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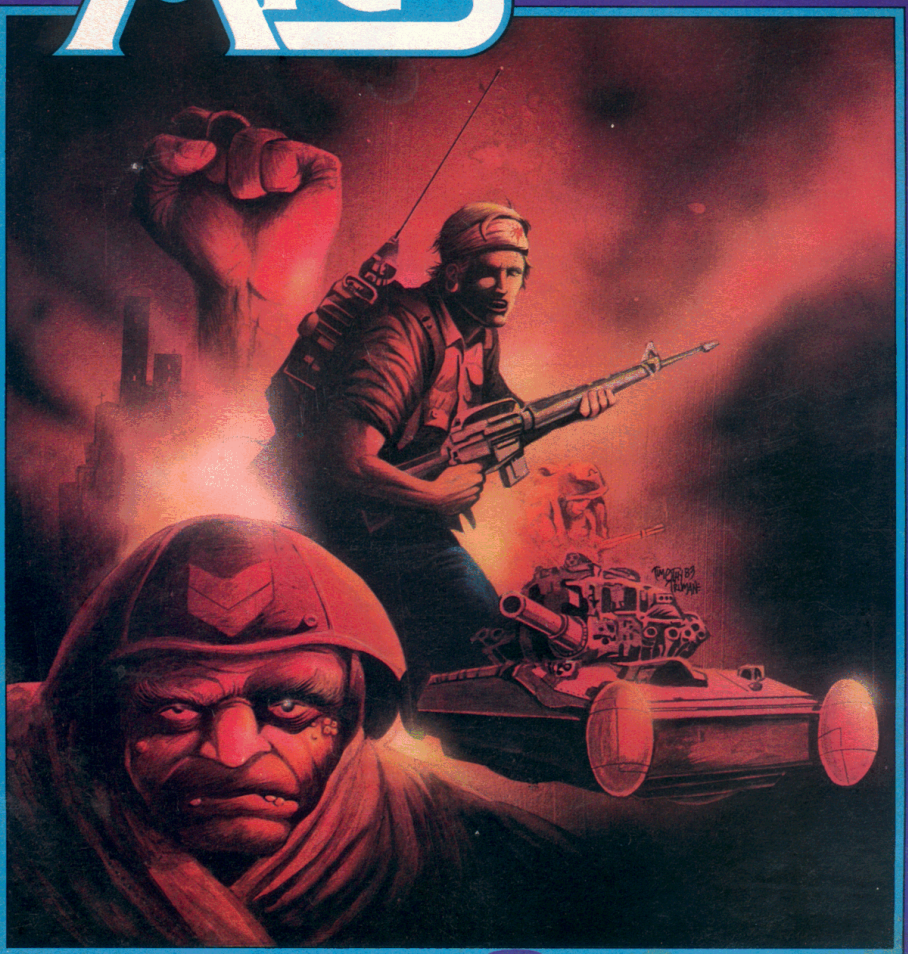

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ENCLOSURES: THE OMEGA WAR game map and counters; Feedback card.

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MUSE Operation Improvement

This is it - the first issue of *ARES*™ Magazine done totally under the auspices of TSR Hobbies, Inc. We still have a backlog of materials for the magazine which were acquired by Simulations Publications, Inc., so the direction of the magazine will remain much the same as in the past. However, starting with this issue we are beginning a general improvement in editorial and graphic elements in the magazine.

The person responsible for the new look to *Ares* Magazine is our publication designer, Kristine Bartyzel. She has a number of exciting ideas, not only for the graphic elements in the magazine proper, but also for the design of the maps and counters for the issue games. There are a number of advances in computer technology which we will be able to use to enhance the look of the magazine and issue games; the map for *The Omega War*™ game, for instance, used a laser-scanning computer to fill in the colors. Instead of doing numerous overlays, each for a different color in the map, we can now simply draw an outline of the terrain features and use the computer to layer in the colors.

Another newcomer to the *Ares* Magazine staff is Geoffrey Golson, who will assume the role of Managing Editor starting with the first Special Edition. Geoffrey has been in the magazine publishing business for the last five years, and has worked as an editor at *Omni* Magazine. Eileen Lucas has also come aboard the Dragon Publishing staff to act as production manager for the SPI™ magazines.

One major innovation in this issue is the format for the rules to *The Omega War* game. The case format pioneered by Simulations Publications, Inc., has often intimidated new gamers with its legalistic numbering system and endless sea of type. We will experiment with our new format for the rules in hopes of making them more accessible to new gamers and easier to refer to when questions arise during play.

Another striking aspect in this issue is Timothy Truman's illustrated story. His talents, often displayed on *Ares* covers (including this issue), illuminate sf/fantasy concepts in a unique way; we're very proud to be his showcase.

We have done a bit of shuffling with the games in future issues. In the next issue will be David Spangler's *Nightmare Hotel* game, allowing one to four players to enter a haunted mansion to drive out the evil spirit possessing it; this issue will be in the mail by the end of August. Issue number 16 will contain the *High Crusade* game, based on the Poul Anderson novel of the same name; designer Dave Cook is hard at work on this game which pits human Crusaders against the interstellar empire of the Wesgorix.

Michael Moore

SCIENCE FOR SCIENCE FICTION

Edited by John Boardman, Ph.D.

Is Egypt Getting Waterlogged?

The construction of the Aswan High Dam (1960-1971) in upper Egypt interrupted the ancient rhythm of the annual Nile floods, and profoundly altered the economy and ecology of Egypt. In 1971 the German political journalist Michael Heim wrote a science fiction novel, *Assuan wenn der Damm bricht*, which was translated into English the following year as *Aswan!* In the book, Heim was uncertain as to whether the dam would menace Egypt by making it too wet or too dry, and he compromised by presenting first one disaster and then the other.

The dam is now presenting itself as a real problem to Egypt. The Nile Delta has been getting steadily more saline, as fresh water is retained by the dam rather than being sent downstream. That water has to go somewhere, however, and it is raising the water table in Egypt to uncomfortable heights. Fifty years ago the underground water table was 14 meters below the surface of the Nile; now it is only 3 meters below the Sphinx and pyramids and 2 meters below the Temple of Karnak in the Valley of the Kings. These regions are getting waterlogged, and are sinking. The nation whose history has been dictated for 5,000 years by a shortage of fresh water is now having problems with a surplus.

Heim saw this coming in the first part of his book, and predicted that desert oases would be flooded out and that freshwater springs would form beneath the Red Sea, resembling Sicily's famous Arethousa Fountain. But, thanks to an Egyptian-Israeli alliance — a preposterous suggestion in 1971 — the leakage of water from the dam's lake is halted. *New Scientist,* 10 July 1980

Allergic to Krypton

Chemists know krypton as a rare, chemically inert gas. Comic art fans know Krypton as the native planet of Superman, who was its sole survivor until new storylines demanded otherwise. The name *krypton* is the Greek word for "hidden."

The first *Superman* film showed the explosion of Krypton just after the experimental rocket bearing the infant Superman had been launched. It was a dramatic explosion, one of the best visual effects of the many in that film. Nor did a crew of artists and craftspeople have to work for numerous hours to construct a model that would be destroyed in an instant.

The inspiration for that scene was given to a member of the filming crew of *Superman* when he visited the laboratory of Professor Geoffrey Burnstock, a neuro-anatomist at University College Hospital in London. Professor Burnstock works with allergies, and he has a film showing what happens when allergic reactions are triggered by such things as dust or pollen. Such allergens trigger a type of cell called the mast cell, which explodes. Histamine granules are released which cause the all too familiar symptons of allergies — sneezing, eye-watering, etc. (These act as bodily defenses by expelling the irritants that are causing all the trouble, though it is doubtful that the sufferer pauses to reflect upon this.)

The mast cell, in a full-color close-up, can plausibly be taken for a long shot of a planet. And this was how the explosion of the planet Krypton was done in *Superman.*

New Scientist, 28 June 1979 and 7 August 1980

Civilized Teeth

One of the best ways to refute the current fad of opposition to evolution is to point out the evidence that human evolution is still going on. In the past five thousand years, the conditions of human life have changed drastically, and it would be surprising if this had left no traces on human biology.

