6cm	9d	48cm	6d×12
7cm	11d	56cm	6d×14
8cm	6d×2	64cm	6d×16
10cm	3d×5	80cm	6d×20
12cm	6d×3	96cm	6d×24
14cm	3d×7	112cm	6d×28

Nuclear and Antimatter Warhead Damage Table

This table shows the direct-hit damage from a *nuclear* or *antimatter* warhead fired by a gun or a launcher. Divide damage by 100 for a proximity detonation; e.g., a 2.5 megaton warhead does 8d×50 burn.

Warhead Yield	***dDamage***
25 kiloton	4d×1,000 burn ex rad sur
linked	3d×1,000 cr ex
100 kiloton	8d×1,000 burn ex rad sur
linked	6d×2,000 cr ex
2.5 megaton	8d×5,000 burn ex rad sur
linked	6d×5,000 cr ex
10 megaton	8d×10,000 burn ex rad sur
linked	6d×20,000 cr ex

In space, nuclear and antimatter weapons inflict only burning damage with the explosive, radiation, and surge damage modifiers. If such weapons are used against targets on a world with an atmosphere, there's also a blast wave: Add the linked crushing explosive damage, multiplied by air pressure in atmospheres.

TIMELINE

The recent history of the wormhole nexus, as experienced by most of the galaxy and as created by the Vorkosigan family. It contains information that *may spoil the books* for those who have not read them. Warning is duly given!

Chronology	*Galactic History*	*Vorkosigan Activities*
22nd century	Earth founds Alpha and Beta Colonies via sub-lightspeed colony ships.	
	Alpha Colony fails, Beta Colony succeeds.	
23rd century	Disasters on Earth temporarily halt space program.	
	Beta Colony cut off for many decades.	
	Wormhole drive discovered.	
	Colonization in all directions.	
	Wormhole to Barrayar closes unexpectedly; Time of Isolation begins.	
-200 years	Uterine replicator invented.	
	Quaddies and herms created by genetic engineering.	
	Artificial gravity discovered.	
-80 years	Komarr-Barrayar wormhole discovered.	
	Cetagandan invasion and occupation of Barrayar.	
-60 years	Cetagandans finally retreat from Barrayar.	
-3 years	Barrayar invades and conquers Komarr.	Admiral Aral Vorkosigan organizes the invasion, gains nickname "Butcher of Komarr."
-1 year	Barrayarans claim Sergyar.	Aral Vorkosigan meets Cordelia Naismith, and they fall in love.
	Barrayar-Escobar war: Prince Serg of Barrayar killed.	Cordelia flees Beta Colony, reaches Barrayar, and marries Aral.
0	Death of Emperor Ezar: Gregor becomes Emperor.	Poison gas attack on Aral affects the unborn Miles.
	Aral Vorkosigan appointed Regent of Barrayar.	Baby Miles in uterine replicator taken hostage; Cordelia organizes rescue, has Sergeant Bothari execute Vordarian.
	Vordarian Pretendership: death of Princess Kareen.	Miles Vorkosigan born.
3 years	Komarran Revolt.	
6 years	Second Cetagandan War.	Ser Galen obtains tissue samples, has the clone Mark Vorkosigan created on Jackson's Whole.
17 years	Gregor assumes duties as Emperor.	Miles Vorkosigan fails his Service entry exams.
	Regent Aral Vorkosigan resigns his position, becomes Prime Minister.	General Piotr dies.
		Miles founds Dendarii Mercenaries, and narrowly avoids treason charges – Gregor has him admitted to the Academy.
20 years	Battle between Cetagandans, Barrayarans, Dendarii, Cavilo's Rangers, and Vervani, over Vervain; Cetagandans lose.	Miles has to act as judge in murder case in Vorkosigan District.
		Miles' first military assignment on Kyril Island ends in his arrest.
		Miles reunites the Dendarii, and Gregor accepts them as his personal secret force.
22 years	Death of Cetagandan Empress.	Miles and Ivan get embroiled in internal Cetagandan politics.
	The haut Rian becomes new Empress of Cetaganda.	
	Sole carrier of telepathy gene escapes to Athos, barely avoiding Cetagandan pursuers.	
	Commander Elli Quinn of the Dendarii obtains a sample of the gene.	

