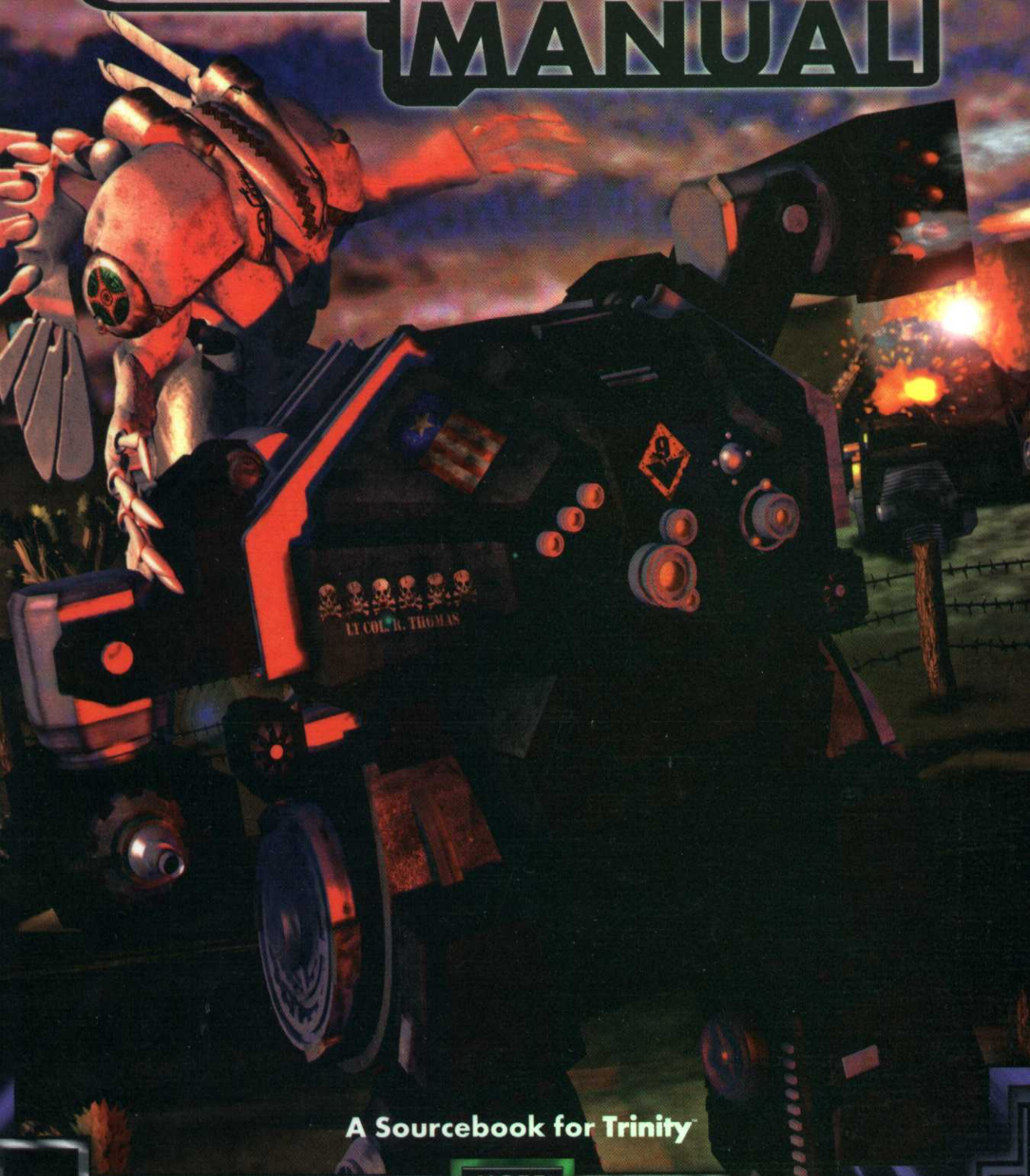


TRINITY TECHNOLOGYTM MANUAL

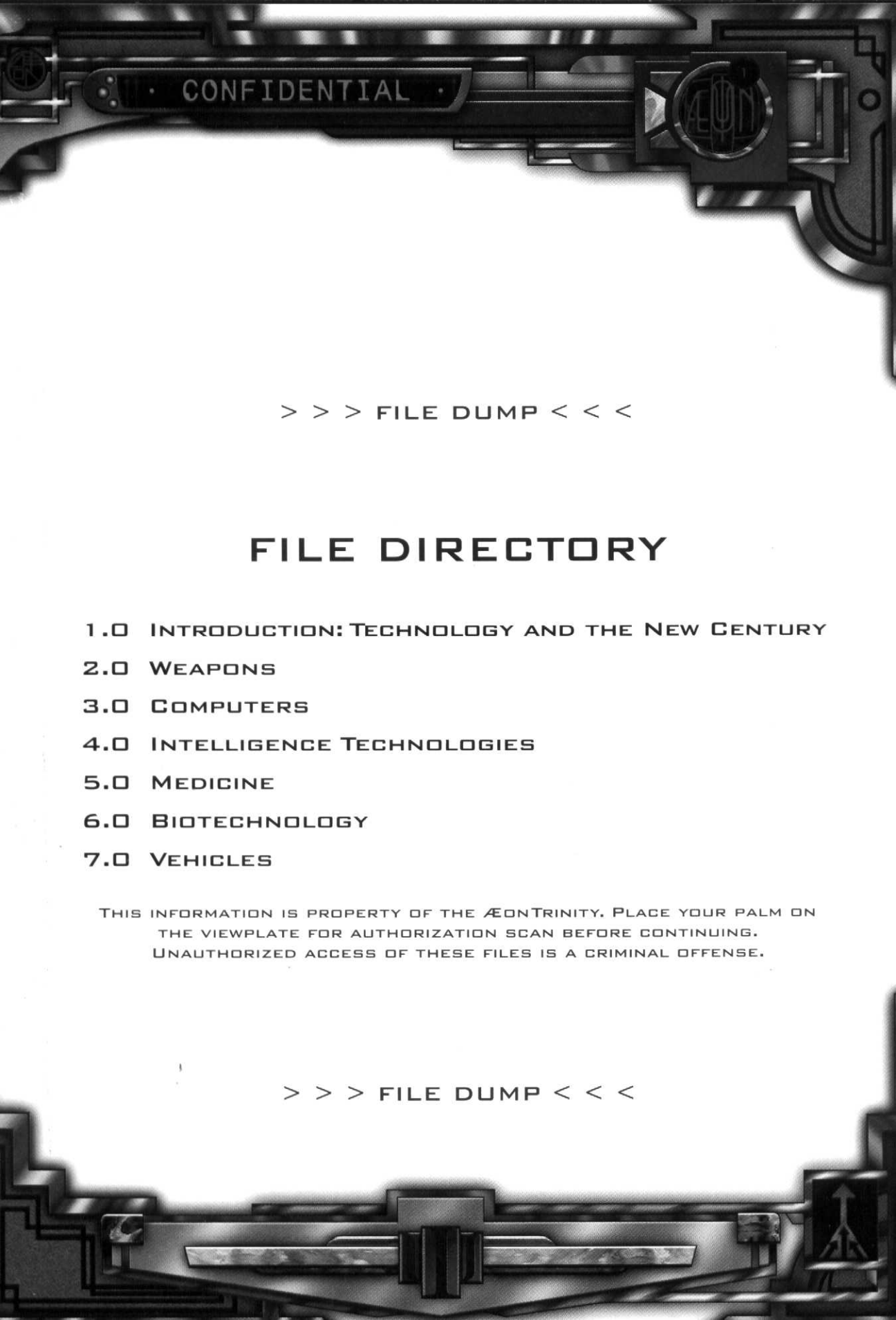


A Sourcebook for Trinity

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TECHNOLOGY AND THE NEW CENTURY

It's the 22nd century and humanity has more and better technology now than its ever had in its long, tumultuous history. Indeed, history has shown that our greatest scientific advancements have occurred as a result of terrible strife. War has always been at the core of this ingenuity, from the invention of armor to gunpowder to aircraft to nuclear arms to spacecraft.

What greater hardship could the human race have suffered than the Aberrant War — a fight for our very survival against genocidal abominations? If *anything* good came from the war, it was the inspiration to advance our technologies — weapons, communications, transportation, medicine — beyond imagination. And all this despite the monstrous crimes committed against prosperity and civilization as a whole.

The creations and inventions that helped us win the Aberrant War also helped us survive its aftermath. Efforts to rebuild a charred world demanded new scientific endeavors — hyper-fusion that allowed colonization of otherwise uninhabitable regions, medicines to treat those afflicted by the Aberrants' taint, and new ships that could take us to distant stars. One could even venture to say that without the Aberrant War, our aggressive exploration and colonization of space would never have occurred — the required technologies may never have been developed or even conceived. Our need to survive demanded the best from us.

But now it's the 22nd century. The first Aberrant War is history. The technological accomplishments that resulted from it are now taken for granted. We count on computer systems to be isolated and protected for their own — and our — good. We expect the discovery of new elements such as alaminium to facilitate our extraterrestrial existence. We need machines to translate our words so that we can communicate instantly with other cultures across the world.

Survivors of the Aberrant War still tell stories of atrocities, but they have become folk tales. Yet whether they know it or not, even today's young live the legacy of the war, through the devices and inventions they rely on every day. We stand in the shadow of the Aberrant War and today's technologies are testament to that fact.

The Aberrants have returned, though, and humanity has responded. Strife inspires us to reach for greater technological heights once again. Science is now capable of altering human evolution itself, of unleashing the powers of the mind and body. Furthermore, today's science no longer recognizes only gears and microchips, physics and electromagnetics, but the ebb and flow of universal forces that bind all things. The results of this new era are psionic energy and biotech (technology created from life itself).

It's only natural, then, that the next step in human evolution should wield our newest creations. Psions are the champions of our biotech achievements. Their understanding and control of psionic energies allow them to expand the boundaries of both science and nature. Psions and biotech were created to defeat the Aberrants again. Once this strife, too, has been transcended, the Gifted and their biotechnology could lead us anywhere.

Psions and inventions will take us back to the frontiers of known space. Biotechnology may become a tool available to all humans — psion or neutral. Living technology could even take us beyond our own dimension to unimaginable realms.

Only time will tell. It always does.

William Renton
Director, Proteus Division
Æon Trinity

Hope • Sacrifice • Unity

TECHNOLOGY AND PSIONS

The universe of the 22nd century is built on technology. Without it, humans would still be foraging for food and wondering at the lights in the night sky. We all rely on devices, inventions and tools to pass our days and make our lives comfortable. Who doesn't turn to maglev trains for transportation, minicomps for information or vocoders for communication? Not even psions, with all of your powers, can exist without technology. Indeed, technology made you possible. What is the Prometheus Chamber if not the product of science?

The Æon Trinity is fully aware of the importance of technology in humanity's survival, development and expansion. We don't take science for granted, we embrace it as the means to ensure mankind's evolution to its rightful place in the universe.

Psions are also instrumental in fulfilling humanity's destiny. You are our protectors, leaders and benefactors. Æon therefore takes strides to ensure that psions and technology are united, that each works with the other, and that each benefits mankind.

That's where this file compilation comes in. Neptune Division will introduce you to everything from the very basics of modern technology to the heights of inventive genius. These are the tools of your trade, your weapons in the war against the Aberrants, menacing aliens and every other force that threatens human existence. No matter what order, corporation, country, colony or crew you swear allegiance to, the items described in these files are provided to aid in your fight to be humanity's champions — to be psions.

BACK TO BASICS

Before we can introduce you to the latest innovations in biotech or the most powerful new weapons, we have to establish some common knowledge. We have to go back to basics. The heart of all modern hardtech is microelectronics. Today, there are chips and circuits in everything from clothes

to jump ships. Modern quantum-electronic circuits can be used to miniaturize almost any electronic device. A computer can be the size of a thumb. We can do it, but the question is, should we? Do you really need a computer the size of your thumb?

The most essential feature of modern technology comes down to one thing: convenience. Engineers ensure that every device made today is both easy to use and of an appropriate size for its function. After all, if a computer is too small to use conveniently, no one will buy it.

Computers, cameras, radios, and most similar devices have been around for generations. However, advances in material components have resulted in common equipment that is much more durable than that of the past. Modern computers can be taken into space. Furthermore, the advent of biotechnology — organically grown equipment — means that devices can even repair themselves. The result is that our most common tools are at the peak of efficiency and facility. It's difficult to imagine a minicomp that's any more capable or versatile than the one you carry at this very moment.

Indeed, convenience, style and aesthetics are now much more important than the technical elements of personal or household devices. The electronic components of most tools are actually no larger than your thumbnail. The rest of their "bulk" consists of large displays, attractive casings and convenient controls. Circuits are tiny, inexpensive and virtually perfect; companies spend most of their time and money repackaging the same old circuits to make them easier to use. Thus, the primary question when producing a new piece of consumer hardware is no longer "Will it work?" but "Is it simple and comfortable to use?"

All of this wonderful technology is possible thanks to the advent of 3-D-block integration. The heart of every electronic device is composed of several small black cubes. Each cube is a marvel of miniaturization. It

contains myriad circuits that not only perform and monitor a device's functions, but also alert a user when the device malfunctions or needs service. The device may even be able to tell you what's wrong. A trip to the local repair shop usually resolves even the most serious problems easily and quickly.

One of the most important things to understand about hardtech is that it is a great equalizer. Everyone can use hardtech, and everyone does. Neutrals and psions alike can activate any piece of hardware they have been trained to operate. Many other hardtech items are easy to use; devices designed for unskilled operators typically have built-in agent programs that can talk new users through basic operation.

Computer agents and satisfactory intelligence (or SI) programs are the key to making hardtech devices simple. Most items speak and respond to voice commands. You ask the holovision set to change channels and the coffee pot to make coffee. Of course, a few pranksters have found ways to alter devices so they refuse requests or argue, but such events are rare.

TECHNOLOGY AT HOME

Houses in the 22nd century aren't usually built with biotech, but they can seem like complex living beings. Not only can you talk to household appliances and controls such as lighting systems, but most of them can learn. If you always get up at 7:30 and have black coffee for breakfast, your house will cease asking your tastes in a week's time and simply have coffee waiting for you.

Robots are everywhere, but they rarely look the way people imagined them in previous centuries. Mouse-sized cleaning robots scurry out and tidy up after homeowners have gone to sleep. Most ovens are large, sleek cubes that can be used for ordinary manual cooking or fully automated cooking; ingredients are taken from attached refrigerators to make a wide variety of meals.

TECHNOLOGY AND THE HUMAN ELEMENT

— Dr. Laura Montoya, *Living in the Anima Era* © 2120 Walkabout Press

Biotech is weird stuff. There are old monster vids about this type of "living machine." On the surface, it sounds pretty disgusting. Hell, psions even have themselves bound to bizarre biotech creatures. So why do we accept biotech so easily?

When it comes down to it, how different is biotechnology from what we're used to? We grew up with talking houses, obsequious agent programs, self-cooking ovens, and talking appliances. We have already blurred the line between machine and living thing to the point where we respond to many machines as we would people and pets.

So many users think they've fallen in love with their computer agents, there's a syndrome for it. There's a huge demand for people trained in neuroaddictive studies — an interdisciplinary field combining psychology, physiology, cybernetics, and information theory — to deal with the rising number of cases.

Even the stable among us thank our agents when they complete tasks. It's become second nature to treat hard technology like it's alive. So why should biotech be considered so strange? Before long, it will be as casually accepted as hardtech is. You watch: I bet even Nippon will abolish the restrictions on biotech use, just like the members of Psi Nippon youth enclaves have already. Like it or not, definitions of living and non-living will never be the same again.

Various mundane functions, from cooking to cleaning to climate control, are controlled by a house computer. Housework now means instructing the computer to perform a task. Every house and apartment has a maintenance system. A few eccentrics and technophobes disable theirs, but everyone has access to one. In 2120, building a home without some type of central computer is comparable to having built a house without plumbing or electricity in the 20th century.

The exceptions to robotic home maintenance occur among the very wealthy and the poor. Human servants are status symbols and do mundane work for their employers, while the poor can scarcely afford shelter, let alone automatic convenience systems.

Every house computer is equipped with an agent of some type. Basic models have extremely limited learning capacities, but most are clever and helpful. A slob's house computer learns to leave the residence a little messy when it cleans, while that of a compulsive person keeps the place spotless. Houses develop "personalities" over the course of a few months to suit their owners.

Moving into a new house or staying at a friend's can be disorienting. The dwelling does not anticipate the visitor's every need, and is set according to someone else's tastes. Many people take a disk containing their house computer's settings with them when they move or travel. High-class hotels have room computers designed to accept such software.

Some house-computer agents, especially those designed for people who live alone, can be talkative and may simulate a variety of conversations. People frequently fall in love with their house computers — known as cyberassociative disorder, part of the growing number of neuroaddictive afflictions. The children of working parents are often raised as much by computer as by any human. Several companies offer specialized software in which the agent appears as a cute anthropomorphic animal and is equipped with a wide variety of educational programs.

Children and others can even plug minicomps into a house computer and download a copy of the agent to keep them entertained when they travel.

TECHNOLOGY AT TRAVEL AND WORK

The technology introduced to houses isn't restricted to the home. Cars, offices, planes — just about everything you use and every place you go — is interactive. Transportation is easier now than it's ever been. Every vehicle on the road or in the air has a built-in computer that automatically displays the current location of your vehicle, local traffic conditions and the best route to a destination. Almost all commercial vehicles are capable of driving themselves until an unusual situation arises. Top-model vehicles can even drive themselves under difficult or hazardous conditions.

Keyboards are still common office equipment, but most people find it faster and easier to use speech-processing software and dictate information rather than type. In fact, many people don't even know how to type anymore.

Modern offices and businesses are also significantly less crowded than those of centuries past. Most "paperwork" is handled by sophisticated agents that can process forms, compute inventories and place routine orders. Human intervention is required only when machines encounter atypical situations. Few people, therefore, work in information-processing or service industries. Forms are processed by computer and hamburgers are made by robots. Robo-Burger and Cyber-Sushi are two of the largest of the automated fast-food chains, giving the still human-operated fast food giant Pizza Belle a run for its money. Many such businesses have only a single employee who is a combination host, security guard and repair person. Hand-cooked food and human servers are the hallmarks of high-quality hotels and restaurants.

Agents and similar SI technologies have led to yet another era in human labor. Most



"WHAT BEEF?" >>> DAVE.A.I. >>> CASSEL COLLECTION

of the work force is highly trained and educated. Traditional fields such as law enforcement, teaching, law and medicine still exist, but many people are scientists, artists, designers, engineers and technicians. Common jobs in the earlier industrial era such as factory work, data processing and most office work are now considered "machine" work, not fit for self-respecting humans. Factory labor now consists of supervising the machines that do the actual processes.

The uneducated or unfortunate can still work in the surprisingly large and high-paying service industry, which exists to pamper the affluent. This may mean personal service, or manufacturing hand-made goods, such as fine clothes, that the rich demand. The only other option available to the uneducated is a grim life of public assistance. Many who refuse to accept these options pioneer the

Solar System and beyond — at least, that's what they strive to do. Whether they realize their dreams or wind up paying off their travel fares through corporate slavery is another matter.

PERSONAL ELECTRONICS

One of the greatest triumphs of modern technology is the reinvention of the battery. When superconducting batteries were developed in 2043, personal devices changed forever. Running out of power is no longer a problem in everyday life. Tiny flashlights capable of illuminating a large room for a week can be clipped to your belt. Cordless drills capable of boring through steel can run for hours and fit in a pocket when not in use. Most small, low-powered devices such as watches are designed to function for a decade or more before their batteries need to be changed.

DENIAL AND MADNESS

— Dr. Miriam Vanayama, *The New Reality* © 2120 Rafat, Inc.

Another growing problem are neuroaddictive disorders, more commonly known as sim addiction. We live in an age when some of us have wealth, prestige and great personal power. However, the vast majority lead uneventful lives that offer little opportunity for heroism, glory or even simple recognition. Offplanet colonies offer an escape for some, but many find an easier escape through holographic simulations — holosims. How can being a repair technician compare with being a psion who saves Earth from evil Aberrant invaders? Being a psion, fighting Aberrants or going on a quest for the Holy Grail are all within reach of anyone with a HUDset and a holosim suit. Is it any wonder that many people regard their jobs as little more than the means to their next sim sessions? Such people increasingly ignore their real lives as their dependence on games grows.

You've probably had a friend like this, someone in the first stages of sim addiction. Some become so distant from the real world that they are able to hold down only semi-skilled, dead-end jobs. The games they play become vital to their stability and happiness as their true lives become increasingly meaningless and unpleasant.

Chronic NAD victims can't or won't leave their holographic worlds to deal with the real world. It's easier for them to ignore reality and believe that their games are the true reality.

The worst sim addicts simply forget the real world and play until their money runs out or their bodies collapse. Others arrange to commit suicide while playing, believing that their link to the real world will be severed, leaving them in their preferred environment. Others, perhaps the saddest of all, maintain just enough connection to the real world to sell their bodies to illegal dreamer brothels, which have been in the news lately. Deviants use the addicts' drugged bodies while the victims continue to wear HUDsets and sim suits and play their games.

Twenty-second-century technology is therefore easy to use and extremely reliable. Despite these advances, however, technology has not replaced talent or training entirely. Not even the most sophisticated camera allows a novice to take pictures as well as a professional photo-journalist. Personal electronics can be used by anyone, but using them *well* demands skill and training.

Indeed, versatility has been sacrificed in favor of ease of use for many popular civilian devices. Most restricted items, such as military vehicles and intelligence technologies, are so complex that training and experience are required to use them at all. Anyone can fly an ordinary skimmer, but a military assault skimmer is designed for use under harsh conditions and is significantly more difficult to operate.

Simplicity and low costs have their merits, though. Electronic devices — especially computers — are ubiquitous. What was once considered impossible for technology has become fundamental to civilized life. Over 85% of the human population — on Earth and in space — carries a minicomp at all times. At its most basic, a personal computer is a combination personal secretary, notebook and video game. For many, it is much more. Online virtual-reality games are very popular. Network identities and friendships become as real to participants as the universe outside their apartments. People are diagnosed with neuroaddictive afflictions such as cyberassociative disorder or reality-loss syndrome every year; they become convinced that their games are more real than life.

Politicians, business leaders, reporters and some academics wear holosim gloves and HUDsets or HUD contacts constantly. With a gesture or a hushed command, they are able to call up information, record a scene for later analysis or simply review

data before they speak on any topic. Contact wearers can be recognized by their speech patterns — which include frequent quotes by famous people and a great deal of unusual trivia — and by blank, distant stares. These people possess the best agents that they can afford, preprogramming computers to prompt them with information or suggestions if agents have files relevant to matters at hand. Wearer and agent develop a symbiosis that makes the pair more than the sum of its parts.

Some people even use their computers to record their lives. Every action or conversation — electronic or not — is stored. This is the ultimate security system for the paranoid, and the ultimate in narcissism for the vain. For some, the act of recording everything is an obsession in itself. For others, mediating reality through computers and holograms becomes increasingly comforting as unmediated reality grows increasingly stressful.

Most people do not wear HUDsets or holosim accessories, but they still use minicomps almost constantly. Agents act as extensions of their users. Almost everyone uses their agents as interactive answering machines that communicate simple information to callers. Agents also typically select electronic newspaper articles on topics that interest their users. High-quality agents even remind users of any events or appointments that have been discussed in the computer's presence.

But then again, you knew that — you probably have a minicomp at your side at this very moment.

Subject: Dr. Marc Sandoni
From: Robert Zameki, Assistant Director, Neptune Division
To: Laura Yale, Proteus Division
Encryption: DSE
Transmission type: textfile
Date: 05:34:43 03.21.2118

The contract is confirmed. Someone will attempt to kidnap Dr. Sandoni in the next week. The new biotech he is developing is valuable enough that at least a dozen groups might want him. Triton is researching the most likely organizations; your job is to protect Sandoni. Read the attached file for more data on him.

The problem is that he's a Notouch. If you haven't worked with one before, they're an odd bunch. They never deal with anyone in person. All contact and communication is electronic; their house computers and robots handle everything else. Holograms and full-sensory holosims are fine, but genuine contact is extremely stressful to them. The psychs say that Sandoni might have a nervous breakdown if anyone actually touches him.

You must protect him and keep anyone from getting close to him. He won't leave his house for any reason, but he has agreed to let you stay in a part of the lower floor that can be closed off from the rest of the manor. He won't authorize you to intrude on his vicinity unless he is in immediate physical danger. Even then, you can't touch him.

Good luck. You'll need it.

>>> Attached File Follows <<<

CONCLUSIONS

So there's your crash course. You now know the basics of modern technology, at least as the public and most psions know it. That's just the beginning, though. You've been cleared to receive the most up-to-date data on the latest inventions known to the Æon Trinity. The following files contain information that might just give you a winning edge over our Aberrant enemies. These are the tools that you can use in the field to give it back to them in kind.

There's also a price for all this information: Most of it is classified. If Joe Hologram learned that half of this tech existed, he'd blow a cell. And you know that would shut us all down. The rest is secret data that we've acquired on governments and corporations across the world and throughout known space. Æon has enough enemies; we don't need political and economic pressure, too. So keep a lid on these files and they might just save your life.

THE NEW INFORMATION AGE

— **Dr. Jules Navaro, *Information Today* © GN**

Everyone has a computer, and most folks carry them wherever they go. How does this affect our lives? The key word here is "information." Plug your computer into a public jack and it's online to the local network. While the days of total information access died in the Aberrant War, there's still a lot stored on computer. Any piece of unrestricted data in any library in the world or any article from any newspaper ever written can be yours in minutes, simply by asking your agent to download data on a given topic. Moments later, you have a list of titles and headlines, probably sorted by length and relevance. If it's public information, it's yours for the asking.

We have more information at our fingertips now than at any other time in history. Recent studies show that accessing information — any information that interests a user — has become a hobby, even an obsession. These days, data = power, but data also = fun.

No one but academics and a few specialists still know how to do real research anymore. If desired information is not available on computer, the average person assumes it doesn't exist or gives up the search altogether. If information is not accessible on the OpNet, many people are helpless.

Constant computer access has also changed communications. Jack in and you can talk to anyone, anywhere on the planet for a fee. If they're not in, you leave a message with their agent. The wealthy can even transmit cellular messages on their minicomps. When was the last time you couldn't get in touch with someone who wanted to talk to you?

Space is the great equalizer, though. Leaving Earth and near-orbit puts you "out of touch." Many who want to escape Earth's communications network head for the stars. The extra-solar colonies have been cut off from all outside contact for five years. How many of us here on Earth, with our minicomps and airwave transmissions, can imagine what that type of isolation must be like?

WEAPONS

— Karen Jase, Combat Instructor, Proteus Division

It's a big, bad universe and there will come a time in your career when you will need to be armed — yes, even though you're a psion. That means you, too, Legionnaires, whether you want to believe it or not. Only the foolish rely on one weapon to protect them, whether it's psi or a pistol. Question is, what weapons should you carry?

The answer, my friends, depends on where you are and what you're doing. Carrying a heavy coilgun on the streets of Sydney is as practical as bringing a taser to an Aberrant fight. Look around you; folks don't pack heavy weapons in their everyday lives, especially if they're safely on Earth. Toting around the heavy gear isn't only cumbersome, it's a violation of about every reg in the book. If you can't remember that, memorize this rule of thumb: If a piece won't fit in a pocket, leave it at home — unless you've been called out on a mission.

Of course, that doesn't mean you should go defenseless. There's no telling when your psionic abilities won't help you. That's when it's useful to have a weapon up your sleeve — literally. Anyone with any sense packs; they're just discrete about it. Carrying a small, nonlethal weapon like a taser won't cause you any problems in most cities, but it's always wise to have something deadly as backup — in case your target has the taint.

It's a whole different story in space. Hell, the rules change as soon as you leave most Earth cities. Almost everyone carries a weapon outside city limits — a big weapon in remote or harsh regions, such as fringe colonies or the remote regions of Luna. You should, too. Anything is game outside civilization; sometimes the only law is you. Some of you will even go to the extra-solar colonies. You could come face to face with literally anything out there. When you do, you'll

want long-range and rapid fire. Consider one of the new coil carbines; they're an excellent investment.

PROTEUS ARCHIVE

CHOOSING WEAPONS

— Anmar Hiraz, Proteus Division Operative

How do I choose my field weapons? I never carry just one, no matter how big and deadly it is. Weapons break, they get dropped and they get zapped by aliens or Aberrants. If something snaps the muzzle off your plasma rifle, you're shit out of luck without a backup. Wear a gauntlet or carry something small in a holster or pocket.

Always carry different weapons, too. If a laser doesn't bring your target down, a slugthrower or flechette might.

Carry three weapons if you have the room: a heavy weapon like a carbine with a big clip and a high rate of fire for ordinary use, a pistol or gauntlet as backup, and something small and unexpected, like a melee weapon or a taser. A tonfa never runs out of ammo.

I carry a Hornet VI laser as my main weapon, a Voss 12H plasma pistol as a backup and a sonic knife for tight spots. Keep plasma pistols in mind. They don't fire many shots, but they pack a punch that can drop something big and ugly.

If you're lucky, your order or Æon will set you up with something really heavy-duty, like the VARGs — the latest in battle suits — but that usually means you *need* it.

VARGs

When the Aberrant threat became clear back in the mid-21st century, Earth's military forces knew they needed something to combat the erstwhile heroes. They needed small, powerful, versatile machines that could track and fight Aberrants wherever they were, from main street to Earth orbit.

After trial and error, engineers developed what has come to be known as "vacuum assault and reconnaissance gear" — so named for its applicability for all such situations. The first VARGs were little more than heavily armored suits with large-scale, antipersonnel weaponry. These machines helped even the score against Aberrants, but single-person combat machines were developed too late to have a significant impact on the war. The Chinese forced events to a close with the Ultimatum, proving that nuclear arms were still the greatest weapons at humanity's disposal.

Still, VARG technology wasn't entirely useless in the aftermath. War with the Aberrants had forced Earth's military forces to adopt small-unit tactics to deal with individual Aberrants. This style of combat continued between human forces after the Exodus. Highly trained cadres of soldiers came to be supported by VARGs, which mostly replaced tanks, helicopters and other heavy weaponry.

Now that we face the Aberrants again, and other threats like the Chromatics and possibly even the Coalition, VARGs are called to the fore once more. Mechanized-infantry technology has improved quite a bit in 50 years. The most notable difference between old and new VARGs is their control systems. The first hardtech VARGs handled similarly to tanks or fighter aircraft — control sticks, throttles, weapon triggers. Many of today's VARGs still use these methods of system control.



FSM SECURITY CAM > ALAMO SSTXMX 1/Y



FSM SECURITY CAM > ALAMO SSTXMX 2/Y .02

However, the newest models use an entirely new form of control mechanism: the Neural/Virtual Reality Interface. This fiber-optic system is manufactured by both Ozawa/Ashikaga and ClinTech/Rheinmetall. When you climb into a VARG's control pod, you put on an advanced holosim helmet and plug the interface cables into the "NVR" jack on the VARG's primary control board. The system links your brain waves to the VARG's control computer through electromagnetic induction. When you activate the system, you enter a holosimulation of your surroundings in which you *are* the VARG. The suit responds instantly to your thought commands. Weaponry and sensor data are projected in front of you, in a heads-up display.

NVR is the fastest-responding control system available. Some NVR-equipped VARGs rival even more revolutionary bioVARGs in control, response and maneuverability. NVR promises to be the future of control technology for all mechanized infantry, but VARG jocks are still trained to use manual control. The NVR has definite advantages,

but battlefield damage could always throw the system offline. If you don't know how to work a stick then, you're dead.

Nihonjin vids have popularized walking, mechanized war machines for decades, so it's not surprising that Nippon is the leading producer of hardtech VARGs — followed closely by the FSA. The typical hardtech VARG is three to five meters tall and is mounted with several heavy and support weapons.

The leading Nipponese manufacturer is Ozawa/Ashikaga, based in the Ashikaga province. ClinTech handles most VARG manufacturing in the FSA. The Nihonjin sell VARGs to select nations, primarily those that share Nippon's distrust of biotech. The FSA has purchased (and stolen) a number of significant VARG patents from Nippon.

BioVARGs

Cairo, a hot-bed of cultural friction and political upheaval since the Aberrant War, had the distinction of witnessing the introduction of the bioVARG. A group of well-armed fanatics with hardtech VARG support assaulted a garrison protecting the Suez Canal locks. It was



later revealed that the terrorists planned to activate a fusion warhead, destroying the canal, themselves and everything else within 50 kilometers in protest of the Aberrant expulsion. The timely intervention of Egyptian Special Forces, supported by Orgotek bioVARGs stationed at Cairo, prevented catastrophe.

The Egyptian troops, transported to the scene via hovercraft, distracted the terrorists long enough for Orgotek forces to attack. The new bioVARGs were heavily outnumbered by the terrorists' hardtech machines, but the Orgotek creations' superior speed, maneuverability and their symbiotic relationship between pilot and craft enabled the authorities to overwhelm the Aberrant sympathizers in mere minutes.

In a press release following the conflict, Orgotek announced that it was accepting contracts for immediate construction and deployment of bioVARGs. Critics pointed out the "coincidence" between the terrorist incident and the completion of Cairo's bioapps. However, an Æon-sponsored investigation failed to draw any connection between Orgotek and the would-be bombers.

The only real limitation to the bioVARGs is that they must be formatted to the user. As such, only psions can take advantage of

the suits' impressive capabilities. Still, there are enough psions working freelance for governments and private organizations to show an interest in bioVARGs beyond that expressed by the psi orders.

The Big Three

Though three manufacturers dominate the bioVARG industry, many companies aspire to create a niche for themselves. Sometimes, they resort to industrial espionage to steal from the established leaders. Only Orgotek, TechoDyne, and BioSystems, however, have managed to turn a profit consistently.

The Big Three are bitter rivals for government contracts and commercial credits in almost every other industry, but each serves a particular clientele with its bioVARG designs. Orgotek supplies weaponry to influential governments such as China, and uses mass production. TechnoDyne sells to a specialized market, supplying the intelligence community and parties that are wealthy enough to equip small armies. BioSystems has begun to bend the very definition of bioVARG by fulfilling commercial and industrial demands and developing new equipment based on the needs of the private sector.





Orgotek bioVARGs

Orgotek sets the standards by which all other biotech manufacturers are judged. The order introduced the bioVARG and has been its leading manufacturer ever since. Most bioVARGs stomping around military bases sport the Orgotek logo, as do most of those aboard space vessels. Orgotek's key to success is its re-engineering of the mass-production process. The manufacturer's basic designs rarely change; it can produce dozens of units in the time it takes TechnoDyne to design and create one Chameleon.

Mass production might suggest a lack of versatility on Orgotek's part, but this is not the case. Their design teams also create

new, specialized bioVARGs on a per-contract basis. Governments or private parties with special requirements can request new designs. These special models take longer to construct and cost more, but they attest to Orgotek's flexibility.

TECHNO DYNE

TechnoDyne bioVARGs

TechnoDyne specializes in the development of stealth technologies and personalized bioVARGs. The former makes each VARG more effective than a mass-produced model, while the latter assures that each design is unique to its owner. While neither of these niche markets is large, orders for customized bioVARGs from this Australia-based corporation have skyrocketed in recent months. It certainly doesn't hurt TechnoDyne's sales that it set up shop in the Legions' back yard.

Interest in the Chameleon, in particular, stems from the unique qualities of each individual suit. The psion chooses her own options and designs, from color scheme to weaponry to material components. The pilot can spend up to two weeks being fitted for his bioVARG. A cast of the psion's body is used to mold the suit, which is literally grown to size.

Many of TechnoDyne top engineers originated from Orgotek. Rumors abound concerning this apparent defection. It is unclear whether the engineers were dismissed from the order/corporation for releasing information on bioVARGs or if they left voluntarily with that information. Orgotek has not taken any public steps to prevent TechnoDyne from proceeding with its production, however.

• TRITON ARCHIVE •

Go Anywhere,
Do Anything!

— Orgotek company profile,
Fortune 10000

We at Orgotek understand the needs of the world's governments and the necessities of space exploration. We have therefore created the bioVARG to further humanity's interests on Luna, Mars and beyond. Not just a weapon, the bioVARG has numerous peacetime applications. Yet should the need arise, should any threat to humanity emerge, rest assured we can defend ourselves — anywhere and against anything.

BioSystems

BioSystems bioVARGs

Despite Orgotek's near stranglehold on biotechnology, BioSystems advances in leaps and bounds. The secret to the company's success is Qin design assistance, achieved through Norça contacts. Some experts point to BioSystems' strict avoidance of military projects as inspiration for Qin interest. Orgotek focuses on the military applications of bioVARGs; perhaps the Qin recognize a void that BioSystems can fill.

BioSystems concentrates on the commercial utility of bioVARGs. The largest obstacle it faces is government restrictions on private ownership of the devices. The Federated States of America, in particular, denies sales of industrial bioVARGs out of "safety concerns."

BioSystems also manufactures models suitable for deep-space repairs and construction. While standard hardtech can be used to handle most ordinary situations in space, the improved handling and versatility of biotech vehicles save time and yuan. Unfortunately for BioSystems, skilled biotech pilots tend to garner higher wages than their hardtech brethren, and often prefer action to mundane employment.

• TRITON ARCHIVE •

— Excerpt: BioSystems sales brochure

With the universe changing at the speed of light, you need every edge you can get. We at BioSystems understand your needs and have the solution — bioVARGs. These powerful machines were first made popular by the military, but the creative team at BioSystems has designed a machine suitable to every one of your commercial and industrial needs.

The future is here at BioSystems.

COMPUTERS

— Lectures of Professor Thomas Gallivan, Triton Division

Nearly everyone relies on a minicomp, from a secretary using a document processor to spruce up a report, to the loyal fan downloading stats from last night's game, to the intelligence operative running satellite imagery through an enhancement application.

Computers are everywhere, even in places you wouldn't expect. They control manufacturing plants, run life-support systems, guide spaceborne craft to stable orbit, direct traffic flow, predict the weather and even monitor your house. Most of today's computers use complex synthetics designed to minimize quantum-mechanical difficulties. The latest circuitry is even farther advanced from the models your parents or even your older siblings used. Also, while biocomputing is still in its infancy, it is expected to advance rapidly. It has already resulted in remarkable devices such as the new jump ships, which have returned us to the stars.

Nearly every corporation has public relations, sales and customer-support net facilities that are accessible by the general public. Most universities have extensive computer forums that include student pages, published research and class schedules. Many cities post various departmental information online, allowing citizens to review laws and regulations, pay bills and fines, acquire maps and check up on cultural events.

The modern citizen is even willing to pay for computer use and access. Billions of yuan flow every day in microcommerce transactions. Users pay to view online news reports, get real-time stock quotes, check the traffic or weather, play interactive games and download books.

Perhaps we've become so dependent on computers because we no longer need to know how a computer works to operate one.

Most people interact with programmed computer agents that perform all functions. Agents are used across a wide range of fields. Scientists rely on them to search through libraries and journal indices for data. Stockbrokers use them to spot an equity that's likely to rise or fall quickly. Offices arrange meetings of employees through agent representatives. Agents connect buyers and sellers in the global marketplace. Public safety departments dispatch agents into city traffic networks to make sure that emergency vehicles arrive at their destinations unimpeded.

People can have agents dedicated to all aspects of their lives, from home to office to recreation. Some are closer to their agents than they are to their own children. An agent can know more about its user than that person's spouse might. Complete computer dependence is the price we pay for living in a dynamic, chaotic and exciting universe.

INSIDE THE BODY ELECTRIC

— Excerpt from "What about Software" © 2020 MMI

Software runs the machines that run our lives. Software is the electronic personality and knowledge of the computer body. New interfaces, protocols, applications, agents, system utilities and databases constantly pour out of software houses across the globe and in near-space. They range from programs available for free off the OpNet to prepackaged and thoroughly licensed agents from metacorps such as Orchidware and Wazukana.

TRITON ARCHIVE

THE HUMAN COMPUTER

— Excerpt: Orgotek promotional brochure, 6.2119

Modern understanding holds computers to be electronic devices that we build and interact with. After all, those are the kinds of computers that we see and use every day. However, another far more elaborate and powerful computer exists that you use every day, one you never see and you always take for granted. We're talking about the human brain.

Imagine if we could simulate the memory, response time, systems capacity and raw power of the human brain in a handheld minicomputer. Computers and the world as we know it would be revolutionized, right? Well, that's exactly what we at Orgotek strive to do with our biocomp research programs. We hope to put the power of the mind in the palm of your hand.

You think you rely on your minicomputer now? Imagine a day when your minicomputer can anticipate your every thought and solve all of your problems.

As an Aeon operative, you need to be aware of your daily interactions with your computer. Whether you realize it or not, computers are integral to your roles as psions. You'll use your minicomputer and agent to file reports, filter data and search for evidence. The electrokinetics and skilled computer users among you may have to bring your electronic skills to bear to defend OpNet systems from Aberrants and other attackers. We hope this seminar will help you make the most of computers in your defense of humanity.

Computers operate under the principle: "If I don't understand it, I won't do it and I'll report an error." Computers are simple. They are capable of only so much and can't interpret your commands or extrapolate beyond their programming. Yet in spite of this simplicity (or maybe because of it), computer technology has advanced steadily for the past 150 years. OpNet's destruction and the Crash slowed our progress and forced us to rethink old assumptions, but technology still pushes onward.

Whereas computers are simple, agents are their complex counterparts. Agents operate under the principle: "If I don't understand it, I'll try to figure it out and give my user what he wants." It's hoped that modern agent technology will make user errors a thing of the past. We're not there yet, but we're close. Right now, your minicomputer's agent handles all of your interactions; it processes information, keeps your files and data in sync, and generally maintains your system.

COMMUNICATIONS

— Excerpt: OpNet ToDay chipzine
© 2120 Genman Enterprises

Mass communications in the 22nd century take two forms: the fiber-optic OpNet, and beamed or cellular transmissions. There was a time before the Aberrant War when mass communications were even more extensive and comprehensive than they are today, thanks to a worldwide internet system and apparently inexhaustible transmission frequencies. That network, however, proved to have a fatal flaw: It could be tampered with and destroyed, which is exactly what happened when the Aberrant Mungu Kuwasha unleashed his "electro-optical pulse" in 2061.

The internet and communications systems were left in shambles after the Aberrant War. There simply wasn't an opportunity to restore them; most nations were trying to rebuild their basic industrial and agricultural infrastructures, let alone complex

communications systems.

The contemporary Aeon Trinity therefore asked the relatively unscathed Nihonjin to help nations rebuild their nets. The Nihonjin agreed and provided both technical assistance and equipment to all major nations.

A conglomerate of Nihonjin communications corporations oversaw the OpNet's reconstruction. Information stored on new networks was salvaged from the former system or compiled by Aeon in a desperate bid to protect and process humanity's accumulated knowledge. Areas that were devastated in the war, such as the Middle East, benefited much later from the Nihonjin aid (although processing systems established in such areas are slower than those of other parts of the world, and still cause communications delays).

As we all know, the structure of the OpNet is based on isolation. Individual communications systems were established among parties that needed to remain in contact, but those units remain separated from each other. Computers and communications equipment are not united globally as they were before, for fear of future attacks or tampering that would crash a worldwide system again. Processing centers and nodes for individual networks were designed with extensive security systems, complete with armed guards.

Governments of the world were initially content to let the Nihonjin administrate the OpNet. The foreigners were the ones who redesigned it after all, and they knew how to operate it best. However, countries have proved restless with this arrangement in recent years, despite most having native support staff assisting Nihonjin node supervisors. Several governments and colonies are currently investigating or have developed ways to bring their individual OpNets under direct control. Furthermore, many communications corporations seek to gain financial advantage over their Nihonjin competitors by displacing them as OpNet administrators.

Such communications "rebellions" have resulted in a surge of industrial espionage; governments and corporations attempt to steal the latest in communications technology from the Nihonjin, and try to learn the secrets of those groups that have won their liberty from Nihonjin administration.

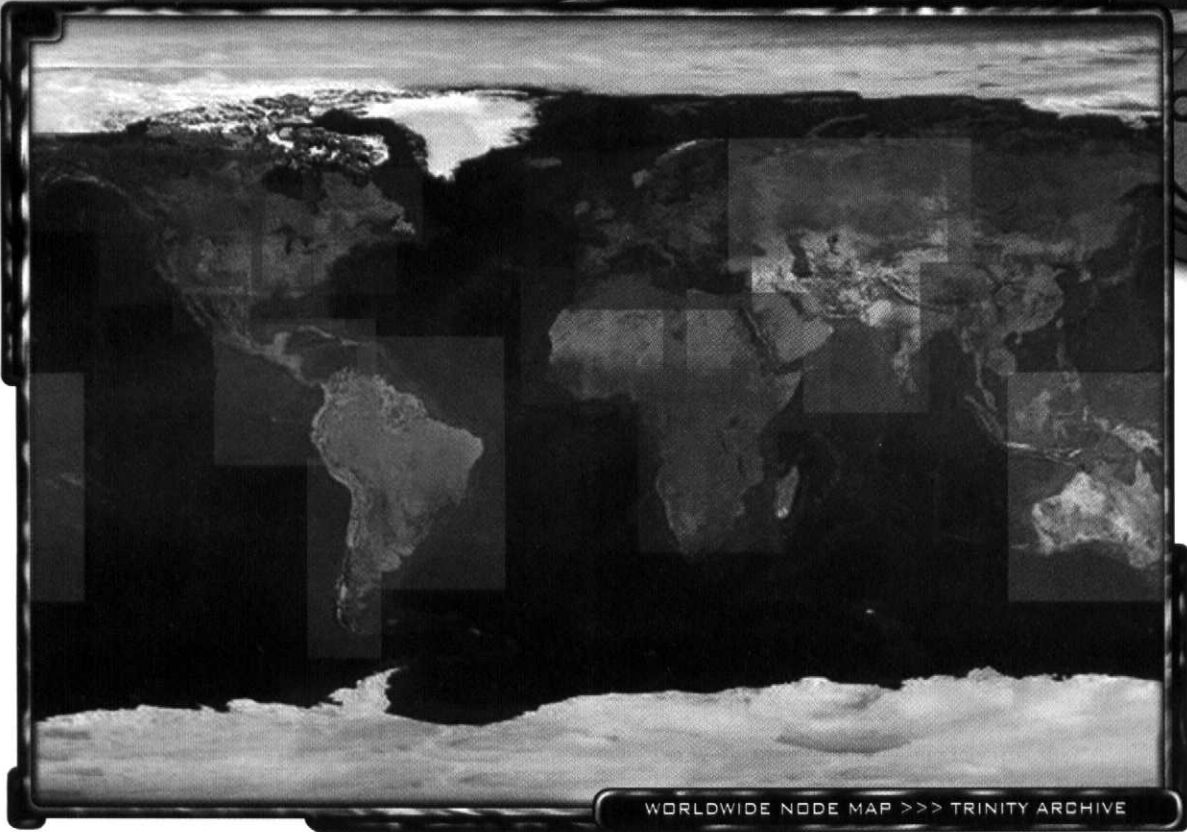
Several proposals have also been lobbied with the UN, primarily by China and the FSA, to restructure the OpNet so that each nation is officially responsible for its own networks. According to this system, the Nihonjin would continue to run its own island-node, as well as transcontinental cables and signal booster stations, but that would be all. While the plan hasn't been implemented due to Nippon's resistance, a number of governments have taken steps to restrict Nihonjin influence on their local nodes.

COMMUNICATION ZONES

The recent backlash against Nihonjin OpNet administration has put control of some zones in the hands of governments and corporations. In practical terms, this has meant the ousting of Nihonjin technicians from monitoring facilities (referred to as "nodes") and relay stations. Major political powers such as the FSA and China have had the most success at these powerplays (but have yet to establish OpNet facilities that are truly their own; they still use Nihonjin equipment). The Nihonjin have placated other critics and usurpers by doling out licenses to temporary, regional control of OpNet and cellular communications.

In keeping with Nippon's isolationist policies, the Nihonjin have established their own OpNet facilities on the Home Islands. Their system translates as Isle Net and is known as I-Net. Only Nihonjin corporations and government agencies can access this system.

Another separate control zone has been established in Europe by the Swiss government. The EuroNet is like its Nihonjin cousin and has highly restricted access for non-European transmissions. Nihonjin companies no



WORLDWIDE NODE MAP >>> TRINITY ARCHIVE

longer sell new equipment to Europe in protest of the EuroNet.

MODERN COMMUNICATIONS SYSTEMS

Today's OpNet is set up in a highly structured manner. Earth nations and near-space colonies have multiplex switching stations called nodes. Each node processes transmissions and directs them as necessary to other nodes. A node is capable of handling over 500 million individual communications simultaneously. The nodes also scan each and every message for proper access codes, energy distortions (for fear of tampering) and viruses. A message that bears proper access codes and that does not trigger warning systems is routed to its destination.

One of the OpNet's primary security systems is Netscan. A highly sophisticated SI system, Netscan constantly monitors the OpNet and all messages on it. The program consists of three sensor systems. One searches for computer viruses and physical

breaks in communication, the second detects signs of electrokinetic tampering, and the last monitors for nuclear-force abnormalities. Netscan makes it extremely difficult for hackers, EK psions or Aberrants to interfere with the OpNet.

The OpNet is used mainly for data- and video-conferencing communication; fiber-optic lines are impervious to EMP and other electromagnetic disruption. Cellular or beamed communications are used mostly for voice transmission, as well as for media broadcasts. The cellular network uses a series of beaming relays and satellite uplink stations. Many "satellites" are actually decoys used to destroy or dissuade Aberrants from attacking. Not all of the communications satellites in Earth's orbit are functioning relays, but instead floating bombs that are wired to biotech spatial-distortion sensors. If taint is detected near the satellites, explosive charges detonate.

Fees are sometimes charged to send a message through a single OpNet node or through a beamed relay station, but most transmissions are free. However, taxes or tariffs are commonly imposed on messages sent through more than one node — assuming the target processor accepts the transmission and the two OpNet sections are connected at all. Charges are also levied on messages that must be beamed between two or more relay satellites. Since only select OpNets are linked in any way, most international or extraplanetary transmissions must be sent via beamed communication — and use of such systems is very expensive, restricting heavily its personal use.

·TRITON ARCHIVE·

WATCHING THE NODES

— Lieutenant Chris Blake,
Royal Australian Army

Yeh, my job doesn't promise any honor or glory, but I'm responsible for the safety of millions. OpNet nodes have some of the tightest security on Earth. Sure, each one is assigned troops and heavy weapons — sometimes even VARGs — but I take care of the most important measure.

Every node is wired with enough LX-40 to blow the entire place to shit. There's always the chance that Aberrants — or maybe even psions — could take out a node's guards. That's when they come face to face with me — or someone like me at every node. See, I'm wired to the charge, too. If my heart stops beating — BOOM! No more attackers. No more node. No more me. It's the shifts, yeh, but I'd rather die than see another Crunch. And hey, I've got a great health plan!

Governments and corporations justify these taxes by claiming that security is expensive to maintain. Of course, many believe that profiteering is the true reason behind it.