Since teeth are the hardest part of the body, they occur most frequently as human remains in archeological digs, and their detailed structure makes possible the examination of small changes. According to C. Loring Brace of the University of Michigan, the size of human teeth has been decreasing since the invention of agriculture some eight to ten thousand years ago and the subsequent development of civilization.

Large teeth were an advantage in the more distant past. Raw food is harder to chew. Humans in a food-gathering state could not afford to cut away gristle or throw away a rind simply because they were harder to get down. Large teeth were also handy in chewing leather to soften it. By his examination of dental remains in southern Asia, Professor Brace has established that the smallest teeth are discovered in regions where agriculture is oldest.

Where a sharp break occurs in continuity of tooth size, it is reasonable to assume that one group of people was suddenly replaced by another with a different food preparation technology. This approach is proving useful in studying the remains of the early civilization of the Indus Valley in Pakistan. Called "Harappans" after one of the best-known sites, these people flourished until about 1500 B.C., when their lands were overrun by the ancestors of the present Indo-European-speaking peoples of northern and central India.

Pre-Harappan remains show large teeth characteristic of hunters and gatherers. By about 5000 B.C., however, smaller tooth sizes were already common in the earliest phase of Harappan civilization. Apparently, these had already been a settled agricultural people before developing the cities whose remains are now being excavated. This in turn implies a fairly highly structured society.

Social heirarchy also shows itself in human remains. Fuller bodily development is attained by people of a higher social scale —which in most cultures is inferred from the greater elaboration of their tombs. But such marked differentiation does not seem to be present in Harappan remains. As Professor Kenneth A.R. Kennedy of Cornell observed in the January/February 1981 issue of *Archaeology,* "A Harrapan elite may have exercised social control in such a way as to avoid the dietary and pathological privation so often found among the urban proletariat in other stratified high cultures." However, the elite of our own culture do not yet seem to have found a way to accomplish such "social control."

Thin as Air?

The earth has a very violent atmosphere, with most "weather" occurring in an area less than 12 kilometers from the surface. Heavy winds are capable of making small but measurable changes in the rotational period of the earth itself — a solid sphere 6,400 kilometers in radius.

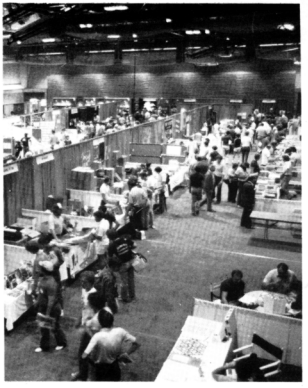
This effect has recently been established by the Global Atmospheric Research Program, which measured a change of 0.001 second in the length of the day between 21 January 1979 and 7 February 1979. A change of 0.0015 second was observed in late May of the same year.

Meanwhile, the content of the atmosphere is worrying some people. There has been much concern stirred up about a decrease in the earth's ozone layer. The chemicals used in spray cans are allegedly interacting with this ozone layer, diminishing the shielding effect with which the layer protects us from high-energy ultraviolet radiation from the sun.

Michael Allenby and Jim Lovelock have established that this concern is misplaced in their detailed study of the ozone variation from year to year and as a function of the latitude. Though the concentration of ozone is less in equatorial regions than at the poles, the high-energy ultraviolet rays do not penetrate far enough to be a danger.

Besides, nature is capable of doing more damage than technological humanity can accomplish. Chlorine gas emitted by volcanoes breaks down more atmospheric ozone in one year — any year — than all man-made fluorocarbons did in 1975, the year of highest fluorocarbon production. David Johnston of the US Geological Survey established this fact, with particular reference to the notorious Mount St. Helens. Yet Mount St. Helens was not a particularly violent eruption, compared to others that have occurred in the historical past.

New Scientist, 17, 24 and 31 July 1980; *Science,* Vol. 209, p. 491



XVI

GEN CON® XVI GAME FAIR UPDATE

The GEN CON XVI Game Fair will make its sixth consecutive visit to the University of Wisconsin - Parkside campus on August 18th - 21st, 1983. The GEN CON Staff has announced plans for a general expansion this year. The expansion will include all the basic convention fare, more miniatures, role playing, and boardgaming; plus more non-gaming activities, more entertainment, a bigger Art Show and a daily Flea Market.

A great deal of work on the logistics of the convention has gone hand-in-hand with the general expansion. Most notably, a revised and expanded pre-registration system. Even at this time the staff is in the process of switching to this new system for information storage, accounting, and pre-registration. In the new system a permanent account number, called an *Express Number*, will be assigned to all customers. This number will instantly connect any GEN CON office record with that particular customer. The *Express Number* will enable the GEN CON Staff to quickly and accurately process correspondence of any type.

If you pre-registered for any of last year's GEN CON game conventions, or have corresponded with or requested information from the GEN CON Staff before March 1st, 1983 you have already been assigned an *Express Number* and you should receive a card bearing your number shortly after you read this.

The new system will help to expedite all correspondence and bookkeeping, including pre-registration, and should be fully operational soon.

The pre-registration brochure for the GEN CON XVI Game Convention will appear in next month's magazine.

Any questions or requests for information should be sent to:

GEN CON XVI INFORMATION
POB 756
Lake Geneva, WI 53147

THE TROUBLED SUN

SOLAR VARIATIONS AND CHANGING CLIMATES

by Dave Stover

"On the world once known as earth the fires were dying out: there was nothing left to burn. The great forests were now no more than glowing charcoal and the smoke of their funeral pyres still stained the sky. But the last hours were still to come, for the surface rocks had not yet begun to flow."
— Arthur C. Clarke, *Rescue Party* (1946)

The sun explodes.

It is a favorite theme in science fiction, explored many times by many writers. Dramatic, frightening, apocalyptic — if natural disaster is your preference, the death of the sun offers disaster on a grand scale.

But could it happen? Could the sun really explode?

For decades science fiction writers have produced stories of exploding suns, and for nearly as long, astronomers have insisted that it could not happen. Our sun just is not the sort of star that blows up without warning. It will not explode; the stories may be exciting, but they are based on an impossible scenario.

In fact, astronomers went further than that. Our sun is a very quiet star, they told us. Not only will it not explode — it does not even *flicker*. Our sun, they told us, has produced energy at a totally even rate for billions of years; it will proceed in exactly the same fashion for billions more. The sun is perfectly reliable, at least until five or six billion years from now, when its fuel will finally run out. It will swell into a vast red giant star, engulfing the inner planets of the solar system.

But until that time there is nothing to worry about.

Such information, while not very exciting, was reassuring. With regard to the sun, at least, it seemed we had nothing to fear.

But then the scientists changed their minds - new and disturbing evidence of a troubled sun began trickling in. The sun should be producing a great many particles of a certain strange type — but it does not, not nearly enough. There turned out to be a connection between world weather patterns in the past and the level of solar activity. It began to look as though tiny flickers in the sun's energy output could have profound consequences here on earth.

No, the sun still will not explode. But we no longer believe it to be an infallible, constant sun. It is imperfect, like the rest of us.

Star Classes

Before we examine the new findings, though, let us take a brief detour and develop some sort of perspective.

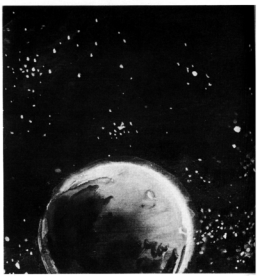
We depend upon the sun for our very lives. Were it to vanish, the oceans would freeze solid, the atmosphere would congeal, all life would perish.

Obviously, then, the sun is of the utmost importance to us. Is there anything special about the sun, anything that makes it an especially suitable star for supporting life on at least one of its planets?

Stars can be grouped into "spectral classes," determined by their color and surface temperature. Table 1 lists the seven classes; as you can see, the sun is a Class-G star. Within each class there are ten subdivisions, with "0" denoting the hottest stars in each class and "9" the coolest. The sun is a G-2 star.