23 years		Miles smuggles a scientist out of Jackson's Whole; gains new recruit Taura and eternal hatred of Baron Ryoval. Has leg bones replaced by synthetics.
24 years		Miles and Dendarii organize mass escape from Cetagandan prison camp on Dagoola IV. On Earth, Miles meets his clone-twin, Mark Pierre Vorkosigan; Ser Galen sets his plot in motion, and fails.
25 years		Miles has arm bones replaced by synthetics; helps Simon Illyan foil plot against his father.
28 years	Death of Baron Ryoval of Jackson's Whole; House Fell manages to seize most of Ryoval's assets, grows in power. Durona Group leaves Jackson's Whole and goes to Escobar.	Mark impersonates Miles to launch a Dendarii strike on Jackson's Whole. Miles is killed, undergoes cryo-revival; Mark is accepted by the Count and Countess on Barrayar. Mark rescues Miles and kills Baron Ryoval, but is tortured by Ryoval first, and develops partially split personality.
30 years	Captain Simon Illyan steps down as head of ImpSec; General Allegre eventually takes his place. Emperor Gregor betrothed to Laisa Toscane of Komarr. Komarran soletta damaged, officially blamed on accident.	Miles loses command of Dendarii after falsifying evidence about his seizures. Miles investigates Illyan's memory problems, and identifies the responsible party. Miles Vorkosigan appointed Auditor. Miles investigates soletta damage; discovers and stops Komarran conspirators, aided by Ekaterin Vorsoisson. Miles falls in love with Ekaterin.
31 years	Dono Vorrutyer becomes the new Count Vorrutyer, despite unusual medical history. Marriage of Emperor Gregor and Laisa Toscane.	Miles pursues Ekaterin with marriage in mind; eventually, Ekaterin proposes to Miles, and he accepts. Marriage of Miles Vorkosigan and Ekaterin Vorsoisson.
33 years		The honeymoon of Miles and Ekaterian is interrupted by Auditorial business which takes him to Quaddiespace and then to the Cetagandan Empire. Birth of Aral Alexander Vorkosigan and Helen Natalia Vorkosigan.
About 39 years		Miles attends a conference on New Hope II and encounters an unexpected insurgency and corporate chicanery. Further details must wait on Bujold's completion of this novel, unfinished and untitled as of 2008!

Bibliography

These books are the history (so far) of the Vorkosigan universe, from hundreds of years ago through the marriage of Miles Vorkosigan. The books are listed in chronological order, but they can be read in any order, and none of them actually requires prior acquaintance with earlier books in the series.

Years in parentheses following each title give the original publication date.

Dreamweaver's Dilemma (1995): A collection of short stories and writings by Lois McMaster Bujold, including some discussions of the Vorkosigan universe, discussion of galactic history, and a Sherlock Holmes pastiche with a precursor of Cordelia Naismith. The title story is set not long after the invention of the wormhole drive. The book also includes pronunciation and genealogical notes by Suford Lewis.

Falling Free (1988): The origin of the quaddies, 200 years before Miles' birth.

Shards of Honor (1986): Aral Vorkosigan and Cordelia Naismith meet and fall in love amid the chaos of the Escobaran War. Treachery and corruption in high places, honor and honesty in low ones.

Barrayar (1991): Aral Vorkosigan becomes Regent on Barrayar, and must put down rebellion; Cordelia discovers the pitfalls of Barrayaran society, and Miles is born.

The Warrior's Apprentice (1986): Miles founds the Dendarii Mercenaries, and loses Sergeant Bothari. His first war, his first command, and his first major clash with Barrayaran law.

The Vor Game (1990): Miles gets transferred sideways to ImpSec, and must take command of the Dendarii in order to deal with a Cetagandan invasion and a beautiful but treacherous mercenary commander.

Cetaganda (1995): Miles discovers Cetagandan high political intrigue, and falls in love with a haut-lady; Ivan Vorpatril discovers Cetagandan women, and upholds Barrayaran honor.