PIRATE COMMUNICATIONS

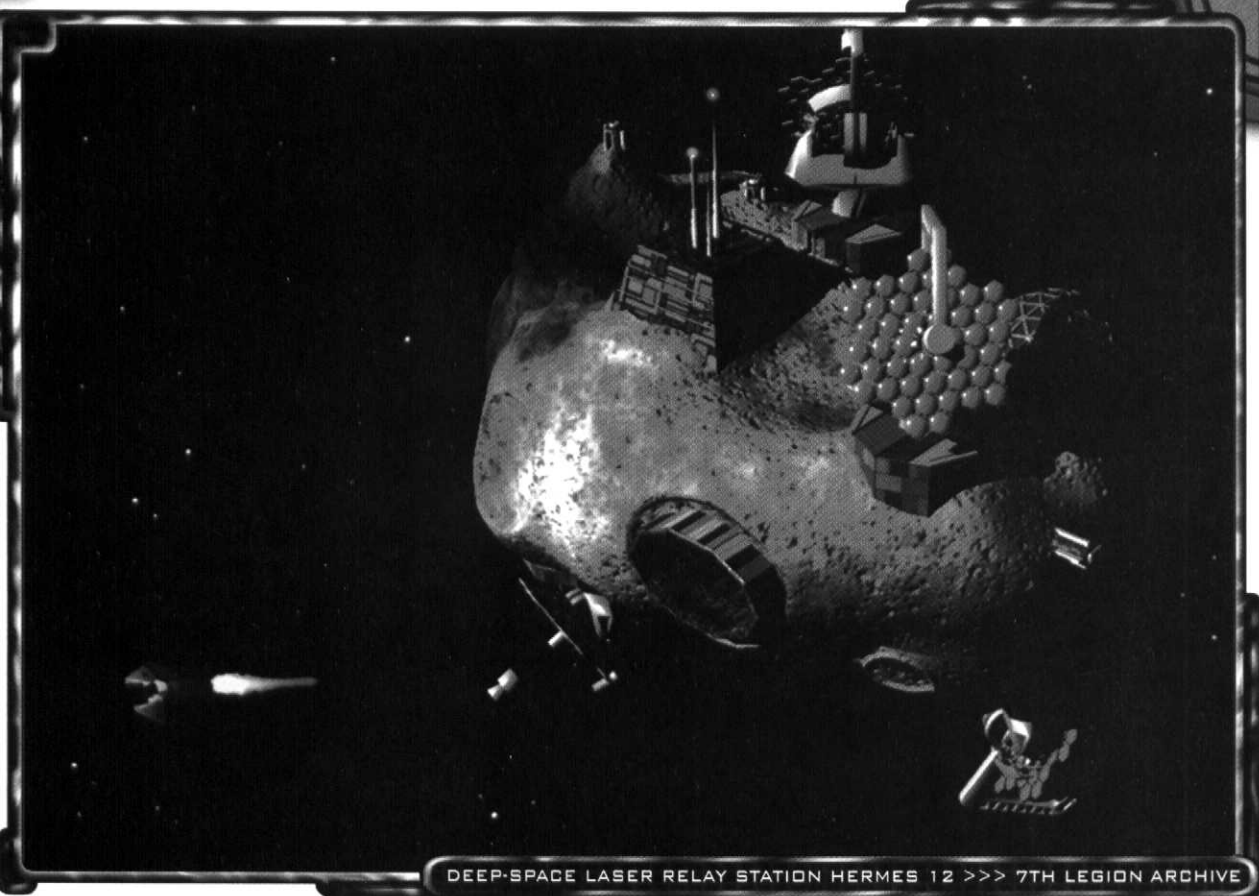
Despite all of the security devoted to the OpNet and to beamed systems, illegal use of facilities is still a problem. High taxes and fees imposed on transmissions have inspired a thriving communications black market. Bootleg and hacked access codes are sold and traded; users with pirated access are difficult to trace among the millions of messages that are relayed through nodes and relay systems at any given moment. Weeding out false codes also means changing passes and entry systems for an entire system, which is cost prohibitive.

Organized crime groups such as the Mafia and the Asian Triads (and the Norça, some say), control the communications black market, although most operators are small scale.

IN-SYSTEM LASER ARRAY (ILA)

The most heavily guarded and important communications system on Earth is the In-System Laser Array. This is a series of six immense ground stations that beam phased-laser transmissions into space. The lasers carry voice, video and data messages to and from the Moon, Mars and mining stations in the Asteroid Belt. Lasers are used rather than radio waves because lasers cannot be jammed (although hackers have attempted to *reflect* laser projections and to even project false lasers). The only acknowledged failing of laser-projected communications is dissipation at long range. A number of deep-space relay stations have been installed across the Solar System to assist in boosting transmissions to facilities beyond the Asteroid Belt and across the Sun from Earth.

ILA facilities are located in North America's Central District, Switzerland, South Africa, China, Australia and Peru. Combined, these installations provide full coverage to



DEEP-SPACE LASER RELAY STATION HERMES 12 >>> 7TH LEGION ARCHIVE

the planet, allowing messages to be transmitted to and received from almost anywhere in space.

If security on the OpNet is heavy, then security on the laser arrays border on paranoid. Infantry recruited from a station's local military is posted at each installation. These troops are typically backed up by tanks or VARGS. Each station is also assigned a squadron of fighters for air defense. Æon is often called upon to coordinate psion defense as well.

Australia probably has the most heavily defended ILA, due in large part to the availability and enthusiasm of Legionnaires. The relay stations in space are equally well defended and are rigged to detonate in the event of Aberrant incursion. Such a nuclear blast would be so powerful that not even a group of Aberrants might contain it.

3.0 COMPUTERS


 The logo for Rafat Incorporated features the word "RAFAT" in a large, stylized, metallic font. Below it, the word "INCORPORATED" is written in a smaller, simpler font. The entire logo is set against a dark, oval background with a textured, metallic appearance.

COMPUTER TECHNOLOGY MANUFACTURERS

— **Excerpt: *Free Enterprise Report: A Closer Look* © 2120 Rafat, Inc.**

IRIS SYSTEMS

Iris is a medium-sized corporation with headquarters on Luna, but with Earthside facilities in California, Australia, Africa and India. The company has made a name for itself by making computer systems designed for use in space and other hostile environments. It also produces custom-made systems and investigates high-end solutions to problems facing the entertainment and scientific communities. Most of Iris' Earthside customers are engineers, graphic designers and anyone who needs high-quality hardware.

Iris engineers have made advances in the nonquantum, electrical technology required for systems that operate in space and Lunar facilities. They have also taken advantage of low gravity and microgravity manufacturing to enhance the solid-state components of their systems and to make computer casings light and strong. Iris has recently perfected a method of lining a system's case with olaminium to provide shielding against solar radiation.

Iris systems are among the most stable and worry-free, not to mention stylish, in the industry. Iris employs a group of young graphics and packaging designers to give all of its systems a sleek, organic appearance that suits any environment. They've also come up with a sharp marketing campaign that uses anima culture to sell to young demographics.

LYCEUM SOFTWARE

Lyceum is a private corporation specializing in educational, research and informational software. It produces a highly respected encyclopedia and dictionary application that can be used to enhance virtually any research or tutoring agent. Lyceum controls a sizable portion of the academic market; many customers used Lyceum software while at university and

continue to do so in the business world. The company is a small outfit operating out of the northeastern FSA. It hires most of its staff from the top technical universities of the district.

TRITON ARCHIVE

COMPUTER DYNAMICS

— **From Triton Division memo, 5.2120**

The universe of computer corporations is much the same as it ever was. They all compete for the top talent and occasionally steal engineers from one another. Each tries to outdo the rest with new products that feature functionality or more efficient codes. Wazukana buys up small companies. Steinhardt fights the good fight. Alchemy tries to stay out of Orgotek's shadow. DataWarp takes advantage of the current state of conflict.

Iris recently took some prime supply contracts from Wazukana and Steinhardt, particularly on Luna and on the orbital stations. However, the maneuver puts Iris in the sights of the two giants and may mean trouble down the road, most likely through efforts to steal Iris' customers or to buy up its supplies. Hopefully, Proteus' recent deals with Iris will not make Æon unpopular.

Lyceum was involved in the Trinity's reconstruction of information lost when the OpNet was destroyed, and we have been on friendly terms ever since. Joseph Camp, the current CEO, has put in a good word for Æon with his colleagues in the corporate world.

INTELLIGENCE TECHNOLOGIES

The development since the Aberrant War of isolated computer networks and incredibly complex OpNet security systems has demanded the reinvention of intelligence gathering. In the days of a worldwide internet, hackers and agents could acquire information on anything and anybody, in a matter of moments. Now that computers are no longer connected extensively and protection of information borders on paranoia, governments and corporate spies must enter the field and take a hands-on approach to their missions.

The Æon Trinity has an entire division devoted to information gathering, of course, but Triton's efforts are dedicated to the good of humanity. We seek to know everything that we can to protect humankind from enemies without and within.

Other intelligence-gathering entities exist as well. They, like Triton, require tools to get the job done and their creations run the gamut of technological innovation, from basic hardtech to advanced biotech. Though many of these agencies maintain public appearances, they are not always as benevolent as Triton — if they're benevolent at all. Æon operatives do well to be familiar with those companies involved in the intelligence industry.



Yamata Micro-Electronics

This Nippon-based corporation is widely accepted as the world's best and most creative manufacturer of surveillance and intelligence technologies. Yamata has close ties to the Nihonjin government; most intelligence agencies suspect that its most advanced products are available only to Nippon. Rumors circulate of cybernetically enhanced Nihonjin

agents who carry fantastic hardware. Such characters are common in popular fiction, but no one has publicly admitted to the existence of such agents. Yet Æon operatives have encountered Nihonjin agents who have apparently been equipped with hardtech implants that simulate the low-level powers of electromanipulation, technokinesis and even adaptation. Yamata is also known to be developing a direct neural-electronic interface, but does not seem to have succeeded as yet.

Yamata spokespeople have stated that the corporation is working on making hardtech as versatile and easy to use as biotech, with none of the risks of tolerance overload. Apparently, scientists at Yamata are just as horrified by biotech as is the rest of Nihonjin society. Indeed, these people are believed to be working on devices that can detect and neutralize biotech. Prototypes of such inventions have been discovered; Æon and Orgotek are very interested in obtaining these devices.

Yamata is infamous among many governments. Evidence suggests that it sells restricted technologies to anyone — including terrorists

PROTEUS DIVISION

Subject: Yamata Security
From: Zarah Malaaca, VP/Tekne Information Services Division, Orgotek
To: Jennifer Denton, Proteus Division
Security: SPE
Transmission type: textfile
Date: 11:45:09 12.15.2119

We still have no idea what's going on at Yamata, but we do know that they're being extremely careful. Security is air-tight. They're using dedicated computer systems to protect themselves from electrokinetic intrusion. They also seem to have instituted some kind of anti-clairsentience protocols. Getting a psi print from inside one of their labs has proved impossible. We assume that all this security means they have something to hide. We need to get someone inside. That's why we've come to you....

and criminal organizations — who can meet its price.

However, Yamata refuses to sell its products to nations like Brazil and those that are opposed to Nippon and its policies.



Orgotek

Easygoing Orgotek seems an unlikely candidate for intelligence technologies. However, Tekne Group and Orgosoft Farms are responsible for a number of the recent advances in this field. Orgotek's philosophy is open-ended experimentation. That means "easygoing" Orgotek is only as benevolent as its most goodwilled employees. That also means it can be as paranoid and malevolent as its worst. The company and order want to turn a profit and sometimes that means being the bad guy.

Some of Orgotek's most impressive intelligence technologies, including grippers and wingpacks, began as part of the organization's failed foray into toys and entertainment. Products deemed unsuitable for children proved to have other, sinister applications.

Orgotek has also made some fully intentional forays into intelligence gathering. Many electrokinetics in Operations experiment with their ability to explore and control computers and other electronic systems. These "hackers" search for weaknesses in computer defenses, develop improved computer security and invent more versatile surveillance equipment. While rarely malicious, the "spooks" at Orgotek are well known for field-testing their own creations.

Most government operatives and corporations regard such Orgotek tinkerers as dangerous amateurs. China and the FSA, among others, are outright hostile to these undisciplined agents. Some of these "amateurs" have been injured and even killed while testing equipment, though others have uncovered vi-

tal information with their inventions. Much to the Chinese government's chagrin, Orgotek designer James Chen single-handedly discovered the notorious Golden Lotus plot. The terrorist group planned to flood Beijing's water supply with deadly neurotoxins. Dr. Chen, who was "vacationing" in Beijing, had brought a number of experimental devices to test, and uncovered the plot that had escaped the notice of even the Ministry.

Unlike other intelligence researchers, Orgotek sells its creations to governments and licensed organizations, regardless of their goals or motives. The hacker ethic of individual freedom and responsibility is alive and well in Orgotek. This open sales policy does not apply to all of Orgotek's devices, though. Aeon has learned of the development of specific bioapps, although Orgotek denies their existence.



Based in the New DC arcology, L-K is the FSA's largest manufacturer of personal weapons. L-K's security-systems division is also one of the more important manufacturers of intelligence technologies in the world. The designs of the security division are not innovative, but the company is well known for its low prices and impartiality; no other large corporation sells restricted devices to civilians.

National and international laws often prevent the transportation of L-K products, but rumors abound of L-K's "creative" shipping practices. The manufacturer arranges special shipping to any place on the planet or near-Earth space, regardless of local or international laws, for an additional fee. Introduction of L-K products into China, Nippon, Olympus and other regions with strict importation laws requires a considerable amount of time, but L-K manages to deliver. Definitive proof of such practices would close L-K and mean the prosecution of its managers, but the corporation continues to operate to this day.

MEDICINE

Two seminal events in human history have inspired modern science to discover the secrets of life — and to protect it. The first was the Aberrant War and the atrocities that were committed in it. The war introduced completely new and bizarre ailments to the human body and taught us the value of life itself. The second event was our expansive exploration of space. Zero-g and orbital-research facilities enabled researchers to discover and study new medicines and treatments that could never have existed on Earth.

For all the hardship that went with them, these historical landmarks propelled medical science beyond anything ever known before. They forced us to face to new threats, new problems and new questions in order to ensure humanity's existence. Indeed, the Aberrant War and the colonization of space were undoubtedly integral to the emergence of psionic energy and the discovery of noetic science, as well — two other phenomena evolved out of mankind's will to survive any adversity. The emergence of psi and all the new insights that it provides has certainly roused medical research to a fever pitch.

Yet no discovery, no amount of research has ever been able to silence the world's cries for relief. The people of the 22nd century, enduring wars, disasters and poverty, beg for their physical and emotional wounds to be healed. This appeal pushes doctors, scientists and psions ever harder to discover cures for the world's ails. However, this demand also perpetuates the world's pains, for it creates opportunities for charlatans and profiteers to relieve the suffering for only a short while, creating greater demand for medicinal treatments and recreational drugs. Medicine has thus become the booming industry of the modern universe.

Many companies recognize the profits that can be made through medicine. Even multinationals such as L-B that normally deal in completely different commodities have developed medical research branches. But, of course, no competitor can rival the successes and profits won by Colombian drug manufactures. Last year

alone, MedNacionales and Apex Montaña, two potent rivals, made more than all the FSA's medical corporations combined.

Entering this race are the two psi orders most knowledgeable about the human body: the Norça and Æsculapians. Norça medical research focuses on drugs and is confined primarily to Earth, where the order has its greatest resources of test subjects and funds. The Æsculapians concentrate on setting regulations on drug production and research. Proxy Zweidler recognizes the importance of drugs in medicine, and the docs use them extensively, but the vitakinetics avoid dependency on drugs. The docs make the most of their clinics and research stations across the Solar System to provide complete medical treatment, instead.

The Norça and Æsculapians compete to a certain degree in drug (and biotech) research. Indeed, an uncomfortable, unspoken tension arises every time the orders' medical efforts coincide, such as when some noble rex hitches an airfoil ride across the Caribbean to save Medellín dreamers. However, it's rumored that the two orders cooperate on research into the nature of "ordo," the blueprint of life, somewhere in South America.

It's debatable which order understands the human body better. Certainly, the shifters have an innate understanding of their own physical forms, but theirs is more an intuitive sense than a detailed comprehension of how every muscle and organ works. Docs can mend physical forms with a similarly intuitive capability — however, Zweidler has always stressed to his vitakinetics the importance of scientific understanding.

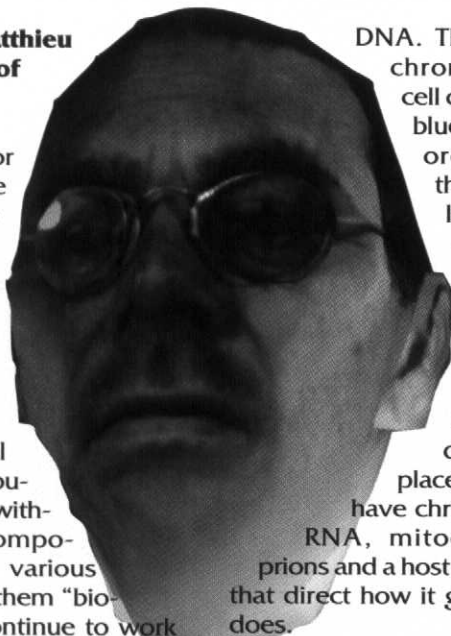
In the end, all this money-making research means that medical knowledge and the availability of new devices and treatments increase daily. The result is technological medical achievement the like of which has never been seen in human history. The future has never looked brighter for the pharmaceutical industry.

THE BIOLOGICAL TEMPLATE

— Address of Dr. Matthieu Zweidler at the opening of the Wanjing Clinic, 8.30.2107

My fellow scientists, for hundreds of years we have striven to discover the secrets of life. Now that day may be upon us. The vitakinetics and the biokinetics, humanity's newest protectors, have tapped into the essence of life itself; we can affect the human body through will alone. Yet biokinetics manipulate the body instinctively, without understanding its components. They merely label various states of the body, calling them "biological templates," and continue to work on instinct alone. Not so the Æsculapians; we dedicate ourselves to understanding all of the body's functions, both intuitively and intellectually. We, in the tradition of science, more properly name the body's basic composition and function *ordo*, from the Latin for "the order."

Galileo was called a visionary for pointing his telescope to the sky. Science has confirmed the details of the Jovian moons that he discovered. The Æsculapian Kirlian Eye is like his telescope. The life pattern of every living being is as complex as the orbits of the Jovian moons. Science must follow in order to understand what we see. The *ordo*'s foundation is genetic molecules, made of



DNA. These include the chromosomes of the cell core, which are the blueprints for life. But *ordo* also includes the DNA of the cellular systems, such as mitochondria, which have their own genetic structures and that replicate themselves before and after cell division takes place. A living cell may have chromosomes, DNA, RNA, mitochondrial DNA, prions and a host of other templates that direct how it grows and what it does.

But saying that these molecules are *ordo* is like calling a set of blueprints a house. Many more factors determine a house's structure, from its foundation to the slate upon its roof. Æsculapians' Kirlian Eye makes us like homeowners who know which boards creak and which beams are loose. Blueprints help organize home repair, but we have yet to understand the condition of the house as a whole. Æsculapians have the tools — a whole carpenter's belt of them — to truly get to know the human body. I therefore dedicate this clinic to the use of our tools, to help us reveal the full scope of the *ordo*.

THE HUMAN GENOME CATALOG

— **Excerpt: grant application by Dr. Ezra Schweillinger, 1.28.2002**

Of all of the damage done by the destruction of the OpNet in 2061, perhaps the greatest tragedy was the loss of the Human Genome Catalog, one of our greatest medical achievements. The international Human Genome Project, started in the late-20th century, identified 66,000 genes and surveyed 89% of humanity's estimated genome sequences. The catalog was a database of the DNA codes of all of those genes and was available for download by any researcher. The catalog made human gene therapy possible. It allowed scientists to recognize and remove the genes responsible for hereditary diseases during early pregnancy. The catalog also enabled cosmetic gene therapy, the ability to recognize and dictate the features and traits of generations to come.

The famous doctors Mazarin and Rashoud used the catalog to identify and even isolate the genetic structure that created Aberrants. By 2017, the DNA of unborn children could be tested for the Aberrant gene set with a moderate degree of success, and for other genes identifiable by the catalog. Unfortunately, this testing touched off a powder keg of false accusations that scientists were creating Aberrants. It was even suggested that the catalog had been created with the intent to make Aberrant sequences.

We cannot confirm if this was the true cause of Aberrants. Still, it was not the outrage of the common man that stopped use of the catalog. In 2045, despite a worldwide revulsion of eugenics, the United Nations

held hearings on using genetically tailored viruses to attack the Aberrants. Sadly, by that time, the node sequences recorded in the catalog were hopelessly behind; the Aberrants' nodes had mutated into totally new varieties that had not been recorded. The Aberrants recognized the danger of the catalog, though.

Several medical researchers and historians have proposed that Kuwasha's wiping of the OpNet may have actually been a cover for the destruction of all genome databases. Every search for the catalog since the war has failed; no shred of it has been found. Furthermore, disc copies of the catalog seem to have been destroyed during the war on a widespread basis — more so than would seem to have been possible through random chance. Whether this conspiracy will ever be proved is unknown. If Aberrants were responsible, they are hopefully dead or will never return to Earth.

The Human Genome Catalog is gone. The only way to use it again is to duplicate the project, to start from scratch, to study and record every gene sequence known to man. Rumors circulate that such programs have already begun in small circles, in secret government and corporate projects, but that the results are hoarded by paranoid groups fearing genetic warfare.

Humanity must get over its fear and ignorance. We cannot encompass humanity's variety until every country, every human being is willing to share information. Until then, the catalog remains a Holy Grail to every physician and researcher who longs for the days when we defeated disease and defined ourselves.

NANOVIRUSES

— **Excerpt: surveillance, suspected Norça private clinic, Medellín**

>>> Individual confirmed to be Proxy Giuseppe del Fuego enters the office of Dr. Duarte Lawrent at 19:31:02 on 4.16.20. <<<

del Fuego: You mean to tell me, Doctor, that one of my best students — who was healthy just an hour ago — is now in a coma? That if she does live, she will never be able to use her abilities again?

Lawrent: I am sorry, Proxy del Fuego. We still do not know what happened, but we are doing the best we can. A disk was pinned to her when she was brought here—

del Fuego: Have you looked at it?

Lawrent: We haven't had the chance.

del Fuego: Give it to me.

>>> The recording shows del Fuego inserting a disk into a minicomputer and typing in commands. [Further review suggests that an anti-viral program was enacted.] A voice-only recording plays from the disk. <<<

Recording: This is a warning to all psyqs. We, the Brotherhood of Human Purity, have left this "present" as proof that we have the power to be rid of you freaks for-

ever. We will use our new technology to turn you all into invalids. You psyqs may have fooled the rest of humanity, but we recognize you for the power-hungry maniacs that you are. We will put an end to your threat, once and for all.

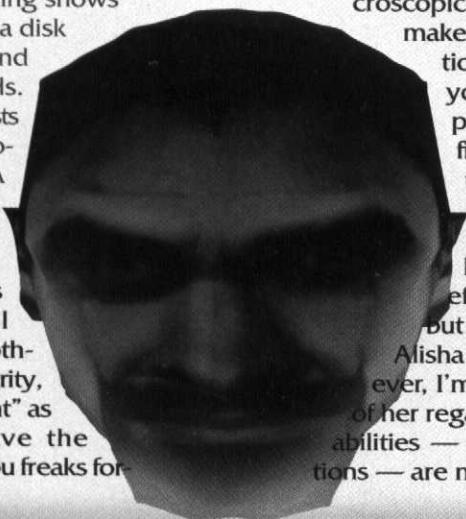
del Fuego: [Apparently speaking to himself.] You will be avenged, Alisha. Your attackers have spelled their own doom.

Lawrent: Sir?

del Fuego: Doctor, transmit me a full report on the patient tomorrow morning. You will give me daily updates on her progress. I want to know the source of her condition.

— **Excerpt of Doctor Duarte Lawrent's report, accessed during OpNet transmission**

Proxy, we have fulfilled your request. Your student was injected with what can best be described as a "nanovirus" — microscopic machines designed to make microcellular modifications to the bioapps that your student — that all psyqs — use. The modifications seem to amplify the energy levels of an app and reroute them back into the user's body. The physiological effects are devastating, but we believe we can treat Alisha and save her life. However, I'm afraid that the chances of her regaining use of her psionic abilities — or even full brain functions — are not good.



BIOTECHNOLOGY

The heart and soul of psion culture is the biological appliance — or bioapp. Biotechnology comprises the tools, weapons, armor and day-to-day helping hands of the Gifted. Grown from vats of cells by programmed matrix computers, these half-living (or more than half!) devices are bound to their owners, enhancing existing powers or bestowing new ones.

There's something vaguely unsettling about these marvelous creations. Perhaps it's the appearance of a breathing carapace, or a pulsing surface artery, or a sluglike body. Perhaps it's the occasional mental disturbance that strickens the psions who use them. Maybe it's because humans just aren't used to tools that need to be fed, petted and exercised; they're far too removed from the days when a soldier depended on his war-horse or a farmer relied on his ox.

But every day you see a psion with some bizarre device in her hand, over her shoulder, or

resting in her holster. Orgotek strives to make its bioapps accessible to humans as well as psions. The order is breaking ground with projects such as the Prowlers (a joint effort with Colombia's BioSystems), which could restore the Amazon rain forests. Orgotek spokespeople say that an upcoming biotech project may be able to sufficiently clear pollution and radiation and make most of France habitable again. Rumor holds that another electrokinetic device will be able to clear Aberrant taint, making the North American Blight Zone and ruined Middle East the next foci of renewal. There is even a bioapp — The Womb — that reduces infant mortality in harsh locales.

Biotech may be new and unsettling to the uninitiated, but it's clear that Proxy Cassel's programs win him friends among the neutral population. Indeed, this is true despite the plethora of illegal and otherwise frightening bioware that surfaces among the psion population.



"WOMB W VIEW" >>> DAVE.A.I. >>> COLLECTION OF DR. MATTHIEU ZWEIDLER

Formatting

Bioware operates most efficiently when it's in tune with one or more of the Gifted. A psion "formats" bioware to herself by injecting some of her own blood into the device. The bioapp extracts the DNA from that sample and integrates it with its own code, aligning itself with the psionic field of its owner. This resonance allows the bioapp to achieve optimum status.

A psion can use bioware that's not formatted to her. Apparently, it's rare for a device that's formatted to someone else to backlash on an

Memo to Field Team Five

— from the desk of Dr.

Howard Kramer

Get your skinny butts down to Brazil and find out what's going on with the Prowlers. I haven't had an update from Team Brux in a month — and their report was the last I got from the five teams! Corazon is scheduled to come offline in three weeks, and damn if our Norça "friends" haven't bothered to give us an ounce of feedback. Find out what's happening down there. I don't care what you have to do. Don't contact me again unless you have information on all five teams. Got me?

PROTEUS ARCHIVE

Subject: The Womb

From: H. Helen Palle, Senior Research Director, Orgosoft Farms

To: Jennifer Lehoczkly-Elliot, CEO, Orgosoft Farms

Encryption: DSE

Transmission type: textfile

Date: 21:46:23 3.12.20

Take them off the market!

You heard me. Get them out of every hospital. Get those babies out of them. Now!

Why? A third of The Womb's patients have become autistic!

Who knows why? Personally, I think the women's groups are right. A bunch of men got together and decided to play "giver of life" and invented this thing so they could say, "Hey, look, women aren't everything. I can do it just as well with my little toy." But they couldn't replicate the biological womb completely. Noeticists are investigating psionic interaction between mother and child on conscious and subconscious levels. Did any of the needledicks who made The Womb review that research? Course not.

So we've got thousands of walking time bombs out there. Some are autistic, but how many more will demonstrate other bizarre psychological patterns? How many little sociopaths have been created? One report describes a four-year-old firebug. She lights up everything — carpet, curtains, pets, Mommy. Sure, there's a chance that any kid will turn out like that, but do you really want to let it go and find out how things turn out in 10 years?

unformatted user — such devices, we're told, are typically black market. However, an unformatted bioapp is capable of only a few, weak effects.

Very weak bioapps can even be formatted to and activated by normal humans. Experiments in this regard have exhausted test subjects almost immediately, though. It seems that normals simply lack the psionic energy that's required to power biotechnology. They must resort to unformatted devices, or rely on hardtech exclusively.

Clearing Formats

Bioapps don't function at full capacity for unformatted users, but the tools can be adapted to new users. Bioapps can be taken from their previous owners and formatted to new ones (assuming that an appliance doesn't die with, or in the absence of, its former user).

Current technology requires that a bioapp be returned to its manufacturer or be brought to a qualified technician for clearing — the erasure of old DNA and psionic resonance. Twelfth Night Designs, a freelance psion company, advertises a new device that supposedly makes it possible

to wipe a format in the field. The group claims that its tool allows Legionnaires, in particular, to trade weapons and other apps as needed without returning to the factory. If this revolutionary device is authentic, it could save psion lives on the front lines against the Aberrants, Chromatics and any other threats.

Of course, Orgotek is extremely concerned about this development. The order/company fears that the wiping device will undermine security and psion rights to their formatted tools. At least, that's what they say publicly....

Tolerance Overload

Psions have a tendency to overexert themselves when it comes to bioapps, whether out of enthusiasm for their work, or simple paranoia. Each appliance demands some of its user's psionic energy and carrying too many bioapps at one time can overwhelm a psion. Fortunately, psionic exhaustion is usually temporary.

However, psions can overload under severe strain. Overload can have many effects, almost all of which are psychological. A tapped psion can be dangerous to himself and others, and may need immediate medical assistance, depending upon the severity of his condition.

Not long ago, a young Legionnaire named Ernie Jeness put on his formatted armor, primary weapon, secondary gun and an AquaLung for an underwater mission. An unfortunate turn of events against an Aberrant caused him to overload. We haven't been able to piece together events completely, but it seems that he experienced auditory hallucinations that lead him to believe his fellow Legionnaires were also Aberrants. The real Aberrant escaped in the confusion. Corporal Jeness killed three of his companions before being rendered unconscious by his commanding officer. He still hasn't come out of the coma.

A vitakinetic named Revekah Conner required treatment for self-destructive behavior and delusions. She thought she had been subjected to a Norça program and was practicing self-mutilation in the belief that she could mold herself in the manner of a biokinetic. We suspect that her overload came on quietly, after a disaster in Luna's Wroclaw Sector.

Clinical depression, psychotic episodes and catatonia are common, "minor" symptoms of bioapp overload. Severe and permanent effects range from paranoia to sociopathy. Victims of extreme Tolerance Overload Syndrome are interred in special rest homes.

The Ministry and Æsculapians retain a number of noetic psychologists for the specific purpose of dealing with extreme bioware feedback. The other orders have specialists as well, though they can call upon the telepaths and vitakinetics for help in severe cases.

TRITON ARCHIVE

From: Dr. Filomena Alixandrotos

To: Lance Alkers

Subject: Overload symptoms

Encryption: SPE

Transmission type: textfile

Date: 13:41:59 6.14.20

Lance:

Multiple personality — more correctly known as dissociative identity — is a psychological phenomenon that has captured the public imagination as a supposed symptom of Tolerance Overload Syndrome.

In truth, overload-induced MP/DI is far less common than the media would have you believe. If a psion subjected to overload seems to develop MP/DI, the psion and her therapist usually discover that the ailment was already present, maybe originating from childhood sexual abuse, or other trauma. There is no evidence to suggest a correlation between psionic overload and MP/DI.

Thanks for asking before buying into the misinformed media line.

— Filo

Qin Biotech

— **Debriefing of Severian Adler,**
Olympus Associate Director, Proteus
Division

There's not a lot we can say definitively about Qin bioware. Their bioapps are carbon-based, like ours, but the similarities seem to end there. Our biotech compares to Qinware like a virus compares to a human. A virus is an extremely functional little package of genetic material and protein. It performs its programmed functions, occasionally altering itself to better fit its environment, but it remains fundamentally the same. A human is the result of billions of genetic mutations that result in an exquisitely complex organism.

Our bioapps function in a limited manner. We alter them occasionally to better suit our needs, but they remain basically the same. Qinware exceeds our wildest imaginations. It's a result of the biological cornucopia that pervades Qin culture.

The aliens gave us a device to study. Orgotek experts pored over it for weeks, oohing and aaahing at its intricacies, the amazing development of this or that — and saying, "what's this thing here?" They wrote

dozens of files worth of analysis and dozens more on its supposed function, and they still couldn't get it to work. That's when the greatest minds of human bioware design returned the object to the Qin and begged to know what it did.

The Qin looked confused. Do you know what they said?

"It's a vase."

Examining Qinware is like dissecting a Qin mind, just as examining human bioware is an examination of the human mind. When the Qin create a bioapp — even one intended for the simplest purpose — they give birth to and raise a fully living, magnificent, bizarre organism. Individual Qin and their homes — those that humans have experienced — teem with these "pets." Even the bodies the Qin "wear" are apparently symbiotic organisms that live around whatever a Qin really is.

Humanity won't attain the peculiar *oneness* that the Qin have with their apps in a thousand, thousand years. Our bioapps will always be grown in vats. The Qin almost seem to grow theirs from their own bodies.



VEHICLES

The following report is an update on the latest advances in 22nd-century travel technology. This file brings you up to par on vehicles, from maglev trains to jump ships — all of which you will utilize in your missions as psions and Trinity operatives. From time to time, you may even have to rely on your own two feet. Our intent here is to familiarize you with the vehicles you may need to fulfill your missions. You never know when you'll need to commandeer a hybrid, pursue a hovercycle or repair a hopper. We want you to be prepared if the time comes. Your life and ours may depend on it.

However, before you proceed, remember that some of this information is classified. The fact that it's presented to you is testament to Aeon's dedication to training you and protecting humanity.

TRANSPORTATION EVOLUTION

— Tutorial by Dr. C. O. Stenett, Triton Division

Sometimes it seems that technological advancement is merely the result of marketing — an effort to churn out an endless supply of gadgets that the public is told it needs. Neither science nor commerce has ever allowed us to settle on one simple solution to a problem; some better, more convenient answer always waits in the wings. The emergence of electrical vehicles utilizing skimmer or maglev technology is a good example of this evolution. The modern car is faster, safer and more efficient than our ancestors' car, and it's loaded with thousands of luxuries that they could only have dreamed of. Yet, in the end, the modern skimmer is just a glorified automobile. Humanity's need to improve, advance and possess has elevated the 200-year-old personal vehicle above its humble origins, but there's only so far technology can go without revolutionary innovation.

So why do we still rely on old technological conventions when we have advanced far beyond them? Why is a skimmer just a glorified 20th-century automobile when humanity travels among the stars? The answer is simple: Piloting a hybrid freighter to the corner Bei Cha store just isn't sensible.

The more involved answer, but, perhaps, the more correct one, is that humanity hasn't changed. Human biology and needs are basically the same as they were 200 years ago. It follows, then, that vehicles created for conventional, atmospheric, human use must be designed for those conditions. We're comfortable sitting upright in our cars, so that's what manufacturers provide for us. A skimmer doesn't need to leave the atmosphere, so we don't make it airtight. The function and form of a vehicle must serve our needs and that will always be the limitation on static utility. That truism applies to cars, hovercycles, submersibles, jets and semiballistic liners.

Science is also an evolution of knowledge. Each new discovery is built upon those of the past. Developments therefore amount to little more than refinements rather than sweeping changes. However, an occasional revolutionary invention overcomes even static utility and imposes fundamental change. The invention of hyper-fusion was one such discovery. The development of unlimited energy means that many vehicles are now powered directly or indirectly by water-based hydrogen. Propulsion systems such as maglev that were once considered too costly are now commonplace. In time, the advancement of even hyper-fusion may overcome such static utilities as wheeled vehicles or even roads. It's by redefining assumptions about static utility that technology may rise above its origins to become something completely new — and that is how new, "futuristic" vehicles such as the interstellar jump ships come about.

OLD TECHNOLOGY IN THE NEW CENTURY

— Carlos Estellin, Proteus

Division

When the Aberrants kicked the shit out of the Earth 60 years ago, they wrecked some places so bad that they still haven't recovered. If you lived in a tainted zone today, you probably wouldn't have the luxuries — cars, computers, food or water — that you're used to now. Assuming you could survive at all, you'd have to turn to the tools at hand — the crap left over from before the war.

Take the FSA's Blight Zone. Wycoff may have gone to heaven or whatever, but he sure left Hell right in the middle of America. Roving bands of cutthroats, lunatics and renegades have reigned here virtually unchecked since the mid-21st century — they've even ambushed FSM patrols. Hell, sometimes they are FSM patrols.

These folks have been forced to rely on some pretty outdated stuff to stay alive — even a few old combustion engines. They run them on alcohol, if you can imagine that, and they're loud as hell, but the rangers seem to like them. I had to drive one once. Never bet the hydrofarm on a 200-year-old ride. You won't win. Trust me.

SPACECRAFT: THE NEXT STEP

If space is Earth's new frontier, then colonists, miners and researchers are our new pioneers. They face extraordinary odds to find footholds across the Solar System and beyond. However, they are not the only ones who reap the rewards of these bold forays. The ship-building metacorps that get them there prosper as well. The struggle to control spacecraft markets is fought through media advertising and industrial espionage, in political back rooms where lucrative deals are made and in offworld laboratories where new alloys and technologies are developed.

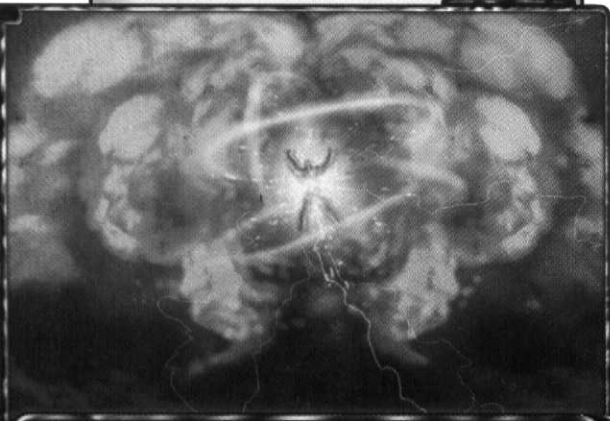
Your missions as psions demand that you rely on these ships and their manufacturers. Humanity's enemies lie throughout known space and beyond. You must be prepared to face them wherever they are. That means knowing the ships that will take you there and knowing the companies that create them; if you can't trust the people who made your craft, how can you trust it to keep you alive?

The following information is taken from Triton reports, restricted files and from public news articles.



L-B

Earth's largest producer of commercial and military spacecraft — including the Novastorm assault cruiser and the Aerie fighter carrier — also appears to be the least controversial. Company profits are strong and L-B maintains a huge R&D budget to keep it at the forefront of technological developments.

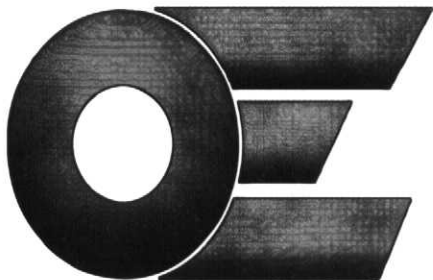


The biggest rumors surrounding L-B are fairly benign from the Trinity's perspective. There is speculation about the launch date of the Vulcan Mark V mining ship (projected to be sometime in the next 18 to 24 months), and speculation in Earth financial markets (fueled mostly by the FSA government) that L-B is planning to diversify and reopen a manufacturing facility somewhere in North America. The latter seems unlikely given the FSA's ongoing accusations of treason against Orgotek — why would the once-American-based L-B subject itself to the same treatment?

Banji

BANJI

This Nihonjin metanational — the manufacturer of highly successful scout and passenger/cargo ships — has been set back recently by the dismal performance of its first foray into military spacecraft: the Hyo ("Leopard") fighter. This ship, introduced in 2118 after an extended development period, has been plagued by problems ranging from short-circuiting electronic navigation systems to malfunctioning laser cannons. Banji is performing an in-depth investigation into Hyo production facilities and personnel, searching for evidence of industrial sabotage. Aeon informants suggest that these suspicions may be justified, but refuse to provide further information.



OFFWORLD ENTERPRISES (OE)

Offworld is riding high on the success of its Pathfinder mining and research vessel. The craft's success has not been consistent, though. OE's surprisingly low pricing suggests either its savvy directors recognize the Pathfinder's value and are prepared to take a risk to make the ship affordable, or they have another agenda.

Triton Division has monitored OE and is aware that the corporation pursues full-access mining rights to Venus. Is the Pathfinder's low-cost release a display of good intent, or is it that the company has paid for those rights, and this is some kind of payoff to guarantee such access? Does Offworld's willingness to take a short-term financial bath mean it has located lucrative Venusian mineral deposits?

The Aeon Council recommends that a Proteus squad coordinate with Orgotek on Venus' next "Aberrant" sweep.



NKUMBE INDUSTRIES

Nkumbe's new Windjammer line is the first true luxury passenger craft designed for deep-space travel. Its weekly round-trip voy-

ages between *Kenyatta Station* and *Mafaa-3* — with an optional stopover at Olympus — have become a sensation among the wealthy. Both Nkumbe and the UAN have made every effort to make these flights secure: running careful pre-boarding scans on all passengers and cargo, employing members of the Second Legion to provide on-

board security and outfitting the ship with enough firepower to repel almost any attack. Æon even encourages operatives scheduled for R&R to travel on a *Windjammer*, providing another security measure. Yet it seems only a matter of time before some radical political group with an ax to grind will seize one of these ships and hold it hostage.

FOUR THINGS EVERY SPACE TRAVELER SHOULD KNOW

— Excerpt: "The Milky Way
on ¥20 a Day" *Travelogue*
© 2120 Rafat, Inc.

Bring lots of biotech batteries and a recharger. The ready availability of power is by no means a given in space, especially if you're traveling to small stations or thinking of roughing it on some vac-suit-guided trip to the Martian canals. Carry your own power supply and you'll never be caught short.

Don't drink the water. The golden rule of 300 years of travel is no less true on Mars or *Mafaa-3*. Why take chances on ingesting some microbe that will put you in the infirmary? Buy fermented or synth-beverages instead.

Take it easy the first few days in low-g environments. You'll feel like you can pogo all night your first time at an elgee dance hall. Take our word for it: Your muscles will burn the next day.

Take a few commodities to trade with the locals. We're not talking about hauling a shipping canister or filling out export forms. Just bring some small things in your travbag that aren't readily available in deep space — spices, perfumes, cloth or clothes made from natural fibers, or even the latest handheld simgame. With the barter economy of most colonies, you'll be surprised at the treasures you can get at a fraction of their normal cost.



INTERNATIONAL CONSORTIUM FOR ECOMINING (ICE)

Over the past several years, persistent (albeit unproved) allegations have been made that ICE has been manufacturing special versions of its Jotun ice-mining ship equipped with bioware for use by Norça agents. It is unclear what purpose this specialized biotech serves. Considering the Jotun craft commonly ply the moons of Europa and Titan, one of the few off-Earth areas the Norça direct their attention, it seems likely that these modifications support Norça research efforts on the moons.

Further, the shifters are very dedicated to keeping the ships' contents private. Three months ago, a Jotun was hijacked by Aberrants on its return run from Europa to Mars. The Norça requested help from Æon and the other orders to recover the vessel and crew (if still alive), while issuing cryptic warnings that anyone finding the ship should not board it under any circumstances without Norça supervision. Any operatives who encounter the craft are advised to approach with caution, although Æon is very interested in information regarding the Jotun's modified interior.



NOVA STARCRAFT

This up-and-coming Federated States aerospace corporation has produced two light warship models, the A-4L Guardian and the A-5L Phoenix. These ships have become the backbone of the FSA defense fleet and are also gaining acceptance among other nations. The success of these designs is said to have given Nova CEO Ervan Lindom unprecedented access to the inner circles of the FSA government.

PROTEUS ARCHIVE

SPIT AND BALING WIRE

— file vid of Legionnaire Sgt. Poul Lentz, taken after the Legion's apprehension of suspected pirate Gabriel Steeves and his vessel the *Mindbender*, a Vulcan Mark IV; 10.2117

I've never seen anything like her. The hull was half holefixer, the lift down to the cargo holds didn't work and the pilot's console was so rewired, I'm surprised Steeves didn't fry himself every time he hit the thrusters. But those twin fusion reactors were tuned to deliver a lotta juice to the engines, and she was packed with enough firepower to go toe to toe with a frigate. For a ship held together by spit and baling wire, she was one tough old bird.

CUSTOMIZATION

Æon operatives should remember that commercial spacecraft that have been in operation for several years, particularly those that have changed hands, seldom conform to their assembly-line specifications. They are customized and adapted to fit the needs of their owners. Their equipment may be pared down to a bare minimum to suit the owners' often limited resources, or they may be overhauled completely and adapted to a vastly different purpose than the one for which they were originally designed.

The computer systems and command stations of stripped-down ships may be rewired or fitted with deadman switches so that the vessels can be operated by small crews (or occasionally even by a lone wolf). Ships operating in areas such as the Belt where piracy and claim jumping are prevalent are typically equipped with additional weaponry (such as coilguns and heavy laser cannons) cannibalized from other ships or purchased on the black market. Meanwhile, vessels engaging in such criminal activities often have enhanced power plants to increase speed and maneuverability and have increased weaponry and armor.

Any ship such as the Vulcan Mark IV that has been out of active production for more than a year or two is likely to contain a half-dozen or more jury-rigged systems. This improvisation is the result of missing replacement parts, and such systems may malfunction at any moment.

MILITARY SPACECRAFT

Earth and our far-flung colonies face innumerable threats — from Aberrants to aliens to ourselves. Our military space fleets therefore consist of more than just jump ships, frigates and fighters. At some time in your careers, you'll need to know just what your transport can do when push comes to shove. These are the bare facts — what you'll need to stay alive. If you want to debate the fine points of one ship versus another, go find a damn OpNet chat room.

ATTACK CRAFT

Attack craft are a relatively new breed of space-combat vessel. They fall somewhere between fighters and frigates in size and firepower. Crews and naval command staff alike are unsure how to classify these ships, although they're technically considered hybrids due to their planetfall capability. Some consider them large fighters with long-term mission capabilities (albeit with some of the most uncomfortable living conditions imaginable). Others think of them as small defensive warships to be deployed as part of a planetary or station garrison.

The craft were originally designed to supplement frigates as general combat vehicles, but their cramped crew quarters soon made them unpopular for that purpose. Their primary mission profile has therefore changed to auxiliary system defense and fighter command/director craft.

Attack craft that service Earth nations are typically assigned to bases until scrambled

— **Newsday** interview with **Flight Lt. Lillian Stone, 504th Attack Craft Squadron, Federated States Space Fleet**

© 12.12.2118 GN

I didn't know what to make of the thing when I was assigned to her. Large fighter? Small warship? Flying plasma cannon? I guess she was all of them. What I do know is she saved my life.

We were flying a strike mission with a group of Locust Cs from the 709th. HQ had spotted Aberrants in the Belt and sent us to take them out. Of course, the only ones who thought it would be easy were the desk jockeys. We went in and the storm began. Aberrants materialized all around us. They latched onto two of the Locusts and tore them apart. The psion on board our ship said he could "hear" the pilots screaming. Then one of the Aberrants landed on our hull.

I've got nothing against biotech, but the look on that bastard's face when his claws broke on our oluminium hull reaffirmed my faith in cold, hard science. The pilot brought us around and I let the fucker have it with the axial mount. A plasma stream roasted him like dinner. We fired again at the Aberrants' rock and pulverized it.

I hope I keep this assignment for a long time, even if I do feel like a sardine.

for missions. Meanwhile, slightly smaller, export versions of these ships — sold to colony worlds as relatively low-cost defense forces — tend to have active roles, conducting patrols and strike missions as needed. Export models outnumber the fully armed ships in service by about three to one, but the latter have become more famous given their encounters with Aberrants.

The typical attack craft is capable of both deep-space and atmospheric travel. The ships are overpowered for their size to compensate for their heavy armor. Crews average from four to six people.

The attack craft concept was pioneered by the FSA. The ships have the capacity to carry heavy weaponry, and sufficient speed to pursue pirates and other hostile craft, but are still relatively rare, even in national space fleets. Attack-craft qualities, however, ensure that they will be around for a long time.

SCOUT SHIPS

Scout ships are very small frigates with in-atmosphere landing capability, between 30 and 50 meters long. They're meant to be carried to a star system by a Leviathan and dropped off to investigate the system for several weeks until the mother ship returns. They're the vanguard of our efforts to re-establish contact with our interstellar colonies. They gather information to determine if colonists have survived and if enemies are present in the system. Scout ships are equipped for both space and atmospheric flight and typically travel with a small military force for onworld reconnaissance.

Quarters aboard scout vessels, while not luxurious, are fairly spacious; missions are expected to take weeks or months to complete. The ships are armed lightly and ill-equipped to survive a pitched battle, but they have enough firepower to hold off an enemy until they can use their speed and maneuverability to escape. Under ideal circumstances, they avoid contact with other ships until their reconnaissance is complete.





CHINESE CRUISER MEI-XIA APPROACHING MARS

CRUISERS

Cruisers are heavily armed military craft. Like frigates, they're capable of long-term, deep-space operations. The average cruiser is far larger and better armed than the most powerful frigate, but is substantially slower — many crewmembers call cruisers “freighters with guns.” The vessels were originally intended for all-out assault missions and even planetary raids, but after the war, several nations wanted large combat vessels to guard against the Aberrants' return. The potential for alien contact was also a concern.

Since the disappearance of the teleporters, cruisers have been modified to hook to a Leviathan. China is the primary deployer of cruisers, although L-B has sold a handful to other nations. Cruisers are currently reserved as a last line of defense for Leviathans, should fighters, attack craft and frigates fail to hold off the enemy.

A great deal of planning goes on before a cruiser is committed to a Leviathan mission. It would take a year to replace one of the massive ships and the economic pinch would be felt even by China.

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The Technology chapter of **Trinity** goes a long way in establishing the tools, devices, gear and gimmicks of the 22nd century. **Trinity's** tech rules give you the basics that you need in order to integrate futuristic technology into your games. That's where the Technology chapter ends, though — and where the **Trinity Technology Manual** begins.

This book goes beyond the rulebook in presenting new devices, vehicles, weapons and armor — both hardtech and biotech. The color portions of this book are what psion characters know about technology of the 22nd-century. The following section details what you, the player and Storyteller, know about the same material. Whereas characters know who hybrid fighter manufacturers are and what the effects of maneuvering in space are, you know how many dice of damage a smart missile inflicts, and exactly what Pilot Skill Total a character needs to pull off truly difficult maneuvers.

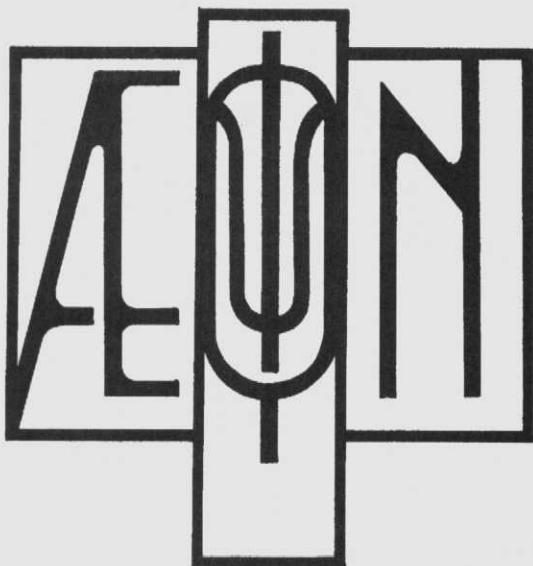
The **Tech Manual** defines the technology of **Trinity**, how it works, and how to use it in your games. It follows the same guidelines for presenting gear established in **Trinity**, though. Refer to the main rulebook, pages 258 to 260, for details.

With the **Trinity Technology Manual**, you can now introduce items “off the shelf”

or can use the new rules to custom design the computers, vehicles or weapons that you want. Psions even have the opportunity to acquire news bioapps, some of which are marginally or completely illegal — in the setting at least.

Since this book offers new opportunities to players and your series, the Storyteller “rule of thumb” applies. As the person running the game, you have final say on what devices are available to psion characters. Maybe your game is light on bioapps — the devices are extremely rare. Perhaps the characters are on the fringes of known space, taking the fight to the Aberrants, and new technology simply isn't available to them. Maybe you want to keep some tools or weapons from the characters, to arm their opponents... or enemies waiting in the wings. In the end, the Storyteller has final say about what items in this book are available to psions. You may even restrict the chapters that players can read and limit them to the color section alone.

Ultimately, it's your story that's most important. This book should enhance — not detract from — the drama that you create. Technology is simply a tool. It can't replace character motivation, human interaction or self-exploration, and those are what roleplaying is really all about.