TABLE 1: Stellar Spectral Classes

SPECTRAL CLASS	SURFACE TEMP (° C.)	COLOR	EXAMPLES
O	25,000+	Blue-violet	Rare
B	11,000-25,000	Blue	Rigel, Spica
A	7,500-11,000	Blue-white	Sirius, Vega
F	6,000-7,500	White	Canopus
G	5,000-6,000	Yellow	Sun, Alpha Centauri A
K	3,500-5,000	Orange, red	Arcturus, Alpha Centauri B
M	Less than 3,500	Red	Betelgeuse, Alpha Centauri C



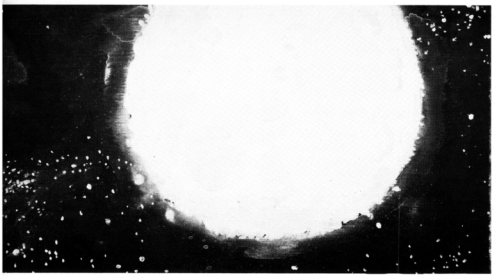
A glance at Table 1 leads you to suspect the sun is a very average sort of star, stuck as it is in the third-lowest class. When you consider brightness, things look even worse, for the brightness of a star climbs much more quickly than its mass or surface temperature. Take Rigel, in Class B, for instance. It is twenty times as massive as the sun — but 40,000 times as bright.

But wait a moment. In terms of total numbers, the situation is quite a bit different. We might call the stars in Classes O through F "giants," since they are much larger and brighter than the sun. For every one hundred stars of the sun's brightness, there is but one giant. In fact, *three quarters* of all the stars in the universe have less than half the mass of the sun, and are stuck way down in Class M, one fifteenth as bright as the sun or less. Of all the stars in the universe, the vast majority are dim red dwarves — the closest star to us, Alpha Centauri C, is just such a feeble dwarf.

Looked at that way, the sun is no longer quite so average. As far as brightness is concerned, it can be classified among the top two or three percent.

That fact may be a key to life's developing on earth. Around every star there is a so-called "habitable zone," wherein a planet is likely to have a surface temperature between the freezing and boiling points of water. In our solar system, the habitable zone stretches from just outside the orbit of Venus to just inside the orbit of Mars. That includes about 100 million kilometers, and a planet within that zone is likely to have liquid water present on its surface — a vital requirement for the evolution of life. In fact, there is a planet within the sun's habitable zone, a planet called earth.

If a star is dimmer than the sun, its habitable zone will be closer in. And the dimmer a star is, the narrower its habitable zone will be. For a red dwarf, the habitable zone might be only a few tens of thousands of kilometers wide — and the chances of a planet being in that zone would be very small. As well, a planet circling very close to its star would be greatly affected by tidal forces. Those tidal



forces would act on the planet until its period of rotation was equal to its period of revolution, and then the planet would orbit with one side facing its sun at all times. Even if such a planet were within the habitable zone, it would then be unlikely to support life.

Red dwarves offer other problems, too. In the course of this article changes in solar energy output will be discussed. Keep in mind, though, that these variations are always less than one percent of the sun's total energy output. Red dwarves, on the other hand, are often far more erratic; they may flare up and increase their brightness by more than twenty or thirty percent at a time. Even if a planet were lucky enough to be orbiting in a red dwarf's narrow habitable zone, even if tidal forces had not yet forced it to face one side to its sun at all times, still it might well be alternately fried and frozen because of the variability of its parent star.

TABLE 2: Life Expectancies and Spin Rates

SPECTRAL CLASS	STABLE LIFE SPAN (YRS)	MAXIMUM SPIN RATE
O, B	8-400 million	250 km/sec
A	400 million-4 billion	250 km/sec
F0-F2	4-10 billion	250 km/sec
F5-F8	4-10 billion	70 km/sec
G	10-30 billion	5 km/sec
K	30-70 billion	5 km/sec
M	70+ billion	5 km/sec

What about stars larger than the sun? Being so much brighter, their habitable zones would be wider than the sun's — maybe a billion kilometers or so. In that case, might there not be several planets within the habitable zone, each capable of supporting life?

Well, yes. But consider Table 2 first. It outlines two important facts about stars larger and brighter than the sun — life expectancy and spin rate.

The sun is about 4.5 billion years old, and the earth the same age. Scientists think life arose here about 3.5 billion years ago, and thus it has taken 3,500 million years for life to evolve from primitive one-celled organisms to humanity. And a full billion years of earth's history rolled by before there was any life at all.

Now consider stars of Classes O and B. They have lifespans of less than 400 million years, after which time — since they are such large, bright stars — they will likely blow up as vast supernovas, destroying any planets orbiting them, or swell up into huge red giants, swallowing any planets they may have had. Life would not have time to get started on planets of such stars, despite their very wide habitable zones. Only when we get down below Class F-5 do we find stars with long enough lifespans to let life evolve. The sun, for example, has a life expectancy of 12 billion years, so it is barely middle-aged.

Might not evolution on other worlds, however, go more quickly than here on earth? Well, maybe. But that fact would not help out lifeforms on large, short-lived stars, for we now believe these stars do not have any planets for life to evolve on, quickly or otherwise. All the large stars rotate on their axes very quickly, while stars like our sun rotate very slowly. (Spin rates are included in Table 2.) Astronomers think that is because stars like our sun have planetary systems; their speed of rotation was transferred to their planetary systems early in their life history. The large, bright stars, on the other hand, are still rotating very quickly. They have not transferred their rotational energy to planets, because *they do not have any planets.*

So it would seem that our sun is not such a disappointment after all. It is just the right size, not too large, not too small. Only stars at the bottom of the F Class, in the G Class, and possibly in the upper half of the K class are likely to support planets with life.

Missing Neutrinos

At this point you may be a bit puzzled —or annoyed. After all, in the introduction I promised startling news about the newly-found inconstancy of our sun. But so far I have only shown what a stable and well-behaved star it is compared to all the other stars in the universe; in fact, I have stated that only stars like the sun are likely to possess life-bearing planets.

All that is true. But the sun, while remarkably reliable, is far from perfect.

Deep within the sun the temperature soars to 15,000,000 degrees centigrade; the density is twelve times that of lead. This is where the sun's energy is produced, for nuclear fusion can occur only under enormous heat and pressure.

The sun is mainly hydrogen, with an admixture of helium; all the other elements are present only in trace proportions. Within the sun, the atoms are stripped of the electrons that surround them in ordinary matter. These "ionized" atoms are colliding thousands of times per second. In the course of these collisions, the hydrogen atoms are forced together to form helium atoms, and this process produces energy. Every second 616 million tons of hydrogen are converted to 612 million tons of helium; the other four million tons of hydrogen are converted into energy.

Table 3 details the two processes by which hydrogen is converted to helium. In our sun, the "proton-proton" reaction is dominant; in hotter, brighter stars the "carbon cycle" becomes more important.

TABLE 3: Solar Fusion Processes

CARBON CYCLE

$H^1 + C^{12} \rightarrow N^{13}$ + gamma-ray photon
$N^{13} \rightarrow C^{13} + e^+$ + neutrino
$C^{13} + H^1 \rightarrow N^{14}$ + gamma-ray photon
$N^{14} + H^1 \rightarrow O^{15}$ + gamma-ray photon
$O^{15} \rightarrow N^{15} + e^+$ + neutrino
$N^{15} + H^1 \rightarrow C^{12} + He^4$

PROTON-PROTON REACTION

$H^1 + H^1 \rightarrow H^2 + e$ + neutrino
$H^2 + H^1 \rightarrow He^3$ + gamma-ray photon
$He^3 + He^3 \rightarrow He^4 + 2H^1$

Key:

H^1 = Hydrogen (proton)
H^2 = Deuterium (deuteron)
He^3, He^4 = Helium isotopes
C^{12}, C^{13} = Carbon isotopes
N^{13}, N^{14} = Nitrogen isotopes
O^{15} = Oxygen isotope
e = Electron
e^+ = **Positive electron (positron)**

In the carbon-cycle, four hydrogen nuclei and one carbon nucleus are required as input; the carbon returns to its original form at the end and can participate in another reaction.

Most of the energy produced is released as gamma-ray photons. These photons, once formed, head toward the surface of the sun —but things are not that easy. As the photons move upward, they are continually absorbed and re-emitted; and it takes them a *million years* before they reach the surface. By that time, after all that absorption and re-emission, they are no longer gamma-ray photons but,

rather, photons of visible light. Photons of sunlight . . .