Ethan of Athos (1986): Commander Quinn of the Dendarii and Doctor Ethan Urquhart of woman-hating Athos are forced to cooperate in a case involving a mysterious group of Cetagandans, a missing consignment of ovaries, and a box of newts.

Borders of Infinity (1989): Four short stories, involving Miles' various exploits: one as a youth judging a case in the

Fantasy Novels

Readers who know Lois McMaster Bujold for the Vorkosigan books may also enjoy her works of fantasy.

The Spirit Ring (1993): The brilliant Prospero Beneforte creates enchanted rings and sculptures, with his talented daughter Fiametta as his student, until Renaissance intrigue and treachery disrupt their city-state.

*The **Chalion** Series*

The Curse of Chalion (2001): In a fantasy world with a feudal society and active gods, a scholarly warrior struggles to lift the curse on his rulers' family.

Paladin of Souls (2003): A noble lady on pilgrimage finds that she has been chosen as an instrument of her people's least-favored god.

The Hallowed Hunt (2005): Set hundreds of years before *The Curse of Chalion*, this book revolves around two young people who find they both carry animal spirits.

*The **Sharing Knife** Tetralogy*

These books are set in a frontier-like world long after a magical catastrophe has wiped out its high culture. Relicts of the ancient fray, the uncanny "malices," along with the "mud-men" they create, prey on humans. The heroes must deal with both magical foes and their peoples' mutual intolerance.

Beguilement (2006): Introduces Fawn, born of a farming folk; Dag, a wandering slayer of malices; and the clash between their cultures.

Legacy (2007): Fawn and Dag must deal with an especially dangerous malice and its servants, but find it's not as treacherous as Dag's own family.

Passage (2008): Fawn, Dag, and an assortment of companions travel by flatboat down a river reminiscent of the early Ohio, and start to put the pieces of their broken world together.

Horizon, the last book in the tetralogy, is scheduled to appear in 2009. Intending to take up their new life's work, Fawn, Dag, and their companions journey back to the north through hazards human and uncanny.

Vorkosigan District, and three involving his career with the Dendarii Mercenaries.

Brothers in Arms (1989): While on Earth, Miles must juggle his identities, the Dendarii finances, and a Komarran plot. "Admiral Naismith" acquires some new faked history, which unfortunately turns out to be true . . .

> *Forward momentum.*
> *– Miles Vorkosigan, too often to count*

Mirror Dance (1994): Mark Pierre Vorkosigan resurfaces, and steals a shipful of Dendarii to raid Jackson's Whole. Miles finds that having a brother doesn't always turn out as one would expect, and Mark discovers what it means to have a family.

Memory (1996): Miles finds out the hard way that it's a bad idea to leave things out of his reports. Unfortunately, Captain Illyan forgetting about it is more dangerous than him remembering . . .

Komarr (1998): While investigating a potentially criminal catastrophe, Miles uncovers a decidedly political one; in the process, he meets the gardener of his dreams.

A Civil Campaign (2000): Miles attempts courtship, Mark invests in genetic engineering, and Ekaterin cultivates her garden. Politics and family relationships manage to complicate things for all of them.

"Winterfair Gifts" in *Irresistible Forces* (2004): Romance and intrigue against the backdrop of Miles' and Ekaterin's wedding.

Diplomatic Immunity (2002): Miles and Ekaterin find an Imperial mission interfering with their honeymoon, and old friends and enemies from Miles' past return to complicate the issue.

Collections

The Vorkosigan stories have been collected in a number of omnibus volumes:

Cordelia's Honor contains *Shards of Honor* and *Barrayar*.

Young Miles contains *The Warrior's Apprentice*, the short story "The Mountains of Mourning," and *The Vor Game*.

Miles, Mystery and Mayhem contains *Cetaganda*, *Ethan of Athos*, and the short story "Labyrinth."

Miles Errant contains the short story "The Borders of Infinity," *Brothers in Arms*, and *Mirror Dance*.

Miles, Mutants and Microbes contains *Falling Free*, *Diplomatic Immunity*, and the short story "Labyrinth."

Miles in Love contains *Komarr*, *A Civil Campaign*, and the short story "Winterfair Gifts."

Vorkosigan's Game (an SF Book Club edition) contains *The Vor Game* and *Borders of Infinity*.