The following are some of the most innovative and deadly personal weapons of the 22nd century. They're available to psions through Æon and the orders, but can also be acquired by normals, whether through official or military means, or illegally. Weapons registered as "restricted" in their costs are available for sale, but may be considered illegal in many areas (with a possible lack of availability, higher purchase price, or legal repercussions for a character caught with it in his possession). The Storyteller has the final say on whether a character may obtain a restricted weapon in a given area. These weapons supplement those described in the **Trinity** rules.

Advanced Melee Weapons

- **Poison Glove:** Produced by Orgotek, the poison glove is perfect for discreet attacks. The weapon appears to be an ordinary plastic glove until activated. Thousands of tiny stinging cells, similar to those of a sea

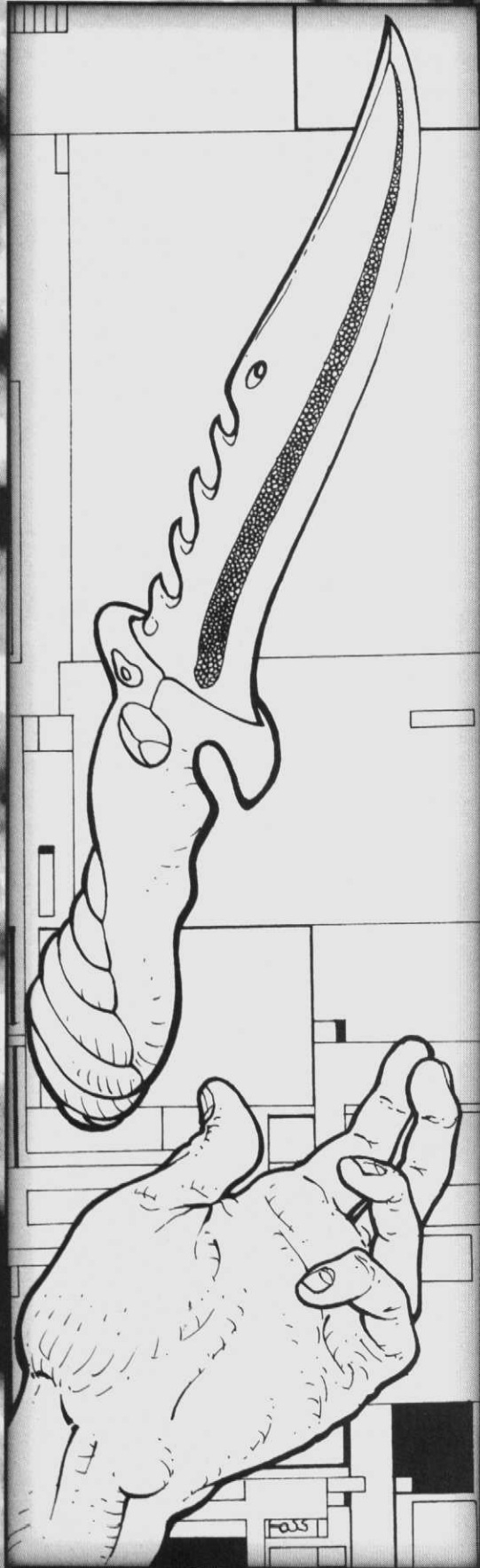
anemone, activate on the palm and fingers. The cells can dispense a lethal or nonlethal paralytic poison at the user's discretion. Only one type of poison may be applied at a time.

The glove can be used either unformatted or formatted. An unformatted glove must be soaked in a special nutrient bath for at least six hours to generate a single dose of both the lethal and nonlethal poisons. The unformatted user may activate and deactivate the glove with a touch of its wristband. However, the unformatted user must be careful not to poison himself with his own weapon.

The formatted wearer is immune to both types of poison and may activate or deactivate the glove at will. The weapon thrives on the wearer's own life energies and creates a dose of poison of both types once every hour. All Brawling or Martial Arts rolls for a formatted user to strike with a poison glove receive an extra die.

The user need only touch the target. The wearer might not even need to attack





if the intended target doesn't recognize the glove's threat. The stinging cells work through ordinary cloths, but any armor protects completely against the glove's poisons.

Lethal poison has a toxicity rating of 7 (Lethal damage). Paralytic poison also has rating of 7 (Bashing damage). Each poison does one level of damage per turn over seven turns. Paralytic poison also lowers the victim's Dexterity by one for an hour after contact for every Health Level that the victim loses.

Tech: Ψ , Damage: Special, Maneuvers: DW Tw, Concealability: P, Mass: negligible, Tolerance •, Cost: ••• (restricted)

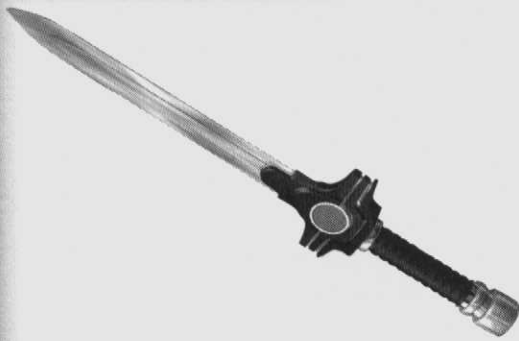
• **Poison Knife:** This bioapp is an Orgotek variant of the poison glove, and benefits similarly from formatting. The blade is the same non-metallic enamel used in most biotech knives, except that a groove down the side contains the same stinging cells built into the poison glove. The weapon does knife damage and delivers its payload. (The two are determined separately.) Poison affects an armored opponent if the knife penetrates that protection, even if the blade itself causes no damage.

Tech: Ψ , Damage: Strength +2d10 L + Poison, Maneuvers: D P T W Tw, Concealability: P, Mass: 0.5, Tolerance: •, Cost: ••• (restricted)

• **Sonic Knife:** This device was released only months ago by Aris and it's already manufactured by L-K and Banji as well. The sonic knife is a new development in screamer technology. Its 15-cm-long hilt produces an invisible "blade" of focused sound that can extend from five to 50 cm. (A long blade does more damage.) The weapon can be set to do Bashing or Lethal damage. Lethal mode is capable of cutting flesh and any other organic material, including bioapps. The knife cannot damage metal, industrial plastic or other inorganic materials.

Sonic knives are popular on space ships and the colonies since they cannot depressurize a chamber accidentally. Batteries power the weapon for one hour, regardless of the mode used.

Tech: Ω , Damage: variable from 1d10 to 6d10 B or L, Maneuvers: D T W Tw, Concealability: P, Mass: 0.5, Cost: ••••



• **Vibroblade:** This device was developed in Nippon as a cutting tool. An ultrasonic generator in the hilt causes the blade to vibrate thousands of times a second. In addition to doing extra damage, an orbital-steel vibroblade can be used to cut slowly through any material that's softer than steel, including wood, plastic and even concrete. Cutting a one-meter hole through a wooden door takes approximately five minutes. Cutting a similar hole through concrete or industrial plastic takes at least 20 minutes. Vibroblade batteries provide power for two hours of constant use.

Tech: Ω , Damage: Strength + 3d10 L, Maneuvers: DPTW Tw, Concealability: J, Mass: 0.5, Cost: •••

Advanced Firearms

• **Coil Carbine:** The coil carbine was introduced a year ago by Banji. L-K produced a rival model within three months. Coil carbines, unlike large assault coilguns, can be handled relatively easily by a single person. While coil carbines' range and damage capabilities are lower than those of an assault gun due to smaller batteries and magnets, these weapons are still superior to other small, rapid-fire arms currently on the market.

Banji 02 Hornet. Tech: Ω , Accuracy: 0, Damage: 8d10 L, Range: 400, Maneuvers: AF Ms Sa St Tw, ROF: 60, Clip: 60, Concealability: 0, Mass: 3.5, Cost: •••• (restricted)

L-K MCG-1000. Tech: Ω , Accuracy: 0, Damage: 8d10 L, Range: 350, Maneuvers: AF Ms Sa St Tw, ROF: 60, Clip: 80, Concealability: 0, Mass: 4, Cost: •••• (restricted)

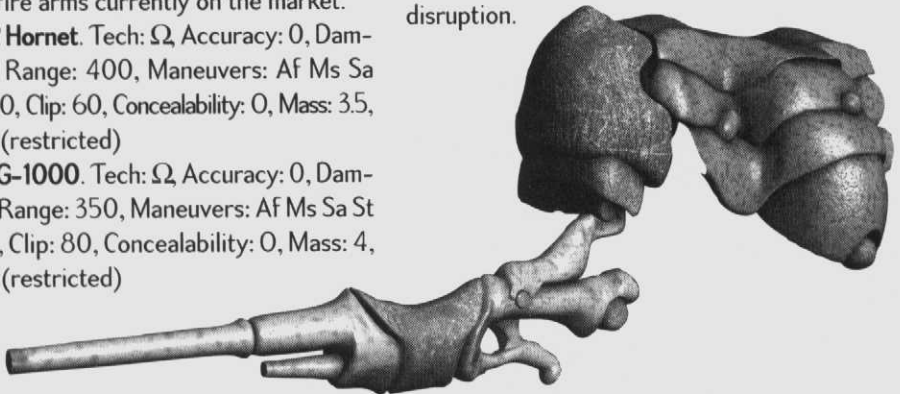
• **Orgotek Mk1 Symbiotechnic Assault Weapon System [SAWS]:** Orgotek unveiled a new type of infantry weapon (in recent months). The new system, often called SAWS or "Spore Gun," is an organic, dual-mode rifle with versatile capabilities on the battlefield.

The SAWS is a large, 14 mm rifle consisting of a ceramic-composite casing surrounding biological components. A cable connects the device to a backpack containing a bio-electric power source. The weapon is 1.5 meters long, but is fairly light. A four-round, rotary-style clip is inserted into the weapon just in front of the trigger guard. One person in every Orgotek strike team carries a SAWS as a squad-support weapon. The special-forces units of a number of nations use the weapon as well. (The gun can be used unformatted.)

The SAWS can fire once per combat turn, in one of two ways. The first is an electron beam. This energy attack does not do as much damage as does a laser or plasma weapon, but the beam has a much greater range, primarily due to its biolaser guide. The second attack mode is effectively an organic coilgun. Orgotek has developed a number of biotech rounds for the SAWS.

The available rounds include: Frangible fragmentation (FF), chemical, incendiary, EM-disrupter, oluminium-case/high-explosive armor-piercing (HEAP). These are described fully in the ammunition section, below.

A number of other special rounds are being developed for the SAWS. The weapon can also fire steel slugs similar to those of a coilgun (7d10 L Damage). Orgotek is working on a SAWS Mk2 that will emit an electron beam capable of two effects: the standard lethal attack and an electromagnetic disruption.



Orgotek Mk1 SAWS. Tech: Ψ , Accuracy: +4, Damage: 5d10 L or by ammunition type, Range: 700 (EK beam)/500 (bio-shells), Maneuvers: n/a, ROF: 1, Clip: 50/4*, Concealability: N, Mass: 5, Tolerance: •, Cost: ••••• (restricted)

* The bio-electric generator can produce enough energy to fire 50 times. The system goes into recharge mode when the power pack is drained completely, and regains one shot per minute. The bottom-mounted rotary clip holds four bio-shell rounds, which can be selected and fired in any order that the gunner desires.

• **Plasma Pistol:** Voss has produced the first handheld plasma weapon, and it's the only model currently available (although L-K has confirmed that it will release its own version soon). The plasma pistol represents a radical departure from



traditional handgun design. The Voss 22P is designed for emergency use; it has a powerful "recoil," but the projectile's impact is capable of lifting and throwing a target even at a considerable range.

This weapon is the most powerful handgun ever made. The weapon's fist-sized plasma cartridge is energized by a laser built into the gun. The cartridge overloads almost instantaneously and fires a focused blast, incinerating anything in its path, but delivering a kick to the wielder.

The cartridge has to cool between shots, limiting attacks to one per turn. The wielder needs a Strength of 4 or more to control the gun. Attack rolls are reduced by one die for each Strength point less than 4.

Voss 22P. Tech: Ω , Accuracy: +1 (see above), Damage: 10d10 L, Range: 20, Maneuvers: Sp Tw, ROF: 1, Clip: 6, Concealability: J, Mass: 1.5, Cost: ••••• (restricted)

Psi Gauntlets

Gauntlets are weapons worn over the hand or forearm. They fire projectiles or augment a psion's mental capabilities and must be formatted

to be activated. Hardtech gauntlets are being developed that eliminate the need to reach for a weapon; the wearer need only raise his hand. The release of hardtech varieties has been delayed, though; initial experiments with a wrist-mounted, shotgun-gauntlet proved...messy.

• **Electrolaser Gauntlet:** This dual-function weapon allows the user to make ordinary laser attacks and supplement them with Technokinesis Power Surge effects. The player spends a Psi point. Electricity generated psionically is channeled down

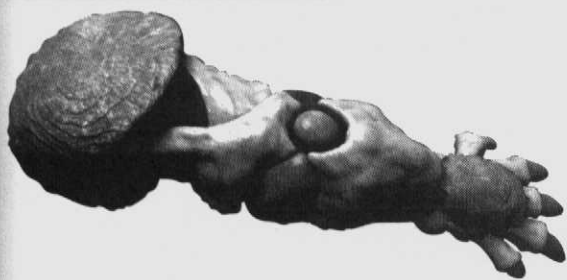


a plasma tunnel created by the weapon's laser beam. Any electronic device struck by the attack suffers a severe power surge (4d10 electromagnetic damage), in addition to damage done by the laser. (See the EM-Disrupter Weaponry sidebar, below.) A living target suffers 2d10 electrical Bashing damage from this effect, in addition to damage done by the laser. Power-surge damage ignores most armor types.

Any psion can use this gauntlet, but it must be formatted. The player of an electrokinetic rolls Psi +2 rather than the 4d10 effect to determine surge effects.

Orgotek EL-12. Tech: Ψ , Accuracy: +1, Damage: 5d10 L + 4d10 E (2d10 B for living targets), Range: 230, Maneuvers: Ms Sp Tw, ROF: 2, Concealability: O, Mass: 1.5, Tolerance: •••, Cost: ••••

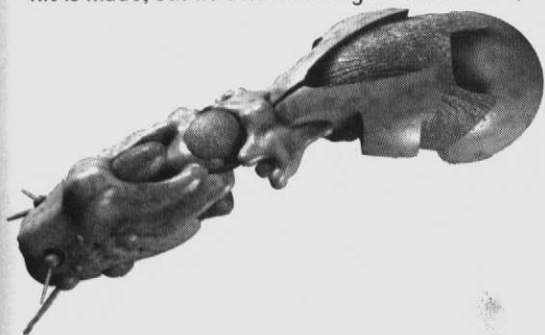
• **Force Gauntlet:** Orgotek developed this gauntlet to grant non-psychokinetic psions a limited form of Telekinesis. This bioapp resembles a somewhat bulky fighting glove (*Trinity*, page 261) and can be used as such. However, it can also



project the force of its blows up to 30 meters away. To activate this ability, the user punches in the direction of the target and the player spends a Psi point. A normal Brawl or Martial Arts attack roll is made. The target is hit with an invisible punch if the roll is successful. Any psion can use this gauntlet, though it must be formatted.

Orgotek 212-F. Tech: Ψ , Accuracy: 0, Damage: Strength + 3d10 B, Range: 30, Maneuvers: D P W Tw, ROF: 1, Concealability: J, Mass: 1, Tolerance: ••, Cost: •••

• **Sureshot Gauntlet:** To lock onto a target, this Orgotek laser gauntlet uses a Clairsentience effect similar to Dowsing. The user must get a bead on an intended target. (A normal Firearms roll to hit is made, but no attack is staged at that time; a



Psi point must also be spent.) If the roll is successful, the gauntlet maintains a fix on that target until it leaves laser range. When a laser is fired from the gauntlet, the attack roll is at +3 Accuracy. The laser lock is maintained even when the target cannot be seen or heard. However, the Clairsentience effect cannot penetrate thick structures such as bulkheads, stone walls or solid rock. Any psion can use the gauntlet, but must be formatted to the user.

Orgotek SL-3. Tech: Ψ , Accuracy: +3, Damage: 5d10 L, Range: 200, Maneuvers: Ms Sp Tw, ROF: 2, Clip: 30, Concealability: 0, Mass: 1.5, Tolerance: ••, Cost: ••••

Antivehicle and Support Weapons

• **TechnoDyne "Jupiter" Lightning Gun:** The Jupiter is a large, tripod-mounted biotech weapon that's powered by an energy pack. The weapon and power pack are lighter than others of their type and can actually be carried by one man, but are still bulky enough to be considered only semi-portable. The weapon duplicates Electrokinetics to fire what is, for all purposes, a bolt of lightning. The bolt is intended to disrupt a mechanical target's electronic functions (see the EM-Disrupter Weaponry sidebar), although personnel hit by the beam are electrocuted. The LG has a polymer/ceramic casing to shield against radiation and chemical hazards. The weapon must be formatted to fire.

Note: The weapon may do both EM and Lethal damage to a target.

Tech: Ψ , Accuracy: +1, Damage: 5d10 E/8d10 L, Range: 2900, Maneuvers: n/a, ROF: 1, Clip: Unlimited (organic power module), Concealability: N, Mass: 15 (weapon), 19 (power module), 20 (tripod), Tolerance: •••, Cost: Not available commercially

• **Pulse Cannon:** The pulse cannon is a new antitank weapon. It's a large, laser-guided particle accelerator that came under consideration for widespread use after one was used to kill an Aberrant during the Vesta Station slaughter. The weapon has been developed fully since then and is now an important part of several nations' militaries. The weapons are issued on the platoon or company levels as antitank/anti-Aberrant gear.

Pulse cannons are heavy, tripod-mounted energy weapons. They require a crew of two: one gunner and one technician to monitor the small fusion reactor that provides power. A third crewman may also be assigned to guard the gun crew from close assault and to facilitate transport of the weapon. (One man carries the gun, another the microreactor and the third carries the tripod.) Possession of a pulse cannon by nonmilitary personnel is highly illegal, but the guns are available — though rare — on the black market.

ClinTech M-90 Pulse Cannon. Tech: Ω , Accuracy: +2, Damage: 5d10 [10], Range: 5000, Maneuvers: n/a, ROF: 1/2, Clip: Unlimited (microreactor), Concealability: N, Mass: 24 (weapon), 50 (reactor), 20 (tripod), Cost: ••••• (restricted)

Mines and Explosives

Mines are frighteningly simple weapons, consisting of a casing filled with plastic explosive and a contact fuse. Some mines have "features" such as booby traps, proximity fuses and small charges that launch an "airburst" mine upward before exploding, increasing blast radius.

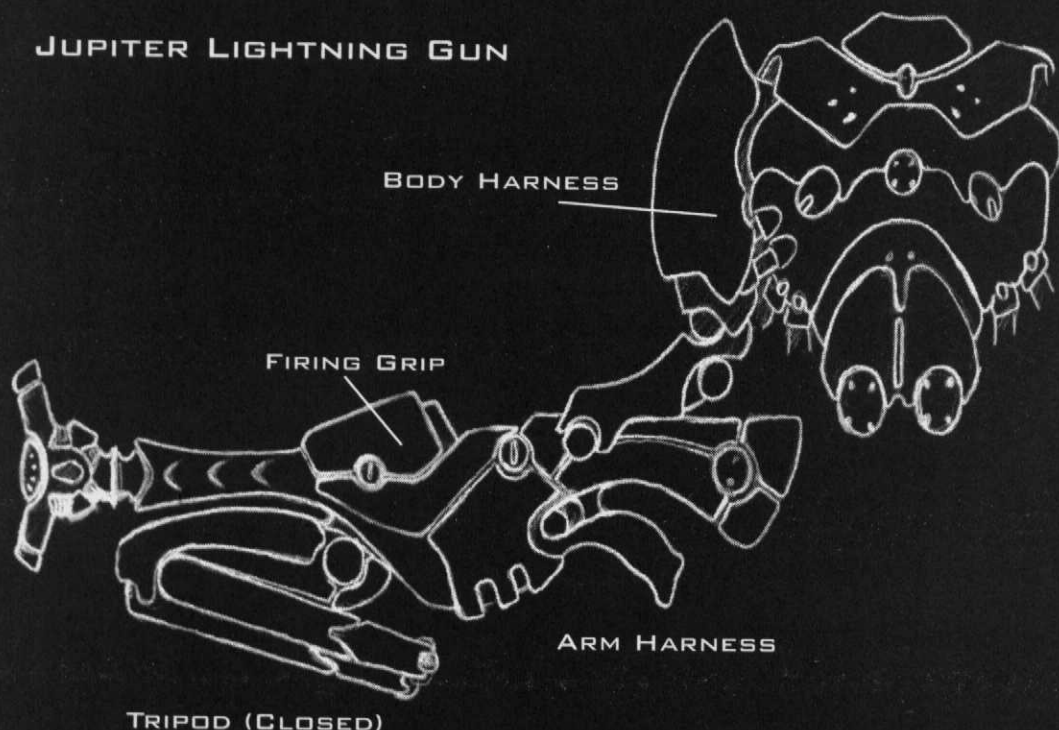
- There are basically two types of mines: antipersonnel and antivehicle. Tech: Ω , Damage 7d10 L (antipersonnel), 7d10 [10] L (antivehicle); Blast Radius: 10 (antipersonnel), 3 (antivehicle); Cost: •••• (restricted)

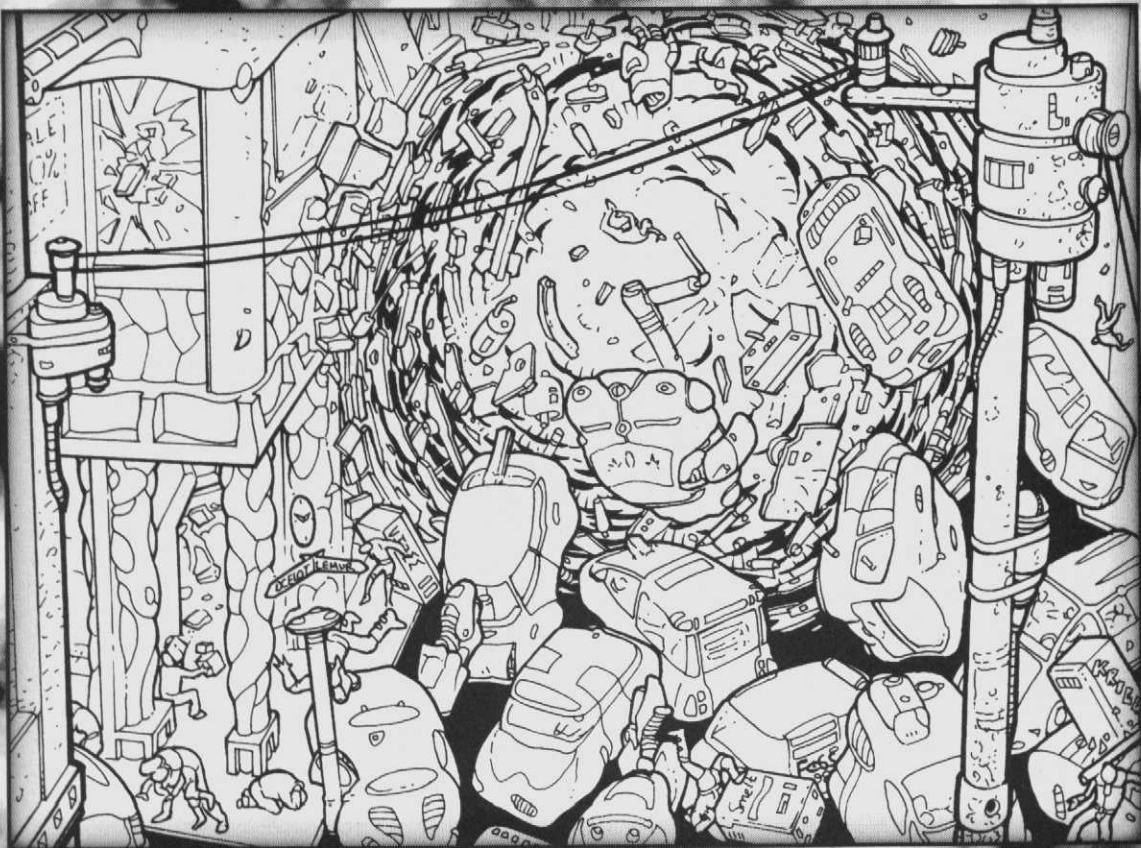
Antivehicle mines are generally set to detonate when depressed by a mass of at least 400

kg. VARGs can have this mass, but personnel do not. Airburst mines double blast radius. Booby traps add +2 to +4 difficulty to disarming a mine (this requires a standard **Engineering** roll).

- **LX-40 Plastic Explosive:** LX-40 is the latest in explosive technology. Resembling predecessors such as C-4, LX-40 is a clear-blue putty that can be shaped into any form. It is detonated by electrical impulses and is both powerful and hard to detect. It has no smell, as an industrialist once learned when he received a crystal "vase" as a gift; his bomb-sniffing dogs detected nothing. After the explosion killed him, security companies started manufacturing chemical detectors capable of scanning for the new explosive. Military forces around the world use LX-40 for demolitions needs. The explosive is available on the open market, but requires several permits and licenses to be purchased legally. The explosive is available on the black market at higher prices, but with no restrictions. Damage: 5d10 [10] L per kg; Cost: ••••• per kg (restricted)

JUPITER LIGHTNING GUN





Missiles

Personal missile launchers are a common sight on the modern battlefield. L-K has introduced a number of loads for its pervasive "Killjoy" quad-launcher (**Trinity**, page 265). Both of the following missiles have the following statistics: Tech: Ω , Damage: Special, Range: 5 km, Mass: 24, Cost: ●●●● (restricted)

- **A/V (Antivehicle Missile):** The warhead of this missile consists of a one-kilogram charge of LX-40 within an oluminium penetrator, and is intended to destroy combat vehicles and VARGs. The missile is capable of incredible destruction, but has no blast radius because of its shaped charge. The missile can be fired at small groups of personnel within about a three-meter radius, but doing so is overkill in the extreme. A small laser-guidance system improves the Accuracy of the missile to +2. Damage is 15d10 [6]. The missile can be fired at small groups of personnel within about a three-meter radius, but doing so is overkill in the extreme.

- **Incendiary Missile:** This missile contains close to a kilogram of neo-thermite and is just the thing for a squad's budding pyromaniacs. The round sprays burning neo-thermite over a nine-meter radius from the point of impact, causing 5d10 L flame damage for five turns.

Mortars

Mortars have been integral to infantry actions since the early 20th century, and bridge the gap between support weapons and artillery. Mortars in the 50 mm to 90 mm range are still used on the small battlefields of the 22nd century, because they provide valuable indirect fire in a portable weapon system.

The typical mortar is a simple metal tube with a baseplate and a bipod support. Attempts to incorporate "improvements" — targeting computers, magnetic-coil launch systems — have been made, but most mortar crews seem to prefer the standard, reliable model. A mortar is easy to maintain; the only moving part is the bomb that's dropped down the barrel and there are no mag-

netic coils or computers that can malfunction. The standard model also lacks biotech that can mutate, and electronics that can be overloaded by enemy attacks.

• **50 mm Mortar:** Tech: Ω, Accuracy: 0 [Special], Damage: Varies by bomb type, Minimum Range: 50, Range: 2000, Maneuvers: n/a, ROF: 2, Clip: n/a, Concealability: N, Mass: 14, Cost: •••• (restricted)

• **90 mm Mortar:** Tech: Ω, Accuracy: 0 [Special], Damage: Varies by bomb type, Minimum Range: 50, Range: 5000, Maneuvers: n/a, ROF: 1, Clip: n/a, Concealability: N, Mass: 25, Cost: ••••• (restricted)

Although they're not popular, magnetic-coil versions of both these mortars are available. Ranges for both models are doubled (minimum range remains the same). Magnetic mortars are available to the military forces of most large nations. Targeting computers are also available, adding two dice to the player's Firearms roll. Cost of magnetic mortars is ••••••• (restricted).

Ammunition

Several weapon systems, such as mortars and the Orgotek SAWS, are capable of firing a wide range of munition types. The individual types of rounds are listed on the chart below; detailed descriptions follow. An availability listing is included for each type of round; the codes are: S (SAWS) 50 (50 mm mortar) and 90 (90 mm mortar). Like the weapons themselves, this ammunition is restricted; cost is as a standard grenade.

• **Frangible Fragmentation (FF) Round:** This round is a variation on the fragmentation grenade. The nose contains a small but sophisticated sensor capable of detecting the presence of human life. When a human is detected in proximity to the shell, a small explosive charge detonates, emitting a hail of shrapnel. The round inflicts a 10d10 Lethal attack. The round cannot change its trajectory, but the proximity sensor makes the round slightly more accurate when used against living targets. If the round strikes a nonliving object, the charge does not detonate and the round inflicts a single 5d10 L attack. Availability: S

Ammunition Chart

Type	Acc	Damage			Radius		
		S	50	90	S	50	90
FF	+2	10d10 L	—	—	—*	n/a	n/a
Chemical	0	varies by chemical type			5	10	20
Incendiary	0	9d10 L	9d10 L	9d10 L	—*	5	10
EM Disrupter	0	5d10 E	9d10 E	15d10 E	—*	5	9
HEAP	0	4d10 [5] L	5d10 [5] L	9d10 [5] L	—*	—*	—*
HE	0	—	9d10 L	15d10 L	n/a	9	15
Smoke	0	—	Special	Special	n/a	10	20
TGSM	+3	varies by warhead type			n/a	varies	varies

* The round has no blast radius; it affects only the target struck

EM-Disruptor Weaponry

EM disruptors were developed to counter combat armor and vehicles on the battlefield by tampering with or shutting down electronic systems. Normal Firearms attack rolls are made for ranged EM disruptors. A +2 difficulty modifier is imposed if a target has hardened/shielded circuitry as a defense against such attacks.

Each EM weapon has a damage rating. The attacker does an automatic "level" of damage if the target is a biotech device; the synaptic activity of such items is highly susceptible to intense EM flux. For each "Health Level" of damage inflicted, apply a +1 difficulty to all uses of the target device or vehicle in the subsequent turn. Raising the target's difficulty by five or more (five Health Levels of damage are inflicted) causes the target to shut down for five minutes. Each additional EM "Health Level" inflicted on the immobilized target (in the same or in subsequent EM attacks) adds another minute to the time that the vehicle/item is shut down.

Weapons capable of EM damage are designated by an "E" immediately following their damage ratings.

EM-disruptor rounds are available for mortars and Orgotek SAWS. Such rounds are in development for tank coilguns as well. TechnoDyne has also released an EM-disrupter-beam cannon as a tripod-mounted support weapon.

- **Chemical Round:** This shell contains either a high-pressure gas or a dose of a particular drug. Any gaseous compounds or drugs can be inserted into the round. Gas- and drug-loaded shells deliver their payload on impact, in the radius listed on the chart. Availability: S, 50, 90

- **Incendiary Round:** This type of ammunition consists of a binary chemical filler surrounded by a ceramic casing. It does 9d10 L flame damage to its target. The damage is inflicted for two addi-

tional turns after the first before the chemical burns itself out. If the target suffers any damage in the initial turn, his armor does not apply in the subsequent turns. This effect represents the burning chemicals' penetration of the target's armor. Only a vacuum environment suit or other forms of airtight defense can offer protection from this round for the duration that it burns.

The round is also useful for blowing up fuel dumps, and other acts of arson. Availability: S, 50, 90

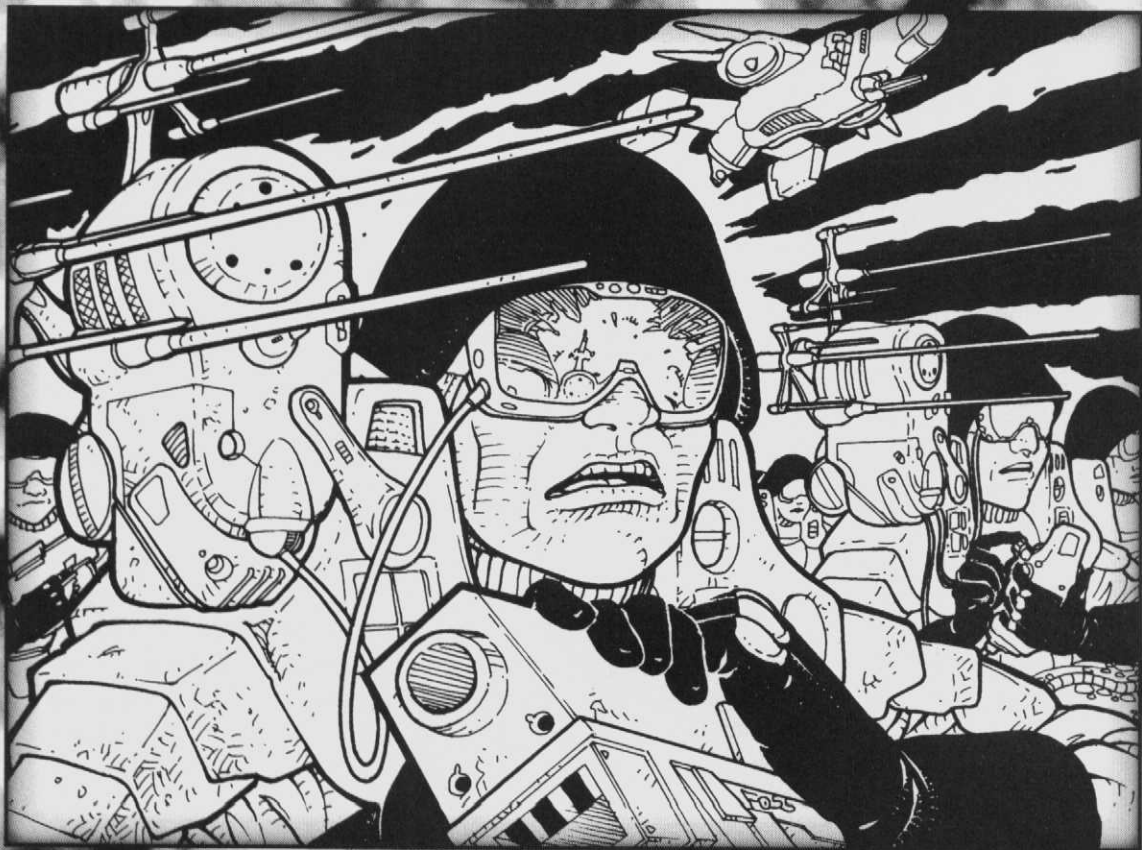
- **EM-Disrupter Round:** This ammo type is used primarily against hardtech armor and vehicles. It causes the target's electronic systems to shut down as detailed in the EM-Disrupter Weaponry sidebar. Availability: S, 50, 90

- **Olanium Case/High-Explosive Armor-Piercing (HEAP) Round:** Intended for use against tanks, VARGs and similar hard targets, this round consists of an olanium case surrounding a core of LX-40 plastic explosive. A delayed-action, impact fuse is implanted in the point. There is no blast radius; detonation is focused. Mortar versions of this round often have the TGSM option. Availability: S, 50, 90

- **High-Explosive (HE) Round:** This is one of the oldest rounds in service and one of the most effective. It consists of an explosive and an impact fuse. The body of the round is light metal and releases shrapnel upon detonation. HE is intended to be an antipersonnel round, but can be effective against lightly armored vehicles. Availability: 50, 90

- **Smoke Round:** Smoke rounds apply +4 difficulty to all Perception and targeting rolls for five combat turns in the area of their radius. This assumes an average wind of 30 km/h. Increase or decrease the duration by one turn for every 10 km/h difference in wind speed. Availability: 50, 90

- **Terminally Guided Submunition (TGSM):** This round is combined with any of the payloads of the rounds detailed above. The TGSM has a small set of fins that deploy after launch, and a laser detector in its nose. The round hones in on laser light from a target. An infantryman, VARG, tank or combat aircraft that uses laser weaponry can be a target. The round's fins alter trajectory to achieve pinpoint guidance. If the target ceases to use a laser, the round acts as a normal payload. Availability: 50, 90



Weapon Accessories

• **Aberscope:** This is one of the most important tools a soldier can have. Hand-to-hand combat with an Aberrant is a death sentence. No normal human has ever survived a violent encounter with an Aberrant, unless he was piloting a VARG or was extremely lucky. The aberscope was therefore developed to help the common soldier attack Aberrants effectively and at a range.

The sighting system scans for disruptions in strong nuclear forces that are produced by the Mazarin-Rashoud node in the Aberrant brain. The system then indicates the range and bearing to the target. The aberscope's scanning methods are unaffected by visual obscurities such as fog or smoke. Hard cover such as concrete walls or rocks do block the scope, though. Effective range of the aberscope is 100 meters. Cost: •••••

• **Electronic Combat Sight [ECS]:** This is a comprehensive multimode sensor system designed to be mounted onto carbines. It provides light amplification, IR/UV sight and thermal imaging, improving the sighting of a weapon and allowing a user to pick targets through light cover such as bushes. An ECS can also provide visual magnification of up to 15 times normal eyesight. Some ECS units include aberscopes.

Hard cover blocks the device's sensors. Certain electronic camouflage systems and/or Aberrant powers may also render certain sensory modes ineffective.

The scope adds four dice to a player's pool for Perception and Firearms rolls. Cost: ••••• (normal), ••••••• (with integral aberscope)

VARGs

VARGs are the war machines of 22nd-century battlefields. Vacuum Assault and Reconnaissance Gear has largely replaced the tank as armies' infantry-support and heavy-weapons ace in the hole. VARGs are typically humanoid in design, though variations are certainly possible based on a mission, the terrain of a battlefield or the engineering capabilities of VARG designers.

Hardtech VARGs have existed for years, and are used across the globe and throughout known space. BioVARGs are a more recent development. These biotech innovations are the natural evolution of mechanical warfare's greatest personal weapon. The emergence of psions, the discovery of psionic energy and the development of noetics — all in the 22nd century — could combine to achieve only one result: the biological enhancement of the VARG.

Most VARGs are designed after human physiology — bipedal, two arms, a head and a torso. They're only slightly larger than humans, most ranging from three to five meters in height. That's where the similarities to humanity end. VARGs are walking tanks, with armor plating, sensor arrays, weapon mounts and, sometimes, massive weaponry — and they have people *inside* them.

The different VARG designs have various cockpit facilities. A VARG's head array or chest panel might shift aside to allow a pilot to enter. A pilot might have a seat with controls arrayed before him or might lie horizontally atop a control couch, the movements of the suit simulating the muscle actions of his body. Some VARGs, whether hard- or biotech, are so large that more than one person is required to control them.

VARGs typically walk or run as a means of locomotion. Designs with four or more legs can attain speeds over 100 km/h. A small number of models incorporate treads or wheels for specialized circumstances. Advanced designs possess a combination of legs, wheels and treads for changing terrain conditions. Optional modules allow limited flight, while jet packs enable VARGs to cruise through an atmosphere or space itself.

Hardtech Versus Biotech

The bioVARG differs significantly from its hardtech counterpart. The app is easier and cheaper to build than its cousin; many bioVARG components are grown rather than forged. Once a matrix template is complete, replacement parts spring up like toadstools — almost literally.

The biotech VARG is also faster and more maneuverable than the hardtech version. A sample of a psion pilots' DNA is incorporated into the vat-grown control mechanism of a suit. The result is an instantaneous link between pilot and machine. Indeed, various control features respond to the pilot's autonomic reactions. Changes in oxygen levels or internal temperature happen without a command from the user. Hardtech VARGs are limited by the reaction time of the pilot. That's not an issue with a bioVARG. The suit is an extension of the psion pilot rather than a mechanized armored shell.

Yet for all of the bioVARG's advantages over hardtech, the bioapp suffers from a single major failing: It must be piloted by a psion. Psions are widespread, but they are by no means numerous, at least not by comparison to humanity as a whole. Not all psions are inclined or desirable to pilot a bioVARG, either. Thus, the devices can accomplish only so much and have limited versatility. Meanwhile, the hardtech VARG can go anywhere or do anything that any trained human is capable of.

The Best Defense...

Hardtech and biotech VARGs wield a variety of weaponry, from basic lasers and coilguns to cannons. Most bioVARGs are outfitted with traditional hardtech weaponry, and have the advantage of being able to change and exchange the armaments. Whereas traditional VARG weapons are mounted on a suit's hardpoints, bioVARG weapons are removable. For example, different scout vehicles can exchange lasers for comparable coilguns. Whether or not they can bear the weight and recoil of heavy weaponry depends on their design and size.

Scout models of hardtech and biotech VARGs are outfitted with a minimum of armament in exchange for stealth technology, powerful engines, cloaking technology and long-range scanners.

VARG Melee Weapon

- **Plasma Blade:** This ClinTech/Rheinmetall creation was developed as a close-combat weapon for VARGs, and it is one of the most devastating melee weapons known. It's "hilt" is actually a magnetic-field generator and plasma projector that emits a 1.5-meter-long plasma stream. The magnetic field contains the plasma in a blade shape. A power cord connected to the VARG taps into the suit's microreactor. Thus far, unprotected humans are incapable of wielding plasma blades since the intense heat generated would incinerate them. VARG pilots using the blades have been known to lop the coilgun barrels off tank turrets, open bunker doors and cut the limbs off other VARGs.

Tech: Ω , Accuracy: +1, Damage: 9d10 [10] L, Mass: 190, Cost: Not available commercially

Typical scouts are equipped with only two standard weapons. Interceptor models tend to have similar armament, although they usually sport missile launchers instead of lasers.

Tactical and assault designs can be supplied with as many as six different weapons, usually mounted on arms and the torso. Tactical VARGs are the most common of their kind. They're relied upon to go toe-to-toe with tanks, Aberrants and fortified positions. Assault VARGs are similar in design to tactical ones, but are intended primarily for combat with enemy infantry; they carry anti-personnel weaponry, including flamethrowers and miniguns.

Support VARGs, the largest, heaviest and slowest of all such devices, typically bear a single, long-range artillery piece on their backs or shoulders. Support units are heavily armored, but tend to remain out of direct conflict. They fire their artillery or rail guns at long range, destroying objectives or enemy units without making visual contact.

Getting There is Half the Fun

VARGs of both types are designed for swift deployment, but not even their great speed is useful for traversing interplanetary distances. A variety of vehicles are designed to transport VARGs to battle.

For short terrestrial forays, hovercraft can transport VARGs over any terrain — even water bodies — faster than can any other land vehicle. Shendai Pacific supplies most hover vehicles to the world's VARG forces. Individual suits can even be launched from a hovercraft with a catapult similar to those used on old aircraft carriers. The catapult gives a VARG an initial burst of speed that can be used to assault a target, and it clears the unit from any attacks staged against the slow-moving carrier.

VARGs can be transported on a variety of cargo planes or suborbital shuttles for long-range, terrestrial missions. Military transports designed for such purposes can drop up to a dozen VARGs through launch tubes. Built-in retrothrusters allows such units to maneuver and land as desired, but these thrusters aren't capable of enabling flight. Modules must be attached to VARGs to allow full flight.

Interplanetary deployment of VARGs is nearly impossible in a short time frame, but shuttles and landers have been designed for invasion and rapid ship-to-surface deployment. These vehicles are capable of both deep-space and atmospheric flight.

VARG Use

VARGs are a common sight in modern Earth militaries, while bioVARGs are considered revolutionary. Even military tacticians are still adapting new strategies to accommodate the latest innovation in the war machine.

BioVARGs form a special branch within any military or security force. They and their pilots are far too valuable to be used as cannon fodder on the front lines and are reserved for special missions or rapid reinforcement.

VARGs are capable of vacuum operation almost by definition. Designers have never abandoned the original philosophy for these machines: "Go anywhere, do anything." Even models de-

signed specifically for normal gravity can withstand the rigors of deep-space operation. Zero- or low-gravity models possess maneuvering thrusters and even booster rockets for rapid deployment. VARGs are uniquely suited to space operations, from assault, rescue and tactical missions to repair and construction operations.

Features

All VARGs are equipped with a standard sensor package that has the following capabilities:

- Radar (24 km radius)
- Optical sensors granting a pilot vision in the infrared (IR) and ultraviolet (UV) wavelengths
- Light amplification nuclear scanning array (LANSA); a sensor that detects variations in weak and strong nuclear forces in keeping with those caused by Aberrants; 200-meter radius
- Life-sign and radiation sensors; 200-meter radius

Some VARGs are fitted with better sensor equipment than others. Each profile below has a "Sensor Bonus" entry. This is the number of dice added to a pilot's Awareness rolls to detect and recognize items or phenomena that his sensors are capable of detecting (life signs or use of Aberrant powers, for example).

BioVARGs can be equipped with psionic sensors as well as hardtech ones. Such bioapps are described under the models that possess them. "Sensor Bonus" for bioVARGs, therefore, indicates the number of dice added to a pilot's Awareness rolls for recognizing the objects or phenomena that surveillance devices can detect. However, that number is also added to a bioVARG pilot's Attunement rolls (and perhaps even Psi score for using sensory powers such as Clairsentience or Telepathy).

Three other categories added to the profiles below are "HTH Damage," "Life Support" and "Weapons."

Strength Effect: The number of damage dice rolled after a successful Brawl attack is made. VARGs are not finesse machines, and rely on brute strength to inflict damage. Therefore, VARGs use **Brawl** for all unarmed, close-combat attacks. This is considered vehicle-scale damage, so a VARG's hand-to-hand effect has a damage add (see **Trinity**, page 247). This damage add is also used to

indicate the maximum number of metric tons a VARG can lift. The suit can't move large objects very far, but even a weak VARG can toss a puny human a significant distance.

Unarmored, living targets (i.e., people) cannot block or parry VARG punches or kicks; there's too much metal and mass behind the mechanized swing for the human body to counter it. Human targets can dodge, though. Close combat VARG attacks are rather slow, allowing human targets to add two dice to their Dodge Dice Pools.

Life Support: The duration that a suit provides air to its pilot. A hardtech or biotech VARG typically protects its pilot from external temperatures, pressures and vacuum indefinitely. However, air runs out quickly in a VARG when its Life Support duration expires.

BioVARGs provide air in a hostile environment, but they are also capable of providing sustenance to a pilot, and processing her waste materials. Hardtech VARGs are less versatile; a pilot needs to exit her craft to eat or drink (unless small portions of food and water are brought aboard), and she must certainly exit to pass wastes and remain comfortable in the command chair.

A bioVARG can sustain its pilot indefinitely in a habitable environment with access to water.

Weapons: BioVARGs are more versatile than their hardtech brethren; they can change weaponry easily. Each bioVARG model lists the number of weapons that can be mounted on it. The types of weapons that can be used are listed under **Weaponry** (page 66).

The Best of the Best

BioVARG pilots form an elite group among elite groups. A bioVARG pilot must be a psion and a superior hardtech VARG pilot — a rare and deadly combination.

Most bioVARG pilots learned how to operate hardtech VARGs before they became psions. Talented hardtech pilots are tested for latency constantly and, should they qualify, are offered the opportunity to join humanity's Gifted defenders. Learning to operate a bioVARG after mastering a hardtech VARG is like learning to ride a tricycle after mastering a bicycle.

Hardtech VARGs

• **Hassha-Seiun (Flame Cloud):** A four-and-half-meter tall, general-purpose combat VARG, the Flame Cloud is one of the primary battlefield units in Pacific Rim armies. Its armaments consist of a large particle cannon and a missile pod, both mounted on its back. The particle cannon swings down over the right shoulder to fire. The Hassha-Seiun is equipped with a rapid-firing autolaser cannon mounted on its right arm for antipersonnel combat. The designers have outfitted the VARG's left arm with an ionic whip (see sidebar). The VARG is named for the eruption of energy created when it fires its weapons.

VT: VARG

Tech: Ω

CS: 50 km/h

TS: 70 km/h

Handling: +2

Mass: 6.5

Cost: Not available commercially

Armor: 4 [5]

Weapons: Particle cannon (Accuracy: +4, Damage: 9d10 [10] L), missile pod with 14 smart missiles (Accuracy: +3, Damage 10d10 [15] L), light autolaser cannon (Accuracy: +3, Damage: 5d10 [5] L), ionic whip (Accuracy: +1, Damage: 5d10 [5] E/L)

Strength Effect: 5d10 [4] L

Sensor Bonus: 3

Life Support: 5 days

Ionic Whip

This is a 50-meter-long, flexible steel whip stored in a disk-shaped casing. The whip delivers a high-amperage electrical charge that has an EM-disruption effect on a vehicle target and that harms the target's pilot as well.

An ionic whip's damage rating is applied in two ways: When used to attack an electronic device, including a VARG or a vehicle, the whip does 5d10 E (see EM-Disrupter Weaponry, page 51) to the target. The pilot/crew takes the same Health Levels rolled as Lethal damage. (The "[5]" damage add modifier for attacking personnel targets is not applied.)

If a personnel target is attacked directly, the target suffers the full 5d10 [5] L damage effect.

Melee attack rolls that succeed at a +2 difficulty also entangle a target. The target's pilot may attempt to break free each turn. Make a resisted Pilot or Drive roll, as appropriate, between the two operators. The target is freed if its roll is better. If the target fails to escape, the whip inflicts EM damage automatically every turn thereafter until the victim escapes. Attempting to break free of the whip requires a full turn's action.

An entangled person can try to escape the whip in a Might versus Pilot resisted roll. However, the victim's Might Dice Pool is reduced by two dice due to the strength of the ionic whip.



• **Hellfire:** The premier product of the Ozawa/Ashikaga Corporation, the Hellfire is the largest assault VARG made to date. Five and one half meters tall and outfitted exclusively with energy weapons, the Hellfire is as imposing as it is devastating. Hellfires rarely operate alone; they typically appear in platoons with five other types of VARGs and with infantry support. The suit's main weapons are a pair of arm-mounted heavy plasma cannons. Mounted alongside each of these is a light laser for anti-infantry combat. Although the Hellfire is somewhat slow, it can stay in the field without often requiring supplementary ammunition. Ozawa/Ashikaga is working on an improved version of the Hellfire that's capable of greater speeds.

VT: VARG

Tech: Ω

CS: 30 km/h

TS: 70 km/h

Handling: 0

Mass: 12

Cost: Not available commercially

Armor: 7 [7]

Weapons: Two plasma cannons (Accuracy: +3, Damage: 9d10 [10] L, Range: 2 km), two light laser cannons (Accuracy: +2, Damage: 5d10 [5] L, Range: 1.5 km), lightning field (Damage: 9d10 L to any object touching the VARG)

Strength Effect: 7d10 [6] L

Sensor Bonus: 3

Life Support: 5 days



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• **Kami-Hei-Bushi (Spirit Warrior):** The Kami-Hei-Bushi is a three-meter-tall recon/scout. Although equipped with relatively light weapons, the Spirit Warrior makes up for them with the most comprehensive sensor and "Electronic Warfare" package of any VARG in service. The Kami-Hei-Bushi is outfitted with the NVR control system, which grants it excellent maneuverability.