Eight-and-one-third minutes after the photons leave the solar surface, they reach the earth. If you are reading this magazine outdoors or near a window, then the light by which you are doing so is a million years old. It was formed deep within the core of the sun before our species came into being.

Obviously, then, we have a problem. How can we find out what is going on inside the sun *right now* if the sunlight was formed a million years ago?

But look back at Table 3 again. All the energy is not released as photons. There are other particles produced, too; particles called neutrinos.

Neutrinos are much different than photons. Like photons, they have no mass. (To tell the truth, we now think neutrinos may have just a little bit of mass. But that does not change their other properties — and we still are not sure.) Photons, though, like to interact with matter, which is why it takes a photon a million years to travel from the sun's core to its surface. Neutrinos, on the other hand, do not like to interact with matter very much at all. Once formed, they are gone — and within two and a half seconds most of them have left the sun, reaching earth eight and a half minutes later. By studying these neutrinos, we can find out exactly what is going on deep inside the sun right now.

But how can you study a neutrino? It has been said that, on average, a neutrino could travel through a trillion miles of lead without being stopped — so how can we catch them?

True enough, on average *one* neutrino will not interact with matter. But the sun produces billions of neutrinos, and the odds are good that at least some of these can be stopped, detected and studied.

And so scientists decided to do just that.

Professor Ray Davis of Brookhaven National Laboratory began work on a "neutrino telescope" in the late 1960s. His detector had to be sensitive enough to pick up the neutrinos, and yet he had to be certain it was not swamped by other background radiation. So it was located in a gold mine in South Dakota, with the surrounding rock screening out everything but the neutrinos (to which even the entire earth is virtually transparent). He set up a tank of cleaning fluid; and by observing certain chemical reactions in the fluid, he could determine how many neutrinos were being detected.

Oddly enough, only a quarter as many neutrinos were detected as the astronomers had predicted — which meant that nuclear reactions in the sun's core are not proceeding in the manner they should be.

There is still a great deal of uncertainty of course. We do not know everything we need to know about neutrinos, or the exact reactions going on deep inside the sun. **(Ed. Note:** Neutrinos emitted by the sun's nuclear fusion are not all of the same energy, and Professor Davis' experiment was designed to capture neutrinos of a particular energy level. Thus, the discrepancy is not necessarily as great as indicated; further tests to check neutrinos of other energy levels are necessary before we can come to any definite conclusions about the sun's interior.)

But the missing neutrinos are puzzling. And they seem to indicate something amiss when it comes to the sun's energy production.

Sunspot Cycles

Neutrinos are not the only evidence we have to indicate the sun is not as constant as we thought.

You are all, no doubt, familiar with sunspots — those dark areas on the sun's face that appear dark because they are about 1,000 degrees cooler than the areas around them. Spots range from 1,500 km to 150,000 km in diameter, and are associated with strong magnetic fields within the sun — indeed, are maintained by these fields. More importantly, spots are linked with other solar activity —for example, vast solar flares, huge explosions blasting material millions of miles into space. When there are lots of spots, the sun is very active, with a great many flares and magnetic storms and so on. When there are but a few spots visible, the sun is quiet.

Spots come and go in approximately eleven-year cycles. Each cycle begins with no spots visible; halfway through the cycle the number of spots, and the level of solar activity, reaches a maximum; by cycle's end there are once again no spots. In 1980 the sun went through the second-strongest sunspot maximum ever recorded.

For years people have been trying to link the sunspot cycle with cycles of economic depressions, rainfall records, baseball standings, etc. None of these attempts have worked, but it turns out there is a link between the sunspots and the earth's climate.

Astrophysicist John Eddy of the National Center for Atmospheric Research in Boulder, Colorado, discovered the link not by studying individual cycles but by considering a large number of consecutive cycles.

Today we might observe half-a-dozen spots on the sun at the cycle's minimum, and more than a hundred at maximum. But Eddy found that between 1645 and 1715 A.D. there were hardly any spots observed at all — the cycle seemed to have died out entirely.

This time period is called the "Maunder Minimum," after the British astronomer who first noticed the odd pattern in the late 1890s. Maunder was never taken seriously — but Eddy produced further evidence that the sun really was unusually quiet between 1645 and 1715, and that the Maunder Minimum was not merely a result of sloppy observations.

Astronomers in China had reported the same lack of sunspots. Scandinavian records indicate the Northern Lights were subdued or absent through this time period — a sure sign of reduced solar activity, for they vary in intensity with the level of solar activity.

There is also objective evidence to support the Maunder Minimum as well. When the sun is active, the solar wind — a stream of material moving outward from the sun — is strong, and thus we are shielded from cosmic rays, high energy radiation from beyond the solar system. When the sun is quiet, the solar wind is weak, and these cosmic rays are able to penetrate our atmosphere. Once there they react with nitrogen to form a special type of carbon — carbon-14 — which is radioactive.

We can detect carbon-14 in samples of ancient trees and vegetation — and trees can easily, accurately be dated by simply counting their rings. If there is a lot of carbon-14 in the sample, then the cosmic rays were penetrating the atmosphere, the solar wind was weak, and the sun must have been quiet. Wood samples dating between 1645 and 1715 are rich in carbon-14, further evidence that the sun was quiet in that period.

The Modern Maximum

The Maunder Minimum was real, then — but so what? How can sunspots affect us on earth?

They can affect us a great deal — or, more precisely, the condition they reflect can affect us a great deal. Apparently the dearth of sunspots during the Maunder Minimum reflected a slight drop in the sun's total energy production — and the result was felt on earth. During the Maunder Minimum the northern hemisphere suffered through the Little Ice Age and its winters of record cold. Normally ice-free rivers — the Thames in England, and the Rio Grande in North America — froze over every winter; the bad weather caused crop failures and famine.

Using the carbon-14 method, we can search for other periods of maximum and minimum solar activity — and they have been found. During the Medieval Maximum of 1120-1280 A.D., the sun was fairly active — and the earth's climate warmed up. The popu-

TABLE 4: Periods of High Solar Activity, 3000 BC to Present

EVENT	DURATION	MAGNITUDE*
Sumerian Max	2720-2610 BC	+1.3
Pyramid Max	2370-2060 BC	+1.1
Stonehenge Max	1870-1760 BC	+1.3
Egyptian Min	1420-1260 BC	-1.4
Homeric Min	820-640 BC	-2.0
Grecian Min	440-360 BC	-2.1
Roman Max	20 BC-80 AD	+0.7
Medieval Min	640-710 AD	-0.7
Medieval Max	1120-1280	+0.8
Sporer Min	1400-1510	-1.1
Maunder Min	1640-1710	-1.0
Modern Max	mid-1800s on	**

Note: * :The magnitude of the Maunder Minimum has arbitrarily been set at -1.0, and the intensities of the other extreme solar activity thus compared. ** :The magnitude of the Modern Maximum continues and possibly has yet to peak.

Adapted from John Gribbin's *The Death of the Sun* (Delacorte: New York, 1980). Based on research by Dr. John Eddy, National Center for Atmospheric Research, Boulder, Colorado.

lation of Scandinavia boomed, the Vikings colonized Greenland, and wild grape vines flourished in Nova Scotia, prompting the Viking settlers there to call the new-found land "Vinland." When the Medieval Maximum ended, so did the good weather — and the Viking settlements.

In Table 4 you will find the various maxima and minima that Eddy has found. The minima all correspond to cold periods in recent climatic history, the maxima to warmer eras. The link is genuine; solar activity does have a very real effect on our climate. The inconstancy of the sun has affected everyday life — we have historical proof.

And what is happening now? Since the mid-1800s we have been experiencing the Modern Maximum; solar energy production has gradually increased, and with that increase has come warmer weather. The Great Plains of North America, and the steppes of Russia have been cultivated; their grain has fed the world's expanding population.

The world's population has grown by more than two billion people in this century alone — but the famines have been held off because food production has increased as well. That is partly due to high-technology Western agriculture, of course, but the Modern Maximum is also to thank. In another age many of our most productive grain-growing areas would have been useless because of colder weather and too short a growing season.