Test of Honor (an SF Book Club edition) contains *Shards of Honor* and *The Warrior's Apprentice*.

Reference

The Vorkosigan Companion, edited by Lillian Stewart Carl and John Helfers, was released in late 2008. It features an interview with Lois McMaster Bujold, essays on the creation of the Vorkosigan universe, critical discussion, and a concordance of all characters mentioned in the canon.

Emperor Gregor

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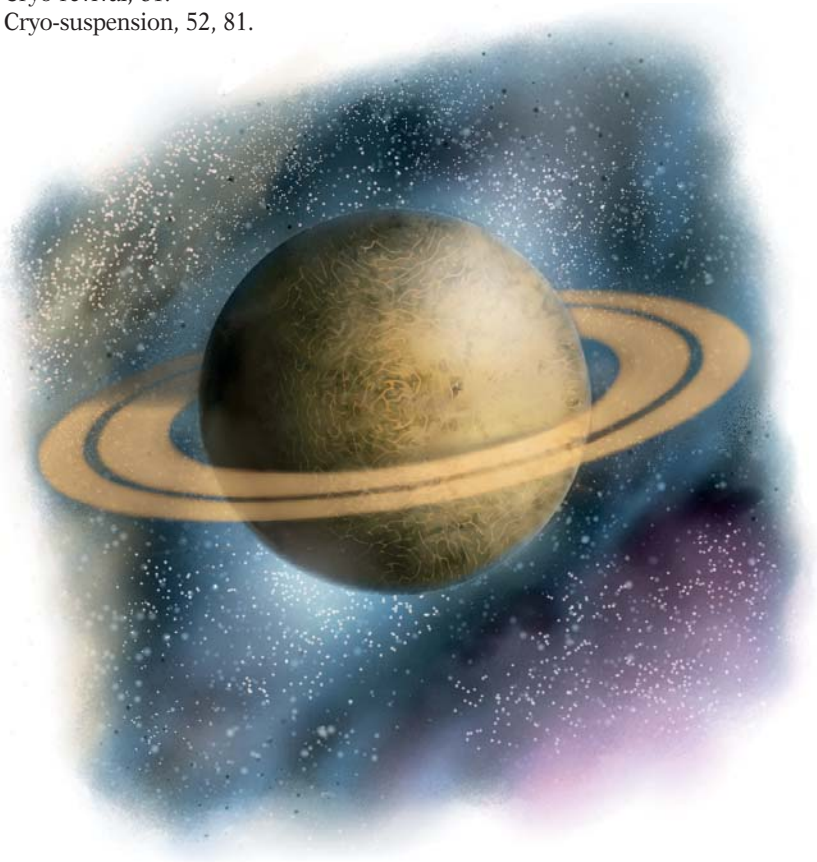

GURPS

Name _____ Player _____ Point Total _____

Ht _____ Wt _____ Size Modifier _____ Age _____ Unspent Pts _____

Appearance _____

CHARACTER SHEET

				CURRENT	
ST		[ ]	**HP**		[ ]
DX		[ ]	**WILL**		[ ]
IQ		[ ]	**PER**		[ ]
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CURRENT

BASIC LIFT (ST × ST)/5 _____ **DAMAGE** Thr _____ Sw _____

BASIC SPEED _____ [ ] **BASIC MOVE** _____ [ ]

ENCUMBRANCE		MOVE		DODGE	
None (0) = BL	_____	BM × 1	_____	Dodge	_____
Light (1) = 2 × BL	_____	BM × 0.8	_____	Dodge -1	_____
Medium (2) = 3 × BL	_____	BM × 0.6	_____	Dodge -2	_____
Heavy (3) = 6 × BL	_____	BM × 0.4	_____	Dodge -3	_____
X-Heavy (4) = 10 × BL	_____	BM × 0.2	_____	Dodge -4	_____

ADVANTAGES AND PERKS

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DISADVANTAGES AND QUIRKS

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Languages	Spoken	Written
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DR

PARRY

TL: _____ [ ]

Cultural Familiarities

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Reaction Modifiers

Appearance _____

Status _____

Reputation _____

SKILLS

Name	Level	Relative Level	
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