VT: VARG

Tech: Ω

CS: 70 km/h

TS: 120 km/h

Handling: +4

Mass: 3

Cost: Not available commercially

Aarmor: 2 [5]

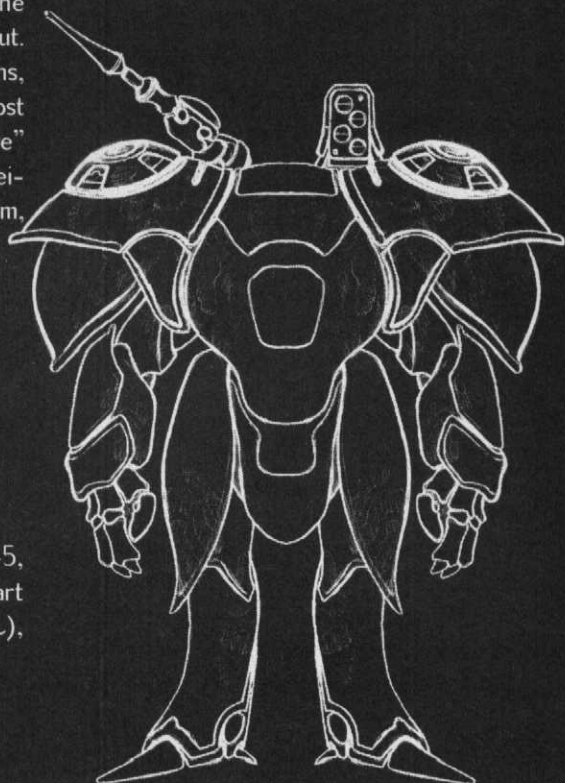
Weapons: Light laser cannon (Accuracy +5, Damage: 5d10 [5] L), missile pod with four smart missiles (Accuracy +3, Damage 10d10 [15] L), EW package*

Strength Effect: 4d10 [2] L

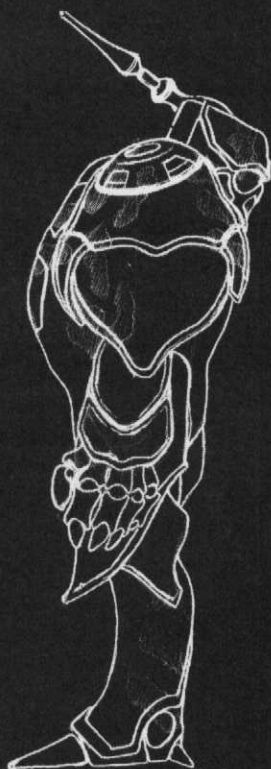
Sensor Bonus: 5

Life Support: 5 days

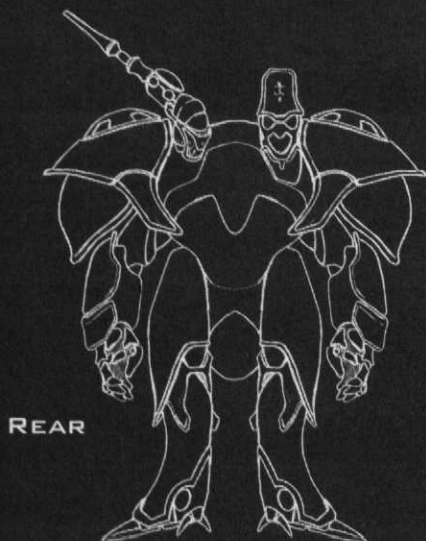
* The Electronic Warfare system is the most advanced battlefield electronics array in the universe. A jamming system is integral to the unit's survival. The jammer adds three to the difficulty of any attempt to detect or target the VARG. Special shielding and buffers raise the difficulty of EM disruption attacks against the Kami-Hei-Bushi by two. Lastly, all normal VARG sensor ranges are tripled for the Spirit Warrior.



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• **Pulsar:** The Pulsar is the Federated States Military's state-of-the-art assault weapon. Five meters tall and equipped with the new NVR control system, the Pulsar is a deadly opponent. Its long-range armaments consist of a particle-beam cannon mounted on the right shoulder and a missile pod located on the other. The particle cannon is based on that of the Hassha-Seiun. Short-range weapons include a light, pulsed plasma cannon on the right hip and an optional weapon mount on the left hip. The latter is a new design feature that can be fitted with a variety of different weapon systems. Any antipersonnel or light antivehicle weapon can be attached. (See Weaponry, page 66.) The Pulsar is manufactured by ClinTech exclusively for the FSA.

VT: VARG

Tech: Ω

CS: 50 km/h

TS: 90 km/h

Handling: +2

Mass: 7

Cost: Not available commercially

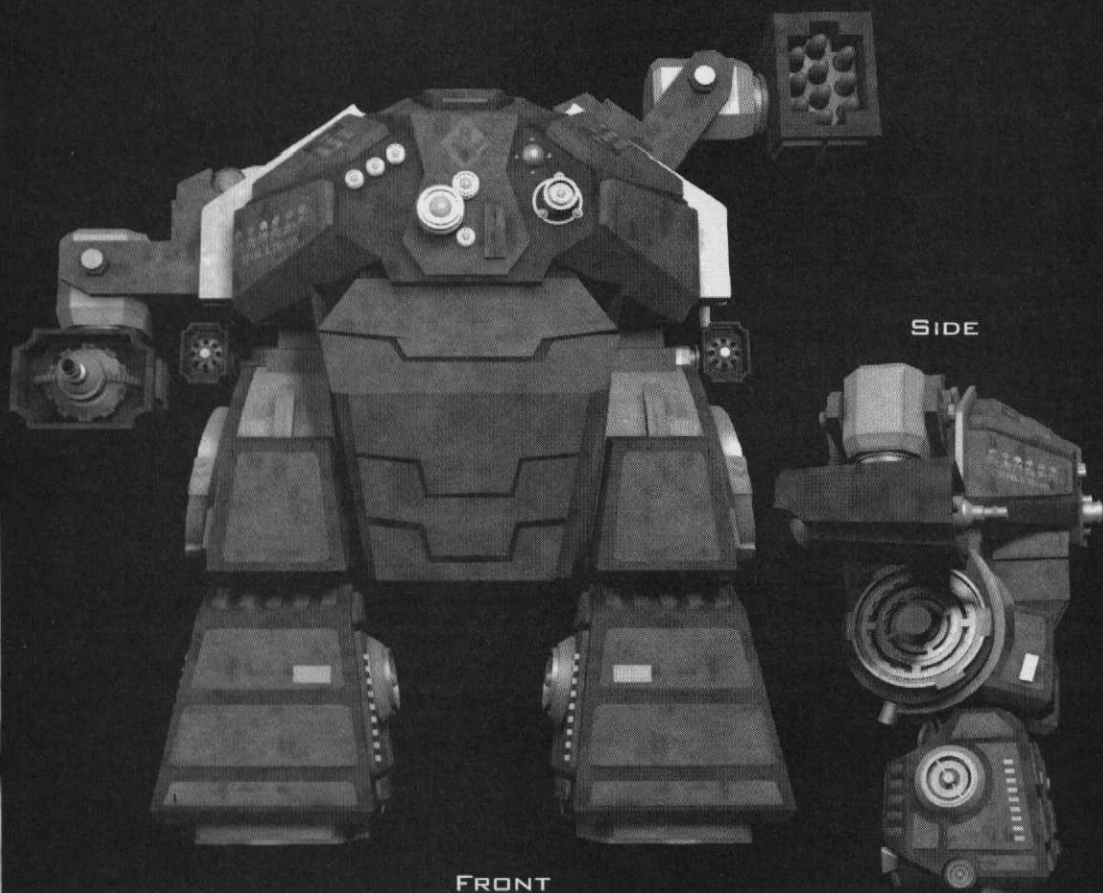
Armor: 5 [7]

Weapons: Particle cannon (Accuracy: +4, Damage: 9d10 [10] L, Range: 5 km); one missile pod with ten smart missiles each (Accuracy: +3, Damage: 10d10 [15] L); light, pulsed plasma cannon (Accuracy: +1, Damage: 5d10 [5] L, Range: 900); optional weapon mount

Strength Effect: 6d10 [5] L

Sensor Bonus: 3

Life Support: 5 days



• **Rheinmetall (Fueradler):** The Fueradler, or Fire Eagle, is produced primarily under license in the FSA after the loss of major European factories in the *Esperanza* crash. The suit is inexpensive to manufacture and is highly mobile, but isn't as damage resistant as the larger VARGs. The Fueradler possesses two weapon systems: a 50 mm magnetic grenade launcher and a Rheinmetall X-9 Pulse Laser. Both weapons are mounted on the back and fire over the shoulders. The VARG has also control systems that allow the pilot to carry a handheld weapon. The VARG's computer provides +1 Accuracy to any weapon linked to this control system. The Fueradler stands just over three meters tall and is equipped with magnetic grapples on its feet and hands for climbing up metallic surfaces or targets to stage close attacks or to plant explosives.

VT: VARG

Tech: Ω

CS: 50 km/h

TS: 140 km/h

Handling: +3

Mass: 2.5

Cost: Not available commercially

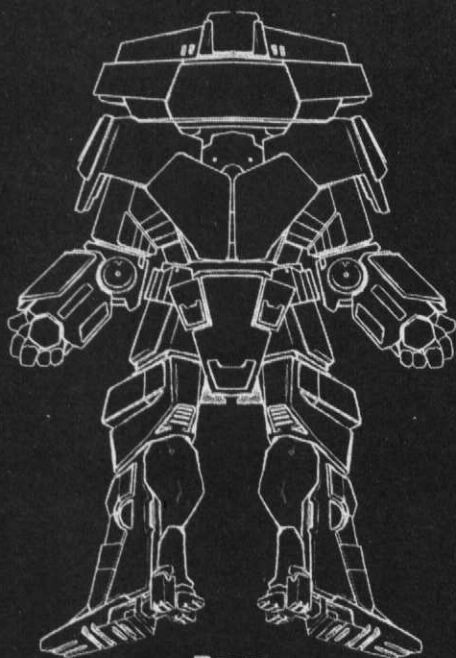
Armor: 3 [5]

Weapons: 50 mm magnetic grenade launcher (Accuracy: +1, Damage: varies, Range: 1km, Ammo: 15), pulse laser (Accuracy: +2, Damage: 9d10 L, Range: 590 meters). The grenade launcher uses ammunition that's functionally identical to 50 mm mortar rounds.

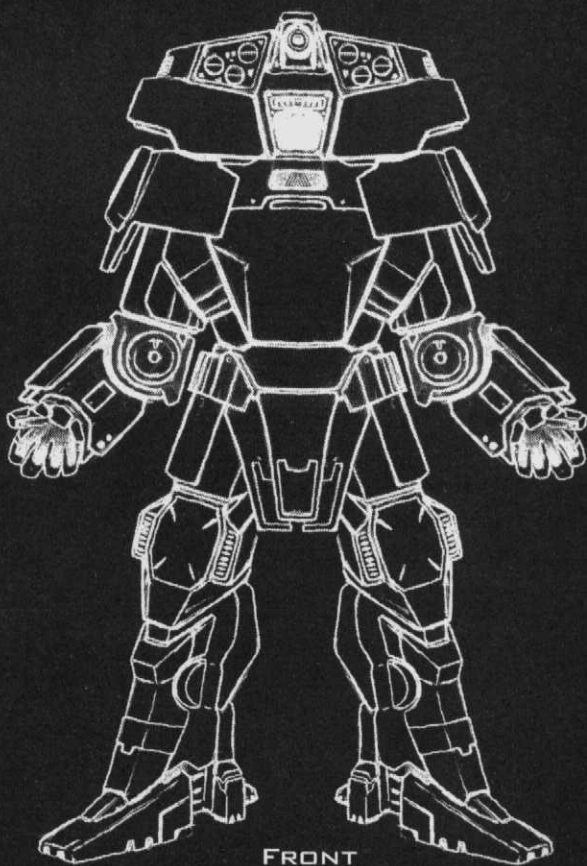
Strength Effect: 4d10 [3] L

Sensor Bonus: 2

Life Support: 12 hours



REAR



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• **Ryu (Dragon):** The Nihonjin Ryu is a long-range, fire-support VARG. A single Ryu is often included in a platoon with five Hellfires or Hassha-Seiun. The Ryu is four meters tall and is equipped with two back-mounted missile pods and a rapid-fire coilgun on each arm. A light laser is mounted in a turret atop the "head" for antipersonnel and point-defense work. The only drawback to the design is that its armaments are a little weak once the missile pods are empty. Support vehicles with additional missiles often follow Ryu on missions.

VT: VARG

Tech: Ω

CS: 40 km/h

TS: 70 km/h

Handling: +2

Mass: 5

Cost: Not available commercially

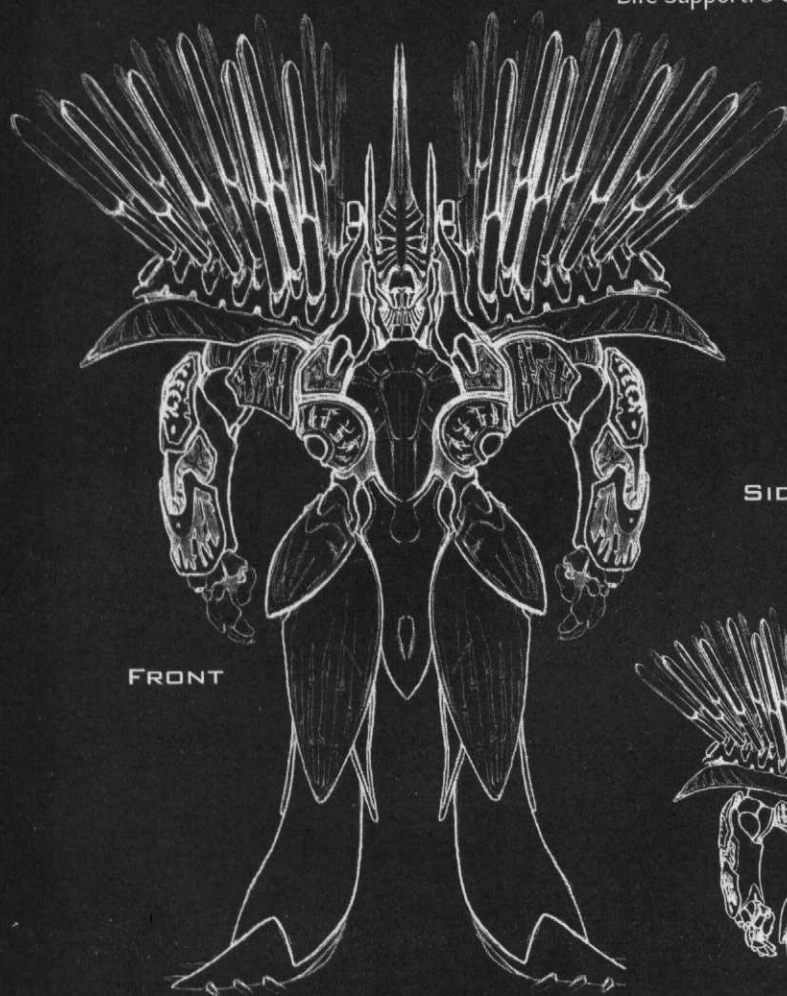
Armor: 4 [7]

Weapons: Two missile pods with 25 smart missiles each (Accuracy: +3, Damage: 10d10 [15] L), two medium coilguns (Accuracy: +1, Damage: 6d10 [10] L), light laser turret (Accuracy: +2, Damage: 5d10 [5] L)

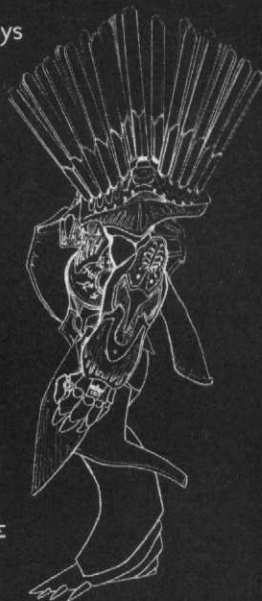
Strength Effect: 4d10 [5] L

Sensor Bonus: 3

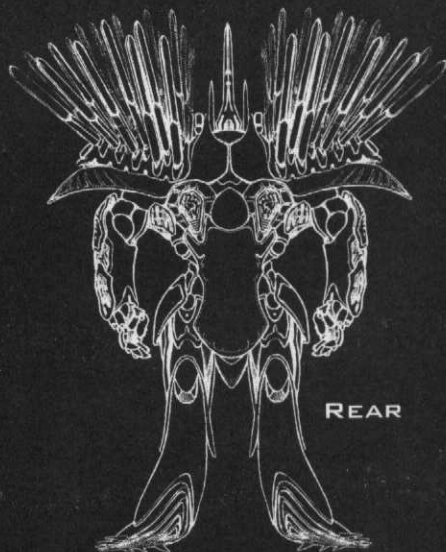
Life Support: 5 days



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SIDE



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BioVARGs

The following are some basic bioVARG designs. This list is not comprehensive, especially considering TechnoDyne's constant innovations. The first three designs are "standard" models. The last three are examples of specialized suits.

- **Weasel (Scout Class):** The Weasel and models like it are intended to infiltrate enemy territory to provide intelligence and targeting information to other forces without being detected. The smallest of the military bioVARGs, the Weasel stands approximately three-and-one-half meters in height and weighs only two tons. The Weasel is the most humanoid of bioVARGs.

Scout-class bioVARGs focus on speed and maneuverability. They are grown or equipped with radar bafflers, radar-absorbent coatings and magnetic anomaly scramblers. The vehicles are lightly armed and pilots prefer them that way; two weapon mounts are standard.

Scout bioVARGs rely on superior communication and guidance hardware and bioware. Bioapps are installed to adapt Telepathy and Clairsentience to allow a Ministry or ISRA psion pilot to recognize enemy vehicles or targets before most hardtech devices could.

VT: BioVARG

Tech: Ψ

CS: 80 km/h

TS: 140 km/h

Handling: +5

Mass: 2

Tolerance: ••••

Cost: Not available commercially

Armor: 2 [5]

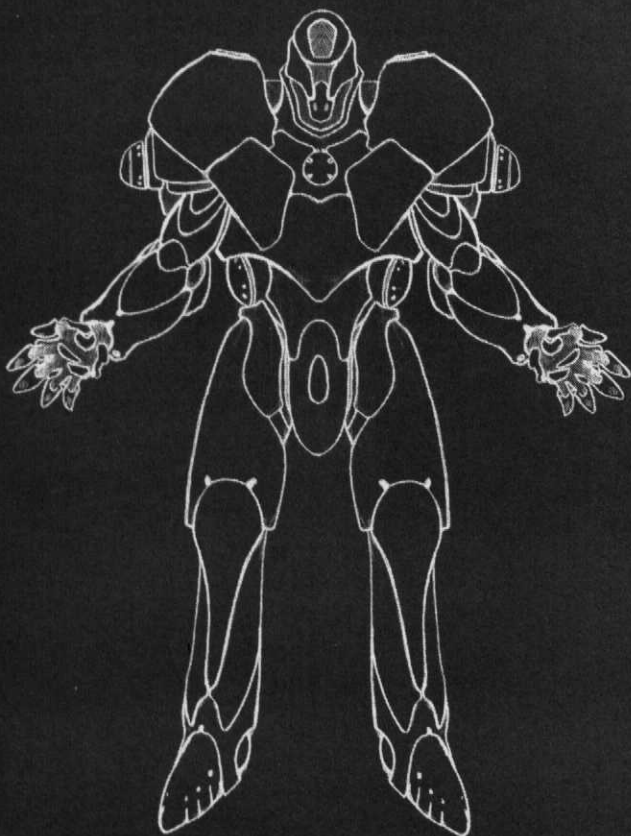
Weapons: Two weapon hardpoints

Strength Effect: 4d10 [3] L

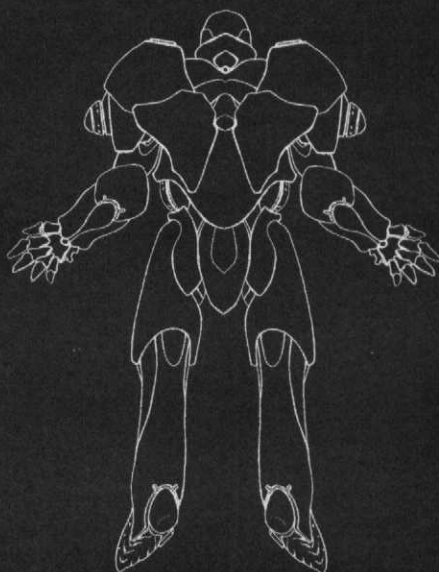
Sensor Bonus: 5

Life Support: 30 days

Special Equipment: Stealth package (reduces enemy sensor rolls by three dice), psionic beacon (see the Psionic Targeter sidebar)



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• **Silverfish (Tactical Class):** The Silverfish is the most common bioVARG given its general application. At four and one half meters tall, it's larger and more heavily armed than a scout, yet smaller than a support bioVARG. Tactical-class bioVARGs are designed for direct conflict with powerful enemy targets such as tanks, aircraft and weapons emplacements. Silverfish have stood up to even Aberrants with mixed results. Armored psions have destroyed relatively weak Aberrants or those apparently incapable of controlling nuclear forces on a wide scale. Yet powerful Aberrants or those capable of incredible molecular control have destroyed whole squadrons of Silverfish within moments — as always, Aberrants refuse to be classified easily.

Tactical-class bioVARGs can be adapted to assault status through assignment of weapons. Assault-class suits are used for crowd control and direct conflict with human targets; antipersonnel weapons are mounted on assault-class hardpoints.

VT: BioVARG

Tech: Ψ

CS: 50 km/h

TS: 90 km/h

Handling: +3

Mass: 4

Tolerance: ●●●

Cost: Not available commercially

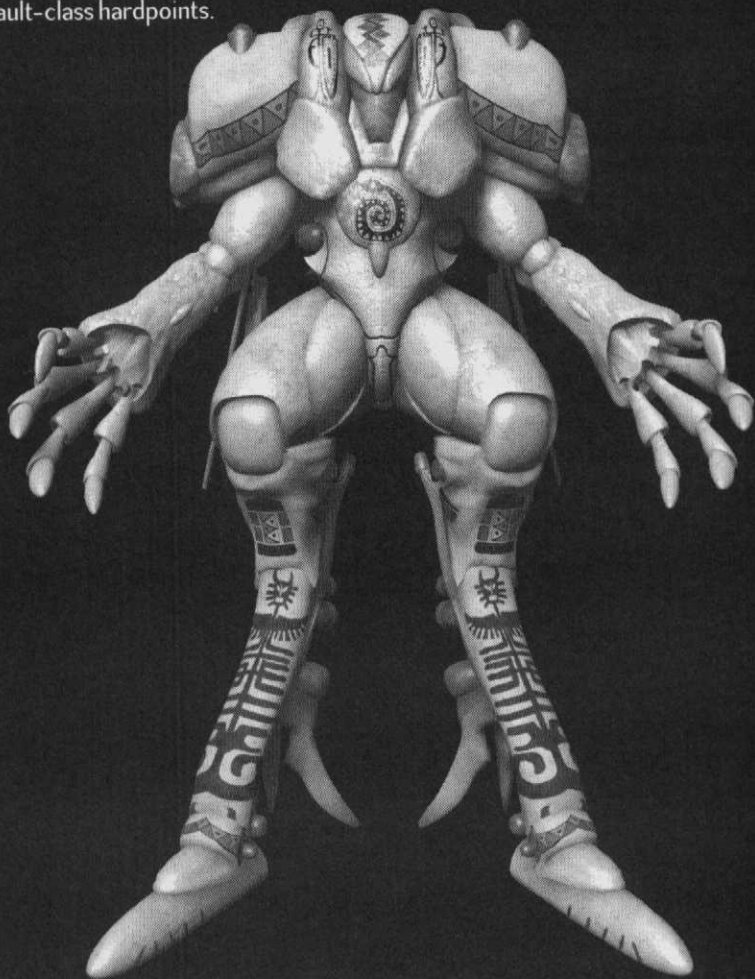
Armor: 6 [5]

Weapons: Six weapon hardpoints or one support weapon

Strength Effect: 4d10 [5] L

Sensor Bonus: 4

Life Support: 20 days



• **Kraken (Support Class):** The Kraken requires multiple pilots to control its numerous appendages and weaponry. Approximately eight meters in height and over 12 tons, the Kraken is the largest bioVARG in production. Six legs are required to maintain this monstrosity's balance when firing its heavy weaponry or when engaging in close combat.

The pilot steers and positions the vehicle. One gunner fires the support weaponry, while another controls the smaller weapons. All the pilots are linked mentally through the Kraken's Telepathy bioapp systems; they may respond to each other swiftly without communications interference.

VT: BioVARG

Tech: Ψ

CS: 50 km/h

TS: 80 km/h

Handling: +3

Mass: 12

Tolerance: •••per pilot

Cost: Not available commercially

Armor: 4 [10]

Weapons: Two support weapon mounts, four weapon hardpoints

Strength Effect: 7d10 [6] L

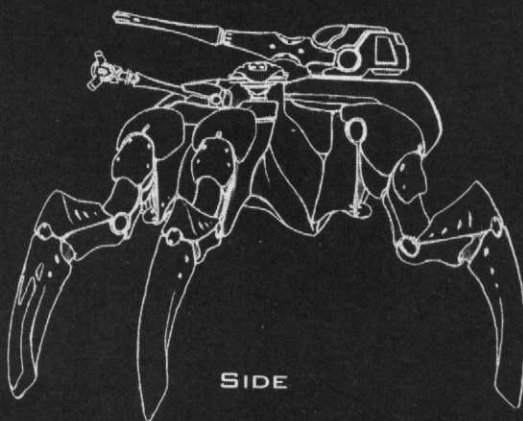
Sensor Bonus: 4

Life Support: 15 days

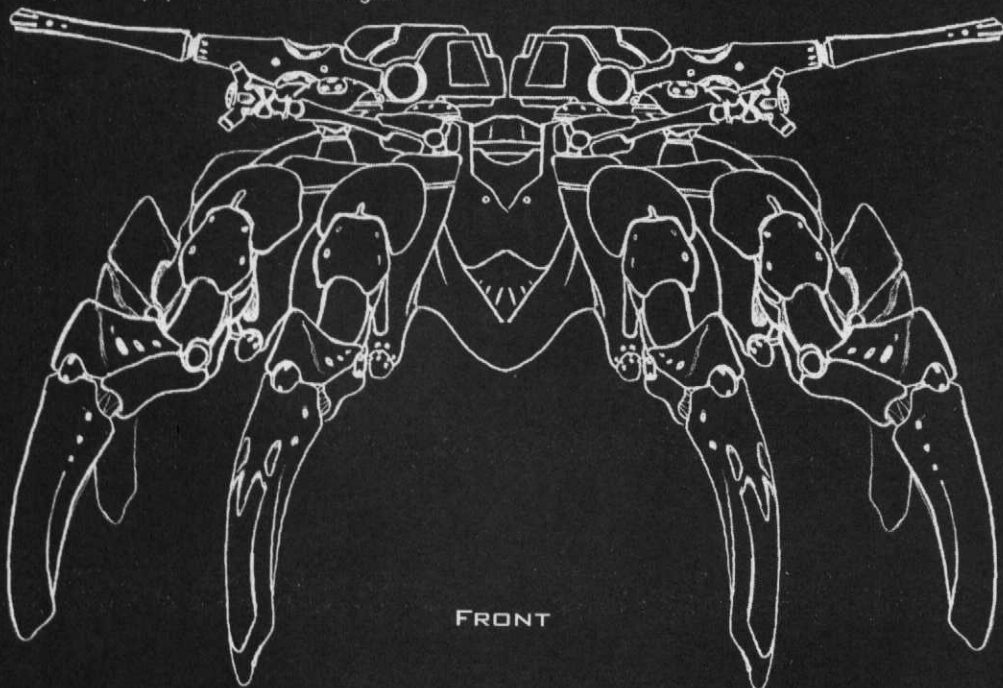
Special Equipment: Psionic Targeter

Psionic Targeter

The Kraken and other bioVARGs are equipped with specialized sensor devices called psionic targeters. These bioapps home in on the signal transmitted by a friendly scout-class bioVARG, allowing a heavy-weapon bioVARG to fire on that target without visual contact. The targeter does not add Accuracy bonuses to the attacker's Firearms roll, but range penalties are ignored — assuming the firing bioVARG is in range at all, of course.



SIDE



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• **The Hive:** BioSystems' most popular bioVARG is a complex forklift system called the Hive. Competing directly against Orgotek's Mantis, the Hive allows the operator to control several automated lifters from one computer. Large warehouse operations, especially those on Luna, Mars and space stations, benefit from these driverless lifters. Biotech innovations allow each vehicle connected to the Hive to make simple adjustments — adapting to changing environments, determining new routes — while following basic programmed commands. Hive vehicles are ideal for space and vacuum operations as they are unaffected by vacuum exposure as well.

The main benefit of a Hive system is reduced personnel. While Orgotek's Mantis requires a psion for every cargo loader, BioSystem's Hive requires only one psion for up to a dozen loaders.

Different versions of the Hive have been designed to deal with different environments. The standard Earth system uses wheeled or tracked lifters, depending on terrain, that have twin prongs and a support crane. Most space stations use six-legged lifters with electromagnetic foot stabilizers. Lunar lifters use a magnetized track assembly for locomotion and stabilization. Space and Lunar models use tow bars for moving cargo containers in zero- or low-gravity.

The statistics listed below are for the Hive lifters. The central control equipment is the size of two large suitcases, and is often installed in a separate monitoring center. The control gear can be put in another lifter for mobile supervision.

VT: BioVARG

Tech: Ψ

CS: 23 km/h

TS: 40 km/h

Handling: n/a

Mass: 1.5

Tolerance: •••

Cost: ••••• • for central control equipment, •••¹ per lifter

• **Cockroach (Maintenance Class):** No major spacecraft could exist without Cockroaches crawling all over it. These one-man maintenance vehicles comb ships for hull damage, sensor malfunctions, and perform routine repairs. A single squad of Cockroaches can maintain a frigate or freighter in transit

without need for expensive space-docking.

The Cockroach derives its name from its six-legged locomotion and long, thin frame. The radiation shielding and solar panels along its back also resemble the shell of its namesake. Unlike its inspiration, the bioVARG has up to 12 additional appendages with which to carry out its duties — and more limbs can be added for major repair jobs. The legs used for locomotion attach the vehicle to its mother ship magnetically. The additional appendages carry a variety of tools, spare parts and even bioapps capable of conducting the healing powers of vitakinetic pilots.

The pilot reclines lengthwise in the vehicle — her head at the front, her torso and arms in the “thorax” and her legs in the “abdomen.” The mechanic can thus maintain a safe, stable position within one meter of a repair operation.

Cockroaches are small, approximately three meters in length. A larger, two-pilot version has been tested with some success, allowing large or complex operations to be performed from one vehicle rather than two. While some Earthbound Cockroaches exist, it's more practical to use other tools planetside.

VT: BioVARG

Tech: Ψ

CS: 80 km/h

TS: 120 km/h

Handling: +2

Mass: 1

Tolerance: •••

Cost: ••••• plus that for additional equipment

Armor: 2 [4]

Life Support: 5 days

• **Chameleon (Infiltrator Class):** These bioVARGs are based on a common design, but are customized to a specific pilot to maximize response and capabilities. Each suit conforms perfectly to its pilot's body. Its armor covers the psion like a layer of exposed muscle. The result is a light bioVARG that's only slightly bulkier than a human.

A Chameleon can be stored and carried in a small trunk or cargo container when isn't worn. Armor plates and skin lose their resilience when deactivated, allowing them to be compressed for travel. However, weapons chosen to be mounted

onto a Chameleon retain their normal properties when not in use, and must be stored and carried normally. Traveling incognito might preclude carrying large bioVARG weapons.

Chameleons are typically used in an atmosphere, but zero- and low-gravity models are available and come equipped with magnetic hand and foot pads as well as maneuvering thrusters. All models are designed to travel in and keep a pilot alive in space, but other, heavier bioVARGs are better equipped to protect a psion in deep space.

VT: BioVARG

Tech: Ψ

CS: 50 km/h

TS: 140 km/h

VS: 1

Handling: +3

Mass: 0.25

Tolerance: ••••

Cost: •••••••• (restricted)

Armor: 2 [5]

Weapons: Any infantry weapon, one weapon hardpoint

Strength Effect: Pilot's Strength + 3d10 [2] L

Sensor Bonus: 3

Life Support: 14 days

Special Equipment: Armor Sculpt (Cost •••)

VARG Weaponry

Biotech engineering has yet to produce a vehicle-class bioware weapon that can equal a hardtech weapon's effectiveness. Therefore, all weapons on biotech vehicles are actually hardtech with control linkups — just like those mounted on hard VARGs. The Basic Weapons chart (below) lists the standard vehicle-class weapon attachments available to bioVARGs.

Hard VARGs come equipped with predetermined hardtech weapon attachments to make mass-producing the VARGs that much easier. In contrast, the bioVARGs' organic production allows selection of specific weapon mounts.

Basic Weapons

Type	Accuracy	Damage	Range	Effect Area	Ammo	Cost
Grenade Launcher	+1	varies	500m	varies	15	•••
Pulse Laser	+2	9d10 L	700/1000 m	—	80	••••
Mine Thrower	0	varies	200m	varies	10	•••
Plasma Cannon	+3	9d10 [10] L	3000 m	—	60	••••••
Light Laser Cannon	+2	5d10 [5] L	5/10 km	—	100	•••••
Medium Laser Cannon	+2	6d10 [5] L	7/30 km	—	80	••••••
Heavy Laser Cannon	+3	8d10 [5] L	9/100 km	—	60	•••••••
Light Coilgun	+1	5d10 [10] L	3/5 km	—	90	•••••
Medium Coilgun	+1	7d10 [10] L	5/20 km	—	70	••••••
Heavy Coilgun	+1	9d10 [10] L	8/70 km	—	40	•••••••
Smart Missile	+3	10d10 [15] L	500 km	20 m r	variable	••••••••
Fusion Warhead	+3	18d10 [30] L	5000 km	1000 m r	1	•••••••••

Refer to the Basic Vehicle Weapon Types chart, page 133, for specifics on each category.

Armor Sculpt

A Chameleon can be equipped with an Armor Sculpt bioapp for a significant price increase. This option allows the pilot to change the coloration of his suit at will as if he had a limited form of the Biokinesis power, Body Sculpt. The pilot cannot change the physical shape of the suit, but can change its color scheme for camouflage purposes. Skilled pilots almost become invisible, making the Chameleon a prized possession among commandos and intelligence operatives.

The pilot spends one Psi point and the player rolls Psi. Success indicates that the bioVARG adapts to whatever color scheme the pilot chooses. If the Chameleon is not moving, the difficulty to hit it increases by one for every success achieved on the Psi roll. If the vehicle is moving, the difficulty to hit it is one for every two successes achieved on the Psi roll (rounded down).

Modifiers to strike a armor-sculpted bioVARG apply to visual attacks only; the defense mechanism does not protect against electronic detection or aiming systems.

The Storyteller may wish to allow hard VARGs to have different weapon configurations. Figure that each of the VARG's pre-selected weapons takes up a single hardpoint. Substitute as desired for one of the weapons from the Basic Weapons chart (the Storyteller may wish to have modifications require appropriate time and Resource expenditures).

Flight Systems

ClinTech, Rheinmetall, L-B and a handful of other military hardware manufacturers have created a series of add-on flight modules for VARGs. All VARG designs have the necessary attachment points and control linkups to accommodate these packages. When in flight, substitute the Handling rating listed with the individual flight system for the VARG's normal Handling. When walking, reduce a small (four meters or less) VARG's Handling by two and a large (larger than four meters) VARG's Handling by one to represent added mass and bulk.

Flight systems are available for both hardtech and biotech VARGs. They operate under their own mechanics and powers supplies, and can, therefore, be used with any type of VARG — a biotech flight module with a hardtech suit, for example. Flight modules are suitable for VARG use only; the plasma jets used would fry unprotected troops.

Two general types of flight systems have been created. The more common type provides a jet-assisted jump capacity and is called a "jump pack." The second type provides full-flight capability. The latter systems are rare due to energy requirements and construction expenses. Full-flight VARGs are used primarily in environments that are inaccessible by other combat vehicles. Mountains, heavy jungle and deep space are typical examples.

• **L-B "Flame Wing" Flight System:** There are actually two versions of this system: the Alpha and the Omega. Both are capable of travel in atmosphere as well as space. However, entering an atmosphere from space requires that a VARG be equipped with an ablative reentry shield accessory (see below) to avoid burning up.

Some pilots have modified their Omega Flame Wings to achieve speeds of 1,000 km/h or more. Traveling at such speeds requires a special flight suit to endure g-forces. Achieving such speeds requires more power than a suit alone can provide and drains VARG energy reserves, cutting remaining life-support duration in half.

VT: Flight System

Tech: Ω

CS: 240-meter leaps (Alpha), 300 km/h (Omega)

TS: 500 km/h (Omega)

VS: 1 (both)

Handling: +2

Mass: 0.5 (Alpha), 1 (Omega)

Cost: ●●● (Alpha), ●●●●● (Omega) (restricted)

Armor: 2 [5] (Alpha), 3 [5] (Omega) pack only

• **Orgotek "Gyrfalcon" Flight System:** Orgotek's Gyrfalcon is more versatile than any hardtech flight pack available. Even so, many VARG pilots prefer not to use it — the biotech device cannot be modified to achieve higher speeds. The Gyrfalcon's most popular feature is its self-re-

Optional Ablative Reentry Shield

This is a VARG-flight-system accessory used to enter atmospheres from space. The hardtech device absorbs and conducts the heat created upon entering an atmosphere and transmits it away from the pilot's VARG.

A pilot must enter an atmosphere at a proper angle for the OARS to conduct heat properly. Otherwise, heat is conducted into the suit — and the pilot. The VARG launches from an orbiting spacecraft. The player must get 10 successes on a Pilot (VARG) roll to complete entry successfully. These successes must be scored over a three-turn period in order to set up the proper atmospheric entry corridor. Failure results in a spectacular, fiery end as the VARG burns up like a meteorite. The pilot has the option to abort entry and to return to orbit during the first turn. He is committed after that.

An OARS cannot be used to absorb heat from fires or explosions during "everyday" wear. The device operates under the gradual buildup of heat and pressure, not under instantaneous exposure.

charging power supply. The bioapp comes with a five-hour biological "capacitor." Photovoltaic elements in the battery's structure recharge if exposed to sunlight or extremely bright artificial light (such as that from arc or search lights) when the device is not in use. The Gyrfalcon is shielded against radiation, chemical hazards and orbital-entry heat. An ablative shield accessory is recommended for pilots for atmospheric entry. An added feature for orbital drops is the pack's thermo-ionic converters that use the heat of reentry to recharge the capacitor, even during use. The Gyrfalcon gains no benefits from formatting.

VT: Flight System

Tech: Ψ

CS: 290 km/h

TS: 500 km/h

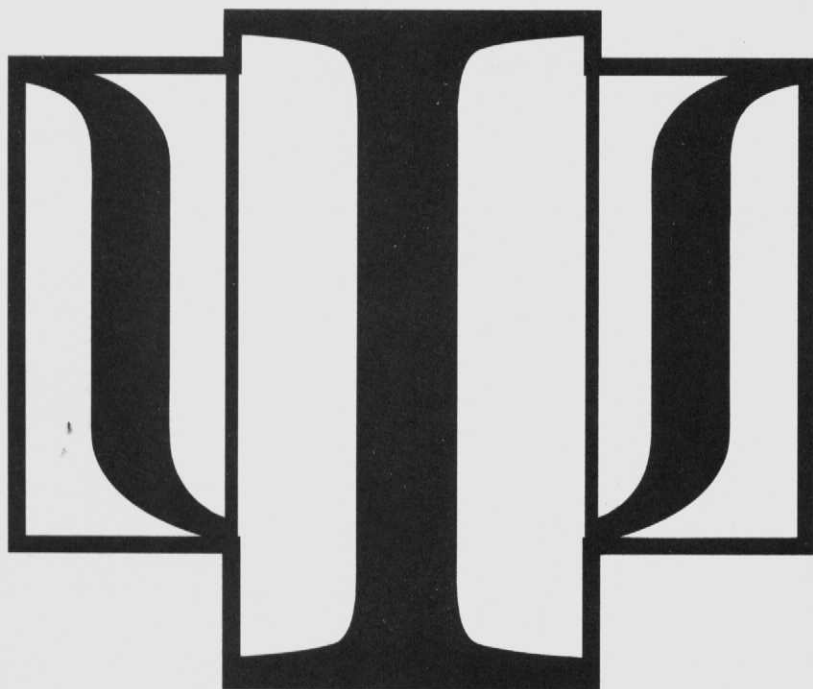
VS: 1

Handling: +4

Mass: 0.4

Cost: ••• (restricted)

Armor: 2 [5] pack only



The Trinity rules provide a foundation for using computers during play. Computers are complex devices, though, and 22nd-century computer technology has transcended anything that we in the 20th century are familiar with. This chapter therefore provides more information about how computers are used and what they're capable of doing 120 years from now. It also gives rules for handling those activities in the game.

Abilities and Computers

Computers are ubiquitous. Everyone uses them, including psions. Not many people understand how computers work, though; the devices have become so user-friendly that technical skill is no longer required. Possessing the know-how to manipulate, hack into and modify computers is, therefore, power. A psion is not as equipped if he doesn't know how to repair his broken minicomp. A skilled engineer, however, can rebuild it or use its parts to interface with other, functional computers.

Characters use the following Abilities and Specialties when dealing with computers: Engineering (Computers, Electronics, Telecommunications), Intrusion (Electronic Infiltration) and Science (Math, Physics). Computers is the most commonly used of the Specialties; it's applied whenever a character tries to hack into a system or manipulate it to do something. The other Abilities and Specialties still come in handy, especially for dealing with security systems or solving hardware problems.

The well-balanced technician doesn't rely on Engineering (Computers) alone. Other skills are needed and may even save his life.

For Example: *Sandra Larek, an Orgotek psion, has just been ejected from a FSA hangar's computer system. She worries that accessing the net from the same port would be dangerous. (She's probably right.) The system's security agent is already aware of her and could inform guards of her location. She draws up an innocuous fire-escape sche-*

matic of the facility, hoping that it won't attract the SA's attention, and checks for other access ports that she can use. The Storyteller decides that this requires an Engineering (Telecommunications) roll rather than a (Computers) roll, which her previous efforts involved. Sandra's player rolls six dice and gets 3, 4, 6, 7, 7 and 8 — three successes. Sandra recognizes a hidden dataline that can be accessed in a different part of the facility.

In this case, the character's varied Engineering Specialties help her solve her problem where Computers would not have been appropriate otherwise.

Agents

Computer agents are integral to modern society's reliance on computers. Giving verbal instructions to an electronic persona makes computer interaction easy and comfortable. Few people stop to consider what their agent really is, though. An avatar seems like a user's representative to a computer system, but is actually just software, a component of the computer. Most users activate agents on minicomps to interface with the devices. However, a user can also send her agent out into a local OpNet to interact with other systems and to act as her representative to other computers and other people. The agent may even "take" its Applications with it, applying them to rolls in dealings with the OpNet.

An agent has systems and sophisticated algorithms required to make it seem like a person, but code structures and logic programs occupy most of its memory. While great strides have been made in artificial intelligence, expert systems and neural nets, a truly intelligent, aware and creative computer agent is still decades away. The alert user therefore remembers that her agent can only go so far in representing her. Users who come to rely on agents for all social interaction become distanced from the world, and become perceived as the products of their computers. Psions in the field

must interact with the world, deal with the public, and personally investigate threats to humanity — they can never become dependent on their agents for anything.

What Agents Can and Cannot Do

An agent is limited by its programming; it's extremely useful, but only within a specified domain. It can search through blocs of data for specific information, route calls, sort email, monitor line traffic for likely incursions, kick unwanted visitors off a system, monitor stock portfolios, indicate the best route for a trip and create an itinerary of events.

However, an agent is just a bunch of programs. It's suited to well-defined functions or tasks that involve a lot of number crunching or binary decisions. If you know exactly what you want, an agent can help you. The more nebulous a problem, the less it can help and the more information it needs, be it providing search references, answering more questions and/or redefining the task.

How Agents Work

Agents work by interacting with operating systems, hardware, and other agents. It sends messages to these various components and representatives, telling them what it wants and hopefully getting the responses it needs. When the agent acquires the requested data, it relays the information to its user, sends more messages if necessary or leaves the network and moves on to its next task.

If information is classified or protected by security measures, most simple agents give up the search; as far as they're concerned, the information doesn't exist or isn't available. More elaborate agents don't take no for an answer. They have built-in programs that activate under such conditions and seek alternate routes to the requested data.

The agent's Performance rating is rolled against the target system's fail-safe score to determine if an agent can gain access to the system without using a passcode. Computer Applications may be added to these rolls to determine success, if applicable.

There's a certain danger that comes with tenacious agents. Assailed networks may alert their operators of intrusion. An agent might be identi-

fied if it has no recognition jammers and the user may be traced. Clashes between agents and security systems don't automatically incriminate a computer's user; minicomps misunderstand their users' commands and pursue the wrong information all the time. An agent's inquiries are not strictly hacking, either. However, a cautious or paranoid system manager might respond negatively to a nosy agent and could even track its user down in the real world....

To avoid intrusion on classified files, or physical confrontations with other users, characters with high-end or determined agents can instruct them to contain search efforts to publicly available data files or to familiar, hospitable networks.

Helping Your Agent

Agents are not omnipotent. Sometimes they need the help of an experienced user to accomplish an appointed task. A user may provide more details, indicate a better process, suggest a function outside the agent's default parameters or even recommend underhanded tactics. These are all varieties of hacking, from innocuous to overt.

Hacking can be performed personally by a user; he uses his minicom to enter another system or network to which he doesn't have legal access. Hacking can also be accomplished by an agent that's ordered to illegally access other systems for the user. Unless an agent is simply aggressive in its data searches, a user knows when his minicom is performing illegal activities. (Expanded rules for hacking are provided below.)

Even a proficient agent can require its user's help while hacking. The human may handle unexpected fail-safes or defenses, such as an opposing hacker online; unusual or changed system configurations; network outages; crashing Applications; changed passcodes or, simply, the absence of desired files. Agents do not make leaps of logic and do not see the big picture, so a user may have to give them direction when illegal activities go awry.

Performance

An agent's Performance rating is an indication of its raw power and potential. Performance determines what an agent can do without the help of an Application or user. The higher a minicom's

Performance score, the more responsive and tenacious it is, and the more info it has access to. There's only so far that an agent can go on its Performance score alone, though; an agent instructed to track down information on a corporation's business transactions may run afoul of fail-safes unless it has help.

A user can utilize his skills to support an agent in a Teamwork roll. The user's Engineering Dice Pool is combined with the agent's Performance pool to accomplish a task.

An agent's Applications, such as Administration or Business, can also provide the extra information, protocols or avenues of entry it needs to perform its assigned function. Application ratings are added to Performance Dice Pools.

Applications

Applications differ from character Abilities; the computer Traits represent stored data and processing capacity rather than experience or training. An Application is more narrowly defined than an Ability and is designed to perform a task and nothing else. This is also why Applications are based on Specialties, instead of the broader Ability categories.

An Application is also dependent on its agent for guidance and control; it's only as good as the agent that operates it. An Application can contribute a number of dice equal to its agent's Performance rating. Thus, an agent with a 3 Performance and a 5 History Application can apply only three of the Application's dots, for a total Dice Pool of six. Extra Application dots cannot be used by the agent until it is upgraded.

Almost any number of Applications can be programmed into an agent. However, the Storyteller may rule that certain Applications do not suit the programmed personality archetypes of some agents and may even impose rating limits on those Applications.

For Example: *Electrokinetic Sandra Larek updates her agent, the political DataWarp Friday, with a Transportation Technology Application in anticipation of an upcoming mission. Friday isn't designed for such programs and the Storyteller reduces the Application's rating by one. When Sandra summons up skimmer-engine schematics, the agent takes an inordinately long time to de-*

liver and the files are rudimentary when they appear. Friday even seems "annoyed" at having to search for such data.

The Intent Application is perhaps the closest that modern technology comes to true computer intuition. Intent is an agent's "estimated guess" at a user's obscure, indefinite or incomplete request. Players or the Storyteller can Intent to determine if the agent can pursue a request based on incomplete information, rolling Performance (Intent) at +2 difficulty. If the roll succeeds, the requested function is interpreted correctly and any appropriate Application rolls are made normally to perform it.

If the Intent roll is partially successful (only one or two successes are rolled), the agent can still interpret some of the user's command. In this case, the difference between the successes rolled and the successes required to succeed completely (three) is the amount subtracted from the appropriate Application roll. This penalty represents the agent's "uncertainty" about the function it performs.

If the Intent roll fails — no successes are rolled — the agent does not comprehend the user's order and performs no functions.

A botched Intent roll causes the agent to misinterpret the command completely. The computer goes off on some random mission and conjures up obscure or inappropriate data, as the Storyteller decides. The agent may even be "unavailable" for some time while on this wild goose chase. A single botch results in a few minutes' downtime; a severe one can result in as much as an hour.

For example: *Sandra is hit over the head while ported into a FSA computer console. Before blacking out, she slurs a command to her minicomp on the floor beside her to send a distress call to Orgotek.*

The Storyteller rules that the agent's Intent Application is required to interpret the unclear command. The minicomp has a 5 Performance and 3 Intent, so Sandra's player rolls eight dice against a +2 difficulty. Only one success is achieved — two less than the three required for complete success.

The agent understands the command in part and seeks to hack out of the FSA network into a

regional one in order to sound an alarm. A Performance roll is made to hack out of the system, as usual. However, the roll suffers a two-die penalty — based on the two successes not achieved on the Intent roll.

Encryption

Most data transmissions are encrypted. It's a fact of life in the 22nd century. Encrypting a file makes it impossible for anyone to read it unless she has the key to unlock the code. That's not to say that encryptions can't be broken, but it's not easy.

There are two common types of encryption: SPE (Standard Privacy Encryption) and DSE (Dedicated Security Encryption). The former is used by civilians, the latter by the military, corporations and other private agencies. DSE is an order of magnitude more secure than SPE and makes use of secret and/or patented algorithms.

Most minicomp agents are equipped with an Encrypt/SPE 1 Application, which is used to encode and decode a person's own data, and the messages she sends and receives. The program is sufficient for personal use; it keeps anyone who stumbles casually across a message from reading it. Corporations, militaries and governments typically use DSE, but can send SPE files to individuals who don't have access to DSE codes.

Encryption Applications are available at various security levels; SPE and DSE 1 programs are typically reserved for low-priority or unclassified information. The Applications are rated as high as 5. The highest-rated programs are reserved for absolutely personal or top-secret information. A 1 Encryption Application has limited use, especially if others send information that's rated higher than the recipient's program; a low-level system cannot decrypt higher-rated files. A person's social circles, work environment and the sensitivity of the data he deals in all determine the Encryption Application that he needs. The relative complexity of SPE and DSE programs still applies as well, despite their ratings. No SPE Application, regardless of how highly rated it is, can decrypt even a 1 DSE file.

Decrypt Applications — programs that only decipher messages — exist, but they are on a

need-to-own basis and are illegal in some places, such as Nippon. They're used strictly to unlock other people's data or to read messages that were sent to others. Decrypt Applications employ advanced mathematical algorithms to break encryption codes. They typically require some time, from weeks to months, to crack a code and decipher a message. Decryptors exist for SPE and DSE and are also rated 1 to 5. A program can decipher files and messages only of an equal or lower Encryption rating, and files of the same type. A DSE decryptor cannot decode a SPE file, for example.

Decryption is an extended and resisted action. When breaking lower-rated files, roll the minicomp's Performance (Decryption) against the Encryption rating of the file in question. Encrypted files of equal rating resist with that number of dice, plus one. Thus, if a 3 SPE file is being broken by a 3 decryptor program, four dice are rolled for the file.

The message's Encryption rating determines the duration of decryption. The minicomp must accumulate [Encryption rating x3] successes to break a SPE file, and [rating x5 successes] to break a DSE file. A roll is made every day for a SPE file and every week for a DSE file.

For Example: *Pierre saved all of his yuan to purchase a black-market Decrypt/SPE 4 Application to use with his minicomp (Performance 3). He obtained an Orgotek email processed with Encrypt/SPE 3. The Storyteller rolls three dice and gets 4, 6 and 8 — one success. Pierre's player rolls his minicomp's Performance (Decrypt) — seven dice in total — and gets 2, 2, 4, 5, 7, 8 and 9 — three successes. It's a resisted roll, though, so only two successes are applied toward deciphering the message.*

The player needs to accumulate nine successes to break the file (SPE rating x3). Almost a third of the email is translated after one day's time. Subsequent rolls will determine how long the decryption program needs to complete the job.

Some data, such as passcode files and other identity codes, are often created with one-way encryption. Their algorithms are either mathematically impossible for *anyone* to undo or decrypting produces hundreds of possible results, any one of which could be the correct code.

The level of encryption used on a piece of data depends on many things: the value or sensitivity of the information, the length of time that it might be in an unsecured location, its timeliness and the resources of enemies or the competition. External factors such as legal requirements or restrictions also determine encryption levels. For example, the Center for Disease Control insists that all diagnosis files on the taint be Decrypt/DSE 4 — even those for Aberrants that left Earth 60 years ago. In the end, the Storyteller may set encryption levels at whatever she feels is appropriate to the drama of the story.