So what is ahead? The Modern Maximum is already nearly two centuries old, and few maxima have lasted much longer than that. How much longer will the sun's increased energy production — and the good weather here on earth — last? Is there yet more favorable weather ahead — or the bleak prospect of another Little Ice Age?

The answers to such questions will determine how well we will be able to feed the world's hungry in the decades ahead. The answer to that problem may determine whether our society will survive intact. These flickerings of the sun are hardly as dramatic as the giant explosions the science fiction writers predicted — but the flickerings may be just as crucial to man's future.

To this point, then — of all the stars in the universe, the sun is better suited than most to supporting life on one of its planets. It is neither too bright nor too dim; bright enough that it has a fairly wide habitable zone, yet dim enough that it will not burn up all its fuel and die in a mere hundred million years or so. It is, all in all, a fairly constant, fairly reliable star, quietly approaching middle age.

And yet the sun is not perfect. We have two indications that its energy output is not constant: the missing neutrinos, showing fusion reactions in the solar core have slowed down, and the cycles of strong and weak solar activity, indicating a link between small changes in solar energy output and the earth's climate.

Is there a link between the two? What causes the sun's inconstancy? Can we predict future solar activity?

Answers to these questions are still uncertain, still speculative — but worth looking at.

Dusty Galaxies

The sun completes a revolution around the center of our galaxy once every 200 million years. There are vast clouds of dust and gas in our galaxy's spiral arms, and in its journey the sun is bound to pass through some of them.

Interestingly enough, Ice Age epochs on the earth seem to occur once every two hundred million years or so. Right now we are in such an epoch; 10,000 years ago the glaciers retreated to the north, so that we are now in the middle of an interglacial period. In a few thousand years, if not sooner, the glaciers will probably be back.

It is important to realize that the earth's climate today is not typical of the vast majority of its history. For most of its existence earth has been a warmer planet than it is now, a planet with a largely tropical and subtropical climate. Earth's "normal" climate is much more like the world of the dinosaurs than the world we know.

Can there be a link, then? If the sun circles the galaxy once every 200 million years, and if every 200 million years or so the earth enters an Ice Age epoch — can we be seeing a case of cause and effect?

Consider the sun entering a cloud of interstellar dust and gas. We are not exactly sure what is going to happen — but we know *something* is going to happen. Perhaps the dust screens off some of the sun's energy from reaching the earth. Or, more likely, the sun is thrown off-color by the large amounts of dust and gas falling into it. Extra dust and gas falling onto the surface layers of the sun could upset the convection processes that carry heat from the sun's core to its surface, and such an upset could disturb the nuclear fusion processes going on in the sun's core.

In that case, with the nuclear fusion processes dampened, not as many neutrinos would be produced . . . which is exactly what we have observed.

There is additional circumstantial evidence as well. Astronomers believe the sun just crossed a dusty region of our galaxy, edging the Orion Arm, and may have emerged from the Orion Nebula only a few tens of thousands of years ago. After passing through these dust and gas clouds, the sun's nuclear burning might well be off-color and dampened down.

And that would explain why we are in an Ice Age epoch right now, why the glaciers have descended from the poles several times over the last million years while for tens of millions of years before there is no record of any Ice Ages at all.

The Great Summer

It will take millions of years for the sun to get back to normal after its recent encounter with the galactic dust clouds. Not until ten million years or more in the future will nuclear reactions in the solar core return to normal. When that happens, the earth's climate will also revert to form; there will be no more Ice Ages, the polar ice-caps will recede, the differences between the seasons will diminish, and earth will enter a Great Summer.

But until then — can we establish a link between these disturbances in the sun's core and the more recent, short-term changes, such as the Maunder Minimum?

Maybe, just maybe.

Remember, the sun is not burning in quite its normal manner at the present time. The encounter with the dust-clouds has thrown its nuclear burning off-color, and thus its energy production is much less constant than it ordinarily is.

Thus the sun is more vulnerable to other outside effects on its energy production. In his book *The Death of the Sun*, John Gribbin points out that, while its nuclear burning is disturbed, the sun may be susceptible to the gravitational pulls of the various planets, and these gravitational pulls could cause small changes in the sun's total energy output. The varying density and composition of the dust and gas falling into the sun might also cause small changes in its energy output.

Such small-scale effects might not bother the sun when it is burning normally; but right now it is not, and these additional disturbances could be responsible for variations in the solar energy output of up to one or two per cent. And such variations would be all that is needed to explain such things as the Maunder Minimum — and the ensuing Little Ice Age here on earth.

Summarizing then - keep in mind that the very concept of a troubled sun is a new one, only a decade or so old. And keep in mind that we still have much to learn concerning the sun's production of energy, and how that production may be affected by external factors. Still, we can arrive at some general conclusions. The sun is not a completely constant star in terms of energy output. In encounters with interstellar dust clouds the nuclear burning at its core has been disturbed. The resulting fall-off in energy production may well be responsible (in part, at least) for earth's Ice Age epochs.

Right now we're in the middle of just such an epoch, and the sun's energy production does seem to be disturbed. As a result, the sun is also subject to other external influences, influences which have caused small changes in its energy production over mere centuries, rather than millions of years. These relatively small variations have affected the climate of earth, creating warmer and colder periods.

As the twentieth century draws to a close, solar activity is at a maximum — the so-called Modern Maximum — and the earth's climate is unusually warm. In the near future we might face an end to the Modern Maximum and return to a colder, harsher climate.

We depend utterly on the sun. Its tiniest flicker can change the course of human history. Its inconstancy has affected our past, and may well determine our future. ■ ■

FILM

High Road to China

Producer: Fred Weintraub
Director: Brian Hutton
Screenplay: Sandra Roland and S. Lee Pogostin
Music: John Barry
Cinematography: Ronnie Taylor, B.B.C.

Cast

Tom Selleck ..... O'Malley
Bess Armstrong ..... Eve Tozer
Jack Weston ..... Struts
Robert Morley ..... Bentik
Brian Blessed ..... Suleiman Khan

When *Star Wars* came out, most everyone was pleased, though there were certain pessimists who predicted that the film's success would touch off a series of cheap imitations guaranteed to bore any audience. Unfortunately, the doom-sayers were right, for just as *Halloween* sparked endless, mindless junk, so too has *Star Wars* spawned its awful offspring. The success of *Raiders of the Lost Ark* has also inevitably drawn the greedy into making lesser *Raiders* for television and the screen. Most (like the 3-D *Treasure of the Four Crowns*) are fairly forgettable. But one, *High Road to China*, deserves some attention.

A wealthy socialite discovers that unless she can produce her father in short order, she will lose her fortune. Needless to say, she's loathe to lose it. To track down her father, who was last seen hunting a primitive tribe in Afghanistan, she is forced to seek the help (mostly the planes) of ex-fighter ace, Patrick O'Malley. Off they go (with the mechanic Stuts tagging along), and along the way they encounter her father's crooked business partner, the traps he has prepared for them, hostile tribesmen, and a ruthless Chinese warlord. A good action story right out of the pulps from the '30s. So what went wrong?

First, the makings of action do not mean action will be delivered. What there is in this film is silly; the audience knows hours before the heroes that an escape will inevitably succeed. Second, the film centers on the love story, with the adventure and thrills taking second place; reverse the order and a film would work. Third, the men should be filled with derring-do and the women just as bold; make them tedious as in *High Road* and the audience snores. In short, this film makes all the wrong decisions, and assuredly fails.

Tom Selleck's O'Malley is rugged and tough looking, but he never does much. Usually soused, he relies on the scrappy and smart Eve too much (which is not to say an adventure film needs a strong man as the star to make it work). Since the film's advertising features Selleck as the star, it prepares the audience to see him do all sorts of heroics. He doesn't, and so the film flounders.

In truth, *High Road* is not a terrible film; it's just disappointing. It's a love story, a well-

filmed but sluggish "women's novel" brought to the screen. At best, it's cute, and somewhat endearing, but it's not what people who expect another *Raider* have in mind. Aside from its breath-taking photography, it is a simple movie which the media people have tried to target for the wrong audience.