Traversing the OpNet

The rebuilding of the OpNet after the Aberrant War restored some of the network's previous utility, but also resulted in a complex, awkward communications system. Each region (and often city, corporation or even individual) has a separate network. Each network is isolated for the

most part, except for a few connection nodes to other ones. This is done to ensure that the shutdown of one single network does not cause a worldwide net failure.

Accessing and exploring a local network is easy as long as a user has authorization and the passcodes required to log on. Local networks can be used to make phone calls, to exchange information and to purchase goods.

However, gaining legal access to another distant or isolated network — to make a long-distance phone call or to browse web pages — is more difficult. The other net's server asks for access codes, scans the user's agent for viruses and other dangers, and/or reviews the applicant's account numbers on network registries to check his online history. If the user's agent is deemed "clean," it gains access. Most systems impose fees for these credit and security checks. The authorization process usually takes a few minutes.



Fail-Safe Rating	Typical Example
2	Basic user's machine with simple log-in protocols
3	Home-office computer
4	Most personal assistants for business people, Pizza Belle
5	Business executive's minicomp, MMI
6	Minimum for any military or banking system, FangTech, Proteus Division
7	Typical regional OpNet server
8	Intelligence agency, foreign embassy, Parliament, Triton Division
9	Top-secret military and diplomatic systems, the UN
10	Covert operations, extremely sensitive research data, jump-ship docks, Neptune Division
12+	NORAD, NATO command, Alex Cassel's personal system

System Layout and Security Models

Network systems can be arranged in a variety of ways; the only real limit to their reach or configuration is the amount of server space and fiber-optic cable that's available. All computers in a facility may be linked to each other, or, perhaps, only the computers in a single lab are linked, with little access to the outside world. Work groups may be incorporated into a subnet — an isolated net within a larger network. They have to go through a single security-system to share data with other divisions.

The number of computers that are linked in a network is determined directly by the need or desire to share information, and by the sensitivity of that information. Public-access information is available on city- and district-wide nets, while confidential information can be limited to as few as two connected machines.

Networked computer protection is based on two different models: chokepoint or disbursement. Chokepoint security limits web access to a single avenue. All security measures and safeguards are set up at the entrance to that avenue. This is done to free the computers beyond that point of memory-demanding protective systems. Disbursement security is imposed when someone can access a network from any route; every computer or interrelated system in that net needs to be protected.

Security Systems

Computer and network security operate on the assumption that no one belongs in a system who cannot provide proof of authorization to be there. Proof usually consists of providing access codes and bearing recognizable registry numbers. Entering a network or computer illegally means sneaking or breaking in electronically and convincing the system that one belongs there, or delaying its security checks long enough to get the desired information and then escaping.

Fail-Safes

Fail-safes are standard computer and network security measures. They're designed to keep unwanted users and data out of a system. Fail-safes monitor a network constantly; they must be contended with upon entering a system and every five turns that an illegal user is in a system. (See *Trinity*, page 270, for the basics.)

A fail-safe rating usually depends on two factors: the sensitivity of the data on a system and how much the operator can invest on security. Minicomps have fail-safe ratings roughly equal to their costs in dots. Most business and government network servers have higher ratings depending on the nature of the operator. The fail-safe rating chart lists typical scores.

Security Agents

Security Agents, also called "guards" or "SAs," are virtual guards. They're like normal computer agents, but they're intrinsic to a computer's

Spoilsport Security Measures

The OpNet is very secure; a network can take a lot of punishment before giving way or crashing. Typical network servers have 7 Fail-Safes. Some are even designed with "spoilsport" technology. These webs shut down completely if any Hacking roll ever equals the system's fail-safe roll. For example, if a Hacking roll and a fail-safe roll both result in four successes, the hacker fails to get into the system, but the system also shuts down. Not only does the boarding attempt fail, the system ensures that no further entry attempts can be made right away.

This ultimate defense is intended to keep effective hackers out; any would-be intruder who can go toe to toe with network security should not be trifled with. A collapsed web has to be restarted by its human monitors. (Rebooting a network takes a number of turns equal to the system's fail-safe rating.) Such shutdowns cause momentary chaos for all local users, but there's no better means to keep a hacker (or even an Aberrant) out. A shutdown also alerts admins that someone very skilled has been at work and needs to be tracked down.

Unfortunately, troublemakers and criminals take advantage of spoilsport technology. What better time to commit a crime or break into a facility than when a city-wide network is down? Isolated installation networks might still operate, but the authorities cannot respond or perhaps even be contacted until the collective net is restored.

Humanity must overcome its paranoia of losing the OpNet again or it must develop improved shut-down mechanisms if spoilsport programs are to continue to be used effectively in the future.

or network's fail-safe programming. Indeed, a server's fail-safe and SA are virtually synonymous.

Security-agent functions are much more specific than the typical minicomp agent's. The first and foremost function is: They find and expel system intruders. This is accomplished through a resisted roll between a hacker's Engineering (Computer) and the computer's fail-safe. Expulsion is the standard security precaution of all SAs and is the effect that hackers must oppose every five turns when a security agent sweeps its system, as noted in **Trinity**.

However, some SA programs have more elaborate security measures. Not only can they expel intruders, they can identify and trace the physical locations of hackers, and can raise alarms. Another resisted roll must be made every five turns to avoid being identified and activating an alarm for systems that have such advanced guards (which makes for three resisted rolls every five turns in systems that have such advanced guards).

Advanced security agents can even change the order of these precautions. Alarms might be raised before hackers are traced, or tracking might occur before intruders are expelled. The order in which the measures are activated depends on the priorities of a network's operator. A discreet corporation might never expel intruders, but simply track them and send living security agents to deal with the invaders.

SAs typically have the following Applications: Computer, Dump, Encrypt, Geography, Lock, Quick Search, Telecommunications and Track. Some of these programs are explained under Applications (see page 81). These programs can modify a SA's fail-safe rolls under the appropriate circumstances. For example, a security agent with 2 Geography adds two dice to fail-safe rolls to identify and trace an intruder.

Common minicomps don't usually have security guards; their defense systems are integrated into the agents that they already have. Thus, Alpha Software's Chris facilitates users' commands, but Chris also monitors for hackers. Chris has only basic security commands, so it automatically seeks to expel hackers from "its"



machines; it doesn't trace them or sound alarms unless it's customized to do so.

If a server's security is ever compromised totally, or a network is under extreme load, some SAs can even cut access to all users or initiate a shutdown as a last resort. (See the Spoilsport sidebar.)

Admins

A network server or node is largely automated, but still requires human supervision to ensure it runs properly and is not violated. System administrators ("admins" for short) control networks and do everything from install software to monitor security warnings. They have almost total control over a network. They can shut it down, add software, delete functions, dump users, create and add user accounts, assume a user's identity and generally do everything that a normal user can, only faster and more effectively.

If an admin recognizes an intruder, the manager can enter the system herself and seek to counter the hacker. Engineering (Computer) is rolled for both people (Performance is rolled for

an agent) in a resisted action. If the admin wins, the hacker is ejected from the system. If the hacker wins, he evades the admin. The defeated manager must await the next SA pass in hopes that it will reveal the intruder's location again before another challenge can be staged. Otherwise, the admin can raise an alarm or even shut down the system that's being compromised.

Server and node staffs themselves are monitored constantly and undergo thorough security checks, even throughout their day-to-day employment. Yet the Trinity fears that admins are the OpNet's greatest weakness. Aberrants can control atomic structure itself. Theoretically, that means an Aberrant could pose as an admin and would never be detected, not even with genetic or retinal scans. An Aberrant could theoretically access the OpNet at any time without humanity ever knowing.

Hacking

If a user wants access to a network or computer, but doesn't want to pay the customary fee

Netscan

Netscan is a common fail-safe and security-agent program. It protects against unauthorized intrusions into its systems and scans every five turns for hackers, power surges and other anomalies. The program's specialty is tracing intruders to the very ports from which they're hacking.

Netscan also monitors a network's physical server or node, including an individual (officially labeled the "safety" but usually called the "goat") whose life signs are tied to the node's power systems. If the system or the safety is ever tampered with physically, Netscan cuts its power to the system, shutting the network down. "Tampering" involves such things as trying to physically rewire circuits, or inflicting any amount of damage (short of death) to the "goat." The net can be powered back up manually with the input of specific codes.

This defense mechanism is intended to counter terrorists and Aberrants. If an attacker (Aberrant, psion or neutral) kills the safety or tries to reactivate a blacked-out node or server without use of the correct codes, Netscan is programmed to detonate charges on site. Doing so destroys the node and, hopefully, its tamperers. This last defense mechanism is kept secret by node operators and Netscan designers. However, word of it has leaked to hacker circles and motivated individuals are already trying to crack the restart codes.

Tech: Ω Cost: ●●●●● (restricted)

Fail-Safe: 7

Applications: Computer 3, Dump 2, Geography 4, Lock 2, Tracking 5

or undergo standard security checks, he has to hack his way in. Hacking is also necessary to gain any classified information or data.

Hacking involves entering a system surreptitiously or aggressively, bypassing any fail-safes and avoiding the system's security agent. The basics of hacking are explained in **Trinity**, page 236.

Few hackers and online dabblers are skilled enough to match wits with a server or node secu-

rity system. Fail attempts are typically monitored by security agents or human admins, who run identification programs on suspected intruders. Trying to enter a network illegally is a federal offense in most countries and can be a capital offense in fanatical or paranoid nations, such as the FSA. Thus, few people are daring, skilled or dumb enough to try their hands at hacking. Hackers typically mask their identities and agents, and confuse guard programs with constantly changing addresses to make tracing their physical location difficult. Some proficient hackers prefer the latter measure: gaining infamy by breaking into systems, revealing their identities, but evading capture. The hacker known only as *Groggnard* is renowned across Europe for his elusiveness.

Storytelling Hacking

The Storyteller needs to determine the layout of the system that the hacker attempts to infiltrate. He needs to decide where important data is and whether it is protected by a SA. If the targeted system is in an isolated OpNet, the player must explain how his character gains access to the network, assuming it's even possible.

Keep in mind that data can be spread over multiple systems or even in multiple locations throughout a network. This could be for security reasons or simply because the material is divided for different parties' uses. Some systems can be accessed only through dedicated lines — access routes that exist in only one place and that cannot be tapped from the outside. Such lines are often located within protected facilities, which means infiltrating the building before infiltrating a computer. Security for dedicated systems may do nothing to a hacker directly, but it probably runs a trace and alerts physical security to take appropriate steps against the intruder.

Finding Stuff

Accessing files *legally* takes a variable amount of time based on network availability, security protocols, bad connections and the volume of data requested. Simple requests are processed by an efficient agent within seconds or minutes. Complex requests might require a half hour or even a few hours to complete. The duration of legal net searches isn't usually important to the casual user.

Hackers aren't allowed that luxury. They need to break into a network, find what they're after and escape as quickly as possible, before being noticed, identified and/or ejected from the system.

The duration of illegal searches is based on how much data needs to be gathered and the specificity of the hacker's request. The relative success of gathering information is based on the effectiveness of the intruder's Hacking roll — Engineering (Computer) for a person or Performance (appropriate Application) for an agent versus the target's fail-safe.

Information searches are treated as extended actions once a hacker has broken into a system. The total number of successes needed to gather the desired data is based on the volume of information — or blocs — sought. The number of successes needed to access different data bloc sizes are as follows:

Successes Required	Size of Data (in Blocs)
One	Complete dossiers of 100 people; corporate financial records (per ¥10 million in revenue); shuttle operations manual
Two	Human genetic map
Three	City library contents
Four	Large city library contents
Five	Jet fighter schematics; major university library contents
Eight	Hybrid schematics
Ten	Frigate schematics

The player makes a standard Performance roll (Quick Search) for his character's agent, or makes a standard Engineering (Computer) roll for the character who gathers information unassisted. However, no more dice can be rolled at one time to gather data than extra successes were achieved to break into the computer system initially. Only situational modifiers, such as data availability or knowing file names (see below), can increase the number of dice that can be rolled to collect data.

The desired information is gathered when the required number of successes is rolled. One turn passes for each roll. The difficulties of information-gathering rolls may be increased by the Storyteller if the data is scattered throughout a system or is obscured in some way.

A search can be hastened by refining the information sought or by knowing where the data is located. Refining a quick search adds extra dice to the player's pool for information-gathering rolls. The number of dice added to the quick search is indicated below.

Die Bonus	Information Known About File
One	Approximate file size; type of file or data
Two	Date file was created, last modified; part of the file name; the group or project*
Three	Specific file size; most of the file name; the owner of the data*
Five	The exact file name

* This information must involve more than one user or group.

These factors are cumulative. So your character adds three dice to his data-acquisition rolls if he knows both the file's approximate size and the date it was created.

As a rule of thumb, taking information from a minicomp requires one to three successes; there's just not that much room on a minicomp and finding desired information is relatively easy. However, searching an entire server for specific information can take some time.

If a hacker is caught and/or ejected, he may still get partial data from a system. The player makes an Engineering (Computer) roll for his character or a Performance roll for the agent at +2 difficulty. Each success indicates recovery of 10% of the desired data, as decided by the Storyteller.

Also remember that even though information can be stolen from a computer or server, it is still encrypted. The hacker who takes the data must then decrypt it in order to read and use it. (See Encryption, page 72.)

For Example: *Sandra Larek, still on a case against the FSA, hacks into a FSM facility network in search of the schematics to a frigate prototype with supposed biotech components. (Her player achieved three extra successes over the system's fail-safe when Sandra hacked in.)*

Sandra simply requires proof that the prototype incorporates biotech, so she doesn't need to

take all files relating to the ship's design (which would normally require 10 successes). Sandra also knows that the project is entitled "Cain and Abel."

The Storyteller decides that, given Sandra's refined search parameters, seven successes are required to find the file. He also grants Sandra's player three extra dice on the information-gathering roll for knowing most of the file name.

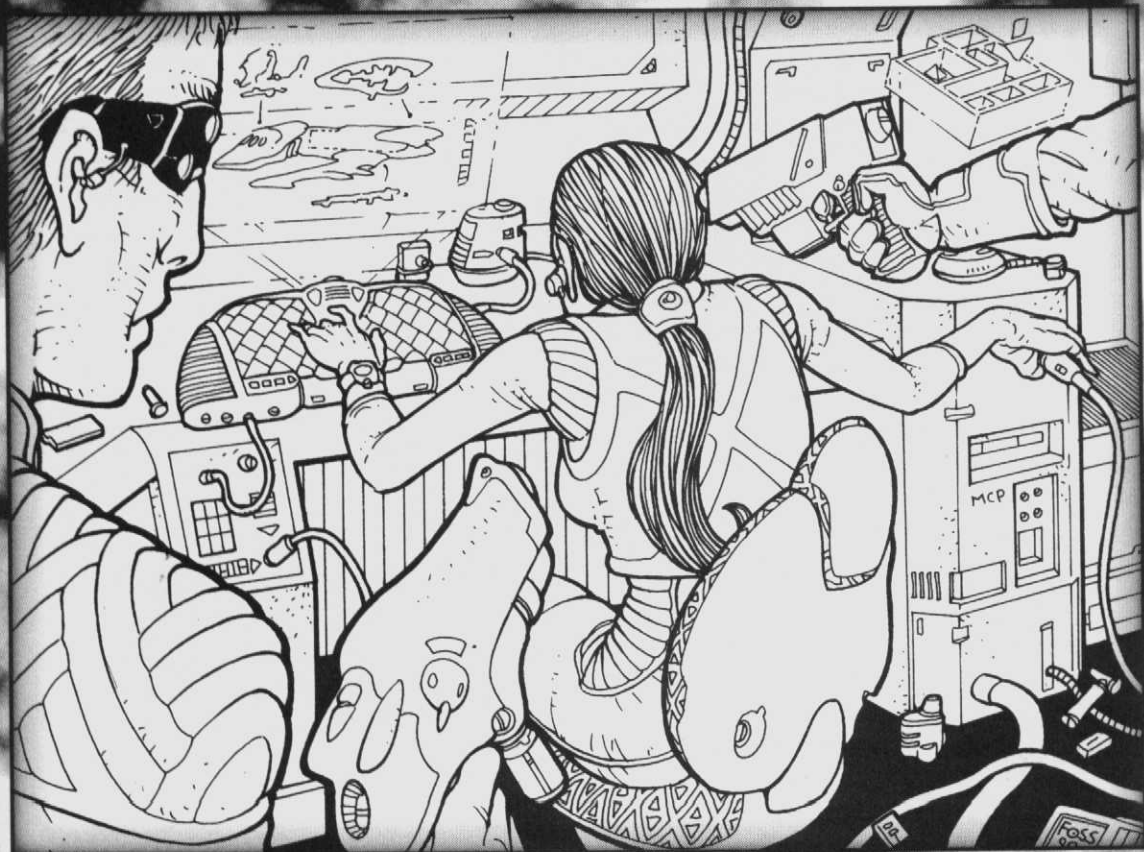
Sandra is hacking without the help of an agent. Her Engineering (Computer) total is 7. However, she gained only three extra successes when she broke into the network, so her basic information-gathering roll is restricted to three dice. Her final Dice Pool is therefore six, after adding the Storyteller's three bonus dice. The standard roll comes up 1, 2, 7, 9, 9, 0 — four successes. Sandra is over halfway to gathering all the information she needs after the first turn. Hopefully, she can get the remainder before five turns pass, when the net's SA sweeps through again.

Countering Guards

The greatest threats posed to a hacker once he has bypassed a system's fail-safe are the constant sweeps staged by the net's SA. These measures can be disabled, though.

A resisted Engineering (for a character) or Performance (for an agent) roll is made against the computer's fail-safe rating. Applications can apply to the rolls of both invading agents and protecting SAs, depending on the circumstances. For example, a guard with the Track Application gets an extra die for running profiles on a hacker.

A roll must be made for every SA function that the hacker or agent seeks to shut down — expulsion, identification and tracking, and sounding an alarm. If a counteracting roll succeeds, the action in question no longer occurs for the duration of the hacker's stay. However, any remaining SA functions may proceed and may still be enough to alert admins of intruders. Thus, while a hacker



might shut down expulsion defenses — perhaps by making *all* users seem to be intruders — the hacker still has to contend with any identification and alarm defenses every five turns.

Hacking Tips

Breaking into a computer system is easier said than done. A hacker needs to find out where the target is, sometimes both physically and on a network. (The two can be very different.) He then needs to gain access to the system by overcoming its fail-safes, and has to hope that an admin isn't monitoring at the wrong time. Here are some tricks of the trade that come in handy.

Piggybacking

If one hacker has accessed a system successfully, another can follow his trail with a standard Engineering (Computer) roll. The follower enters as though he received the same number of successes as the first hacker. The two may then operate in the same net or computer simultaneously. The downside is that if either hacker is ejected, they are both kicked out of the system.

Increasing the Check Interval

A hacker can prolong his time in an accessed net by "finessing" the fail-safe. He needs to find the system's fail-safe code with an Engineering roll. (Fail-safes are well-known resources and tend to be in the same places in all systems.) The hacker then needs to trick the fail-safe into increasing the interval between its scans, perhaps by convincing the system that it just ran a check. This is accomplished with resisted Engineering and fail-safe rolls. The net's security-check interval increases by one turn for each extra success the hacker achieves in this roll. If the player's roll botches, the hacker is ejected immediately. If the fail-safe wins, it tries to dump the intruder from the system and gains two extra dice in that attempt.

Creating a Back Door

A hacker can try to leave an opening to a system that he can use again in future forays by making an Engineering roll against the system's fail-safe. Success means the hacker has created an entryway in the security system that will last for a matter of days. Entering the system again through this back door is automatic. Further information-

Agents and Hacking

A hacker doesn't have to infiltrate a computer system by himself, he can order his agent to do it for him. Performance rolls are made for hacking agents, modified by any Applications that apply, such as Computer or even Infiltration. Unfortunately, an agent lacks a human's resourcefulness, instincts and savvy; an agent simply can't accomplish the things that a skilled human hacker can, and a hacker worth his salt never lets a program do what he can do better.

This doesn't mean agents are useless to hackers. An agent can search through files while a human keeps a system's security agent busy. It can search through network traffic, looking for a needed connection to another system, while a hacker edits a sensitive file. An agent can send an alert to the rest of a psion team if a security measure is activated during an infiltration. An agent can wreak havoc on another system, allowing a hacker to do the real work while security is busy on another "floor," chasing phantoms. All of these agent activities usually require rolls for normally, allowing a hacker to accomplish more than one task at the same time.

An agent assisting a user directly involves a Teamwork roll. (See *Trinity*, page 162.)

gathering Dice Pools are limited to the number of extra successes gained in the original break-in roll. However, for each day that passes, the Storyteller makes a fail-safe roll. The roll suffers a difficulty equal to the number of successes achieved when the door was created. If this fail-safe roll ever succeeds, the door closes permanently.

Computers in Space

Conventional electronics are not designed for use in the harsh environment of space or on the surface of Luna. Their delicate circuits require shielding and their systems need special heat dispersers in a vacuum. An exposed computer eventually burns out without these features.

An unshielded minicomputer may be exposed to space, though; botches simply take their toll. For each botch incurred when actively using the minicomputer, the active Application's rating is reduced by one, permanently. If the program's rating is reduced to zero, the Application is destroyed. It must be reloaded from a backup or from the original source media to restore it to its original rating. If no Application is being used when a botch occurs, the agent's Performance is reduced by one.

Two types of minicomputers exist that are designed for space and vacuum use. The first is a conventional model with layers of protective shielding. This minicomputer functions normally, but is bulkier and more massive than a traditional minicomputer.

The second type of specialized minicomputer has large circuits, is made of special materials such as gallium arsenide and even olaminium, and has redundant systems to support any damaged ones. This type of "vacuocomputer" performs more slowly than do traditional computers. (Agent Performance can be no higher than 2.)

See New Computer Models (page 84) for examples.

New Applications

Applications enhance an agent's ability to perform tasks; they give it a knowledge-base from which to work and/or they provide rules and procedures on which an agent can base decisions. The following are some new Applications that require explanation.

- **Dump:** Dump assists SA programs. Its rating is added to fail-safe rolls to force intruders from a computer system.

- **Lock:** This Application is used by SAs to identify hackers by stopping them from leaving a system. Rather than roll for expulsion, roll fail-safe (Lock) against the hacking agent's Performance

(Computer) in a standard, resisted action. Each success rolled for the SA means the intruding agent cannot try to leave the system for one turn. Another resisted roll is made after that time for the agent to try to escape again.

- **Reroute:** Hackers don't want to be tracked down in the real world by networks' SA programs. This Application can be incorporated into hacking agents to help escape capture. Reroute is added to Performance or Engineering rolls to avoid being traced by a SA.

- **Track:** Track helps a SA locate a hacker in the physical world by adding dice to identification and tracking fail-safe rolls.

New Equipment

The 22nd-century's dependence on computers and agents has resulted in a multitude of software and hardware innovations. Manufacturers and corporations seek to capitalize constantly on consumer comfort — the more that computers can do for people, the more that consumers invest their money in them, and the more they become reliant on technology to provide even the basics of life.

Taps

Taps are basic surveillance devices that enable the user to listen in on cellular conversations or to intercept data being transmitted through the OpNet. Government and military agencies, Triton Division and many corporations have access to taps and use them all the time, though they never admit to it.

A tap is used by hacking into the network, computer or even cell-phone system to be monitored. The tap program is then hidden in the system with a standard Engineering or Performance roll and scans for the desired information or signals. If a tap is placed poorly (the installer's roll botches), it transmits only static, feedback or a useless echo. Network SAs sweep their systems regularly and may discover taps, depending on the listening devices' subtlety. Fortunately, a tap cannot be traced back to its installer once it's in place. However, taps do not have the ability to alert users that they have been detected or that a person being monitored is aware of their presence. Three varieties of taps are available on the black market:

• **Basic Tap:** This device monitors a network. It constantly monitors phone numbers or ident codes. If a number is active, the device traces where the call comes from and the number or ident code of the person who receives it, then records the conversation. This tap's major flaw is that the user must know the complete ident code of the person or network phone line to be monitored. Basic taps are difficult for SA sensors to recognize (+1 to difficulty) because of the devices' passive activities.

Tech: Ω , Cost: ••• (restricted)

• **Voice Tap:** This device offers all of the capabilities of the basic tap, but also has the ability to scan for voice patterns. This allows the user to monitor an individual's communications without having to know the target's phone number or ident code. Voice taps can be detected by network SAs normally.

Tech: Ω , Cost: •••• (restricted)

• **Frequency Tap:** This very rare tap is the latest in computer surveillance. The tap is directed to monitor a specified network's signals and transmissions in search of innocuous avenues, such as maintenance transmissions, that it may use to penetrate the system as a whole. Once its scanners have access to the net, the tap monitors data-code entries that are input throughout the system. The tap can search for only one code at a time and doesn't acquire it until someone actually uses the data-code. The tap user must therefore direct the device to search for the specific code that he seeks, be it to a particular file or program, to a door or even to the security system of an entire building.

Once the tap records the code that it's programmed to seek, it retreats from the network the way it came and "reports" back to the user.

This new tap isn't foolproof, though. It is almost impossible to detect entering a network, but the signal distortions that it emits once inside a system make it somewhat easy to spot by sweeping SAs (add two dice to expulsion rolls). The tap is therefore best reserved for acquiring low-security codes that may be gained quickly and used in turn to hack into higher-rated ones. Further-

more, the tap cannot access codes to dedicated communication lines where no network interaction is involved.

Of course, government agencies, corporations and militaries are directly hostile to anyone using such devices. A frequency tapper who is somehow caught can expect swift justice, whether in court or on the spot.

Tech: Ω , Mass: negligible, Cost: ••••• (restricted)

Peripherals

• **Accelerator:** Budget-conscious software designers have created computer-agent Performance boosters. These add-ons allow users to increase the power of their minicomps without having to purchase new, more powerful agent packages. An accelerator increases an agent's Performance by two, to a limit of Performance 6. There is a side effect, though: boosted agents tend to behave frenetically, almost like hyperactive children. If a user takes more than a few moments to program an agent with an order, the agent moves on to perform other functions and must be recalled. There is no specific game application for this effect, but it can be frustrating and can occur at inopportune moments, such as when a preoccupied user desperately needs his agent to hack into a system and open a blast door.

Tech: Ω , Mass: negligible, Cost: ••

• **Doppelganger:** This device is a small black box that is jacked into a computer. It sends out electronic signals that make tapping a minicomp or network port difficult. All Engineering rolls to place a tap to counter a doppelganger's user are at +2 difficulty.

A doppelganger can also be used to avoid identification by SAs when in a network illegally. The device doesn't stop the intruder from being detected or expelled, but it does shunt the security agent to other users and agents in order to protect the identity of the true hacker. In rolls to resist being profiled by a SA, the use of a doppelganger adds three dice.

A government license is usually required to own and operate one of these devices.

Tech: Ω , Mass: negligible, Cost: •••• (restricted)

- **Membrane:** This bioapp acts much like a splicer kit (below), but it melds into fiber-optic lines rather than cutting them, creating an almost undetectable link. A membrane appears to be a lump of orange putty about 50 cubic centimeters in volume. Built-in hardtech connectors allow for the attachment of computers and/or recording devices.

A standard 5 Intrusion roll is made for the bioapp as it physically breaks into a communications system. It is difficult for a SA to recognize that a membrane is at work; the difficulty of fail-safe detection rolls increases by three for each extra success gained on the Intrusion roll.

Membranes are fairly new and expensive — when they're available at all. They're currently sold on the black market only. The device gains nothing from formatting.

Tech: Ψ , Mass: negligible, Cost: ••••• (restricted)

- **Shroud:** This biotech device is designed to help hackers avoid security agents while explor-

ing networks illegally. The Shroud is a small biotech sphere. There are two jacks on opposite sides for hooking up data lines.

SAs scan constantly for disruptions in energy patterns that indicate possible security breaches. The Shroud absorbs and releases energy to reduce these distortions, adding three dice to rolls against SAs to avoid detection and subsequent ejection. The drawback is that the Shroud slows other equipment; add one turn to any time spent hacking into another system. The device gains nothing from formatting.

Tech: Ψ , Mass: negligible, Cost: ••••• (restricted)

- **Splicer Kit:** This is a set of tools and a small computer system built into a handheld case. The kit is used to intercept communications by physically breaking into fiber-optic lines. Splicer kits include a small amount of fiber-optic cable to create the necessary links and bypasses. A standard Intrusion roll (+1 difficulty) is required for a character to tap a line and hook up the kit's decoding computer.



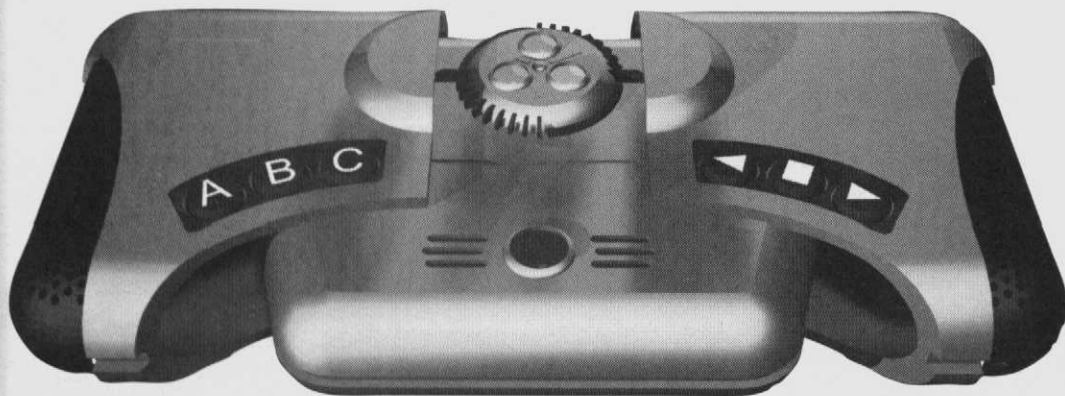
Security agents that are designed to recognize physical intrusion may detect the tampering. Security scans of the affected system run every five turns, as usual. The splice is detected on a successful fail-safe roll (+1 difficulty for every extra success achieved on the Intrusion roll).

Botching an Intrusion roll not only reveals the activity to the network's SA, but allows the guard to isolate the physical location of the break-in. Security teams or the authorities are usually notified immediately.

Splicer kits are available only to law-enforcement divisions or through the black market.

Tech: Ω , Mass: 1, Cost: •••• (restricted)

New Computer Models



• **Iris Aquamarine:** A minicomp designed for conventional terrestrial use. The Aquamarine comes with a holoprojector capable of generating a 60 cm x 60 cm x 30 cm image (standard for all Iris models) and a fourth SIO jack optimized for video and audio capture. It comes in a distinctive blue-green case.

Iris has unwittingly discovered a youth-culture market with the Aquamarine. The projection technology and color casing of the comp make it popular with young girls, who have come to use it to practice makeup techniques and to fantasize about their adult appearances. 3 Fail-Safe.

Tech: Ω , Mass: 1, Cost: ••

• **Iris Iridium:** This minicomp is among the most utilitarian of personal models designed for use in space. It's a traditional minicomp encased in heavy shielding. The holoprojector display can be adjusted, which has proven to be a popular feature in the sometimes cramped conditions of space

stations and colonies. Includes a cellular link. The minicomp comes in a large blue case. 4 Fail-Safe.

Tech: Ω , Mass: 3, Cost: ••••

• **Iris Obsidian:** A server system popular in video production and in the engineering labs of special-effects studios. Includes a second hologram projector, graphics and math processors, and a second power supply. It comes in a jet-black case. Videogame players have gravitated to the graphics and special-effects qualities of the Obsidian, giving the minicomp application in popular culture as well as in the entertainment industry. 5 Fail-Safe.

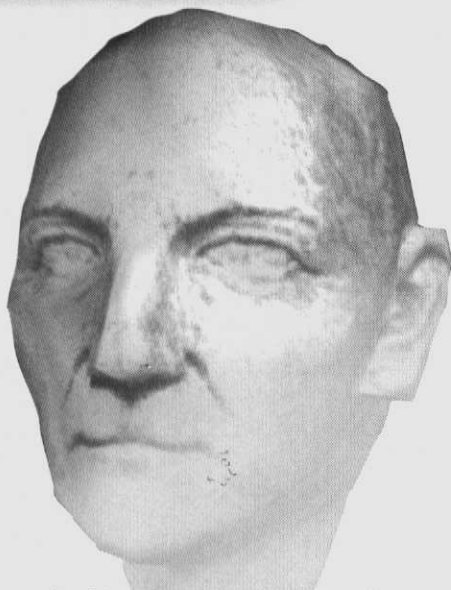
Tech: Ω , Mass: 5, Cost: ••••

• **Iris Quicksilver:** This is the first "vacucomp" to have an oluminium casing. It improves upon the shortcomings of the Iridium; it's sleek and small. It includes a cellular link, a 20-bloc memory and an adjustable display enhanced for use against the background of space. The Quicksilver has already seen use on Mercury. It comes with a silver-gray case and standard vac-suit attachments. The failing of the model is its poor response time; the minicomp's oluminium casing somehow distorts agent activity. (Performance is limited to 2.) 3 Fail-Safe.

Tech: Ω , Mass: 2, Cost: ••••

New Agents

The agent business is booming for software houses across known space. Widespread communications mean that word spreads quickly if an agent is released that makes users' lives easier. Conversely, a lousy agent can expect a short shelf life.



• **Archimedes:** A scientific and research agent from Lyceum. It has an inquisitive and curious personality and seems fond of giving very precise answers — and following them with somewhat intuitive questions. Tech: Ω , Cost: ••••

Performance: 4

Applications: Chemistry 2, Computers 4, Electronics 3, Energy Sources 2, Intent 2, Linguistics 2, Mathematics 4, Philosophy 1, Physics 4, Quick Search 3, Research 3, Tact 1, Telecommunications 2



• **Hippocrates:** Originally contracted by the Æsculapians as a field assistant, Hippocrates proved popular throughout the medical community. It has an optimistic bedside manner and can monitor a patient on its own for days, if neces-

sary. Tech: Ω , Cost: ••••

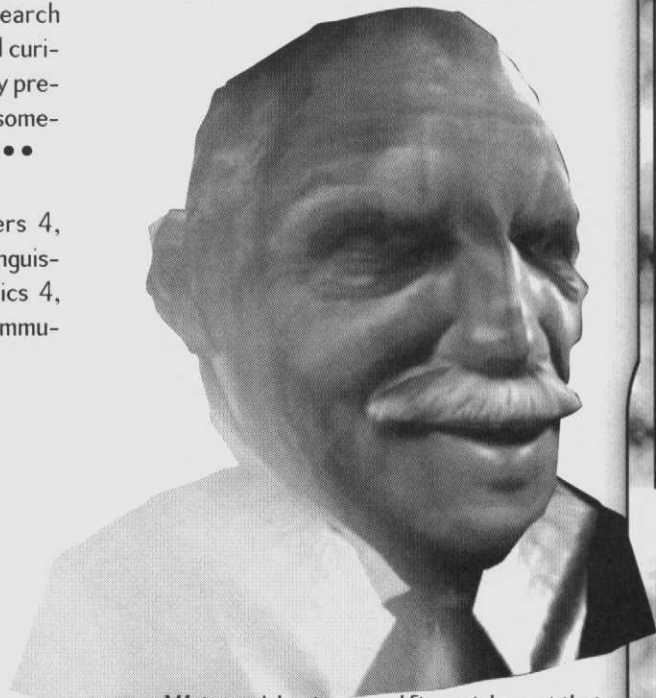
Performance: 3

Applications: Biology 3, Bureaucracy 2, Chemistry 3, Diagnosis 4, Emergency 3, First Aid 4, Intent 2, Linguistics 2, Quick Search 4, Pharmacy 3, Research 2, Surgery 2, Tact 2

• **Plato:** A popular academic and research agent from Lyceum. Its helpful and precise personality defaults to a distinguished professor image, which can be customized easily. Tech: Ω , Cost: ••••

Performance: 3

Applications: Biology 2, Chemistry 2, Computers 2, Culture 1, Current Events 1, Geography 2, History 2, Intent 2, Law 1, Linguistics 2, Literature 2, Mathematics 2, Philosophy 1, Physics 2, Politics 1, Quick Search 3, Research 3, Tact 2



• **Watson:** A business and financial agent that defaults to a polite, assertive and well-dressed executive assistant. It tends to see use in the hi-tech sector and among independent brokers. Tech: Ω , Cost: ••••

Performance: 3

Applications: Administration 2, Business 3, Computers 3, Culture 2, Current Events 2, Customs 1, Geography 1, Intent 2, Law 2, Linguistics 3, Mathematics 3, Negotiation 2, Politics 1, Procedure 3, Quick Search 3, Regulation 1, Requisition 2, Research 2, Tact 2

Information is power. That credo is more true in the 22nd century than in any other era in human history. The destruction of the OpNet in the Aberrant War prompted computer and communications designers to forever keep the world's electronic networks separated after for fear of losing Earth's amassed knowledge a second time.

That caution makes information a commodity. Governments, corporations and individuals can no longer learn each other's secrets simply by breaking into computer records from the comfort of a terminal half way across the world — or the Solar System. The fractured OpNet demands that intelligence gatherers go back to the basics — traveling to other cities, countries and even space stations to spy on each other in the flesh. The days of courtly intrigue are still around, and they're played out on an interplanetary scale.

The classic secret agent is alive and well in the 22nd century. That means his greatest tools — spy technology — are still active,

too. This chapter details the gadgets and devices used by information gatherers, from Triton to world governments to corporate spies to the Norça and all of the other orders.

These tools might be made available to psions by anyone sponsoring them to perform a mission. The question is: Will those agencies hang psions out to dry if they're caught with such incriminating possessions?

Commercial Technology with Intelligence Applications

These devices have been created by public corporations and manufacturers with the intention of fulfilling a need. It takes only one step away from the light to turn these tools into the trappings of espionage. But then, perhaps, the creators were never so benevolent in the first place.



• **Bodynet Adapter:** Bodynet technology allows separate electronic devices to be connected to each other without wires by running micro-currents of electricity over the user's skin. Bodynet adapters can connect HUDsets, VR gloves and minicomps together to allow discreet use. The electrical currents also flow along areas of skin contact; two minicomps can exchange data when their users shake hands. Transfer usually takes only one turn per bloc of data.

Special hardware must be incorporated into all devices that are hooked into a network. A series of tiny contacts is attached to each device. They don't add any noticeable mass or bulk and may be built into any device designed to be carried or worn.

The bodynet adapter device is convenient for anyone on the go; it frees up the wearer's hands to perform other activities while his connected devices interact on their own. Bodynet adapters have become essential for spies or other individuals who wish to use their electronic devices discreetly.

Tech: Ω , Mass: negligible, Cost: ••••

• **HUD Contacts:** The ultimate in portable display technology, HUD contacts allow users of computers and other electronic devices to discreetly view a wide variety of data that's projected directly onto the contact lenses. Built-in micro-circuitry allows the contacts to display data just as an ordinary HUDset does. Audio reception is usually achieved by wearing a small speaker earring, which is included with the contacts. All HUD contacts come with a built-in, concealed bodynet connector. Given the difficulty of attaching conventional cables to contact lenses, HUD contacts may be used with only computers and other devices that are fitted for bodynet adapters.

HUD contacts are a combination of hardtech and biotech. The display and the bodynet connector are conventional electronics, powered by body heat. The lenses themselves are bioapps designed to gain sustenance from the wearer's eye secretions. Unformatted lenses can be left in the user's eye for up to a month at a time. Formatted ones actually bond with the eyes and may only be removed surgically.

The contacts are fully transparent when not in use. Not even a careful eye exam can reveal the presence of the devices unless they are displaying images. If the user squints (whether using formatted or unformatted devices), the contacts change shape slightly, magnifying normal vision and transmitted displays by up to four times.

Tech: Ψ , Mass: negligible, Tolerance •, Cost: •••

• **Mini-Rebreather:** This device is the short-term, pocket-sized alternative to the AquaLung. (See **Trinity**, page 274.) The device consists of a small folding face mask connected to a fist-sized air tank that hangs around the user's neck. A mini-rebreather provides breathable air for up to 30 minutes. The air tank must be refilled and the rebreather's filter changed after this time. While it's less versatile than the AquaLung, it is quite popular with military divers, smugglers and saboteurs.

Tech: Ω , Mass: negligible, Cost: ••

• **Audio/Video Recording Eyewear (vidspecs):** Indispensable journalistic equipment, vidspecs have replaced the handheld camera as the ultimate tool for recording sounds and images. The device consists of a variable camera, a sound pack, a data recorder and a cellular uplink. The result is a specialized, compact HUDset.

The glasses allow the wearer to see infrared and ultraviolet light, and amplify light to permit clear vision, even during Luna's nights. Furthermore, variable electronic optics allow the wearer to magnify small or distant objects up to 10 times normal vision. A built-in directional microphone and amplifier also allow the user to hear noises up to 10 times better than normal. (See **Directional Microphone Pen**, page 88, for further details.)

Sights and sounds are recorded automatically; up to 500 hours of high-quality audio and visual material can be saved, which can be downloaded or broadcasted immediately. Vidspecs can relay scenes in real-time or they can use burst transmissions that forward two hours of recorded data in a turn. Celebrities and politicians assume that anyone wearing glasses is using this eyewear.

Several companies manufacture a version of this device that does not have the recording or broadcast capabilities. These products, known as

sensor glasses, are quite popular among explorers, law-enforcement officials and field biologists, as well as with spies and government agents.

Tech: Ω , Mass: 0.2, Cost: •••• (••• for sensor glasses)

(Monthly cellular uplink costs are paid by most reporters' employers. Otherwise, the monthly cost is ••••)

Concealed Devices

The following is a list of specialized devices created for use by Triton and Proteus operatives, government agents and some members of organized crime. These devices are useful only if their existence and use can be concealed. Most can be hidden inside almost any small, personal item such as a ring, bracelet or pen.

These devices are not usually available for purchase on the open market and most are relatively expensive. All of the items detailed have built-in bodynet adapter connections and they typically work best when combined with a HUDset or HUD contacts.

• **Directional Microphone Pen:** This simple device amplifies sound, allowing a user to listen to whispered conversations up to five meters away. Normal conversations can be heard up to 30 meters away. The pen must be aimed in the desired direction. This device can record up to 100 hours of sound or it can broadcast discreetly to an ear radio or vidspecs through its built-in bodynet connector. Tech: Ω , Mass: negligible, Cost: ••

• **Ear Radio:** This device allows the user to maintain communication over long distances while keeping his hands free. An ear radio consists of a small earplug connected to a miniature bone-conduction microphone that curves down from the ear to touch the side of the jaw. The microphone is extremely sensitive; it can pick up hushed tones within a meter or two and normal conversations up to four or five meters away. Practiced users of the device know to whisper or subvocalize to anyone who is in contact.

Basic ear radios can receive and broadcast on four different frequencies. More elaborate versions can access up to a dozen frequencies. This device bypasses restrictions on ordinary air-line communication; its maximum range is only 10 ki-

lometers. Many of these devices are disguised as elaborate earrings or vocoders; others are built into hats or helmets. Expensive models can actually be put into a functional vocoder. Ear radios are not designed to access the telephone network. However, with suitable connectors, they can be used to transmit computer data between users who plug their computers into their radios.

Tech: Ω , Mass: negligible, Cost ••• (•••• for more frequencies or a built-in vocoder)

• **"Periscope" Fiber-Optic Probe Ring:** This device — which can be a ring, a button or any small piece of jewelry — contains a one-meter length of fiber-optic cable with a wide angle lens at the tip. The user inserts the fiber optic (which is only 1 mm in diameter) through a crack to view what's on the other side of a barrier (closed door, drawer, curtain). Images are transmitted from the lens to a display screen or HUDset. A second fiber-optic cable is also included that can project a narrow flashlight beam.

A user can clearly see anything within two meters of the cable. Objects at five meters away appear blurry. Practiced users can read an unopened letter through a pin hole. Inserting a fiber-optic probe into a mechanical or electronic lock adds one die to Intrusion rolls. The flashlight version can even be used to create a distraction in a dark room; it projects light up to a meter away from the user's actual position.

Tech: Ω , Mass: negligible, Cost: •••

• **Hologram Belt:** This device is typically built into a normal belt. It projects a two-cubic-meter hologram. The image is slightly translucent and glows in the dark, as do all holograms. A typical belt has a library of three still images — a man, a woman and a child — that it can project. If connected to a minicomp, the device has the capacity to project any stationary or moving holographic image that's stored in the computer.

Tech: Ω , Mass: 1, Cost: •••

Devices designed to produce fully opaque, interactive holograms cost •••• (restricted).

Devices capable of producing fully realistic interactive holograms broadcast in infrared, ultraviolet and visible light cost •••••• (restricted).

• **Implant Radio:** The ultimate in secretive communications, the implant radio is essentially an ear radio implanted in the ear. It has all the abilities of an ordinary ear radio, but also allows the user to access cellular transmission air lines for making and receiving ordinary phone calls.

Advanced implant radios can broadcast up to 25 kilometers and can pick up and broadcast on any commercial radio or holovision frequencies, allowing the user to broadcast out of any radios or holovision sets within 200 meters that are tuned to the same frequency. If a guard radios her boss to see if your character has authorization to enter a high-security complex, your character can listen in and even interrupt the broadcast. Broadcasts to holovision sets affect the audio portion of the program only.

Use of an advanced radio's special features is highly illegal unless the user has official license. Only national governments can issue such authorization.

Specialized implant radios can include vocoders for translation of broadcast or spoken language. Such vocoders are equipped with three languages and more may be added.

Both ordinary and advanced implant radios come with an agent program that handles frequency switching, dialing and other functions.

The radio is implanted in a notch made in the wearer's skull. It is powered by the user's bio-electric field, so that it never needs recharging. Recovering from the implant operation takes one week, unless vitakinetic healing is used.

Tech: Ω , Mass: negligible, Cost: ••••• (••••• • for the advanced implant radio with a built-in vocoder). Using the cellular uplink features costs •••• per month.

• **Rappel Kit:** This device is a boon to serious climbers and cat burglars alike. The rappel kit is simply a 50-meter length of ultra-tough, orbitally made cord that can support up to 200 kg. The line is wound on a spool attached to a lightweight harness and is worn on the user's belt. If the cord is attached to a surface using a piton, a hook or the included gripper pad, the user can descend safely by letting out the cord at any speed desired.

An optional motor and battery can be used to lower or raise a wearer. This motor operates at

40 meters per minute. The batteries in the device allow the user to ascend only twice before they must be recharged. The reel alone can be integrated into a belt. The motor and batteries are fist-size and attach directly to the reel.

Tech: Ω , Mass 0.5 (1 with motor and batteries), Cost: •• (••• with motor and batteries).

• **Shock Ring:** The shock ring is a concealed taser. The user presses a small stud on the side of the ring. The next object the ring makes contact with (even another part of the wearer's own body) suffers an electric shock. No Martial Arts or Brawl attack roll is required, unless the target is dodging. Armor offers no protection unless it specifically protects against electricity. Stamina can still be used to soak, though. A ring has only three charges; its micro-battery needs to be recharged or replaced when those charges are expended. Changing the battery takes one full turn.

Tech: Ω , Damage: 6d10 B, Concealability: P, Mass: negligible, Cost: •• (• for extra batteries) (restricted)

• **Tracer:** Tracer kits are used to tag a target with a bug. This tiny electronic device emits a homing signal that can be followed to monitor the wearer's position.

Tracer kits come in two versions: a marble-sized metal ball, or a "pen." Each contains up to a dozen bugs (about the size of salt grains); the ball must touch the subject directly, while the pen can fire a bug at a target up to two meters away. The bug is highly adhesive and is small enough to escape casual notice (Awareness roll at +1 difficulty to notice a bug being placed on a target, and +3 difficulty to spot the bug itself). The bug transmits the location of the target, as well as any nearby sounds, for up to 100 hours. A bug's signal has a five-kilometer range.

Each bug in a tracer set uses a different broadcast frequency. It takes one turn to switch frequencies and locate another bug from the same tracer. A bug transmits only when it is contacted through a cellular transmission.

The user of a tracer can wear a HUDset or HUD contacts to receive detailed information on a target's location, including altitude, current velocity and clear transmission of any sounds in the subject's vicinity. A minicomp can also be con-

nected to a tracer to locate a target's position on an electronic map.

Tech: Ω , Mass: negligible, Cost: ••• (ball),
•••• (pen)

• **Voice-Stress Bracelet:** This device is the ultimate in lie-detector technology. The device contains a concealed directional microphone with a range of five meters. A small voice-stress analyzer within the bracelet measures the minute fluctuations in the pitch and intonation of a single speaker's voice. The device displays its readings on a set of tiny, concealed display lights on the bracelet or (more usually) on a HUDset or HUD contacts worn by the user.

The microphone must be aimed at a single speaker for at least five turns. The speaker must make several statements in that time which the user knows to be true. The speaker's intonation establishes a baseline from which the device operates. Thereafter, if the speaker makes any statement that he knows to be a lie, the device registers such. The device adds two dice to Subterfuge rolls when trying to interpret a subject's honesty.

A baseline from a speaker is recorded by the device for future reference. Each bracelet can hold up to two dozen baselines. Accessing a stored baseline simply involves punching up the code for it; there's no five-turn delay.

A galvanic skin response (GSR) pickup is included in advanced voice-stress bracelets. This device measures changes in skin conductivity when a subject is under stress. If the user can make contact with any part of the bracelet against the subject's bare skin, the combined effects of the voice-stress analyzer and the GSR add a total of four dice to any Subterfuge rolls made when the subject speaks. GSR does not require a baseline.

Even such advanced lie-detector devices have limits. Some people are such skilled liars that they deceive these sensitive tools. Furthermore, anyone being actively interrogated is almost certainly under stress, whether she's lying or not, which makes it difficult to get an accurate reading. Recordings from these devices are not admissible as evidence in court.

Tech: Ω , Mass: negligible, Cost: ••• (•••• for the GSR version) (restricted)

Unconcealed Devices

These tools are, for the most part, too big to hide on a person. They're still essential to the spy game, though. Some of these items are available commercially or from their manufacturers. Others are completely illegal or intended for psions, government agents or special forces. The black market is the best source for many of these items; Nippon-manufactured hardtech might be available commercially, but importing it legally might be prohibitive.

• **Camouflage Suit:** This bioapp is the ultimate disguise for spies, thieves and even a few stage magicians. When stored, the device resembles a plant's seed pod and is 30 centimeters long. It unfolds to become a loose coverall with a hood, face mask and boots. A formatted suit is comfortable and form fitting.

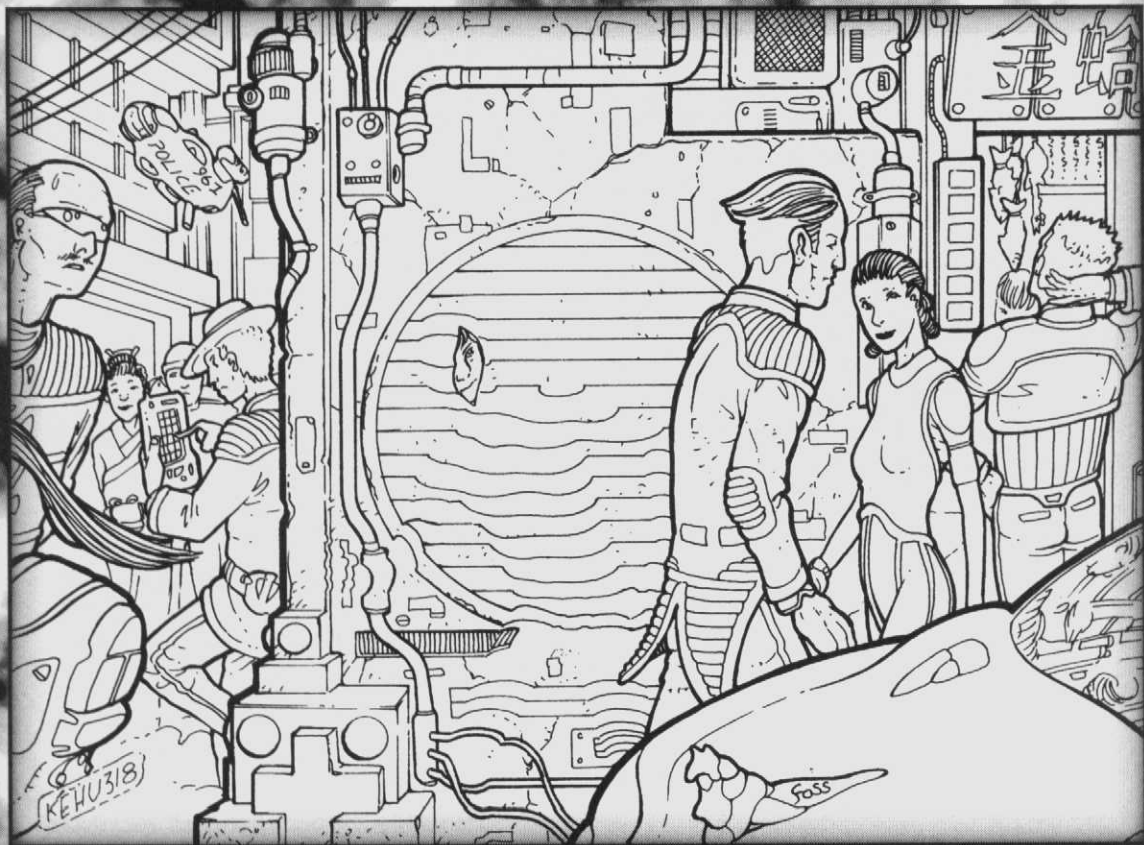
The suit changes color to resemble any background that the wearer stands against; if formatted, the user can mentally direct the suit to hold a certain pattern. It uses a network of organic pigment cells and photoreceptors to alter its own appearance from all sides. The suit's color matching is neither perfect nor instantaneous, though; it's a blur of color if the user moves rapidly, unless she presets the suit to a specific hue.

A camouflage suit adds three dice to Stealth rolls when the wearer stands still, two dice when she moves quickly. However, not even a camouflage suit allows a wearer to hide in a barren, well-lit area. The suit must be allowed to rest in its dormant state for at least eight hours a day to remain healthy.

Tech: Ψ , Mass 0.5, Tolerance: •, Cost •••

• **Cop Goggles:** These sturdy goggles are worn by many law-enforcement personnel. They combine the functions of vidspecs with special circuitry that notifies the user if he is looking at a hologram. The goggles can filter out all standard hologram projection frequencies; the user sees through all legal-frequency holograms with the touch of a button. This device also allows a user to see through any hologram that he himself might be "wearing."

Tech: Ω , Mass: 0.5, Cost: •••• (restricted)



• **Grippers:** This bioapp consists of four small pads with straps that connect the devices to hands, feet or knees. When grippers are pressed firmly against a solid surface, they exude an extremely strong glue similar to that used by sea anemones. The glue in a single pad is strong enough to support 100 kg. Grippers adhere to wet surfaces as easily as they do to dry ones, and can even be used to climb slick surfaces and windows. Only a few specially made plastics such as mylex resist gripper glue.

When the user twists a gripper to the left or right, it exudes a compound that neutralizes the glue almost instantly, causing the pad to release. It is therefore possible to use grippers to climb any wall strong enough to bear a person's weight. It is even possible to use grippers to cling to ceilings. (Crawling speed is about 20 meters per minute). Grippers can sustain three hours of continuous use before they need to generate more glue and neutralizer. The tools gain nothing from formatting.

Tech Ψ , Mass: 0.5 (for all four), Cost: ••

• **Remote Drone:** This device is a flat disk roughly 10 cm in diameter. It is fitted with several

miniature electric, ducted fans as well as sophisticated cameras and microphones and a short-range air link. The result is a remote-control surveillance tool.

The user can pilot the drone from a special keyboard or through VR gloves and a HUDset. The pilot can also receive a display of everything that the device's cameras and microphones pick up. Remote drones are a perfect way to survey rough terrain and restricted areas. They're almost silent and are very difficult to see at night.

Legal restrictions on air-link broadcasts limit use of the device to two kilometers, assuming the pilot is concerned about legalities at all. The drone can operate for up to three hours before it must be recharged. Maximum speed is 70 kilometers per hour. Tricky maneuvers and hazardous flying conditions are handled with Engineering or Pilot rolls (whichever is higher) at +1 difficulty because of remote control.

Tech: Ω , Mass: 1, Cost: ••••

• **Thermal Cutter:** This device is the size and shape of a large pen. It has a powerful battery and a metallo-ceramic cutting blade. The battery heats

the blade sufficiently to melt or burn through almost any material. The cutter can only cut through materials that are less than five centimeters thick, because of the tool's length. The table below lists the cutting time required for a one-meter-diameter hole.

Cutting time	Material
Three turns	Wood
10 turns	Aluminum, ordinary steel, stone, brick
30 turns	Armored door, spacecraft hull

The heat and power demands of this device limit its use to five turns. The battery must be recharged and the blade must be replaced after this time.

A thermal cutter can also be used as a melee weapon, inflicting horrible burns. The device is exhausted after only five turns, whether it inflicts harm or not. The knife does 8d10 L damage (Strength is not added). A botched attack roll indicates that the blade is broken and must be replaced.

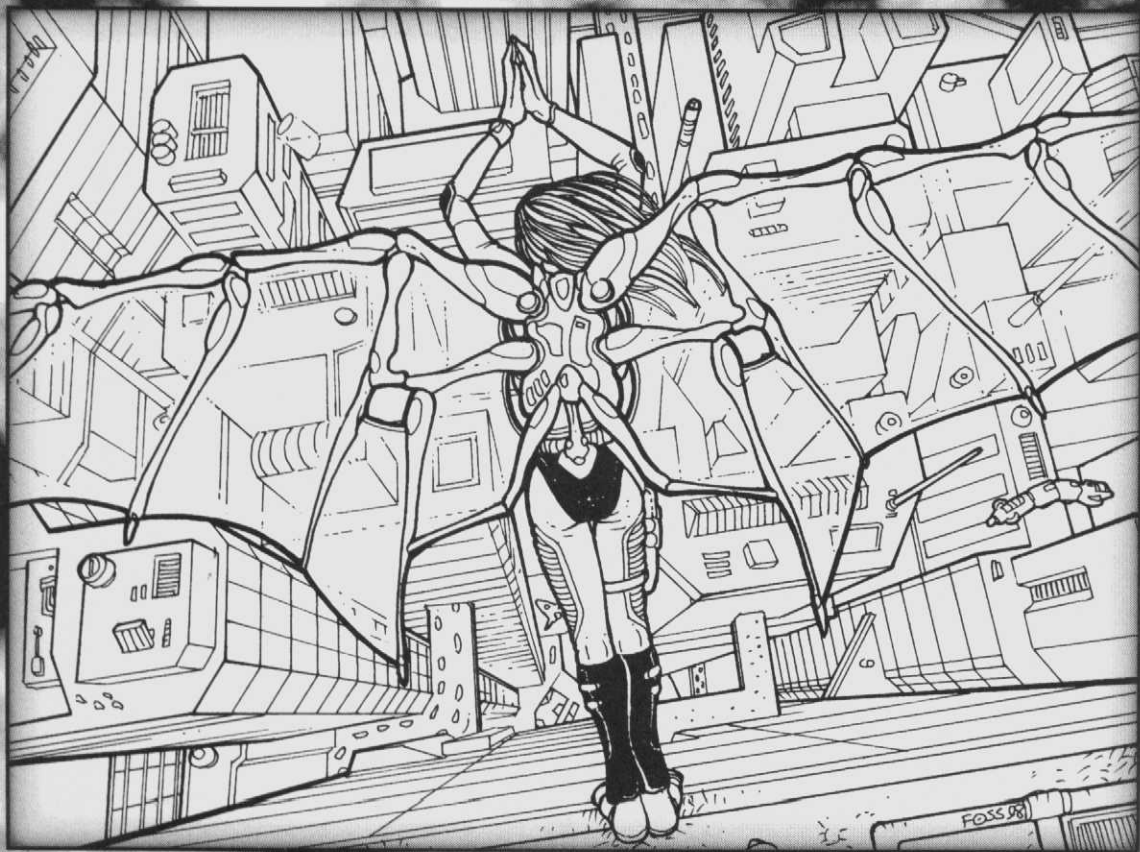
Tech: Ω , Concealability: J, Mass: 0.2, Cost: ●●● (●● for replacement batteries and blades)

• **Wingpack:** This bioapp allows a wearer to fly. It consists of a pair of enormous, leathery, bat-like wings, a small, light body and four long, extremely slender, clawed legs. The legs clutch the user tightly while the "creature" carries him aloft. The bioapp flies much like a large bird, using its eight-foot wingspan, specially enhanced muscles and Telekinesis to lift up to 100 kg.

Wingpacks take up to four turns to become fully airborne. Vertical takeoff is possible; the wearer doesn't have to jump from a building or cliff to take flight. Once aloft, the bioapp glides and soars with ease, but the strain of active flight limits use to one hour. A wingpack needs to rest for 10 hours after that time.

Wingpacks must be formatted to be used. They can be worn when not in use; the wings fold up and lie flat against the wearer's back and upper legs. A long coat conceals the device, although the clothes seem bulky.

Tech: Ψ , Mass: 15, Tolerance: ●●, Cost: ●●●● (restricted)



The Trinity rules touch on a portion of the technological advances and medical tools that are available to doctors and psions in the 22nd century. The following are additional items available in the Trinity Universe. Æsculapians have the greatest need for this equipment, but any psion who ventures afield may need first-aid equipment, at the least. Remember that computers are largely responsible for basic medical treatment; if a psion can get himself or a wounded companion to a medcomp, the patient might pull through. The days of needing direct, hands-on medical treatment are past. However, there's no beating a doctor or Æsculapian's care when serious wounds are sustained, bizarre diseases are contracted or contact with the taint leaves psions changed....

Portable Medical Gear

The Medkit, Inside and Out

Every rex, no matter who she was trained by, carries a pack of advanced medical supplies and tools. The following items are the basics of every medkit, although each person customizes his pack. A Basel-trained doc might carry the paperwork required for a patient to undergo Æsculapian treatment, while a Port-au-Prince rex might carry St. John the Conqueror root or loa bottles. This medkit and the following equipment are different from that found in an emergency medical kit (Trinity, page 276); this is the gear of a practiced rex or doctor.

- **Orgotek Genetic Identification Kit (GenID):** This kit can be used to extract and sequence the biological template of a human cell. A vitakinetic biosensor feeds DNA codes and other cellular information to an organic computer. A match between samples can be made in an hour, within a 75% accuracy. A complete genetic code can be saved to a hardtech chip after five hours. A psion with such a record can use it as a model upon which to base the cellular repair of a subject, from treating radiation poisoning to destroying diseased cells and rebuilding healthy ones

from scratch.

Three dice are added to Vitakinesis rolls to heal a patient after this device has been used for one hour. Five dice are added after the device has acquired data for five hours. The device must be formatted to the rex to function.

Tech: Ψ, Mass: 2, Tolerance: ••, Cost: ••

- **Banji Laser Scalpel:** One of the most indispensable hardtech surgical tools of the medical trade. All but the most fanatical Port-au-Prince docs use them. The scalpel makes incisions, closes and cauterizes wounds, clears injuries of detritus and re-breaks bones to be set — and does all of these things quickly and almost painlessly.

Laser scalpels are typically portable, with a 10-charge battery. Each charge allows about one minute's worth of activation. Scalpels can also be jacked into medical facility power sources for continuous use.

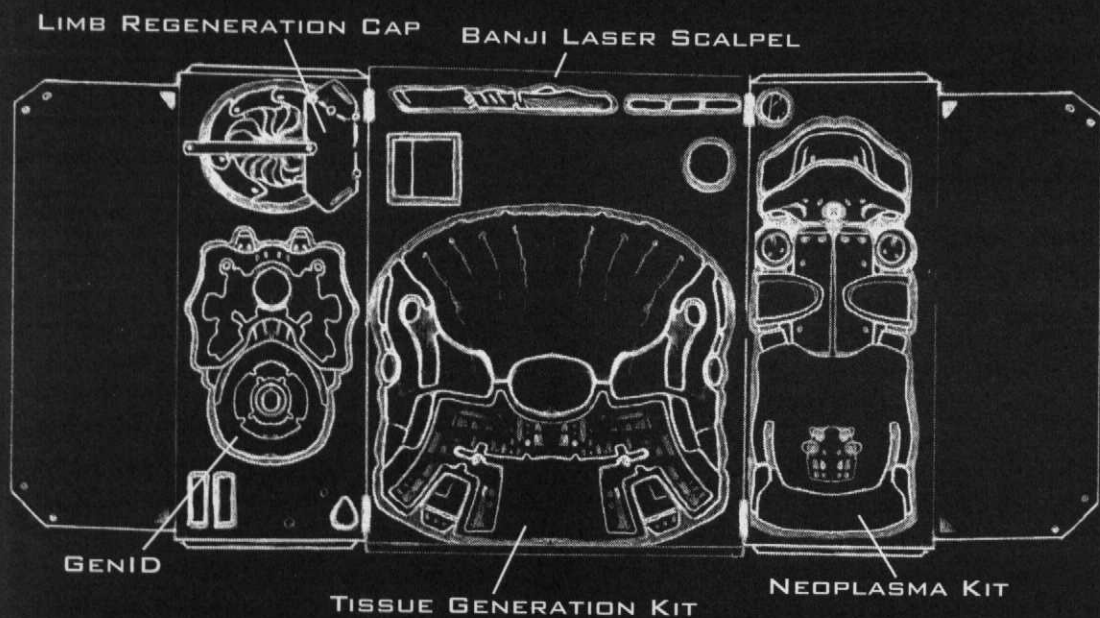
A laser scalpel can also be used as a ranged weapon and to cut through substances other than skin and bone. Its range is only about half a meter. Attack rolls are at +1 difficulty. Each attack costs one charge. A scalpel can bore a hole through half-meter-thick steel in about five minutes.

Several extraterrestrial stations and oceanic cities require that laser scalpels be registered like any other high-energy weapons that could endanger environmental seals.

Tech: Ω, Accuracy: Special, Damage: 2d10 L, Concealability: P, Mass: 0.5, Cost: ••

- **Limb Regeneration Cap:** Science has yet to rival the power of latrosis, but bioware is being used to come close. A well-stocked expedition or off-planet clinic may use this outpatient device (which requires 4 Medicine to operate) to attempt to recreate a missing limb. The limb regeneration cap is surgically attached to the stump after a complete genetic identification sequence is run. The missing arm or leg is then regrown under the cap. The bioapp must be monitored daily, but the patient can self-administer it

MEDKIT



for the few days to weeks required to complete the process. Consider the patient to be one Health Level higher than normal on the Lethal damage health chart to determine recovery time. The attending rex must be formatted to the bioapp to utilize it effectively.

Tech: Ψ , Mass: 2, Tolerance: •••, Cost: •••••

- **Neoplasma Kit:** Field surgery requires one essential ingredient: blood. Neoplasma is the next best thing. A neoplasm a kit is a biotech device that generates oxygen-rich plasma, a blood substitute that contains everything the body needs to sustain itself until actual blood can be acquired. A patient's blood sample is introduced to the kit and the bioapp produces compatible serum as long as required chemicals and water are supplied. Enough sustaining chemicals are provided with each kit to generate 10 half-liter bags of plasma. The device gains nothing from formatting.

Tech: Ψ , Mass: 2, Tolerance: •, Cost: ••, refills • per 10 bags

- **Tissue Generation Kit (Graft Bag):** When medicine went to the stars, emergency medical facilities had to adapt to the space available aboard

ships and stations. Biotech industries responded by shrinking tissue-matrix generators to the size of a duffle bag.

Skin grafts, parts of undifferentiated organs (liver, intestines) and other basic body tissues can now be grown from cell samples everywhere that humanity travels. Skin and organ generation takes about a week. Surgery is still required to implant these tissues. The kit must be formatted to the attending rex.

Tech: Ψ , Mass: 5, Tolerance: ••, Cost: •••

Drugs

The popular Physician's Palmtop Reference fails to list many of the 22nd-century universe's new and illegal drugs. Every *Æsculapian* in the field encounters illicit drugs at some point, whether they're used by others or themselves. This section provides more details about the drugs presented in *Trinity*, and introduces new drugs.

Expanded Rules on Drugs

The human body functions best when homeostatic — in a state of balance. That's when the

body is strongest and most capable of dealing with the demands that a person or an environment imposes. A psion's life is unforgiving, though, and she might not be able to wait until she's healthy to act. That's when drugs come in handy. They're a clumsy means for heightening human biochemistry to accomplish whatever is desired *now*.

The Norça and Æsculapians have an ingrained instinct for manipulating homeostasis, whether in themselves or in others, but even they must restore bodily balances through some normalizing processes. Most Norça who maintain complete instinctual control of their bodies refuse to use drugs at all (and Metabolic Efficiency often eliminates the effects of drugs that biokinetics do take). Much to Zweidler's dismay, some Port-au-Prince docs swear by altered states.

Addiction

Every drug has an effect, generally with a specific and limited duration. Many drugs still cause addiction. Stimulants, combat drugs and painkillers have potent addictive effects due to the psychological trauma of coming down and suffering pain.

To determine whether a character becomes addicted to a drug, roll Resistance with a difficulty equal to the number of doses taken beyond the first, plus the drug's Addiction Rating (listed below). If the roll fails, the character must take another dose or suffer the Detox effects listed with the drug. The next dose of the drug has half the normal duration, and that time is halved again with each subsequent dose. The character must therefore take an increasing number of doses to avoid coming down.

If the Resistance roll succeeds, the character may stop taking the drug as desired and suffers no Detox effects. This Resistance roll can be made only once, after an initial use of an addictive drug. If the initial roll fails, the subject can be cured only through medical or vitakinetic means or through enduring the Detox period of the drug without taking any more doses (the last of which usually requires the intervention of others; personal willpower alone is not enough to resist taking more doses at this point).

An Æsculapian may flush the pollutants from an addict's system by using Antitoxin. Toxin Rating equals the drug's Addiction Rating plus one. The character still suffers normal Detox effects while

the doc accelerates the patient's system to purge the drug; the duration of such effects is simply shorter than normal (as determined by the Storyteller based on the number of successes the doc achieves in cleansing the patient).

Users of multiple drugs at once — so-called “drug cocktails” — face a greater chance of addiction. Add up the Addiction Ratings of all drugs that are in the user's system at the same time and make the Resistance roll against that total. The Toxin Rating of such a concoction also equals this total if Antitoxin is used to cure the subject.

- **Chupacabara:** MedNacionales-funded scientists who researched fear discovered a means to induce nyctophobia, the fear of the dark. Further investigation into their discovery turned up even more sinister possibilities. A user who overdoses deliberately on Chupacabara can resist interrogation by Ministry psions; his mind either shuts down in terror or transmits horrific images to the telepath. Administering this drug to a telepath is devastating. The user's visions are relayed uncontrollably through Mindspeak (if the telepath possesses that power) to everyone in the immediate area. The Æon Trinity has petitioned many governments to block the sale of this drug.

Effect: Chupacabara paralyzes its user with a primal fear of the dark. The subject can do nothing except flee to brightly lit areas and his actions are at +2 difficulty even under strong light. Interrogating a subject under the influence of Chupacabara adds a die to the interrogator's Intimidation, Interrogation or Command rolls. Using darkness as a threat (switching off the lights, for example) is often the best tool an interrogator has, but shutting off the lights can drive a victim insane.

Telepathic efforts to make contact with the victim are at +3 difficulty. If any Telepathy roll botches, the psion suffers a backlash of the Chupacabara effect. A telepath requires a [Wits + Resistance] cross-matched roll at +2 difficulty to break free from the subject's tormented mind. This roll can be made once per turn.

Duration: One hour

Addiction Rating: 0

Detox: The user falls unconscious for two hours

Cost: ••• (3 doses)



- **Mood Stabilizers:** See *Trinity*, page 276.

Effect: One pill adds one die to rolls involving clarity of thought for 30 minutes. Two pills cause drowsiness (+2 difficulty on all actions). Three pills induce sleep for up to two hours.

Duration: 30 minutes to two hours

Addiction Rating: 0

Detox: +3 difficulty to all actions for three hours

Cost: • (bottle of 100)

• **Red:** Red is the result of research conducted by three Colombian pharmaceutical companies brought together under MedNacionales. The contributors investigated adrenaline and hysterical strength, biochemical fear reactions, and muscle-tissue reaction to hormonal and neural stress. The user of Red effectively feels no fear, only rage; any natural instinct to flee a situation is overcome by a desire to fight.

Coming down off Red is extremely painful due to the spasms of once hyper-tense muscles. The side effects also include mental exhaustion; the user is completely demoralized. Yet Red is the favorite combat drug of many close-combat specialists.

Effect: Adds a dot to Strength and a dot to each of Melee, Brawl Martial Arts and Endurance Abilities, while lowering Wits by one dot (Initiative remains the same)

Duration: 10 minutes

Addiction Rating: 2

Detox: Lose a dot from each of Dexterity, Strength and Wits (affects Initiative) for one hour

Cost: ••••• (10 doses)

- **Stimulants:** See *Trinity*, page 276.

Effect: Adds a die to Endurance- and Awareness-related tests

Duration: Two hours

Addiction Rating: 0

Detox: +2 difficulty to all actions for three hours

Cost: • (bottle of 100)

• **Threshold:** Threshold is a combination of mood stabilizer and nervous-system blocker. It raises the user's pain threshold to the point where extreme injury is little more bothersome than a rash, but the drug does not diminish the user's basic sense of touch.

Effect: Reduces all Health Level penalties by one. Normal penalties are imposed again after

the Detox period elapses.

Duration: One hour

Addiction Rating: 1

Detox: Doubles all Health Level penalties for one hour

Cost: ••••• (10 doses)

Clinical Medicine

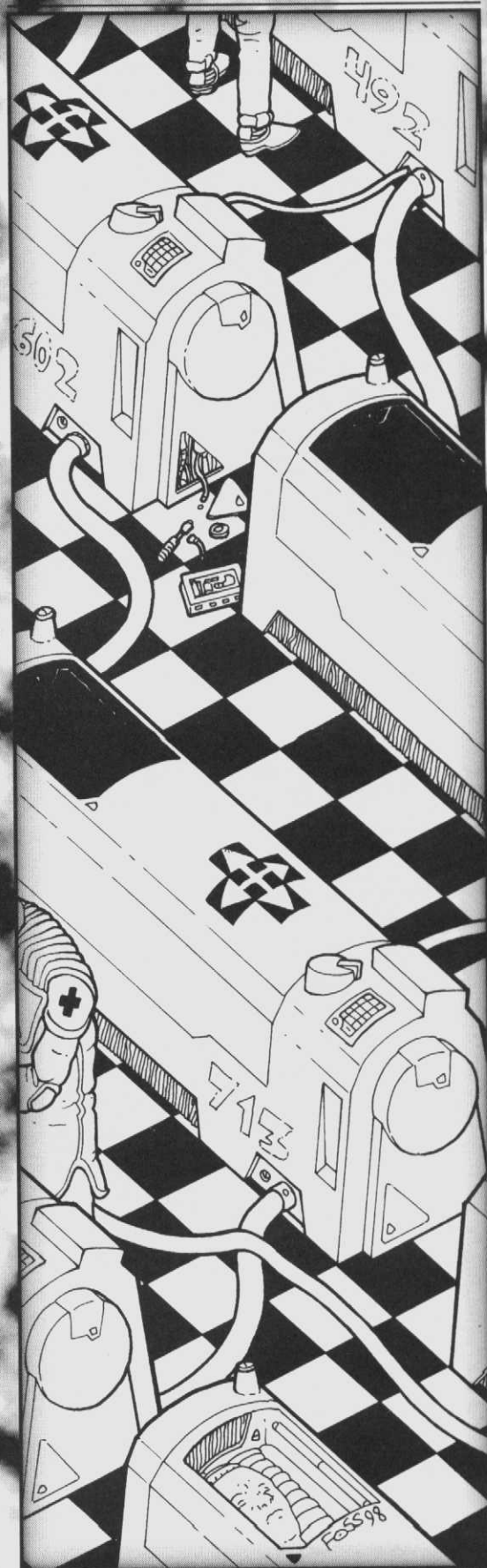
The medical facility of the 22nd century is a far more organic and comfortable environment than that of previous centuries. Hologram avatars with impeccable bedside manners explain procedures at the average Joe's pace, leaving the rex time to concentrate on knitting bone fragments. Specialized HUDsets distance patients from their clinical environments. Port-au-Prince docs even recommend diverse holographic decor to match patients' home cultures to create peace of mind (although the "M" Clinics — Mayo and Montessoro — still insist on traditional white, sterile medical environments).

The following are some of the tools of the clinical medical facility.

- **L-B/Xie Intensive-Care Tank (Liquidcare):** The dilemma of any clinic or hospital is having enough bed space. Indeed, it's difficult for many orbital-station or colony clinics to provide sufficient air for all of their patients. An intensive-care tank insures that a patient has full life support and pressurization, even if the station or ship is breached. An intensive-care tank may also be compartmentalized and flooded with nutritive cell-matrix solutions for tissue regeneration. Surgery can even be performed while a patient is in a tank. Otherwise, tanks and their dormant inhabitants can be stacked to economize on facility space.

Tech: Ω, Mass: 85, Cost: ••••••••

- **L-B/Xie Liquid-Transport Tanks (Liquidtrans):** An attempt by the aerospace firm L-B to improve its spacecraft led to this medical transportation cocoon (which was created jointly with L-B's subsidiary Xie MediCorp). Liquid-transport tanks conform to the same principles as liquid-filled acceleration couches; they reduce gravity impact, particularly when traveling at high speeds. The patient is suspended in a heated, oxygen-rich, breathable liquid so-



lution that provides almost all life support. Not only is the liquidtrans ideal for moving patients (even in a vacuum), it provides for a subject's basic physical needs, allowing the body to concentrate energy on repairing damage. The chamber prevents further harm from Lethal wounds and stabilizes Crippled and Incapacitated individuals.

Tech: Ω , Mass: 120, Cost: ••••••••

Nanoviruses

The Nihonjin, ever concerned with the dangers of biotech, have devised a novel and effective means of controlling and destroying bioapps. Researchers on the Nippon Defense Force have used nanotechnology — tiny machines — to create a form of mechanical virus. The “disease” is delivered to a target through a special flechette charge. The round does 3d10 B damage. If any damage is inflicted to the target, the virus enters his system.

Once in the target's body, the nanomachines move to the site of any bioapps to which the victim is linked. The virus then modifies any bioapps on a cellular level to limit their capabilities.

Two types of nanovirus currently exist: the original that was created in Nippon, and a new, far more lethal one created by the Brotherhood of Human Purity. These are the first generation of nanovirus technology; they only scratch the surface of what is possible.

• **Nippon Nanovirus:** The original nanovirus created by the Nippon Defense Force modifies bioapps so that they cannot interface properly with their users. The effect induces a shutdown sequence, deactivating a bioapp. A resisted roll is made between the nanovirus' five-die Pool and the bioapp's Tolerance score. A separate roll is made for each bioapp currently formatted to an infected psion. If the virus wins a roll, the bioapp is shut down and does not function again until it can be reformatted. If the bioapp's roll equals or beats the virus', the bioapp continues to function normally.

The Nihonjin virus remains active in a psion's body for only a few minutes. Any bioapps formatted and physically attached to him within one hour of infection are affected by the virus. The nanomachines deactivate after one hour and are passed from the body through sweat and excretions.

The Vitakinesis power Antitoxin can be used to eliminate the virus from a body (treat the

nanomachines as a 3 Toxin Rating), but cannot restore bioapps. An electrokinetic with two or more dots of Technokinesis can counteract the virus before it has affected a victim's bioapps. Assistance must be applied instantly to be of any help at all. The tek's Psi is rolled against the virus' five-die pool in a resisted action. If the virus wins, it proceeds to shut off any bioapps. If the electrokinetic wins, the virus is nullified.

• **BHP Nanovirus:** The Brotherhood of Human Purity offers no sympathy to psions and has created a lethal version of Nippon's nanovirus. It is delivered in the same manner, but the BHP strain intensifies the bond between biotech and psion, raising bioapp Tolerance ratings. The same resisted rolls are made between the virus and each bioapp (use devices' starting Tolerance scores) as for the Nihonjin strain. A roll is made for each bioapp worn at the moment of infection; bioapps acquired within an hour of infection are not affected. Each success that the virus achieves raises a bioapp's Tolerance rating by one, threatening the psion with Tolerance Overload.

Nippon has invested extensive resources in search of the people responsible for this pirated virus, but is unwilling to take the political heat for any use of the potentially lethal strain. Needless to say, all of the orders hunt for members of the Brotherhood of Human Purity.

Brotherhood of Human Purity (BHP)

This violent anti-psion terrorist group has emerged in the last 10 years. The Brotherhood of Human Purity claims to want to “put all psyqs in their place” — in the service of humanity, not above it. The BHP promises to destroy all psions who refuse to accept the group's dogma. The BHP has taken responsibility for several bombings and other attacks on psions in the past. Its most recent acts have involved a lethal version of Nippon's nanovirus.

The world has yet to learn that the Brotherhood is a front for anti-psi forces within the FSA. A network of dummy organizations and “front men” disguises connections between the group and the FSA agents who control it.

B iotechnology is primarily the purview of Orgotek and the Norça. These two orders' Aptitudes make them well suited for creating and adapting the living material of biotech. Tekes are capable of manipulating the electrical impulses and currents that sustain life. Indeed, they almost have the power to create life where none existed before, as if they are metaphorical Dr. Franksteins. The Norça, on the other hand, have complete control of their own bodies. They're able to manipulate their own cells to create other living creatures — the tools that the mysterious psions use to hide themselves throughout the universe, to watch and wait for whatever their latest agenda dictates.

The other orders are capable of creating bioapps, too, though to a much lesser extent and often with the assistance of tekes and shifters. The Æsculapians, in particular, have devised biological devices that are ideally suited to ensuring the health of patients. Ministry agents have made bioapps that enhance and specialize their potent telepathic abilities. Clairsentients keep their bioware creation low-key, contributing new devices only sporadically. Psychokinetic Legionnaires actually manufacture few biotech devices themselves, simply using those made by the other orders. (The Legions seem to prefer spending their time "getting things done.")

The Æon Trinity and the orders impose extensive regulations on bioapp production. They regulate who may create bioapps, and for what purpose they are made. Fortunately, most biotech needs to be created in specially equipped laboratories that exist in secured facilities. The unrecorded or illicit creation of bioapps is minimal.

That doesn't mean unauthorized and illegal bioapps don't exist. Some are created in sanctioned labs, but they are meant to be kept secret. They may also be the unexpected byproducts, or the results of failed experiments. These tools are usually intended for a select few or are slated for destruction. Sometimes, however, they fall into the wrong hands. From there, they can be used by rogue

psions or sold on the black market, perhaps purchased by unsuspecting normals.

Illegal biotech is also created in hidden facilities sponsored by corporations, governments or private parties intent on exploiting the possibilities of noetics. The Trinity certainly strives to shut down such operations, whether through diplomatic pressure or actual force — ironic since Æon maintains its own secret biotech labs.

Legal Bioapps

Authorized bioapps are typically created by orders for their own psions. The orders can and do hire each other to create specific devices, particularly to perform functions that are beyond an individual Aptitude's capabilities. Obviously, orders create the most effective and beneficial devices for their own people and deal lower quality merchandise to clients — unless there's some mutual benefit to be gained from an equal trade. Even the Norça want to see missions succeed and will relinquish *some* of their biotech secrets to defeat humanity's enemies.

The Æon Trinity also has its own authorized biotech manufacturing capabilities. The orders and individual psions work with the Trinity to establish the matrices and incubating tanks required to create technological life. For the most part, Æon's manufacturing efforts are limited to keeping psions supplied with basic, "unsophisticated" tools that are needed in everyday missions. More specialized devices are purchased, borrowed or pressured from the orders.

But biotech isn't simply there for the taking. Psions must requisition devices, fill out forms, follow protocol, make appeals — and then they *may* get the devices they desire. The orders and the Trinity want psions to have the tools they need to do their jobs, but letting psions run around armed to the teeth with bioapps is begging for trouble.

Minor and personal devices are the most commonly available bioapps. Handheld

guns, medical gear, sensors, armor and power cells are readily available. Large, expensive, rare and more dangerous items are doled out only for special purposes or important missions. Even then, however, they're expected to be returned. Woe to the psion who's spotted wielding a biotech cannon after it was "destroyed" in combat with Aberrants.

The following are legal bioapps (beyond those provided in the **Trinity** rules) that characters can use. Storytellers are free to restrict some of these items from use based on the direction of their series. But of course, that makes the devices all the more desirable to players....

Other bioapps are located elsewhere in this book under more appropriate headings. Biotech spacecraft are in the Vehicles chapter, for example. This section therefore makes up only a portion of the new biotechnology now available to **Trinity** games.

Some of the following items can be used unformatted, even by normal humans. They have a Tolerance rating of •. Others function only when formatted and are only useful to psions.

- **Alve-Air Rebreather:** Alve-air devices are biotech air-filtration systems used throughout known space, in anything from the smallest breathing masks to the Leviathans. Operating on the same principles as the lung's alveoli, alve-air systems filter pollutants, toxins and particulate matter out of circulation, and release a clean, oxygen-rich atmosphere.

Alve-air rebreathers function on an individual scale. They filter the majority of airborne poisons and diseases, but each also contains two thumb-nail-sized organisms that identify and catalog the pollutants that enter. A tiny bioprocessor transmits this information to the user's HUDset and stores it for up to 36 hours. Each of the bioprocessors has files on 5,000 known chemicals and particulates that are used to identify filtered substances. Psions who have come to rely on alve-air rebreathers therefore understand the danger of an "unknown" particulate scan.

The rebreather works only in an oxygenated atmosphere. It does not permit a psion to breathe in vacuum or on Mars. Unformatted, it simply provides a steady supply of breathable air. A formatted device adapts to its wearer's needs by supplying more or less air as required, or by allowing desired particulates to enter a wearer's air supply.

Tech: Ψ, Mass: 1, Tolerance: ••, Cost: •••

Option: Zero Tolerance

Trinity discusses bioware Tolerance in detail (page 193), including the fact that every unformatted bioapp has a 1 Tolerance. This reflects the concept that bioware is a strange and unusual thing, tied closely to the psionic nature of the cosmos.

However, it also limits the number of devices that not only psions but neutral humans may use. Since a blank has 1 Psi, after all, he can only use a single unformatted bioapp at a time. Only psions can take full advantage of multiple bioapps. This is in line with enforcing the uniqueness the Gifted enjoy in **Trinity**. Still, some Storytellers may wish to run a series in which bioware is much more common.

For such a series, the Storyteller may assume that unformatted bioware has 0 Tolerance. The devices function as normal, but as long as they are not formatted they do not contribute to a character's overall Tolerance. Formatted bioapps are still rated as normal, however.

Obviously, this makes bioware use much more common. There's nothing wrong with that if you feel it fits your game. However, the Storyteller should be aware of the repercussions this may have on other aspects (the effects of Tolerance Overload, how Assimilation functions).

- **Barb Sheath:** This bioapp makes the surface of the psion's body a weapon unto itself. Barb seeds planted at various points under the skin grow into tiny filaments across the body. These quills lie flat until activated, when they emerge from the body through the pores. Extended filaments can pierce anything they strike — short of metal or stone. Furthermore, when withdrawn from the target, the quills turn to a perpendicular angle from the affected object, tearing as they're pulled free.

The effect is like an arrowhead being pulled back out of a wound. In game terms, your character may extend barbs in unarmed combat so that his Strength inflicts Lethal damage.

Legislation to ban the Barb Sheath is in progress in many areas. Proponents of the bioapp claim that it is a nonlethal self-defense measure — one that could be developed for unformatted use.

Removal of the sheath from a psion's body is relatively simple: He bathes in an enzyme solution. The enzymes penetrate the skin and dissolve the quills, reducing them to components that are either sweated out or otherwise excreted. One Psi point is required to activate the sheath for one scene. It must be formatted for use.

Tech: Ψ, Mass: negligible, Tolerance: ••, Cost: •••

- **Biocable:** Orgotek developed biocable for early versions of Psicomm. (See below.) However, it has since become the low-cost standard for linking bioapps for communication and recharging. Biocable allows a psion to connect his bioapp to jack ports and other biotech and hardtech devices. He may then transmit information or even draw upon external power to recharge the device. A number of designers compete vigorously to create more efficient cabling, new varieties of specialty cables and derivative products.

The cable — which consists of bundles of nerve cells encased in a tough, respiring sheath — attaches to its subjects simply by placing the open end of the cable against an appropriate input/output port. The cable's covering bonds there as the nerve cells expand into the cavity and touch the neural processors of its targets. An unformatted cable's connection must be cut with a separator box (a bioapp that can safely sever a link without destroying the nerve cells extruded from the cable). Simply yanking the cable out without the separation procedure kills the biocable. Formatted biocable doesn't require the separator box; the psion simply mentally directs the cable to disconnect.

Without biocable, a bioapp remains the unique, independent tool that was created in the lab. Biocable allows bioapps to exceed their original designs by adapting to other technology. Biocable can be formatted.

Tech: Ψ, Mass: 1 (per five meters), Tolerance: •, Cost: • (per five meters)

- **Exothermix:** A variety of psions, from field operatives to ship defenders and even rogues, find this ruddy-brown ooze extremely useful — specifically, when a burst of extreme heat is required. The substance adheres to any surface. The user then spends two Psi (“pumping” it into the exothermix), and exhales deeply on the material. The blast of carbon dioxide is the final chemical stimuli needed for it to react. This reaction produces temperatures in excess of 500°C for small masses (five cubic centimeters) to 1000°C for large masses (one cubic meter). The heat is aimed directly away from the source of the carbon dioxide burst.

This concentrated heat makes no explosion or even noise, but does destroy the exothermix used. It can create escape routes through steel, break through a blast door, and even burn through bulkheads when in dire straits.

Small amounts come with a thermophilic biopolymer cup that encases the active organism. The cup filters the oily black smoke produced by the bioapp's demise. Large quantities of exothermix do not have such protective measures; users should have powerful air-filtration systems or risk being overcome by the toxic byproduct. Exothermix gains nothing from formatting.

Exothermix can also be used as an improvised weapon. Attaching the substance requires a successful Brawl or Martial Arts attack roll. If the target recognizes the substance, he may evade any efforts to activate the material with carbon dioxide, requiring another attack roll. Damage depends on the body part affected (see below). The bracketed numbers are damage adds, inflicting that number of Lethal Health Levels automatically. Armor protects normally.

Tech: Ψ, Damage: 3d10 [1]L (limb), 7d10 [3]L (head, chest), Mass: 1-100, Cost: •• to ••••

- **Psicomm:** One of the first projects Orgotek undertook upon its establishment was the Psicomm, or Psion Communications Net. The system was originally designed to link the proxies together privately. It has since been expanded to act as a communications network for top-level psions.

Network designers abandoned biocabling as a viable option early on in the project and settled on tight beam psi (TBP) transmissions. The net-

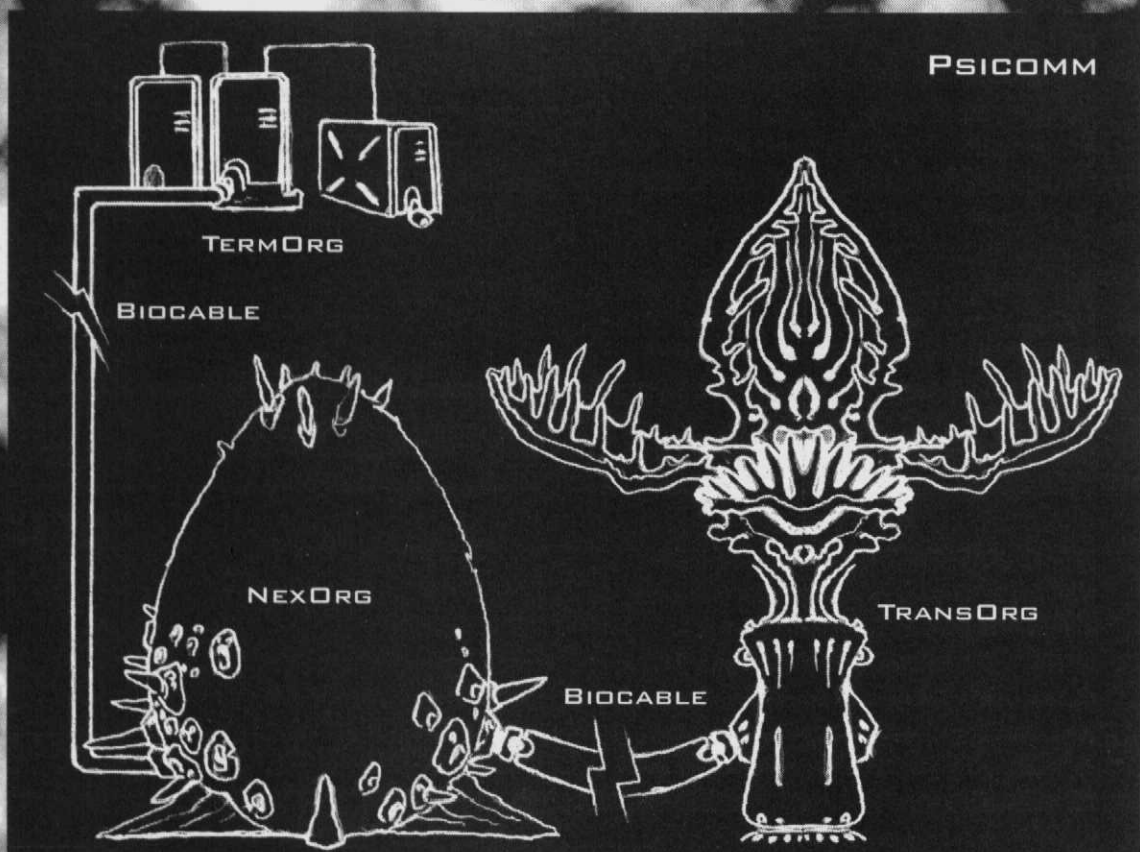
work consists of TermOrgs, bioware located where communications originate and end; NexOrgs, bioapps located where transmissions are translated and bundled; and TransOrgs, bioware located where bundles are TBPed to their destinations.

TermOrgs are extremely simple biocomputers: lumps of neuroprocessors in bland, hardtech facades, generally biocabled into their local NexOrgs. NexOrgs are lumpy, room-sized creatures. Biocables from TermOrgs are connected to the projections on NexOrgs' egg-shaped bodies. Inside a NexOrg is a large, smart biocomputer that codes, flags and gathers incoming and outgoing information. An efficient biocable shunts this processed data into a TransOrg. This third bioapp looks like a sprawling Venus flytrap, its pods open and close for each scheduled data pickup or transmission. The TransOrg projects a tight telepathic "wavelength" to its target TransOrg, bouncing the signal off the stratosphere or routing messages through other TransOrgs across the Earth. TransOrgs located in space tend to use a great deal of energy (and thus demand more food than usual)

as they must boost the TBP over vast distances.

Each proxy has access to a TBP 1-rated TermOrg. This permits him or her to supersede all other Psicomm transmissions. The orders' high-ranking psions have access to TBP 2-rated TermOrgs. Transmissions dealt with by these TermOrgs take precedent over any others except for a proxy's message. TBP 2 is used for high-level, coded messages and non-proxy emergencies. TBP 3-rated TermOrgs are present in every major order complex, where psions can come to receive news and regular administrative information about the orders and psion-related events. TBP 4-rated TermOrgs are not available yet; they are rated for social comms only and are undergoing final testing.

TermOrgs can be formatted or unformatted. The advantage of formatting is that the bioapp processes messages for the bound psion only. Tolerance costs apply when a character accesses his TermOrg; dots don't count against a psion when he isn't communicating through the Psicomm. All TransOrgs are also formatted to each other so that they receive messages only from each other; no



outside source can introduce a transmission or steal one from the system (at least not with current technology).

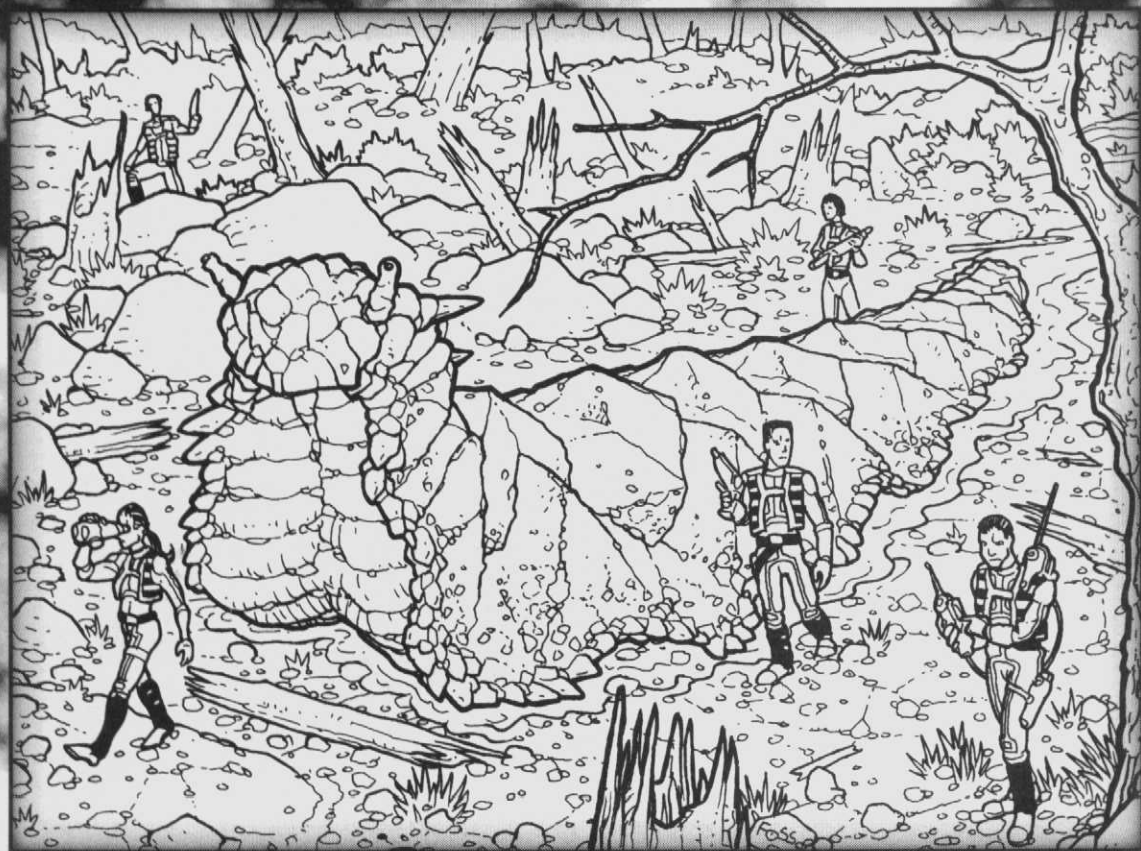
The Psicom's existence is not public knowledge — not even many psions know about it. It is utilized by only a privileged few.

Tech: Ψ , Mass: 10 (TermOrgs), Tolerance: ••, Cost: Not available commercially

• **Reforestation Prowlers:** These creatures look like a cross between massive beetles and slugs with long antennae. They're about five meters wide and 20 meters long. Prowlers were created at Orgosoft Farms in conjunction with the Norça as a means to restore destroyed forests, particularly rain forests. Only five Prowlers — named Verde, Brux, Span, Corazon, and Lem — currently exist in the field, but more are being grown. A Norça team with an Orgotek bioengineer accompanies each Prowler through denuded regions of the Amazon. Day and night shifts monitor each creature and tend to its minimal needs. (Prowlers require surprisingly little maintenance.)

A Prowler makes its way slowly across areas that have been slashed and burned. As it travels, it releases tiny versions of itself that bore into the soil. These miniature Prowlers are programmed to ignore matter that contains the DNA of common agricultural plants, and move deeper until they encounter vegetable matter that's different from farming levels above. The tiny creatures consume as much of this material as they can in 30 seconds and then burrow back up, where they are picked up by the tail end of the Prowler. Returned drones regurgitate their contents and travel back up the length of the Prowler to be released again in 24 hours.

Available DNA fragments from long-dead rain forests are queued, analyzed and inserted into viable seeds of related organisms. The Prowler and psion crew return to a region after 48 hours, following the fertilizer and erosion-control trail — or "slime trail" — that the Prowler left on its first pass. The genetically engineered seeds are planted by tentacular appendages along the Prowler's mid-



section. Ecologists hope that this process will help reclaim some of the lost diversity of the Amazon.

Each member of a Prowler team must be formatted to her creature. That puts strict limits on the biotech with which accompanying psions can equip themselves. This severely restricts the amount of bioware a Norça can use in the field, but the team members bear their lot with the stolid silence that is their trademark. The Orgotek bioengineers, however, are known to complain frequently about the situation.

Tech: Ψ , Mass: 5,000, Tolerance: ●●●, Cost: ●●●●●●●●

• **Second Skin:** This bioapp provides a backup layer of protection between a person in space and the vacuum all around him. The half-centimeter thick second skin provides insulation against radiation and heat loss. In the event of a vac-suit puncture, a second skin prevents the wearer from taking exposure damage for approximately 10 minutes before the bioapp's integrity breaks down. However, that time is usually sufficient to retreat to a pressurized shelter for repairs. A second skin

also reduces a wearer's chances of incurring cancer or other mutative diseases due to exposure by 75%.

This bioapp does not act as armor in any other way. It operates unformatted.

Tech: Ψ , Mass: 5, Cost: ●●●

• **Thorn:** The Norça developed this bioapp for discreet security purposes. It appears to be a sprawling vine. However, this plant is semi-intelligent and is capable of protecting the room in which it grows. These creatures require very little care; they thrive under sunlight, but can gain sustenance from partial-spectrum light and ambient humidity.

The psion must format himself and introduce the DNA of anyone else whom he does not want the plant to attack. Any other living being (save for other bioware) that enters the room is slashed with the bioapp's long thorns. The plant can attack (5 Dice Pool) twice every turn, and can be instructed psionically to inflict Bashing or Lethal damage.

Thorn must be primed by a psion (one Psi point) before leaving a protected area. This acti-



vation keeps the plant alert for one week, after which the guardian becomes inert and devotes all of its energy to survival.

The Thorn must be formatted, but the Tolerance applies to the owner only when directly in the bioapp's presence.

Tech: Ψ , Damage: 4d10 B or L, Mass: 15, Tolerance: •, Cost: ••

- **The Womb:** Twenty-second century science has developed the means to compensate for the human womb in the care of premature, unborn, endangered children. The Womb is a vast improvement over the incubators of the past. It's a muscular, heart-shaped organ that's structured after the human uterus.

A woman giving birth prematurely undergoes a Cesarean to remove the fetus with its placenta. The surgeon then inserts the child into the top of the Womb. A specialized organelle creates an interface for the placenta (or regenerates a broken placenta) and generates amniotic fluid. The transfer operation takes about 10 minutes.

The Womb then performs all of the activities of the mother's uterus for the remainder of the gestation period. The developed infant is then pushed out the bottom of the Womb through muscular contractions, triggering the appropriate hormonal responses to vaginal birth. Womb infants tend to have a higher birth weight than do natural-birth infants, and better color and overall health. However, the relatively recent development of the Womb means that long-term effects of artificial birth have yet to be determined — or at least announced publicly.

A Brazilian man recently filed a lawsuit against his ex-wife, demanding access to the couple's frozen embryos stored before their first trip into space. The man argued that he can incubate one in the Womb and have the child that his ex-wife refused to bear. Further, legislation enacted by women's groups demands the Womb's use be limited to third-trimester fetuses only.