Videodrome

Producer: Claude Heroux
Director: David Cronenberg
Screenplay: David Cronenberg
Special Effects: Rick Baker

Cast

James Wood ..... Max Renn
Deborah Harry ..... Nicki Brand
Sonja Smits ..... Bianca

Max Renn runs a cable TV station, one tending to pander to violent and pornographic tastes. One of his technicians stumbles upon a somewhat bizarre station, Videodrome, which is broadcast on a scrambled frequency. It seems the answer to his prayers — on one never-changing set there is a procession of people brought in to be tortured and sexually abused. Though the show has low production values, for Max's audience it would have high appeal. So Max sets out to track down the station in hopes of getting rights to use the material on his own station.

There is, of course, a secret behind the show, which Max quickly discovers. His own lover, a pop psychologist named Nicki Brand, has also sought out the program, not to help Max but because she wants to become part of the show (she has a masochistic tendency). Her presence is used to lure Max ever onward in his quest. Though Max thinks the station is trying to remain hidden, he does not know that the show's makers want him to find them; it is all part of their plan to use Max in order to rid the world of the people they despise — namely, Max's audience.

In his latest science fiction/horror thriller, Canadian director David Cronenberg continues the message that has run throughout his earlier films, while adding a few new ones. His Max Renn is a character whose motives are constantly questioned because of the extreme nature of the material he shows. Cronenberg acknowledges, "There are obvious parallels between me and Max, but he's not really me, although the similarities open up questions. The movie goes into more than the relatively simple issue of morality, like the way in which television does alter us physically. It's what Marshall McLuhan was talking about — TV as an extension of our nervous system and our senses."

Indeed, *Videodrome* goes far beyond McLuhan's theories. In the film, the electronic waves over which Videodrome is broadcast actually alter people physically, causing mutations and hallucinations within those who watch it. Because Cronenberg is somewhat notorious for his exploding heads in *Scanners*, many might expect *Videodrome* to be as hideous. There are indeed shocking scenes, but the special effects are *not* what the film is about. "I deliberately *de*-emphasized those elements. It's got a very seedy look to it, not high-tech at all. It's not an action picture, like *Scanners*. Like *The Brood*, it's a character study in the horror genre, although it does take a couple of extreme turns."

For Cronenberg, those "turns" are a form of confrontation, and that, he feels, is the basis of horror. "A lot of people think of film in general as an escape," he comments, "an escape to entertainment. But I think of horror films as art, as films of confrontation. I think of them as films that make you confront aspects of your own life that are difficult to face. In that way, horror's just like any other serious genre."

Most modern horror films have recently degenerated to the hack-and-slash variety, emphasizing the splattering of blood and other special effects to the detriment of the story line. Cronenberg has steadily refused to join this trend; all his films are morality plays and not simple thrillers. In *Videodrome*, Max's hallucinations reveal his desires, his hidden desires; some of these remain illusions and some, due to Videodrome's mutating influence, become brutal and repulsive reality. Such horrors are ugly but not unthinkable because they are all a part of all people —the part they keep buried.

Videodrome fits well within the science fiction genre. It shows that humanity has fallen prey to its own creation — television. Warning that there is more to life than merely relying on the tube for information, entertainment and companionship, the film is aimed at those who would allow their lives to be swallowed by the tube.

There are problems with the film. The ending may seem muddled to many viewers, especially those less familiar with science fiction (and those accustomed to television's patness at winding up a story, in which case these people may already have been swallowed by their televisions). Nonetheless, it is a top-notch horror film...and one of the few true *science fiction* films of the 1980s. As usual, Cronenberg has pulled no punches in getting his message across. The movie is tight, and perfectly clear for anyone willing to *watch* the screen and *think* about what they are seeing.

Blue Thunder

Producer: Gordon Carroll
Director: John Badham
Screenplay: Dan O'Bannon and Don Jakoby
Music: Arthur B. Rubenstein
Cinematography: John A. Alonzo, A.S.C.

Cast

Roy Scheider ..... Murphy
Warren Oates ..... Braddock
Candy Clark ..... Kate
Daniel Stern ..... Lymangood
Malcolm McDowell ..... Cochrane

There is one picture due out this summer that might be able to compete with George Lucas' *Return of the Jedi* at the box office. It is not a fantasy and does not really fall into the realm of science fiction, yet it should be one of the most talked about films of the year. *Blue Thunder* is one of the most exciting, suspenseful, edge-of-the-seat adventure films ever made.

Frank Murphy (Scheider), a police helicopter pilot who flies night patrol, is on the verge of a breakdown after nine years with the Astro Division. His superior, Braddock (Oates), senses the problem and decides to team him with a new man. Braddock's hope is that the younger, computer-oriented Lymangood (Stern) will help distract Murphy from his problems.

The plan works well...until the government loans Astro Division an experimental attack helicopter so its capabilities can be tested. Braddock picks Murphy and his new partner for the test, much to the displeasure of the army liaison officer, Cochrane (McDowell), who has worked with Murphy in Vietnam. Murphy is chosen for his honesty, cleverness and determination; he also has a natural suspicion of the military and Cochrane in particular. These qualities are not exactly what Cochrane has in mind.

Murphy eventually learns that the riots in the poor section of Los Angeles, which is his beat, are being stirred up by the government; the plan is to use the Blue Thunder helicopter on the rioters. At first, what seems to be a cold-hearted plan to test the helicopter's ability is soon discovered to be the means for justifying a whole fleet of Blue Thunders to keep the entire country tame and under control. Murphy decides he must expose this scheme, and when his partner is killed for starting to reveal the plot, he takes matters into his own hands. He steals Blue Thunder and immediately becomes involved in fighting the city's airborne SWAT patrol, several military jets armed with heat-seeking missiles, and finally Cochrane himself in another deadly military helicopter.

The action from beginning to end is unrelenting. From the first opening crime-busting operation to the non-stop combat scenes in the final third of the film, every special effect and moment of action is perfect.

There has never been a helicopter movie like *Blue Thunder*. Helicopters are quite expensive and they tend to drink up huge amounts of fuel quickly. More importantly, though the helicopter is one of the most maneuverable flying machines, it is also one of the most difficult to handle. Only in recent years have pilots truly understood the nature of helicopters well enough to allow a film like *Blue Thunder* to be made.

Though the special effects are exhilarating, there is more to *Blue Thunder* than endless chases. It is a tough, hard-hitting adventure film that does not flinch when making its accusations. While the film does not try to tell the audience that the government is ready to herd them into submission from the skies, it does show that such an event may be possible. Of course, there might be those who would enjoy seeing a fleet of such helicopters built for exactly this purpose — to clear the "scum" off the streets. Surprisingly, the film does not try to make moral judgments about the existence of a Blue Thunder; rather, it is shown as any other weapon — a tool to be used for good in the right hands or for evil in the wrong hands.

By the end of the film, Murphy has revealed his own sense of morality about the helicopter, but there is no final conclusion about what the planners will do with their weapon or what will become of Murphy. As with the conclusion of *Star Wars*, there is a rousing victory, but there is also a sense that though the good guys have triumphed, the war itself goes on.

Blue Thunder has excellent performances throughout, from Warren Oates (in the last performance before his death) stealing the show as Murphy's harder-than-nails boss to Candy Clark as the hero's determined and sensible girlfriend. Scheider is also superb, though his performance does tend to be a variation on the hard-jawed characters he has played previously (such as Sheriff Brody in the film *Jaws*).

The script by Dan (*Alien*) O'Bannon, the photography by John A. (*Chinatown*) Alonzo, and the music by Arthur Rubenstein all work together as a piece. The action is foremost, and the film's elements all blend smoothly to keep the audience focused on the hard-hitting details of the storyline.

For those who want a film that is both filled with action *and* thought provoking, *Blue Thunder* is a sure bet. Watch out, George, the Jedi have competition.

Christopher John

Feedback Questions

How to Use the Feedback Response Card: After you have finished reading this issue of *Ares*™ Magazine, please read the Feedback questions below, and give us your answers by writing the answer numbers on the card in the response boxes which correspond to each question number. In the first two shaded boxes (questions 1 and 2), put the issue number of this magazine; thus, for issue number 14, a "1" would go in the first question box and "4" would go in the second question box.