The Womb must be formatted to the Æsculapian who introduces the fetus to the bioapp. No one is certain what might happen to a fetus if the formatted doc were to die or otherwise lose contact with the Womb during the child's gesta-

tion. It's even been suggested that the formatted Æsculapian leaves his own psionic signature on the child when it is born, but no evidence of that theory has ever come to light.

Tech: Ψ , Mass: 50, Tolerance: •••, Cost: •••••

Code Indigo Bioapps

Proteus Division has been concerned about the development of the bioapp black market for some time. Ever since bioware became a reality, unauthorized parties have sought to possess it, whether for its novelty or for its varied purposes and capabilities. A number of groups, whether corporations or rogue psions, have also sought to acquire the biotech creations of others (such as Orgotek, the Norça and even TechnoDyne) to study what the primary creators are capable of — and to copy the technology. The result of this demand is an underground network of biotech thieves and traders. The bioapp black market is pervasive throughout known space. It seems that wherever psions go, illegal bioware follows.

In order to avoid raising public fears that unauthorized bioapps can be purchased on the street, Proteus has dubbed such items — and the black-market bioapp trade as a whole — Code Indigo. Not surprisingly, this designation has birthed an array of informal lexicon. Many people shorten the full term to “indies.” Others refer to “lavender” bioapps: devices such as TymPan that are illegal for breaking the informal rules of bioware design rather than for breaking UN legislation on their distribution.

Proteus surveillance and Triton intelligence have identified at least four Indigo labs — makers of illegal bioware — in the Solar System, funded by various private groups. Two are on Earth (in southern Brazil and Cambodia), one is on Luna in a private installation and one is on Mars in Akabenje Colony. Still, there are undoubtedly more.

The following are some of the illicit bioapps that have emerged from rogue manufacturers. Possession of such devices is considered a violation of psi order and Æon regulations. However, such regs are not always observed in the field, es-

pecially far from Trinity outposts. It's understood that anything that saves a life in the depths of space or in barren wastelands is acceptable.

- **BEngiBeast:** The abuse of biotechnology and psionics taken to perverse extremes resulted in humanity's attempt to play God. Bioengineers and psions took the fertilized zygotes of animals and inserted them into an Indigo-rated Womb with matrixing organisms. The results were artificially created animals, designed to individual specifications.

The project started out "innocently" enough: Scientists sought to create ideal pets according to size and color specifications. Experiments evolved from there, resulting in massive guard dogs to fantastic and disgusting hybrid creatures.

These animals are illegal to create and own, but hundreds (if not thousands) exist anyway. Animal fanciers and exhibitors have imposed stringent regulations on the tests that animals must undergo before being shown at competitions — especially after a Great Dane that won the Westminster Dog Show a few years ago proved to be the product of a lab.

Some scientists are investigating ways of using BEngi technology to recreate extinct species. Hawaii's Dr. J. Leone has applied to license BEngi Wombs to recreate extinct marine mammals such as humpback whales. Others pursue less legal routes, creating hunting resorts for the rich and bored that are populated with intelligent "smilodons" and "cave bears."

A BEngi typically lives slightly longer than a natural member of its species. However, truly "specialized" creatures tend to have short life spans, usually ending with some horrific, aggressive cancer or mutation.

Tech: Ψ , Mass: varies, Cost: •••••••• (restricted)

- **Gangrenix:** This simple black, leathery rod unsheathes a nasty surprise: a 15-cm bone dagger, honed to a razor's edge. However, a nastier surprise — the one that classifies this weapon as Indigo — is a coating of virulent, necrotizing bacteria over the blade. The knife inflicts standard damage; however, the wound blackens and rots only moments after penetration. If left untreated, injected bacteria inflict one Health Level of Lethal damage every five

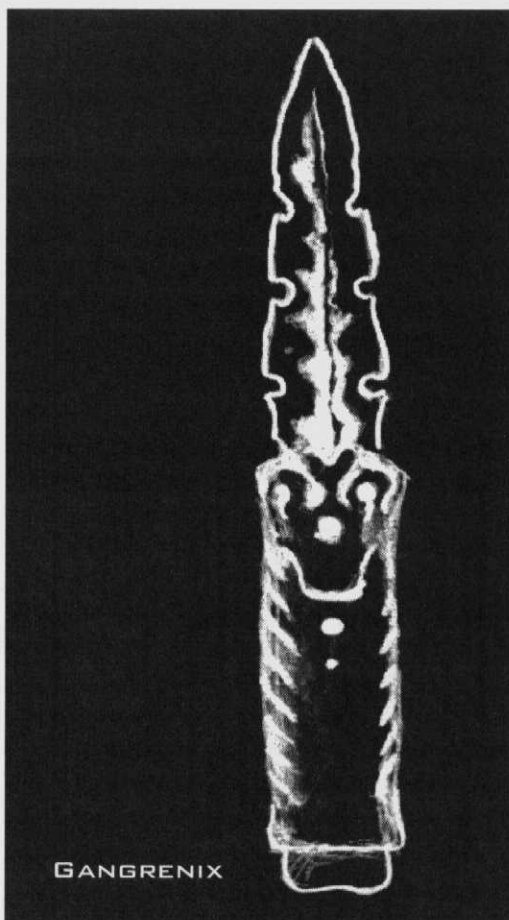
minutes as they multiply frantically and spread outward, eroding the victim as they go. Normal first aid slows the advance as the tiny organisms recover from the shock of antiseptic. They resume with renewed vigor after an hour, though.

Radical measures must be taken to eliminate the bacteria. A wound must be disinfected viciously with painful antiseptics or through cauterization, or a vitakinetic must eliminate the infection with Antitoxin.

An unformatted blade is as dangerous to its carrier as to any victim. Formatting to the Gangrenix makes the owner immune to that blade's infection. The blade itself does normal knife damage.

Tech: Ψ , Damage: Special, Mass: 1, Tolerance: ••, Cost: ••••• (restricted)

- **The Masque:** Only the depths of a Norça laboratory could produce this device, and only the most devious biokinetics would use it. This yeasty mass seems like bread dough at first glance. Closer examination reveals odd bits and flecks embedded throughout. Picking one of these items out is



difficult, but those who take a closer look discover fragments of skin, bone and other, less identifiable substances.

The biokinetic spreads the Masque material over the face of a subject whose appearance she wishes to duplicate. The Masque expands quickly to a thickness of about five centimeters. When the dough stops “rising,” it has absorbed the subject’s facial qualities and structural details. The biokinetic removes the substance from the victim’s face (taking a healthy layer of skin with it) and applies it to her own face. The biokinetic can then assume the appearance and form of the subject more easily; the Norça’s face adapts to the shape of the Masque, and DNA data stored by the dough allows the biokinetic to alter her body to imitate the subject’s accurately. Use of the Masque adds four dice to all Transformation (**Trinity**, page 200) rolls.

The victim is left disfigured. Fragments of bone are lost, as are most outer layers of skin. Temporary eye damage is also possible, depending on whether the subject’s eyes were open when the Masque was applied. The victim suffers one

to three levels of Lethal damage. The Masque must be formatted to function. Tech: Ψ , Mass: 1, Tolerance: ●●●, Cost: ●●●●● (restricted)

- **Mortis Enhancer:** This device is an extremely long, thin strip of tough leather that is cross-wrapped over the entire body of the user, particularly the limbs and torso.

Very few people know the true origins of the Mortis. Popular rumor holds that it is grown from a matrix culture that includes the dead bodies of several powerful psions. Another rumor has it that it’s grown on the backs of living psions who displeased the orders and who are now held prisoner on Luna. Whatever its origin, it is clearly unpleasant in the extreme.

The Mortis Enhancer must be formatted and adds four points to all Vitakinesis Modes for the purposes of dice-rolling only; no additional powers are gained. The bioapp also reduces a target’s Resistance by two for the purposes of resisted rolls against Algesis.

Tech: Ψ , Mass: negligible, Tolerance: ●●●●, Cost: ●●●●●●● (restricted)



• **Teratogone:** The Aberrant War and its fallout shattered Earth's atmosphere. Radiation, pollution and biowarfare remnants still litter soil, water and air — and every human, animal and plant — 60 years later. The worldwide average birth defect rate has skyrocketed from 1% to 5%, and even 10% in some locales. This effect is due in large part to the toxins — teratogens — that now permeate the world.

Teratogone is a scavenger bacteria that consumes these birth-defect causing toxins. A dose of Teratogone is inhaled and its bacteria enter the host. They scour the body in search of known poisons and break them down into harmless excretions. They pay particular attention to purifying reproductive organs, increasing the chance of normal child birth.

Orgotek created Teratogone, but restricted access to it because the order could find no way to remove the bioapp once it had done its job. The creators had no idea what further good or ill it might do to a patient. Meanwhile, an illegal version is available to the unwary and uninformed human populace. There's no telling what its long-term side effects are.

A single dose of Teratogone eliminates any chemical unnatural to the human body. This cleansing occurs over the course of 24 hours and the effect continues indefinitely. The result is that drugs (including beneficial ones), alcohol and nicotine are all ineffective for the host. Unlike Metabolic Efficiency, which merely keeps foreign substances from affecting the body, and Antitoxin, which combats pollutants, Teratogone removes foreign substances entirely. It eliminates even the long-term accumulations, releasing heavy metals and the like from storage tissues and inducing them to leave the body. Teratogone gains nothing from being formatted.

Tech: Ψ , Mass: negligible, Cost: ●●●● (one dose; restricted)

• **TymPan:** This black-market bioapp provides the walls with ears — literally. The creation was the result of an early experiment in artificial skin that failed; an enterprising psion realized that the project's sturdy membranes and accompanying acoustic "ears" were simple to make and mass produce in variable sizes.

TymPan is currently used by discriminating crime lords who employ psionic lackeys. It's also used by a few psions who keep tabs on specific places, such as their apartments or enemies' homes, without resorting to holocams or hardtech recording devices.

A TymPan kit contains two components: an echo chamber, which is an acoustic-resonance-enhancement bioapp; and a tympanic panel, a sturdy plate that changes color and texture to match its surroundings and that transmits sonic vibrations to the echo chamber. A recording or transmitting device is placed within the echo chamber, or a biocable is run from its core to a listening device in another area. Either method allows a person to eavesdrop on conversations within a room. A TymPan comes in any size, from a half-meter square to an array of painter's-canvas panels that comprise an entire room.

Each TymPan is formatted to its echo chamber, although it can be formatted directly to an individual psion instead. If formatted to the Tympan, the psion can listen directly through a panel by spending a Psi point, as long as he's within 100 times his Psi score in meters distant. If used unformatted, the character must wait to listen to the recorded sounds.

Tech: Ψ , Mass: 1 (per panel), Tolerance: ●●, Cost: ●●●●● (restricted)

Vehicle manufacturers in the 22nd century are constantly producing new models or revising old ones to meet the changing needs of the universe's citizens. Whether car or spacecraft makers tell the people that they need new vehicles or people decide so for themselves doesn't matter. Every year brings a new range of transportation options, from skimmers, hoverbikes and submersibles to aircraft, hybrids and space freighters.

The military also makes constant demands for new and better vehicles. This need isn't as much a result of changing needs as it is the paranoid necessity to have the best, to be able to outmaneuver, outfight or outrun the enemy, whoever that might be. Vehicle manufacturers lucky enough to hold military contracts are glad to fit the bill; fulfilling military needs is guaranteed profit.

Profit is, after all, the bottom line. No matter how altruistic a corporation may seem, if it's in the transportation business it's there to make money. A hybrid designer might create a ship specially designed by psions for psions and their unique needs. It's apparently for the good of humanity as a whole, but there's always a bottom line that must be observed. The manufacturer might sell or donate the ships to all the orders in hopes that a psion endorsement will lead to greater sales among normals.

The vehicles detailed here are for use in your games, in addition to those provided in **Trinity** itself and other supplements. The statistics listed for each conform to the Vehicle Codes in **Trinity**, page 279.

Ground Vehicles

The vast array of wheeled vehicles, hovercraft and tracked vehicles that perform innumerable duties throughout human civilization can scarcely be cataloged in entirety here. However, you will find a broad discussion of various classes of vehicles.

Conventional Ground Vehicles

Most ground vehicles operate using electrical engines: rotary motors constructed of high-temperature superconductors that are capable of generating the torque and rotation rates necessary to move a vehicle. For wheeled machines, this means independent motors for each tire, controlled in unison by an all-wheel steering system.

Skimmers use high-speed electric motors to turn fans (small-scale versions of the ducted fans mounted in aircraft). A skimmer's blades create an air pocket, called a plenum chamber, beneath the vehicle, generating sufficient pressure to make a skimmer hover. A skimmer's main fans also feed a set of auxiliary ones that create thrust and allow for maneuverability.

Maglev-driven vehicles utilize a platform of pulsed electromagnets that induce reversed electric currents, opposing magnetic fields implanted in polynum roadbeds to create momentum. Onboard sensors regulate field pulses as individual magnets push past the road's aluminum concentrations, propelling the vehicle. Maglev vehicles must travel on old rail lines instead of on roads in undeveloped regions, due to the prohibitive costs of installing metal in the roads.

The predominant advantage of 22nd-century ground travel is that its three most common forms — wheeled, skimmer and maglev — can usually all use the same roads.

The typical civilian automobile, regardless of locomotion type, uses one of a few standard-sized batteries. These typically power a vehicle for up to 12 hours at continuous cruising speed, or for four hours at top speed before needing to be recharged. Virtually all automobiles have a backup solar battery capable of running for another hour at cruising speed. A reliable battery brand such as Enercell costs about •••.

It takes about 20 minutes to recharge a dead battery. Recharging stations such as

Fusionco usually have various quick-service restaurant franchises and convenience stores designed to keep waiting customers busy spending their hard-earned yuan. (Pizza Belle has a contract with Fusionco.) It's difficult to find a Kuai Dian Chi charger station that doesn't include a Bei Cha store, offering Asian junk food and cold tea, beer and carbonated beverages.

The average price to recharge a dead battery is •. A traveler in a hurry can trade in a dead battery for a charged one at a cost of ••. "Swapping" services are provided by nearly every major charger station and require only a minute or two. Automated systems test the battery being exchanged to make sure it's good before accepting it.

Some people carry a spare, fully-charged battery in the trunk besides the standard battery and backup solar cell. Changing batteries isn't difficult, but does require basic tools (standard Engineering roll with tools, at +1 difficulty without).

• **Charminar Howdah:** Possibly one of the most common cars is this inexpensive, four-door

sedan that has dominated worldwide markets. It is just one of the many models built by the Bombay-based auto manufacturer, and is a fine example of why India has become a true automotive force. Almost everyone in near-Earth space has seen the Howdah's holograph ad with an animated elephant driving through the suburbs of Hyderabad and New Delhi. The low price of this car is offset by its need for constant, minor upkeep. A Howdah's standard battery life is 16 hours. Authorized repairmen and replacement parts are easy to find.

VT: Wheeled

Tech: Ω

CS: 110 km/h

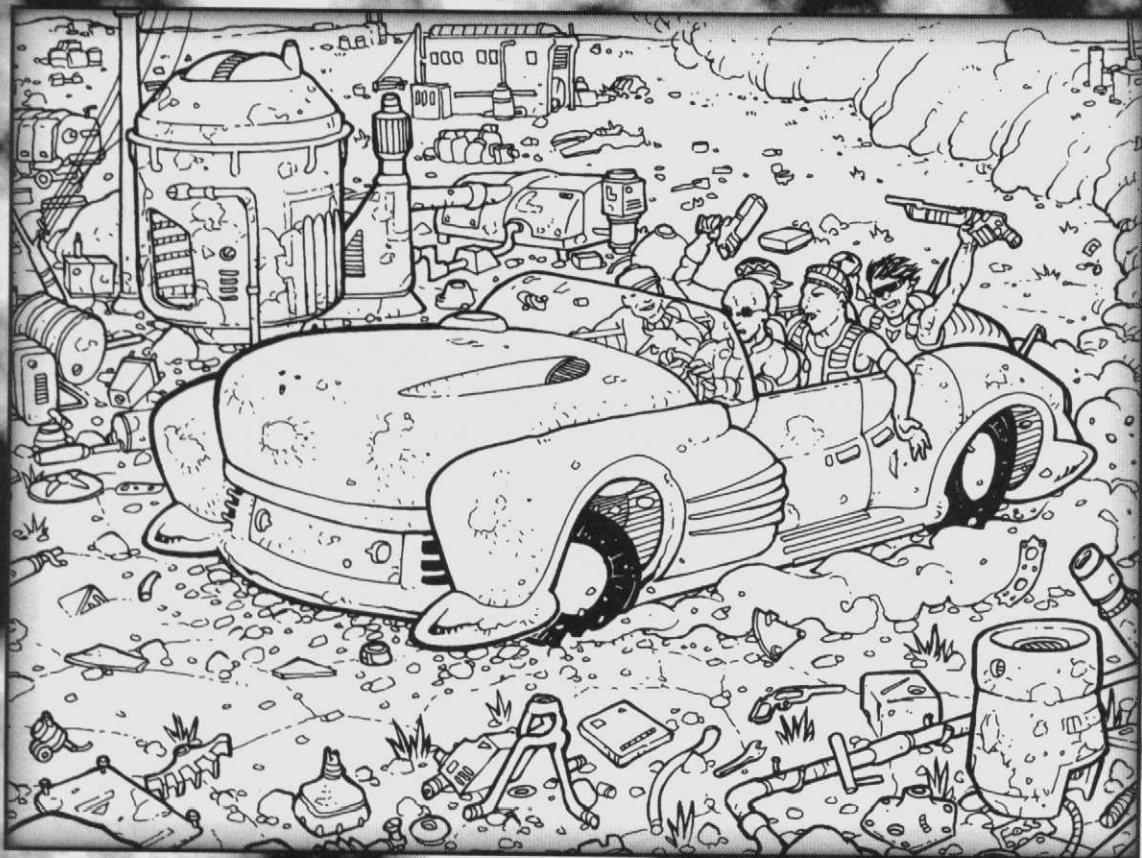
TS: 160 km/h

Handling: 0

Mass: 1

Cost: ••••

• **Detroit Ethanol Vehicles Inc. Duster:** This sports roadster is favored by brigands who travel the North American Dustbowl. They value the car's good handling (for an old vehicle) and high-speed capability. The specs listed are for a vehicle kept



in very good condition. In reality, it is difficult to find one that is not plagued by mechanical problems. (The Storyteller should reduce Handling or modify botches to reflect the age of a vehicle and its general condition. A Duster may even have one or two fewer Structural Levels than a normal vehicle if it has seen heavy use.)

VT: Wheeled (alcohol combustion)

Tech: Ω (anachronistic)

CS: 110 km/h

TS: 190 km/h

Handling: 0

Mass: 1.5

Cost: Not available commercially (no longer manufactured)

• **Furatti Aquila:** Every bit the hoverbike equivalent to Furatti's Corona, the Aquila ("Eagle") looks fast, runs faster and has an astronomical price. It has extensive aerodynamic control surfaces and small winglets that extend at high speeds to bear some of the vehicle's weight, increasing its velocity. Because of its extreme speed, the Aquila is equipped with a nose-mounted TFR (terrain-following radar) that detects ground changes and slower-moving vehicles ahead and warns the driver via a heads-up display. Some regions require Aquila owners to possess a driver's license and a pilot's license.

VT: Hover

Tech: Ω

CS: 290 km/h

TS: 570 km/h

Handling: +2

Mass: 0.6

Cost: ••••••••

• **Furatti Corona:** Furatti is an Italian sports vehicle manufacturer that specializes in custom made, extremely fast, expensive skimmer cars and hoverbikes. The Corona seats two and is available with several option packages, including armor, a retractable hardtop and "North African Options," which include a static field to prevent dust and sand from collecting on or in the car. Furatti's motto is well known thanks to its worldwide ad campaign: "Drive fast. Drive Furatti."

VT: Hover

Tech: Ω

CS: 270 km/h

TS: 560 km/h

Handling: +2, +1 (armored)

Mass: 1.2

Cost: •••••••• (standard), ••••••••

(armored or retractable hardtop)

Armor: 3 [5] optional

• **Lu-chi Yaosai:** Lu-chi advertises the Yaosai as the ultimate in armored executive transport. Built around a Reed-Rosen frame and engine, this biotech luxury skimmer is loaded with security measures. An important feature is a bioshell that surrounds passengers and driver with a psionic-type field that functions as the Mindshield power (*Trinity*, page 226), protecting the privacy of those on board. The biotech system can also detect a breach of its psionic static barrier — and may even locate the intruder. The standard on-board Lieutenant Bushido agent sounds an alarm and the location of the offending psion is relayed to the driver. (Consider the Lu-chi Telepathic Intrusion Detection System to have an Attunement equal to that of a psion with 4 Psi, yielding a detection range of 75 meters.) The biotech shield functions as an unformatted bioapp.

VT: Hover

Tech: Ψ

CS: 120 km/h

TS: 220 km/h

Handling: +1

Mass: 2

Tolerance: •

Cost: ••••••••

Armor: 3 [5]

Weapons: The Yaosai is equipped with gas jets that release a sleep drug in a three-meter radius around the vehicle. Damage: 6d10 B rolled in a resisted action against a target's Resistance. A victim falls unconscious for 15 minutes.

• **Porter-Andersen Wendigo:** This AUV (armored utility vehicle) is used extensively by North American military forces. FSM patrols operating in the Dustbowl favor it over skimmers; the Wendigo is less likely to be ambushed by Mexican rebels or wasteland outlaws who might recognize a skimmer's dust cloud from several kilometers away.

VT: Wheeled

Tech: Ω

CS: 130 km/h

TS: 265 km/h

Handling: +1

Mass: 2

Cost: ●●●●●

Armor: 3 [5]

Weapons: Roof-mounted heavy machine gun
(Accuracy: Damage: 7d10 [5] L)

Shendai Kuromu: A leading seller in Nippon, the Kuromu is a common sight on urban streets throughout Asia. Created specifically for Nippon's well-maintained maglev roads — and thus marketed to technophiles — the shiny plastichrome car cries out "hardtech." Some feel that sales have suffered in foreign markets due to the vehicle's angular styling and Shendai refusal to use nonmetallic colors, but the car has proved very popular in the East.

VT: Maglev

Tech: Ω

CS: 80 km/h

TS: 135 km/h

Handling: 0

Mass: 1

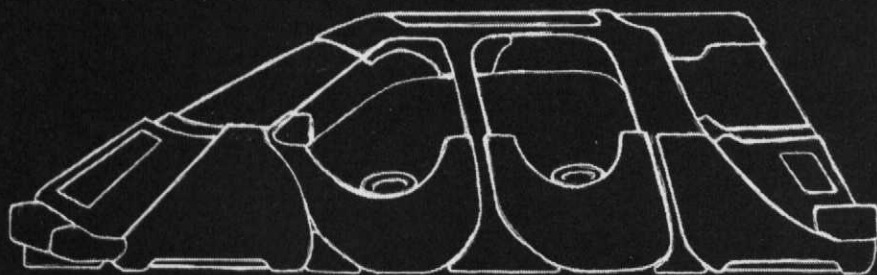
Cost: ●●●●●

Fusion-Powered Ground Vehicles

Sometimes the power and range of electric-battery-powered vehicles just aren't enough. A stronger power source with considerably more "kick" is required and size is not a concern. Vehicle manufacturers then turn to hyper-fusion reactors. Hyper-fusion-powered ground vehicles tend to be huge simply due to the size requirements of their engines. The duties of such vehicles include long-range hauling, security escort and heavy combat. China and the FSA both maintain fusion-powered tank fleets.

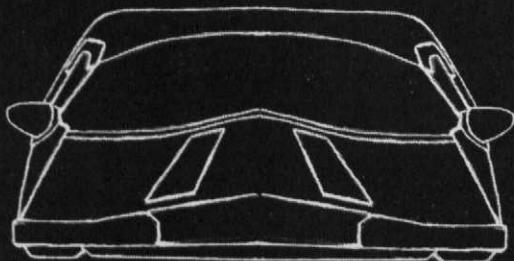
- **Concurso MH3 Trihauler:** Concurso designed this triple-cargo-cab vehicle with a fusion engine in an effort to create the world's largest land-based, transcontinental transport. Each cargo trailer is capable of carrying 200 cubic meters of goods, giving the Trihauler an incredible 600-cubic-meter carrying capacity. Furthermore, shippers appreciate the flexibility afforded by compartmentalization. The Trihauler doesn't raise the legal questions often inspired by its armed and

SHENDAI KUROMU

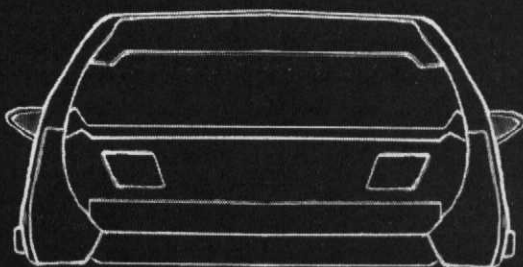


SIDE

FRONT



REAR



armored competitor, the Mashindano Kuchuka Bronto.

VT: Wheeled

Tech: Ω

CS: 135 km/h

TS: 215 km/h

Handling: 0

Mass: 8

Cost: ••••••••

"Supertanks"

The primary limitation on the size and armament of tanks has historically been horsepower requirements. However, the fusion engine provides the energy needed to make truly powerful tanks. The new technologies that resulted exceeded most tank designers' wildest dreams, overcoming difficulties posed by inadequate power and allowing for virtually unlimited range. The modern supertank is equipped with extensive electronic countermeasures, sophisticated communications and detection systems, and horrendous firepower. Some models are even capable of firing upon satellites using low-orbit-capable coilguns.

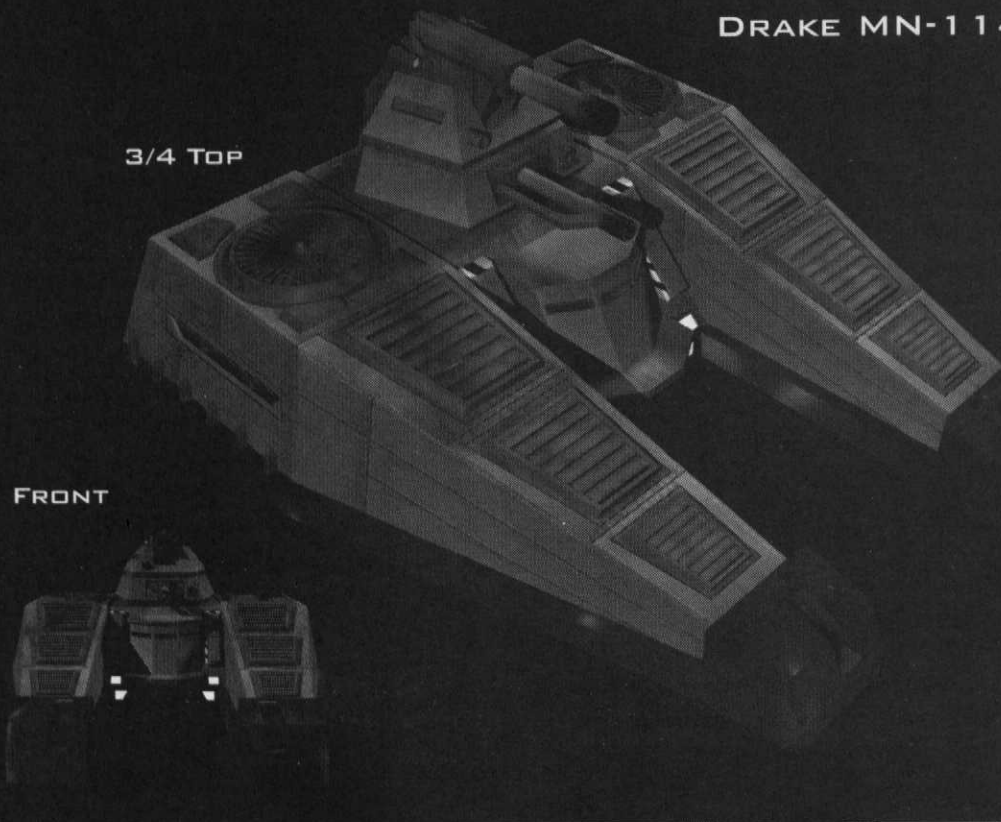
• **Drake MN-114:** The FSA maintains only a single battalion of these behemoths, which are expensive to maintain. Each tank is easily the equal of three or four of its lesser brethren. Drakes are manufactured at a Dallas-Fort Worth base using components from L-K, ClinTech and Steinhardt. Each Drake is programmed with a DataWarp Patton agent. Unlike its Chinese equivalent, the Drake does not use the slightly archaic continuous-track system, relying instead on a set of six large lift fans. Further, the Drake's dual turret is fully automated, the weapons able to rotate independently of one another. The Drake is the only skimmer that has been classified as a "tank" and the rating is well deserved.

Assignment to a Drake is not taken lightly by FSA crews; serving a tour in one on any battlefield is considered a privilege. The Drakes were originally designed to do battle with powerful Aberrants, but their relatively recent construction has limited their anti-Aberrant activity to the apparent destruction of Roswell Rosie. A crew of five includes a commander, driver, two gunners and a communications officer.

DRAKE MN-114

3/4 TOP

FRONT



VT: Hover

Tech: Ω

CS: 135 km/h

TS: 215 km/h

Handling: 0

Mass: 115

Cost: Not available commercially

Armor: 7 [15]

Weapons: Turret-mounted, superheavy coilgun (Accuracy: +3, Damage: 9d10 [11] L) or a turret-mounted, superheavy laser (Accuracy: +2, Damage: 9d10 [10] L) secondary turret-mounted, light laser cannon (Accuracy: +1, Damage: 5d10 [10] L); four smart missiles (Accuracy: +3, Damage: 10d10 [15] L)

• **Ulanbator Tao-ci-qi Chui-zi:** China's supertank utilizes the time-proven mode of track propulsion, with the added capacity offered by a hyper-fusion engine. Built by a Mongolian company — essentially a shellcorp for the Chinese military complex — the Chui-zi has been manufactured in quantities sufficient to equip an entire artillery brigade. This model is environmentally sealed and is capable of driving across riverbeds and even narrow sea channels. The crew consists of a commander, driver and two gunners.

VT: Tracked

Tech: Ω

CS: 90 km/h

TS: 175 km/h

Handling: 0

Mass: 150

Cost: Not available commercially

Armor: 6 [10]

Weapons: Turret-mounted, 200 mm electromagnetic launcher (three alternate rounds); armor-piercing round (Accuracy: +1, Damage: 11d10 [8] L); high-explosive round (Accuracy: 0, Damage: 8d10 [10] L over a 10 m radius); plasma-grenade canister (Accuracy: 0, Damage: 7d10 [3] L over a 30 m radius for five consecutive turns); secondary turret-mounted, light laser cannon (Accuracy: +1, Damage: 5d10 [10] L); two smart missiles (Accuracy: +3, Damage: 10d10 [15] L)

Aquatic Vehicles

Since the first Aberrant War and the Federated States' loss of much of its so-called "breadbasket," humanity has turned to a previously underestimated re-

source for its food and raw materials: the sea. The pressure domes of aquatic cities now dot the ocean floor along the continental shelves and the island stalks, and a few brave souls have dared to venture into deep seas to take advantage of their vast resources. Automated machines that are little more than vacuum cleaners with built-in agents rake the sea floor for valuable minerals, including platinum and other precious metals. Vast kelp beds are farmed and harvested in a manner strikingly similar to techniques used on grain crops. Krill are bred, raised and processed into many food products. Seafood is no longer a luxury — it has become a staple in many countries whose farmlands were devastated in the Aberrant War.

Unfortunately, the world's exploration and exploitation of the sea have not been cooperative or peaceful. Battles rage over contested ranges of ocean floor. The entirely aquatic nation of Caribbe has struggled for years against an aggressive Cuba that is determined to exploit the submarine city's incredible resources. The FSA occasionally protects the young nation, but not without exacting its own economic tolls and acquiring permission to station large naval forces there.

Armed submarines now prowl the seas much as their surface counterparts did centuries earlier, diving under the waves to avoid detection by satellites. Pirates attempt to steal fortunes in supplies from massive, automated cargo submarines. And recently, creatures that are neither human nor natural sea life have begun attacking isolated aquatic habitations. Mankind is not safe from the Aberrant threat, not even in the deepest oceans.

Submarines

Today's submarine fleets consist of many vessels, from small two- or three-man, short-range ships (the oceanic equivalents of taxis or the family car) to colossal half-kilometer-long cargo carriers. Even though mankind no longer needs to use undersea oil platforms to tap the petroleum resources hidden beneath the ocean floor, the technological developments that resulted from those efforts are still used today to cruise Earth's seas.

Modern submarine vessels don't churn the water with screw propellers that can be heard for kilometers. Rather, they apply a simple law of physics known as Fleming's Left Hand Rule. Sea water is ionized during intake to a vessel's "engine" and is then magnetically accelerated out an exhaust port. The combined suction of new water and pressure of expelled water allows for underwater propulsion at new speeds. Such travel is called magnetohydrodynamic propulsion, or MHD.

Recent developments in biotechnology have also led to the creation of a new type of submarine, one that actually swims through the water. Though most vessels of this type still use MHD for high-speed travel, the natural movement of swimming, performed by an apparently living being, allows military biosubs to approach enemy installations and equipment with little fear of detection. They appear to be little more than natural sea life.

Most submarine hulls, whether hardtech or biotech, resemble underwater denizens by some means. For hardtech vessels, this tendency applies more in design than appearance; undersea creatures have become the models upon which submarines are based. For biotech, similarities to living creatures derive from the genetic material of marine animals used in ship creation. Despite humanity's advances in science and technology, nature still proves the best engineer.

Aerosubs

Another type of submarine vessel can traverse both water and air. Aerosubs are primarily jets that can go undersea to avoid detection by opponents. They are a variation on atmospheric and spacefaring hybrid craft, with engines designed for underwater performance. The main engine's magnetic accelerator channel is altered to function as a MHD duct. While this feature optimizes submersion speed — up to 200 km/h — it reduces the engine's performance in normal atmospheric conditions. High-speed atmospheric flight cannot be achieved and the craft cannot enter orbit.

Aerosubs serve in an incredible variety of roles. The militaries of the world use different designs for coastal defense, troop transport, rescue missions and rapid strikes against enemies.

Aerosubs are not alone in the deep. They are transported by massive subcarriers — submarine versions of the aircraft carriers that once ruled the seas. Only a few countries are wealthy enough to own and maintain such vessels. Submersible carriers replaced their predecessors once the large surface ships became sitting ducks to orbital attackers. The modern carrier utilizes its ability to submerge completely to pass unseen, and as protection from satellite attack.

The subcarrier is a mobile fortress. It carries aerosubs and various lesser submarines. It is even armed with defensive railguns and lasers capable of firing upon orbital-attack platforms when the gigantic vessel surfaces.

The subcarrier enables an army's rapid response to trouble anywhere in the world. Outfitted with ducted turbines and MHD propulsion, a subcarrier can accelerate and maneuver effectively at 160 km/h, though cruising speed is around 100 km/h, at which the silence-to-movement ratio is optimal. Extensive radar, sonar, infrared, ferromagnetic, MAD (Magnetic Anomaly Detection) and blue-frequency LIDAR (Laser Interferometry Detection and Ranging) sensors enable a subcarrier to detect its environs at over a 100 km range. Passive systems used during "silent runs" have a shorter range, but are essential in avoiding detection. Proteus Division has lost track of specific Chinese and FSA subcarriers for periods of up to nine days at a time.

The Chinese government is known to have constructed nine Wang Chuan-class vessels. Bisai is responsible for construction of the Federated States' eight Poseidon-class vessels, and FangTech designed the single model produced for the Australian Navy. The Australians ordered no further carriers due to the difficulties of maneuvering the first within the Great Barrier Reef. However, Australia does maintain a rather large fleet of aerosubs. Proteus reports that Australia appears to be in negotiations to sell its subcarrier to Brazil, an action sure to be protested by the Chinese.

Most other essential vessels of traditional surface navies have also been adapted for underwater use. Landing ships, missile carriers, and "gunboats" prowl the depths, cruising silently to trouble spots and occasionally breaking the surface to stage surgical strikes or to shadow an enemy menacingly. Gunboat diplomacy between world powers is alive and well.

• **Baku hatsu SC-16:** Cargo and troops need to be moved to and from subcarriers and the SC-16 does the job. It's an aerosub version of a rather standard cargo aircraft, modified for military duty. It has a crew of three and a single 2000-cubic-meter cargo bay with folding troop seats. It can carry 24 soldiers and their equipment into battle.

VT: Water Hybrid

Tech: Ω

CS: 150 km/h (water), 640 km/h (air)

TS: 200 km/h (water), 900 km/h (air)

Handling: +3

Mass: 33

Cost: Not available commercially

Armor: 3 [10]

Weapons: Two light lasers (Accuracy: +1,

Damage: 5d10 [5] L) in side turrets

• **BioSystems Lamprey:** Designed to carry a single special-forces operative in a suit of bio-armor, this biosub is South America's great equalizer against the subcarriers. It uses its teeth and an enzymatic acid to chew a hole through the hull of its target and then injects its passenger into the submarine. The ship then collapses itself to seal the hole and alters its surface coloration to camouflage its presence. The Lamprey also connects to any power or communication conduits that it happens to cut in order to ensure it remains undetected. It uses a battery-powered MHD for propulsion, but is capable of performing a natural swimming motion for true stealth. When it detaches to escape, the small craft can create a distraction automatically by leaving a hole in the target vessel or it can weave a biofiber patch that

probably won't be discovered until a maintenance crew happens upon it. The aerosub must be formatted to its pilot.

VT: Submersible

Tech: Ψ

CS: 120 km/h (MHD), 20 km/h (swimming)

TS: 170 km/h (MHD), 35 km/h (swimming)

Handling: +2

Mass: 0.3

Tolerance: •••

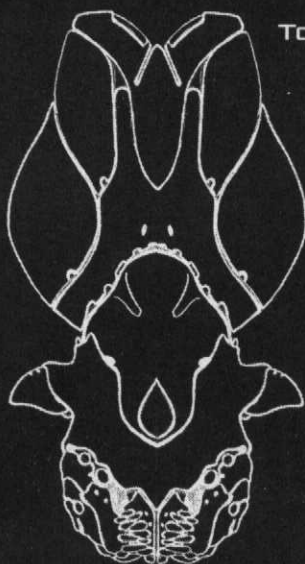
Cost: Not available commercially

Armor: 3 [5]

Weapons: Twin, light biolasers (Accuracy: +2, Damage: 5d10 [5] L); bio-electric disrupter (Accuracy: 0, Damage: 2d10 [7] B); Teeth (Damage: 7d10 [10] L)



TOP/OPEN



TOP/CLOSED



SIDE

• **Bisai Harpoon SF-18:** This versatile craft is a multi-mission aerosub utilized by the FSA to defend its borders and to attack targets without warning. The only limit to its range is its pilot's endurance, thanks to the ship's hyper-fusion engine. The FSA is experimenting with sleep cockpits; the pilot could put his Harpoon on autopilot to cruise at a preset depth. However, this would not be considered a realistic approach to long-range missions, nor would it likely replace the subcarrier as a docking facility.

VT: Water Hybrid

Tech: Ω

CS: 200 km/h (water), Mach 1.7 (air)

TS: 250 km/h (water), Mach 2.2 (air)

Handling: +3

Mass: 15

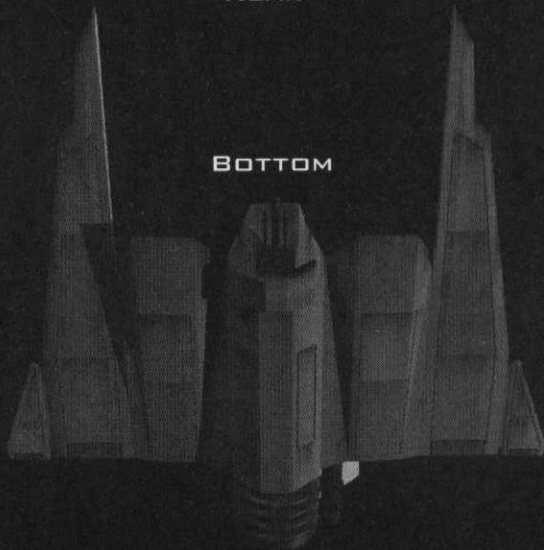
Cost: Not available commercially

Armor: 4 [5]

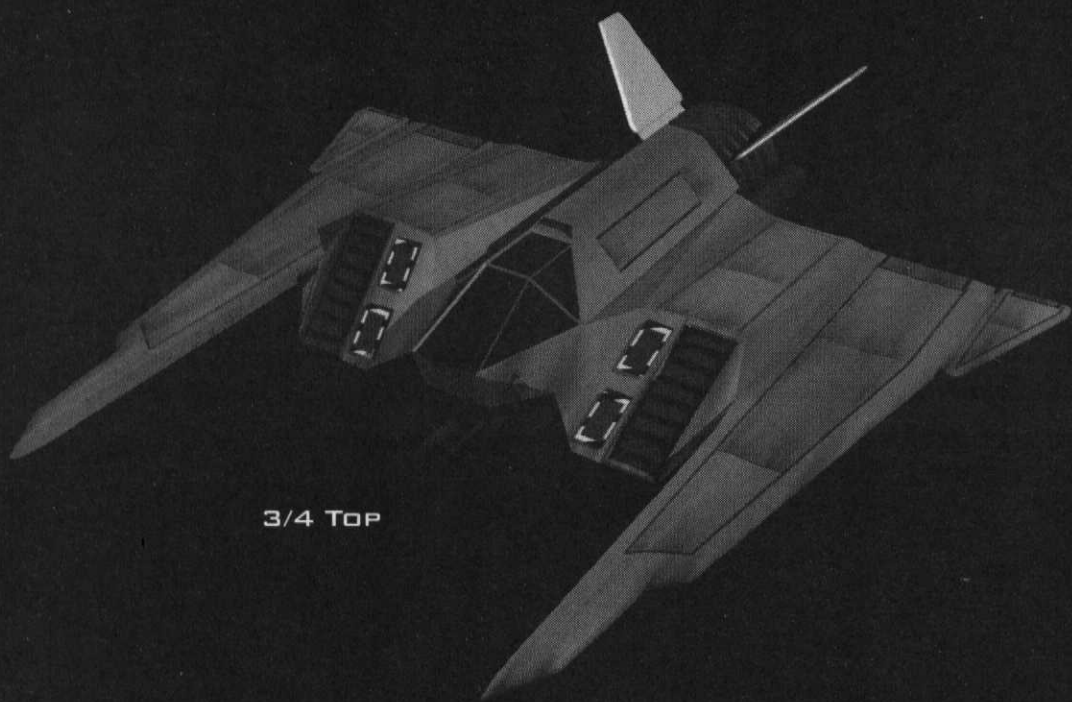
Weapons: Medium laser cannon (Accuracy: +2, Damage: 6d10 [5] L); four smart missiles (Accuracy: +3, Damage: 10d10 [15] L)



REAR



BOTTOM



3/4 TOP

• **Bisai SSCVN-100 Poseidon:** The FSA's massive subcarrier was the world's first. The vessel is based on large cargo-submarine designs, altered for the necessities of its intended duty. The Poseidon has two 15,000-cubic-meter cargo bays and there is additional room for goods in the aircraft bay and the lower vehicle bays. This behemoth of the seas is 330 meters long and has a crew of 5,000, including pilots for all vessels and aircraft carried.

VT: Submersible

Tech: Ω

CS: 100 km/h

TS: 160 km/h

Handling: 0

Mass: 88,200

Cost: Not available commercially

Armor: 6 [15]

Aircraft Complement: 24 SF-18 Harpoons, two Bakuatsu E-15 Hybrid Fighters, four FangTech Tiger Sharks, four Bakuatsu SC-16s

Weapons: Eight smart torpmissile tubes, six forward and two rear firing tubes with a total of 64 torpmissiles (Accuracy: +3, Damage:

10d10 [15] L); six medium lasers (Accuracy: +1, Damage: 6d10 [5] L); eight fusion warheads (Accuracy: +3, Damage: 18d10 [30] L); electromagnetic launch emplacement, for surface-firing only (Accuracy: +3, Damage: 10d10 [10] L)

• **Shiyyusou Kyokan:** The 22nd-century equivalent of a supertanker, the Kyokan is a giant, SI-piloted, automated submersible designed to ship goods in the relative calm of the deep ocean. It has four 30,000-cubic-meter cargo bays and quarters for 12. A skeleton crew of three working in rotating eight-hour shifts is usually sufficient to operate the vessel, unless the sub suffers from mechanical problems. Despite being exorbitantly expensive, these transports are in high demand among companies who try to satisfy Nippon's desperate need for raw materials.

VT: Submersible

Tech: Ω

CS: 90 km/h

TS: 140 km/h

Handling: 0

Mass: 35,000

Cost: ••••••••••

Armor: 4 [10]

• **FangTech Tiger Shark:** The Tiger Shark is a light attack sub that's commonly slung under a subcarrier. It is designed for carrier defense and for light surface attacks. Its flexibility makes it useful as a coastal patrol sub as well.

VT: Submersible

Tech: Ω

CS: 110 km/h

TS: 210 km/h

Handling: 0

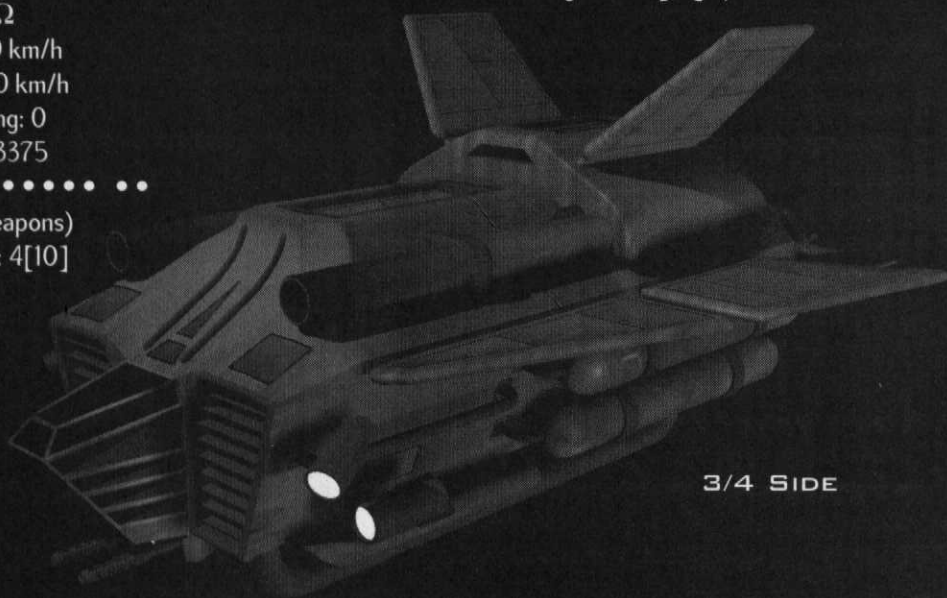
Mass: 3375

Cost: ••••••••

(without weapons)

Armor: 4 [10]

Weapons: Two medium lasers (Accuracy: +1, Damage: 6d10 [5] L), two forward and one rear torpedo tube (capable of firing smart missiles; Accuracy: +3, Damage: 10d10 [15] L), one medium coilgun (Fired only when surfaced; Accuracy: +2, Damage: 7d10 [10] L)



3/4 SIDE

• **Orgotek Manta:** Originally designed as an amphibious landing craft, the Manta has gained popularity as a ferry for vehicles traveling from underwater cities and from island locations that lack proper submersible docking facilities. The Manta resembles its namesake. It has a large loading/disembarkation ramp between its two "horns" that offers direct access to the internal cargo bay. For such a large vessel, the Manta has a relatively small crew of eight. The ship has enough cargo capacity to carry a single Drake supertank and a platoon of fully equipped troops. The civilian variant is unarmed and has less armor. If formatted to the pilot, the Manta gains +2 handling.

VT: Submersible

Tech: Ψ

CS: 110 km/h

TS: 210 km/h

Handling: 0

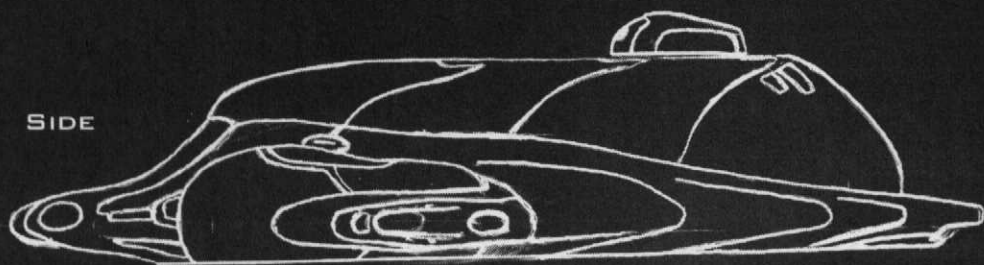
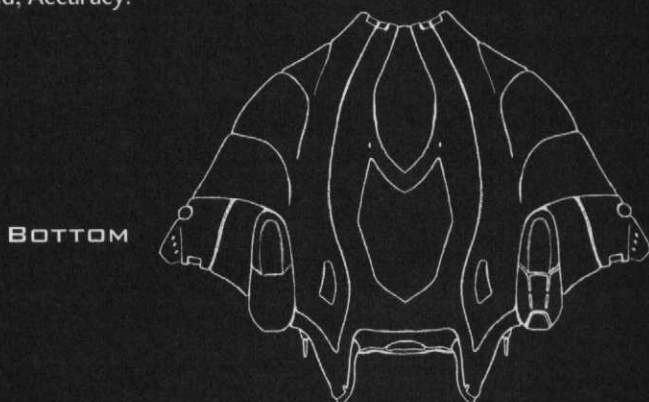
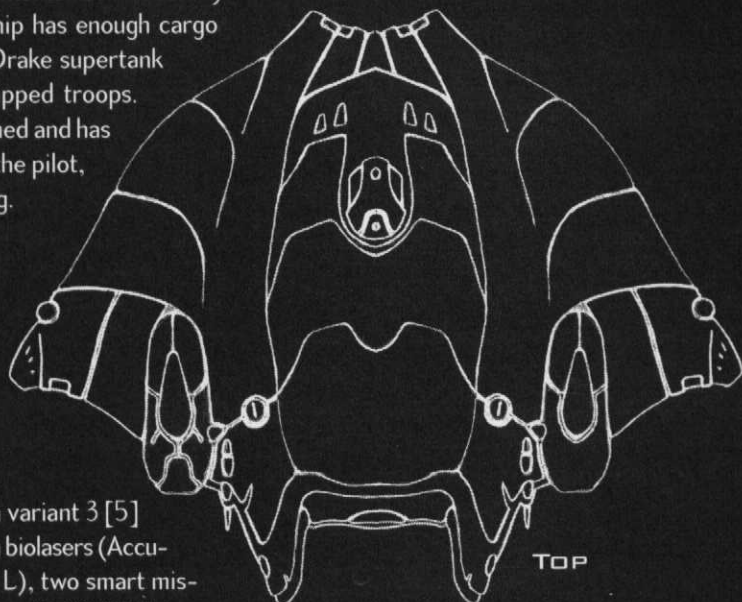
Mass: 7000

Tolerance: •

Cost: ••••••••

Armor: 5 [10]/ civilian variant 3 [5]

Weapons: Two medium biolasers (Accuracy: +1, Damage: 6d10 [5] L), two smart missiles (Accuracy: +3, Damage: 10d10 [15] L), one light coilgun (fired only when surfaced; Accuracy: +2, Damage: 6d10 [10] L)



Surface Vessels

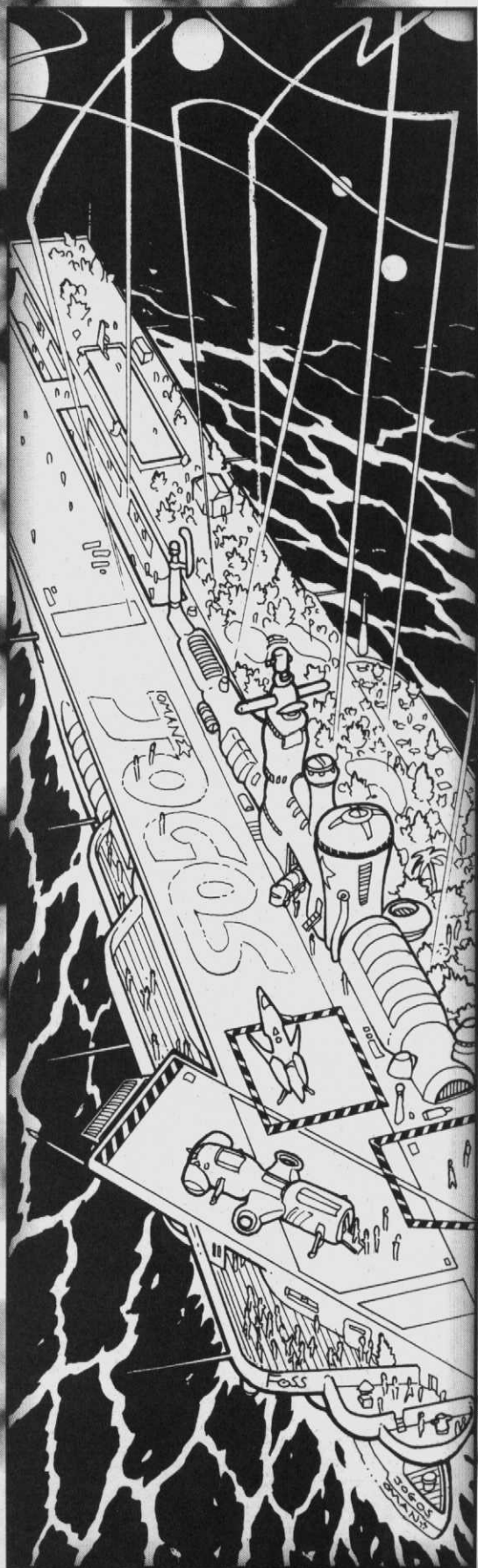
With the relative absence of large, surface-going cargo and military vessels, the seas have become both leisure resorts and the poor man's means of long-range shipping. Ocean liners still sail to exotic ports and offer isolated retreats to busy — and wealthy — business people. Only those with a keen eye or experience in security recognize the behind-the-scenes defense measures that such ships employ in case of terrorist or Aberrant attack. Many fleets keep independent psions on retainer to protect their vessels. What better security force could there be than one who looks perfectly human and whose weapons are hidden in his mind?

By contrast, those who cannot afford the prices of cargo submarines — or who, for their own reasons, don't want to use commercial shipping services — send small cargo ships across the ocean surface. Modern surface vessels tend to use MHD exclusively. (The technology applies to surface as well as submersible vessels.)

Most nations' navies also maintain some surface presence, to police surface shipping or for coastal patrol.

- **Oman Jogos Resort Carrier:** When the various military complexes of the world began to decommission their aircraft carriers, one enterprising Brazilian company recognized an opportunity. The last of the hyper-fusion surface carriers were refurbished into grand gambling resorts. The company then moved to Oman during that country's climb to become the amusement capital of the world. The *Jogos* is therefore just one of the pleasure vessels that calls Oman home.

The crew of the *Oman Jogos* seeks to satisfy every passenger's desire. Apoderado and other media companies have therefore been commissioned to produce entertainment-quality holosims of everything from animated cartoon characters to hardcore pornography. A guest of the *Oman Jogos* can expect to be treated to every delight and decadence as she voyages between Rio de Janeiro and Oman. One can experience nightly holographic pyrotechnic displays on deck, luxuriate in spacious suites or indulge in one of the many state-of-the-art holosim chambers. And, of course, there is the gambling. Games



from a hundred cultures have been adopted by the ship's fabulous casinos.

A ticket to sail the *Jogos* costs •••, but passengers with anything short of incredible willpower can expect to spend many times that on games and diversions. The *Norça* is a reputed silent partner in the cruiseline.

VT: Ocean Liner

Tech: Ω

CS: 60 km/h

TS: 100 km/h

Handling: 0

Mass: 89,000

Cost: ••••••••••

Armor: 4 [10]

Aircraft and Spacecraft

For most people, long-distance travel means flying. The same three or four hours that tourists once spent driving a mere couple of hundred kilometers now puts the modern traveler anywhere in the world. Aircraft technology has changed considerably in the 220 years since the Wright brothers first flew.

Propulsion Systems

High-Velocity Tiltrotors and Ducted Fans

Atmospheric aircraft are propelled by one of two means: high-velocity tiltrotors or ducted fans. Though the two systems are different, they have become lumped together in common parlance as HVTR.

Basic HVTR aircraft were created as early as the 20th century in response to demand for vehicles that could take off and land in a short space. Before and after the Aberrant War, ever-growing cities encroached upon and dangerously crowded the traditional airports used for long-distance travel. The aircraft industry therefore set to adapting to the world's (and the military's) changing needs.

The result was a combination of centralized engines, light construction materials, engines that could create both forward and upward thrust, and the compression of engine exhaust and air through nozzles to attain lift and increased speeds. These innovations were ultimately responsible for the "vertports" of the 22nd century.

The second convention of modern aircraft is the ducted fan. The advent of hyper-fusion generators and lightweight, high-capacity rechargeable batteries made it feasible for designers to create aircraft that could use fans for propulsion at low speeds. These fans have become a standard and are used in skimmers as well as in aircraft for both commercial and military use.

Typical atmospheric aircraft use either form of propulsion. However, ducted-fan systems have the advantage of operating outside an oxygen-based atmosphere; they merely need sufficient atmospheric pressure to generate thrust.

Modern hybrids — craft capable of atmospheric and space flight — are equipped with true HVTR or ducted-fan propulsion systems. These engines are used primarily to achieve vertical take off and landing. Fusion power is often used to reach the speed of sound and beyond.

Fusion Jets

Fusion jets, originally developed by Banji in 2026, are the most common form of aircraft propulsion. Since its original invention, the technology has been licensed to and stolen by enough corporations to make it practically public domain, but Banji is still the cornerstone of this very important market.

There are three forms of fusion propulsion. In the primary mode, a ducted fan feeds compressed air into a combustion chamber where the air is mixed with heated hydrogen. The result is a high-efficiency, high-thrust engine that can push an aircraft past the speed of sound. Some fusion jets, particularly in aircraft that have no need for supersonic flight, are capable of only the weakest forms of such propulsion.

The second form of fusion travel is possible only at supersonic speeds. Airflow into the engine is diverted around the ducted fan and mixed directly with high-temperature hydrogen. This mode is used to escape planetary atmospheres and to enter space.

The third mode eliminates the need for airflow or sufficient atmosphere for combustion. The craft becomes a fusion rocket through high-speed expansion of hydrogen plasma. This form of propulsion is used to travel the awesome distances of space. Yet even greater speeds are possible —

about an additional 10% — if an engine's plasma is charged through electromagnetic acceleration. Such bursts of speed exhaust engines, though, and are typically reserved for emergencies in space or for quick maneuvering.

The third fusion mode can be used in an atmosphere, but is typically reserved for thin ones. Earth governments ban travel at such speeds through the planet's atmosphere, not only because of the velocities involved, but because the plasma's extreme heat and radiation emissions cause excessive environmental damage.

Multimode fusion engines can usually operate in at least one mode if part of an engine is damaged. Damage to a duct fan might not stop a craft from achieving pure fusion thrust, for example.

Fusion engines of military craft are usually shielded electromagnetically and ducted carefully to avoid exposure of the engine's combustion core. If not properly concealed, the engine becomes easy for radar to detect. Civilian fusion craft don't have these features, making them recognizable by anyone with the appropriate sensor equipment.

Airframes

The Wright brothers' aircraft was constructed of treated canvas stretched over a wooden frame. Although the basic concepts of modern aircraft structure haven't changed, the materials and techniques have. Modern civilian aircraft have light, flexible frames and skins, constructed to endure the stresses of takeoff, maneuvering and flight and to maintain their shape within the constraints of the laws of aerodynamics. While military aircraft may appear similar to civilian craft, they are modified using stealth technologies and are usually armored to resist damage from enemy weapons.

Even though sufficient power sources exist to force the most non-aerodynamic designs to fly, the stresses imposed on such aircraft would limit them to low speeds. Aircraft skins consist of lightweight, thermally resistant plastics or ceramics to allow for great flying speeds. Skins are also reinforced by different fibers, ranging from extruded carbon to exotic orbital fibers such as monomolecular plastics, synthetic spider silk or diamond lattices. Aircraft frames also tend to be made of fiber-reinforced ceramic or metal alloys.

Stealth

In centuries past, sensory technologies achieved such a level that military aircraft had to become "invisible" in order to perform their missions. The height of sensor abilities was achieved when orbital satellites could simply perceive the "blank spaces" created by otherwise "nonexistent" craft.

The modern solution to this problem is to make aircraft *transparent* to sensors. They appear invisible to radar, but also produce a dynamic sensor image of normal background clutter — non-aircraft targets — in order to avoid detection by satellite systems.

Such stealth capabilities are accomplished by threading microcircuited fibers into the structure of an aircraft. A craft's computer agent operates the fibers, absorbing, reflecting and even broadcasting electromagnetic transmissions to emulate a plane's surrounding background. The principle is even used with ground-based military vehicles such as tanks. This advance in stealth technology has eliminated the need to make aircraft black to avoid detection, allowing builders to use camouflage and sky-blue and gray colors to help avoid visual recognition.

L-B honed all of this technology, but many of the corporation's specialists defected to other companies when it relocated out of the FSA. Bisai (an FSA manufacturer that bills itself as Nihonjin to increase its market visibility) and Banji are now considered on equal footing with L-B in creating hardtech, low-observability vehicles. Orgotek and BioSystems are the three competitors' biotech equivalents.

The downside of military stealth innovations is that most civilian-marketed sensor systems (and some crude military ones) have difficulty detecting protected vehicles. Sometimes not even *Æon* systems and files are capable of spotting or recognizing military craft. However, no army or corporation has yet to create an aircraft that can avoid clairsentient detection. Of course, that means a number of groups are currently working on such technology, but the Trinity and the orders have the upper hand until someone makes a breakthrough.

Control Systems

Early aircraft used ropes and pulleys to control various moving parts — a far cry from the complex optical-control systems used in 22nd-century aircraft and spacecraft.

Some civilian and most military craft are designed to be what is called “dynamically unstable.” A completely stable aircraft could not respond to a pilot’s commands and would be incapable of maneuvering. Aircraft and spacecraft are therefore built to be flexible and adaptive to respond to a pilot’s needs. For example, level flight is achieved by a pilot’s flight-control computer. It transmits instructions for minute adjustments to the ship’s working parts to keep the craft flying smoothly. The pilot is able to override that norm to perform maneuvers.

A vessel’s control computer operates the craft through a network of optical fibers. Signals activate motors located at individual control surfaces. Assuming a vessel is in an atmosphere, air data, radar, LIDAR and infrared sensors, as well as the GPS (global positioning system), all send their collected data to the craft’s computer over the same fiber-optic network. Thus, at any particular moment, the craft’s agent knows the heading, altitude, aspect and navigational location of the aircraft, and knows of any local air traffic, weather or meteor activity. Additional data can be fed in by satellite relay, but this type of transmission is usually reserved for transatmospheric vehicles (semiballistic liners and their brethren), military flights and near-Earth vehicles due to the extreme costs of maintaining open uplinks.

An aircraft or spacecraft’s computer agent processes all of this data. Military flight agents are programmed to recognize friendly and enemy ships, and surface objects. They also classify the danger that other objects present to a craft, and whether those items are on a mission’s target list. (The agent therefore performs the duties once assigned to a military copilot.) The agent presents this data to the pilot through a holographic display mounted into the canopy. A “conventional” control panel of flat-display touch-screens is also provided in case this holographic system encounters problems. These touch screens replace the various knobs and buttons of old aircraft.

An agent can also function as autopilot in an atmosphere or in space. It can recognize and avoid collisions with other craft and objects, as well as land a craft in case of pilot incapacitation. The agent is kept separate from the ship’s systems, though, to avoid total craft shutdown if the agent fails, and to avoid losing the agent if any single system is damaged.

Aircraft

• **Banji Musasabi:** Small, light and relatively fast, the Musasabi seats two people in moderate comfort in a tandem arrangement. It is a popular aircraft for pilots-in-training and is used widely for acrobatic performances. Rumor has it that a lightly armed and armored Musasabi is in development for countries that cannot afford hybrid fighters.

VT: Jet

Tech: Ω

CS: Mach 1.1

TS: Mach 1.5

Handling: +1

Mass: 3

Cost: ••••••••

• **Bisai Wasp:** The Wasp is a light, HVTR aircraft that is available as a four-man civilian model and a single-man military model. The former is considered a comfortable, inexpensive personal aircraft. The latter is often used for troop support and occasionally for urban patrol. The Wasp is battery-powered for convenience and easy maintenance.

VT: Jet

Tech: Ω

CS: 520 km/h

TS: 690 km/h

Handling: +2

Mass: 6

Cost: •••••••• (civilian); military version is not available commercially

Armor: 3 [7] (military version only)

Weapons: Turret-mounted, light laser (Accuracy: 0, Damage: 5d10 [5] L), two light smart missiles (Accuracy: +1, Damage: 6d10 [10]) (military version only)

Commercial Spacecraft

• **Banji Owl Scoutship:** This 45-meter-long ship is a smaller and more lightly armed version of the Peregrine scout vessel (see page 126) developed by Banji for the *Aeon Trinity*. The Owl is a highly maneuverable craft, capable of both atmospheric and space flight. It is designed for a crew of four, but contains quarters for up to six others. The Owl replaces the Peregrine's missile bay and associated fire-control systems with additional footage that can be configured as a cargo hold, small research lab or as additional crew/passenger quarters. The absence of missiles lowers the sticker price of the Owl and has eased Earth governments' concerns about the sale of such craft to civilians. The Owl has become very popular among well-to-do private spacefarers and corporate fleets.

VT: Hybrid Scout

Tech: Ω

CS: Mach 2

TS: Mach 3

VS: 5

Handling: +1

Mass: 300

Cost: ••••••••••

Armor: 3 [10]

Weapons: Turret-mounted, medium laser cannon (Accuracy: +2, Damage: 6d10 [5] L)

• **ICE Freighter Naiad:** This massive ship, the largest superfreighter of the space lanes, is specially designed for ice mining. The body of the vessel is dominated by enormous holds with precise temperature controls. The ship provides barebones living quarters for a small crew of six (many of the vessel's operations are automated). A fully loaded Naiad has poor maneuverability, so the ship is armed to the teeth. Given the importance of their cargo to most of the outer colonies, Naiads commonly have frigate escorts. There is little question that the Naiad has a hardtech hull and cargo-handling systems, but rumors abound that ICE has manufactured specialized hybrids of the ship that have biotech internal systems (piloting, MSYS, astrogration and life support) for use by Norça agents.

VT: Freighter

Tech: Ω

VS: 2

Handling: 0

Mass: 320,000

Cost: Not available commercially

Armor: 5 [10]

Weapons: Six turret-mounted, medium laser cannons (Accuracy: +2, Damage: 6d10 [5] L); two front-mounted, heavy coilguns (Accuracy: +1, Damage: 8d10 [10] L); two missile bays with a total of 20 smart missiles (Accuracy: +3, Damage: 10d10 [15] L)

• **L-B Vulcan Mark IV:** Active production of this 350-meter-long, multi-purpose commercial vessel ceased almost 30 years ago. Nonetheless, reconditioned Vulcans remain a staple among the ragtag independent mining fleets that work the Asteroid Belt.

The Mark IV was designed to carry and provide the satellite probes and spectral analyzers necessary to survey an asteroid for recoverable mineral deposits, the lab equipment to assay any ores found, the mining equipment (robo-diggers, haulers) to exploit such veins, and the cargo capacity to haul product for processing or sale. Its hull is constructed of thick layers of orbital polymer steel, providing good shielding from radiation or impact breaches. The ship's standard configuration supports a crew of up to 18. Onboard lab

Option: Effects of Mass on Acceleration

Since *Trinity* focuses on the cinematic qualities of the story over extreme scientific detail, the rules do not address the impact mass has on spacecraft acceleration.

The Storyteller may wish to factor in that a much less massive vehicle like a hybrid fighter can accelerate more quickly than a large frigate or gigantic freighter can. The chart below lists a simple method of vacuum-speed acceleration per turn. Note that "acceleration" refers to going faster or slower.

VS per Turn	Vehicle Type
1	Hybrid fighter-class
0.75	Frigate Scarab-class
0.5	Frigate-class, Hybrid shuttle- or transport-class
0.25	Freighter-class

facilities are utilitarian, if limited in scope. The Vulcan's minimal weapons array is designed as much for day-to-day operations — allowing a ship to blast oncoming meteorites or to soften up a “dig” site — as it is for defense.

VT: Freighter

Tech: Ω

VS: 3

Handling: 0

Mass: 60,000

Cost: ••••••••

Armor: 6 [10]

Weapons: Standard-issue systems consist of two turret-mounted, medium laser cannons (Accuracy: +2, Damage: 6d10 [5] L) and six smart missiles (Accuracy: +3, Damage: 10d10 [15] L). Note: Many Vulcans carry modified weapon and armor packages that vastly increase a ship's firepower

• **Nkumbe Industries Windjammer:** The UAN once arranged cruises between Earth's Kenyatta spaceport and *Mafaa-3* on elegant, converted freighters. However, when the first Windjammer proved popular among passengers, the UAN commissioned the construction of a fleet of the cruise ships. The Windjammer is equipped with dual hyper-fusion reactors and auxiliary solar sails, and offers accommodations for 50 crew and 350 passengers in single- to triple-occupancy suites. Hydroponic gardens supply fresh fruits and vegetables to the solar-system-renowned chefs on staff. Guests may participate in a variety of activities, including dancing, sports, gambling or partaking of the latest interactive holosims in the ship's two reality-grade arcades.

Given the prestigious and exclusive nature of the clientele who book passage on these cruises, the UAN is very security conscious. Each Windjammer is equipped with an impressive array of weapons and shielding, and onboard staff typically includes at least two members of Fortune's Knights, the Legion's mercenary wing.

VT: Freighter

Tech: Ω

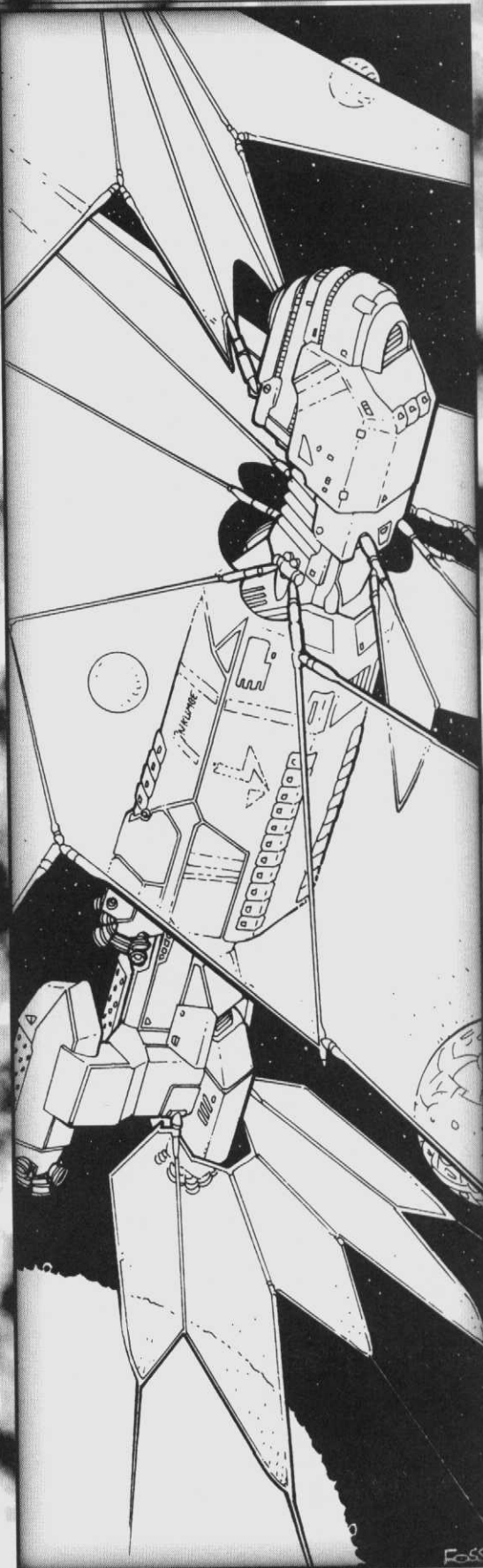
VS: 4, 3 when solar sails are in use

Handling: 0

Mass: 120,000

Cost: •••••••••• (vehicle),

•••• (passenger ticket)



Armor: 5 [10]

Weapons: Four turret-mounted, heavy laser cannons (Accuracy: +2, Damage: 8d10 [5] L); two missile bays with eight smart missiles each (Accuracy: +3, Damage: 10d10 [15] L)

• **Offworld Enterprises, Ltd. Pathfinder:** If the Mark IV is the trusty old workhorse of the Solar System, then this 250-meter-long orbital vessel represents the cutting edge of new ship technology. Produced at Offworld's *Perelandra* Station off Venus, the Pathfinder is constructed from the most modern alloys and ceramics and has a versatile modular design that enables it to be configured as a research vessel, a miner, a small freighter or even a light patrol ship, based upon the customer's needs. Over a dozen Earth governments (including the Federated States, Russia and India) and two psi orders (ISRA and the Legion) are already OE clients — and the Pathfinder has been in full-scale production for only three years. There appears little doubt that the company could sell twice the 100 vessels that it currently produces a year.

VT: Frigate

Tech: Ω

VS: 4

Handling: +1

Mass: 45,000

Cost: ••••••••••

Armor: 5 [10]

Weapons: Four turret-mounted, heavy laser cannons (Accuracy: +3, Damage: 8d10 [5] L); two missile bays with 10 smart missiles each (Accuracy: +3, Damage: 10d10 [15] L). Pathfinders designed for use as patrol ships also have two front-mounted, heavy coilguns (Accuracy: +1, Damage: 8d10 [10] L)

Military Spacecraft

• **Banji Hyo ("Leopard") Fighter:** Banji's first entry into the highly competitive aerospace fighter field is the Leopard. It's an intriguing attempt to combine the hauling capacity of a small-scale orbital cargo transport with a traditional fighter. The Hyo is equipped with Banji's new Raimei laser cannon, which delivers 25% more destructive power than a standard heavy cannon. The vessel can also carry up to 12 passengers and 1000 cubic meters of cargo in addition to its three-man crew.

The ship's versatility would seem to make it a natural for its target market — the colonies and orbital stations at the outer reaches of the Solar System. These intended clients seek to bolster their defenses against possible Aberrant attack, but have pressing transportation needs as well. Unfortunately, unlike Banji's successful Peregrine and Owl, the Leopard has been plagued by problems, resulting in production delays, recalls and several pending lawsuits. The business community has dubbed the Hyo "The Leper."

VT: Hybrid

Tech: Ω

CS: Mach 1.8

TS: Mach 2.2

VS: 4

Handling: +2

Mass: 30

Cost: Not available commercially

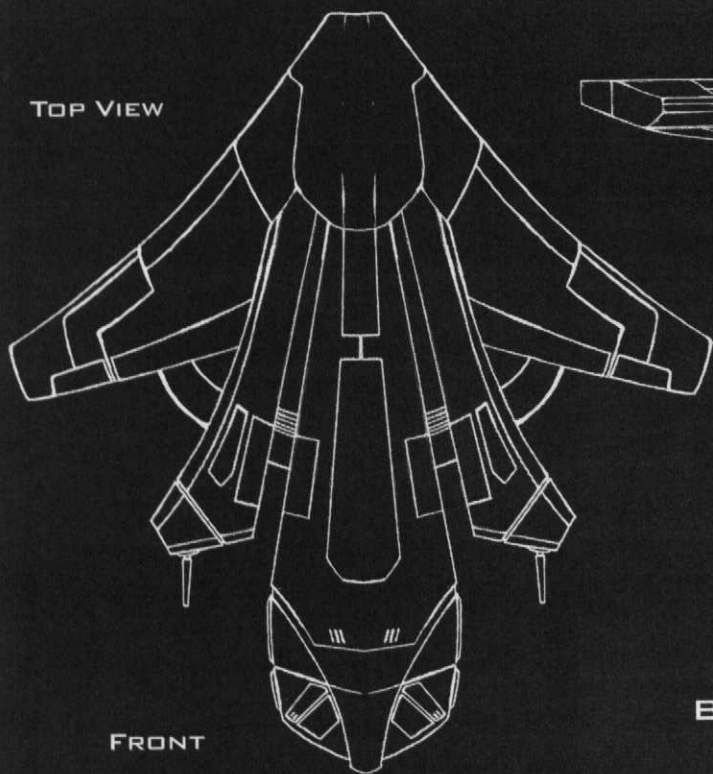
Armor: 4 [5]

Weapons: Two forward-mounted and one rear-mounted Raimei laser cannon (Accuracy: +2, Damage: 10d10 [5] L); six smart missiles (Accuracy: +3, Damage: 10d10 [15] L)

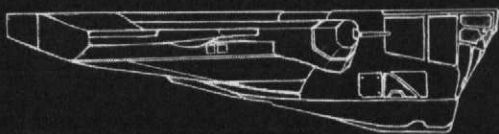
• **Banji Peregrine Scout/Recon Vessel:** The Peregrine is the result of an open-design contract put out by the Aeon Trinity for a small ship that could scout and recontact colonies in other star systems. The Peregrine is a paramilitary vessel, designed to be carried by a Leviathan and dropped off to conduct extended reconnaissance missions in an unobtrusive manner. The ship lacks the firepower for a prolonged engagement, but has the speed and maneuverability to outrun most heavy vessels.

The 50-meter-long craft contains quarters for a crew of five and up to four other passengers (typically a marine recon unit that serves as a landing party). The Peregrine is designed to function for long periods of time alone in deep space; it carries a four-month supply of food, water and oxygen and has onboard reprocessing facilities to recycle these necessities from wastes in an emergency. The vessel is also available on a limited basis on the commercial market; a small number of Peregrines are in service as mining explorers. Private buyers should be aware that missiles may require additional permits in certain areas and may be outright illegal in others.

TOP VIEW



FRONT



SIDE

BANJI PEREGRINE

VT: Hybrid Scout

Tech: Ω

CS: Mach 2

TS: Mach 4

VS: 5

Handling: +1

Mass: 500

Cost: ●●●●●●●●●●

Armor: 4 [10]

Weapons: Two turret-mounted, medium laser cannons (Accuracy: +2, Damage: 6d10 [5] L); missile bay with 10 smart missiles (Accuracy: +3, Damage: 10d10 [15] L)

• **L-B Aerie IFC (Intrasystem Fighter Carrier):** Built on the same basic hull design as the Novastorm¹ (below), the Aerie sacrifices some of that ship's weaponry for increased carrying capacity — it can hold up to 24 aerospace fighters in internal bays. Electromagnetic launch channels allow for rapid deployment of an entire flight group within seconds. The Aerie is used primarily as a system-defense command ship; Leviathans carry

their own complements of fighters and jump-ship captains appear to appreciate the support of the more heavily armed cruisers. The Aerie is a relatively new creation and has yet to see action. However, with the myriad of threats posed to humanity, it's only a matter of time before the Aerie enters combat.

VT: Cruiser

Tech: Ω

VS: 3

Handling: 0

Mass: 140,000

Cost: Not available commercially

Armor: 9 [10]

Weapons: Five turret-mounted plasma cannons (Accuracy: +1, Damage: 15d10 [20] L); 14 point-defense energy arrays (Accuracy: +5, Damage: 5d10 [5] L, ROF: 10)

• **L-B Novastorm IAC (Intrasystem Assault Cruiser):** The Novastorm is considered the pinnacle of modern warship design. Over 500 meters

long and armed with a full range of heavy assault weapons, the Novastorm is believed to be more than capable of defeating any known ship in space. The vessel can carry up to eight fighters and has a standard complement of 120 (which often includes a squad of psions) for landing engagements. Its hull is olaminium-reinforced, which along with the ship's vast arsenal, makes the craft so expensive to produce that only 10 are currently in service. China has four, the UAN and Nippon each have two and the Federated States and Great Britain each maintain one.

There are rumors that two cruisers — the British HMSS *Victorious* and the Chinese CSS *Black Dragon* — fought a successful combined action to repel a Chromatic recon vessel that entered Earth's Solar System a year-and-a-half ago. Both governments deny that such an event took place. One of the Nihonjin cruisers is assigned to the fleet intended to contact the Coalition for a second time.

VT: Cruiser

Tech: Ω

VS: 2

Handling: 0

Mass: 170,000

Cost: Not available commercially

Armor: 10 [20]

Weapons: Five turret-mounted, superheavy coilguns (Accuracy: +2, Damage: 12d10 [15] L); 12 turret-mounted, plasma cannons (Accuracy: +1, Damage: 15d10 [20] L); seven point-defense energy arrays (Accuracy: +5, Damage: 5d10 [5] L, ROF: 10); four missile bays with 50 smart missiles each (Accuracy: +3, Damage: 10d10 [15] L); one fusion warhead launcher with 14 missiles (Accuracy: +3, Damage: 18d10 [30] L)

• **Nova Starcraft A-4L Guardian:** Often referred to as the "export model" of the Phoenix (below), the Guardian is a reduced-armament version of that vessel. It is used primarily as a system-defense craft by colonies and was present at the Chromatic attack on the Kar-roo Mining Colony. (Colonists accustomed to Spartan living conditions seem to be unaffected by the claustrophobic working conditions of the Guardian). The ship is capable of remaining on patrol for periods of up to 90 days and has the speed and firepower to pursue pirates or other hostile vessels.

VT: Hybrid Attack Craft

Tech: Ω

CS: Mach 2.1

TS: Mach 3

VS: 4

Handling: +1

Mass: 1000

Cost: Not available commercially

Armor: 5 [10]

Weapons: Two turret-mounted, heavy laser cannons (Accuracy: +2, Damage: 8d10 [5] L); missile bay with 20 smart missiles (Accuracy: +3, Damage: 10d10 [15] L); forward-mounted, light coilgun (Accuracy: 0, Damage: 5d10 [10] L)

• **Nova Starcraft A-5L Phoenix ("Aberrant Buster"):** The A-5L is classified by its manufacturers as a Nova Starcraft — an attack craft that fills the gap between fighter and frigate. Originally designed as a general-purpose combat vehicle, the Phoenix's cramped living quarters made it inadequate for long-term, deep-space missions. The 29-meter-long Phoenix carries a crew of five and is armed with a new kind of weapon system — a massive plasma cannon that runs virtually the entire length of the ship. This weapon accelerates plasma drawn from the vessel's hyper-fusion drive and projects it at a target with impressive destructive force. (The ship's first few forays against Aberrants led to its evocative nickname.) The craft has become the backbone of the FSA's Earth-based defense fleet, and the Phoenix's exploits have begun to gain general renown. A few A-5Ls now belong to the fleets of other nations.

VT: Hybrid Attack Craft

Tech: Ω

CS: Mach 2.2

TS: Mach 4

VS: 5

Handling: +1

Mass: 1,200

Cost: Not available commercially

Armor: 5 [10]

Weapons: Axial-mounted plasma cannon (Accuracy: +1, Damage: 14d10 [10] L, can be fired only once every other turn due to energy build-up requirements); two turret-mounted, heavy laser cannons (Accuracy: +2, Damage: 8d10 [5] L); missile bay with 20 smart missiles (Accuracy: +3,

A-5L PHOENIX

3/4 TOP

REAR

BOTTOM

Damage: 10d10 [15] L); modular weapons bay

The modular bay is a new concept in ship design that allows the Phoenix to be reconfigured partially for the mission at hand. The following systems are currently available for the A-5L bay: one micro-fusion warhead (Accuracy: +3, Damage: 15d10 [20] L); a second missile bay with 20 smart missiles; or a turret-mounted, light coilgun (Accuracy: 0, Damage: 5d10 [10] L). The micro-fusion warhead is loaded only for special strike missions, smart missiles are generally deployed for anti-fighter action and the light coilgun turret is the standard design.

Drones

The development of satisfactory-intelligence software programs has revolutionized the use of robotic vehicles. Historically known as drones or remotely piloted vehicles, these craft were controlled directly by a pilot via transmitted commands.

The modern drone is much more independent and more deserving of the insect-worker moniker that it bears. Specialized avatar software allows

an SI-piloted vehicle — or SIPV — to react to situations without human intervention. Tasks that can be assigned to SI-piloted vehicles are limited only by the sophistication of the agent program used and by a craft's engineering.

Drones are relied on for civilian applications — such as mining and hazardous-materials handling — deemed too dangerous or monotonous for human workers. They are also seeing increasing use in military applications against Aberrants. Drone missiles, for example, can be given a target and be expected to pursue that target. More importantly, a drone can be given a command and left to carry it out without further transmissions — a capacity that enhances drones' use in reconnaissance and stealth missions.

SIPV are really just agents given a vehicular casing. They are assigned Performance ratings and various Applications. Accuracy and Handling are listed as Applications rather than as normal vehicle stats.

- **FangTech Kuang-ye:** This drone was developed from prototypes created by the Australian-based marine company for its forays into deep-space mining. The environmentally sealed Kuang-ye can

operate underwater or in high-temperature shafts as it tirelessly drills for ores and other natural resources. The mining drone has a cargo containment chamber capable of carrying six cubic meters of sorted (but unrefined) raw materials.

VT: Submersible/Jet/Track

Tech: Ω

CS: 10 km/h

TS: 75 km/h

Performance: 1

Applications: Analysis 3, Construction 1, Mechanics 1, Geology 3, Handling 2, Intent 1, Quick Search 1

Mass: 3

Cost: ••••• (restricted)

Armor: 3 [5]

• **L-B Kamikaze:** This drone is built through a components contract with Wazukana. The device projects a military-grade hologram that includes radar and infrared frequencies to convince enemy fighters that it is an aircraft. The image causes opposing pilots and flight agents to make critical errors in judging the intent and tactics of what is apparently another plane. The SIPV proceeds to engage in what appears to be a close-quarters attack. The Kamikaze is armed with a warhead and ultimately seeks to impact with a target if its laser proves insufficient to do damage.

The Kamikaze has proven unpredictable in testing. After its laser cannon has destroyed a target, the drone has either impacted anyway, detonating its warhead, or has requested another target from the launch vehicle. Wazukana is still working on such bugs. (Storytellers should make a standard Performance roll to see if the drone avoids unnecessary impact.)

VT: Jet

Tech: Ω

TS: Mach 5

Performance: 4

Applications: Accuracy 2, Handling 2

Mass: 0.5

Cost: Not available commercially

Weapons: fusion warhead (Damage: 10d10 [15] L), light laser cannon (Damage: 5d10 [5] L)

Building and Customizing Vehicles

Some characters want to design and build their own vehicles. Modern computer-aided design and manufacturing — CAD/CAM — makes it easy. Vehicles are typically pre-manufactured to prescribed specifications. For a little extra money, an individual can order a customized vehicle based on one of these frameworks. The buyer simply uses a computer-driven menu to request the specifications of the vehicle and the manufacturer produces and delivers it in a number of days, weeks or months.

While some design menus offer vehicle-mounted weapons as options, almost all manufacturers require that the buyer provide some license to purchase such weaponry. Manufacturers also require proof of adequate funds before an order for a vehicle with a mass over 10 metric tons is filled.

Remember that the following rules are only guidelines. Storytellers are under no obligation to allow players to create souped-up death machines. If a powerful vehicle would ruin a plot, then shortages, delays, additional fees, legal problems or even theft could be used to prevent a character from obtaining the device.

Basic Vehicle Chassis

The chart below lists the basic capabilities of each vehicle chassis. All basic chassis are rated 0 Handling and offer no weapons or armor, but are equipped with both the essential components needed to operate the vehicle and the mounting points required to add the number of weapons specified.

All vehicles described here are hardtech. Biotech vehicles cannot be custom built; they require growing individual, specially designed bioapps. Yet formatting one's self to a biotech vehicle customizes it in a rather unique fashion.

A basic chassis-vehicle is functional if a very limited or inexpensive vehicle is desired. Otherwise, the buyer probably wants to customize. The following chart details modifications that can be made to a chassis. These adaptations can also be applied to a standard vehicle at the same costs and time demands. However, separate tables are provided to describe the options available for different types of vehicles; modifying a wheeled car is a

Basic Vehicle Chassis

Vehicle Type	CS	TS	VS	Mass	Weapons	Crew	Cost
Cycle	140	210	n/a	0.4 to 0.6	1	1	•••
Skimmer	110	190	n/a	1 to 2	1	1	••••
Large Skimmer	100	180	n/a	3 to 9	2	1	•••••
Wheeled Car	110	190	n/a	1 to 2	1	1	•••
Wheeled Truck	110	190	n/a	3 to 9	2	1	••••
Small Submersible	80	140	n/a	3 to 200	3	5	••••
Submarine	110	180	n/a	500 to 5000	10	30	•••••••
Small Aircraft	Mach 1	Mach 1.2	n/a	3 to 9	1	1	•••••
Large Aircraft	Mach 1	Mach 1.2	n/a	50 to 200	10	2	•••••••
Hybrid Fighter	Mach 1	Mach 1.2	2	20 to 35	4	2	••••••
Hybrid Transport	1000	1200	1	30 to 60	4	2	••••••
Hybrid Shuttle	1100	Mach 1	1	80 to 300	1	2	••••••
Frigate	n/a	n/a	4	30K to 50K	20	100	•••••••
Freighter	n/a	n/a	3	100K to 250K	20	30	••••••••

Crew: The minimum crew necessary to operate the vehicle. For space vehicles, the crew listed is sufficient for long-term use and is typically broken down to three separate shifts.

very different process from armoring a spacefaring frigate.

The modification times listed on the Vehicle Options Tables are for installing components into a chassis or a standard vehicle. If a vehicle is made completely to order, the time required to install these items is simply part of the vehicle's construction time as a whole.

The Options charts apply to modifications for vehicles that have moderate masses: up to 30 tons. The Storyteller is left to determine the effects, costs and modification times for larger vehicles. As a rule of thumb, an addition to a vehicle that has a mass of up to 50 metric tons requires an extra month to complete. An addition to a vehicle with a mass of 50 to 100 tons requires an extra two months. Six extra months are required to modify a vehicle that has a mass in excess of 100 tons. Add an extra dot to Cost for modifications in each of these larger Mass categories as well — one extra dot for better engines in a 50-ton vehicle; two extra dots in a 50- to 100-ton vehicle and three extra dots to Cost for better engines in a vehicle over 100 tons.

Installing Weapons

While almost any hand-held weapon can be acquired by someone with enough money or determination, vehicle weapons are considered tools of mass destruction and are quite difficult to acquire. It is almost impossible to buy vehicle weapons on Earth unless one is authorized to do so by a nation, a metanational corporation or the Æon Trinity.

Unauthorized purchase of vehicle weapons is possible on Earth in lawless regions or through the black market, and such items are at least three dots more expensive than normal. However, almost anything desired can be purchased in Luna's Pit, on Mars or in the Asteroid Belt. Taking such weapons back to Earth is difficult; transports to Earth are scanned carefully. Illegal weapons are typically battle-damaged or defective. The larger and more dangerous the weapon, the harder it is to find.

The following chart details the weapons that can be added to a basic chassis or to a standard vehicle.

Vehicle Options Table: Vehicles with 10 Mass or Less

Modification	Bonuses	Trade-offs	Time	Cost
Improved computer & controls	+1 Handling	None	2 weeks	•••
Armor: Ground/Sea	1 [1] in 1 location	-10 km/h to CS & TS	2 days	•• (per 7 units/armor)
Armor: Air	1 [1] in 1 location	-50 km/h to CS & TS	3 days	••• (per 7 units of armor)
Larger engine: Ground/Sea	+15 km/h to CS & TS	Reduce weapon capacity by 1 for every 3 increments	2 weeks	••••
Larger engine: Air	+50 km/h to CS & TS	Reduce weapon capacity by 1 for every 3 increments	2 weeks	••••

Vehicle Options Table: Vehicles with 30 Mass or Less

Modification	Bonuses	Trade-offs	Time	Cost
Improved computer & controls	+1 Handling	None	2 months	•••••
Armor: Ground/Sea	1 [2] in 1 location	-10 km/h to CS & TS	2 weeks	••••• (per 7 units of armor)
Armor: Air	1 [2] in 1 location	-0.1 Mach to CS & TS	3 weeks	••••• (per 7 units of armor)
Armor: Space	1 [2] in 1 location	-1 to VS per 21 units of armor	2 weeks	•••••
Larger engine: Ground/Sea	+15 km/h to CS & TS	Reduce weapon capacity by 1 per every 3 units	2 months	•••••
Larger engine: Air	+0.2 Mach to CS & TS	Reduce weapon capacity by 1 per every 3 units	2 months	•••••
Larger Engine: Space	+1 VS to for every 3 units installed	Reduce weapon capacity by 1 per every 3 units	3 months	•••••
Improved Life Support	Better food and larger crew capacity	None	1 month	•••••

All figures on these tables are for a single unit of increased performance. If +1 Handling takes two weeks to install, +3 Handling takes six weeks to install.

Mass: The number of metric tons the modification adds to the vehicle.

Time: The time necessary to complete this modification. Adding one dot to the Cost for a high-priority job halves this time. Factories in remote locations may have waiting lists, which double listed times.

Computers and Controls: Improved computer software and controls can increase the Handling of a vehicle dramatically. However, a vehicle can not have a Handling greater than +3.

Armor: Armor is assigned by location. One unit of armor protects one location with the listed rating. There are seven separate locations on every vehicle (crew section, controls, weapons, cargo, superstructure, fuel and engine). See the optional Vehicle Hit Locations rules, below, for details. Vehicles with a Mass less than 10 cannot have an Armor value greater than 5 [5] in a single location. Vehicles with a Mass over 10 cannot have an Armor value greater than 10 [20] in a single location.

Engines: Improved engines are broken down into four categories: those for wheeled vehicles, skimmers and maglev; for submarines; for airplanes; and those for spacecraft. Each engine type can only be installed in the appropriate type of vehicle. Improved engines are larger than normal and reduce the amount of space remaining within a vehicle.

Improved Life Support: Improved life support can be installed in only submarines and spacecraft intended for long-term occupancy. Each unit of modified life support improves the quality of food available or doubles life-support capacity, the latter allows the vessel's crew to be doubled safely.

Basic Vehicle Weapon Types

Weapon	Acc	Dmg	Range	Ammo	Cost	Time	Mass
Grenade Launcher	+1	Varies*	500 m	100	•••	1 week	Any
Pulse Laser	+2	7d10 L	700/1000 m	Pow	••••	1 week	Any
Plasma Cannon	+3	7d10 [10] L	3000 m	Pow	••••••	2 weeks	20
Heavy Machine Gun	+1	7d10 [5] L	700/1200 m	800	••••••	2 weeks	14
Light Laser Cannon	+2	5d10 [5] L	5/10 km	Pow	•••••	2 weeks	Any
Medium Laser Cannon	+2	6d10 [5] L	7/30 km	Pow	••••••	1 month	5
Heavy Laser Cannon	+3	8d10 [5] L	9/100 km	Pow	•••••••	1 month	20
Light Coilgun	+1	5d10 [10] L	3/5 km	500	•••••	2 weeks	Any
Medium Coilgun	+1	6d10 [10] L	5/20 km	10,000	••••••	1 month	5
Heavy Coilgun	+1	8d10 [10] L	8/70 km	10,000	•••••••	1 month	50
Smart Missile	+3	10d10 [15] L	500 km	5	••••••••	2 weeks	5
Fusion Warhead	+3	18d10 [30] L	5000 km	5	•••••••••	1 month	100

Range: The weapon's medium practical range. Weapons with two ranges separated by a slash have increased range in vacuum. The first number is the range in atmosphere, the second is the range in vacuum.

Ammo: The amount of ammunition that typically comes with each weapon. Installing the same weapon multiple times increases its ammunition capacity. Any weapon that has a "Pow" listing does not require ammunition; it's powered by the vehicle's energy plant.

Time: The time necessary to install the weapon.

Mass: The minimum vehicle mass required to operate the weapon.

* Grenade launchers use the damage listings in *Trinity*, page 265.

Customizing Biotech Vehicles

Every biotech vehicle is a living organism. Trying to modify a biotech vehicle is like producing a new species. It is therefore impossible to customize biotech vehicles, at least with current technology. The Qin seem able to do it, but not even Orgotek has unlocked the secrets to the aliens' control and finesse.

It is possible to upgrade the systems of a biotech vehicle by introducing new, improved hardtech devices where old ones were incorporated into the bioapp. Treat the change as if it were being done to a hardtech vehicle (refer to the appropriate hardtech charts, above), but double the time required and add an extra dot to all costs. If no hardtech devices were built into a bioapp, the vehicle cannot be upgraded.

Option: Expanded Vehicle Stats

Players and Storytellers may want to add more complexity and realism to vehicle combat. This section covers two ways in which to do so: hit locations and scaled Structural Levels.

Vehicle Hit Locations

Whenever a vehicle is hit, the attacker rolls 1d10 and refers to the table below to see which part of the target is affected.

Gunners can aim for specific parts of target vehicles, but doing so adds a difficulty modifier to the shot, as determined by the Storyteller. The modifier depends of the size of the intended spot, the distance to the target, the speed of moving vehicles and any other extenuating circumstances that apply. Firing difficulties can range from +2 for

firing on the battery of a passing skimmer to +5 for firing on the same battery from a speeding maglev car over a distance of 100 meters. Outrageous shots — targeting a single passenger aboard a frigate that's three kilometers away — are simply impossible.

It is possible to miss a specific target on a vehicle, but to still hit the vehicle itself. Any shot that misses its intended target — say, engines — but still has enough successes to hit the vehicle in general strikes another part. Roll on the chart below as normal to randomly determine which section is struck.

The penalties imposed on a damaged vehicle (*Trinity*, page 279) should also be imposed on shots fired from that vehicle.

Note that special effects caused by hitting specific targets are in addition to any structural damage done to a vehicle (according to the Vehicle Damage rules, *Trinity*, page 279).

Roll	Location
1-2	Crew
3	Controls
4	Weapons
5	Cargo
6-7	Superstructure
8-9	Fuel
10	Engines

Crew: The attack hits the crew compartment of the vehicle. Subtract the vehicle's Armor rating from the damage and apply the remainder to one or more of the crew. Hand-held weapons, except missiles and grenades, apply their damage to only a single target. Missiles, grenades and all vehicle-mounted weapons apply their damage to the entire crew of a vehicle with a Mass of 10 tons or less, and to all crew members in a single section of a vehicle with a Mass greater than 10 tons.

Controls: If the attack penetrates the vehicle's armor, reduce the vehicle's Handling by one. If Handling is already zero, the amount is subtracted from the pilot's Dice Pool. If Handling falls to -3 or lower, the controls go dead and the vehicle's course can no longer be controlled.

Weapons: Remove one weapon's firing capability from the vehicle if the attack penetrates the vehicle's armor. Treat this result as a Superstructure hit if the vehicle has no weapons. The Storyteller decides which weapon is lost if there's more than one.

Cargo: Each hit that penetrates the vehicle's armor destroys a volume of cargo — 50% for a craft with a Mass of 10 or less, and 20% for a craft with a Mass greater than 10. The vehicle's Superstructure is hit if the vehicle has no cargo compartment.

Superstructure: The chassis of the vehicle is hit. Treat damage as normal according to the Vehicle Damage rules (*Trinity*, page 279).

Fuel: Each attack that penetrates armor reduces a vehicle's fuel capacity — 50% of that for a vehicle with a Mass of 10 tons or less, and 20% of that for a vehicle with a Mass greater than 10. Old-style combustion engines may explode if their fuel is hit. Fusion engines might also erupt if the reaction that creates thrust continues uncontrolled.

Engines: Each attack that penetrates armor reduces a vehicle's CS and TS by 20%, and VS by one. If speed is reduced to zero, the vehicle may not move or maneuver until it is repaired.

Scaled Structural Levels

Spacecraft vary widely in size; hybrid fighters are tiny compared to massive freighters. Storytellers may compensate for this by considering hybrid-class ships to be "Extras" (see *Trinity*, page 280).

Otherwise, the Storyteller may wish to use a scaled method of figuring Structural Levels. The list below reflects the durability of the differing classes of spacecraft.

Remember that a vehicle is not utterly destroyed until it is Demolished; a Broken down craft can be hauled by another ship and the crew safe as long as basic necessities like Life Support are brought back on line. Also, larger ships likewise take longer to repair. Consider that each Struc-

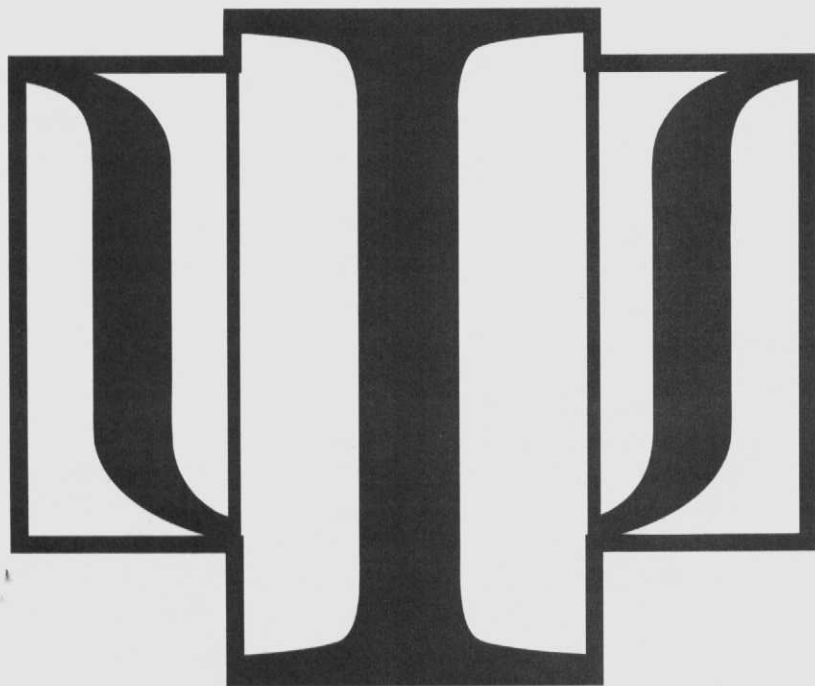
tural Level beyond eight requires an additional two weeks of repair time. The full details on each Structural Level, its dice penalty and description is listed in *Trinity*, page 279.

- **Hybrid-class Ships:** This scale of craft uses the structural chart listed in *Trinity*.

- **Frigate-class Ships:** These large spacecraft have 12 Structural Levels [two Scraped, two

Dented, one Battered, two Smashed, two Breached, one Wrecked, one Broken down, one Demolished].

- **Freighter-class Ships:** These gigantic vessels have 15 Structural Levels [three Scraped, two Dented, two Battered, three Smashed, two Breached, one Wrecked, one Broken down, one Demolished].



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Special Mention

Guess what? White Wolf has its own street hockey team! It all started as an after-work lark. A few of us got some sticks and went out behind the office where we stumbled around and hacked at each other's ankles. After the GenCon Sunday Morning Hangover Street Hockey Tournament last year, where we defeated Dream Pod 9 (sorry, guys, but hangovers and lack of sleep can't stop the Wolf!), we decided to take our game to the next level.

We got jerseys (check out our logo over there), pads and joined an honest-to-God street hockey league. Now we get to run around and hack at *other* peoples' ankles. No, we haven't won yet, but it's a helluva lot of fun. We're showing definite improvement, and we've earned the respect of the other teams. (We're the guys who never give up, never stop hustling.)

Say, Atlanta just got a hockey franchise, but it doesn't have a name at the moment. 'Scuse me; I have to make some calls....



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