The Feedback section is an important means for us to learn your interests and opinions both on the contents of this issue and on future materials and games that may appear in the magazine or as boxed items.

What the numbers mean: When answering the questions, a "0" response always means NO OPINION or NOT APPLICABLE. When the question is a "yes" or "no" question, a response of "1" means YES and a "2" means NO. When the question is a rating question, a response of "1" is the WORST rating, a "2" is a POOR rating, a "3" is an AVERAGE rating, a "4" is a GOOD rating, and a "5" is the BEST rating. Please be sure to answer all questions (but do not write anything in the box for the question-numbers labelled "no question"). Incompletely filled-out cards can not be processed.

Please Note: TSR Hobbies uses a 1 to 5 scale for its surveys. Readers should not use the former 1 to 9 rating scale or the response card will be invalid.

1-3. No question

The following questions ask you to rate the articles in this issue on a scale of 1 (poor) through 5 (excellent). 0 = no opinion.

4. THE OMEGA WAR™ Game

5. Braskan Gambit (illustrated story)

6. The Alpha of Omega

7. The Troubled Sun

8. The College of Rune Magics

9. Media

10. Science for Science Fiction

11. Games (reviews)

12. Books (reviews)

13. Film & Television (reviews)

14. Software (reviews)

15. Issue cover

16. This issue overall

17. Is this issue better than the last one? 1 = Yes; 2 = No.

18. Assume you don't subscribe to *Ares* Magazine. Would the quality of this issue alone motivate you to subscribe? 1 = Yes; 2 = No.

19. Do you subscribe to *Ares* Magazine? 1 = Yes; 2 = No.

20. Your age: 0 = 15 years old or younger; 1 = 16-19; 2 = 20-24; 3 = 25-29; 4 = 30-34; 5 = 35 years or older.

21. Education: 0 = 8 years or less; 1 = 9-11 years; 2 = 12 years; 3 = 13-15 years; 4 = 16 years; 5 = 17 years or more.

22. What is the average number of times each month you spend playing simulation games? 0 = none; 1 = once or twice; 2 = 3-6 times; 3 = 7-9 times; 4 = 10-15 times; 5 = 16 or more times.

23. How long have you been playing simulation games? 0 = less than a year; 1 = 1 year; 2 = 2-3 years; 3 = 4-6 years; 4 = 7-9 years; 5 = 10 years or more.

24. How many simulation games (of all publishers) do you possess? 1 = 1-30; 2 = 31-60; 3 = 61-90; 4 = 91-120; 5 = 121 or more.

25. How many science fiction/science fantasy board-games (of all publishers) do you possess? 1 = 1-15; 2 = 16-30; 3 = 31-45; 4 = 46-60; 5 = 61 or more.

26. How many fantasy boardgames (of all publishers) do you possess? 0 = none; 1 = 1-15; 2 =16-30; 3 = 31-45; 4 = 46-60; 5 = 61 or more.

27. How many science fiction and fantasy role-playing games (complete game systems, not adventures or modules) do you possess? 0 = none; 1 = 1-2; 2 = 3-5; 3 = 6-9; 4 = 10-15; 5 = 16 or more.

28. What level of complexity do you prefer in your simulation games? Rate your preference on a 1 to 5 scale, using the following games as guides: 1 = THE CREATURE THAT ATE SHEBOYGAN™ game; 2 = RAGNAROK™ game; 3 = STAR FORCE™ game; 4 = ALBION; LAND OF FAERIE™ game; 5 = BATTLEFLEET: MARS™ game.

Questions 29 through 34 refer to the new format for the game rules as used in THE OMEGA WAR game. Please respond to each question on a 1 to 5 scale, with 1 indicating strong disagreement and 5 indicating strong agreement. 0 = no opinion.

29. I found the new format more attractive

30. I found the new format easier to read

31. I found the new format made it easier to comprehend the game system

32. I found the new rules format easy to refer to with questions about the game

33. I found the rules for the game were complete

34. I would like to see the rules continue in the new format

35. Please indicate your interest in fantasy boardgaming on a 1 to 5 scale, with 1 indicating very little interest in such games and 5 indicating an especially strong interest in such games. 0 = no opinion.

36. Which statement best describes your feelings about fantasy boardgames appearing in *Ares* Magazine: 1 = I do not want any fantasy boardgames in the magazine; 2 = I would like to see at least one fantasy boardgame appear in a year; 3 = I would like to see two fantasy boardgames appear in a year.

37. Please indicate your interest in seeing articles on miniatures appear in *Ares* Magazine, using a scale of 1 (no interest) to 5 (strong interest). 0 = no opinion.

38. Do you own a home computer system? 1 = Yes; 2 = No.

Questions 39 through 65 concern role-playing games. Pick the one statement that is most true about each game: 0 = I have never seen or played the game; 1 = I have seen others play this game but have never played it myself; 2 = I do not own a copy but I occasionally play the game; 3 = I do not own a copy but I frequently play the game; 4 = I own the game and play it occasionally; 5 = I own the game and play it frequently. Games by other publishers are indicated by initials or names in parentheses.

39. UNIVERSE™ Game

40. STAR FRONTIERS™ Game

41. GAMMA WORLD® Game

42. Traveller™ Game (GDW)

43. Star Trek™ Game (FASA)

44. Space Opera™ Game (FGU)

45. Aftermath™ Game (FGU)

46. TOP SECRET™ Game

47. Champions™ Game (Hero)

48. Villains & Vigilantes™ Game (FGU)

49. DRAGONQUEST™ Game

50. DUNGEONS & DRAGONS® Game

51. ADVANCED DUNGEONS & DRAGONS® Game

52. Runequest™ Game (TC)

53. Tunnels & Trolls™ Game (FB)

54. The Fantasy Trip™ Game (MGC)

55. Chivalry & Sorcery™ Game (FGU)

56. Arduin Grimoire™ Game (Grimoire)

57. High Fantasy™ Game (Reston)

58. Adventures in Fantasy™ Game (Adven Games)

59. BOOT HILL™ Game

60. Bushido™ Game (FGU)

61. Worlds of Wonder™ Game (TC)

62. The Morrow Project™ Game (TimeLine)

63. Man, Myth & Magic™ Game (Yaq)

64. Heroes of Olympus™ Game (TFG)

65. Super Villains™ Game (TFG)

Questions 66 through 84 concern magazines. Pick the one statement that is most true about each magazine. 0 = I have never seen or bought this magazine; 1 = I have never had a subscription to this magazine, but I have bought one or more copies at a newsstand or hobby outlet; 2 = I used to subscribe to this magazine, but I no longer buy any issues; 3 = I used to subscribe to this magazine, but I only buy issues now at a newsstand or hobby outlet; 4 = I now have subscribed to this magazine for a year or less; 5 = I now have subscribed to this magazine for a year or more.

66. STRATEGY & TACTICS® Magazine

67. ARES™ Magazine

68. DRAGON™ Magazine

69. Fire & Movement

70. The Space Gamer

71. The Wargamer

72. Sorcerer's Apprentice

73. Different Worlds

74. Journal of 20th Century Wargaming

75. Nexus

76. Journal of the Traveller's Aid Society

77. The General

78. Analog

79. AMAZING™ Magazine

80. Omni

81. Scientific American

82. Newsweek

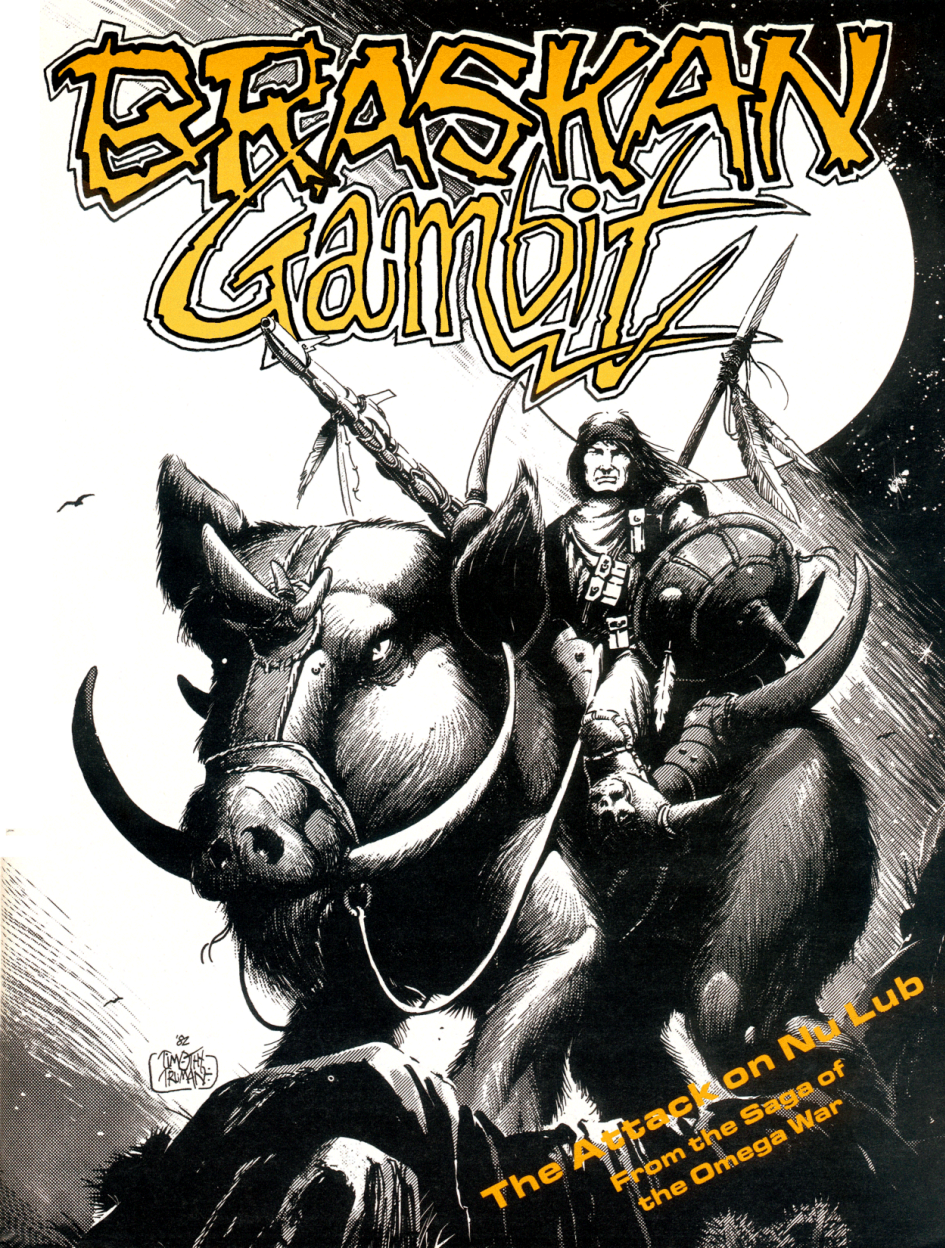
83. Games

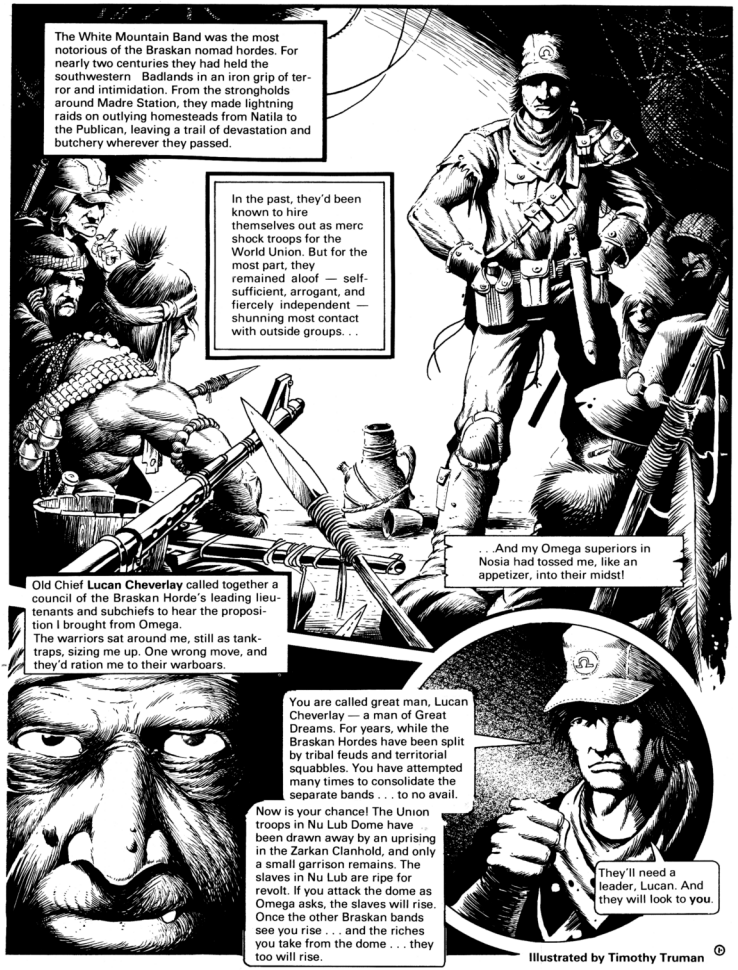
84. Byte

Rate the following game proposals on a scale of 1 to 5, with 1 indicating very little interest in seeing such a game and 5 indicating a very strong interest in seeing such a game.

85. Survival on New Terra. While in hyperspace jump between Sol and the DaGama Colony of Eta Leporis, the seedship *Columbia* passed through the shock waves of an exploding star. The crew and passengers of the seedship were shocked to discover that their ship had been thrown off course, and instead of reaching the human colony of DaGama, they were now circling an unknown sun with no way to get back. Fortunately, the second planet of the new solar system seemed suitable for human population and the decision was made to transport the colonists to this planet, named New Terra. The game would be a solitaire system that simulates the trials and tribulations of the new colony. There would be a number of possible conditions facing the new colonists — poisonous plant life, dangerous animals, a native intelligence resentful of their intrusion, or unknown lifeforms that could experiment with the destiny of the earthlings. A player must provide supplies and weaponry for the colonists and determine the mixture of talents among the passengers and crew members. A ship with too little food in stock might starve before new crops could be grown; an underarmed crew may not be able to withstand predators or a native populace. A player's success will be determined by the number of passengers who survive and by whether or not the original colony is able to expand and take over the

(continued on page 41)


BRASKAN
Gambit
The Attack on Nu Lub
From the Saga of
the Omega War

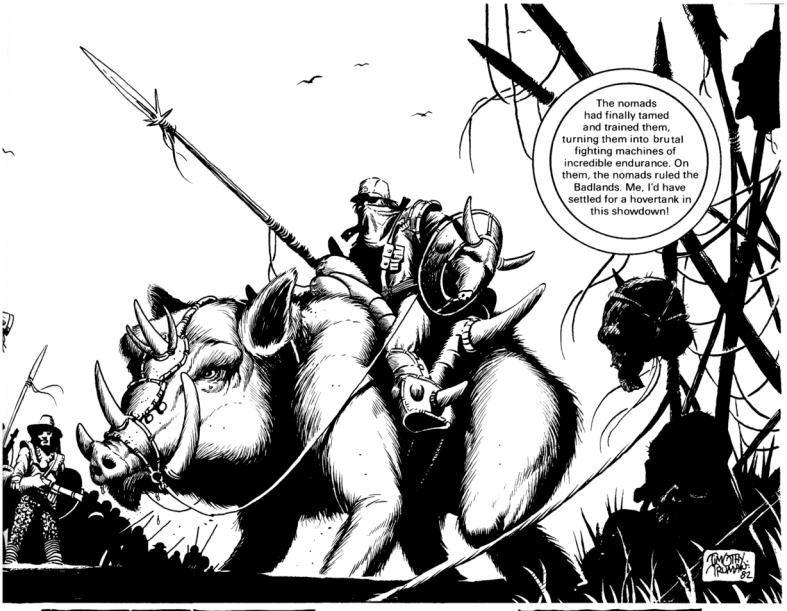


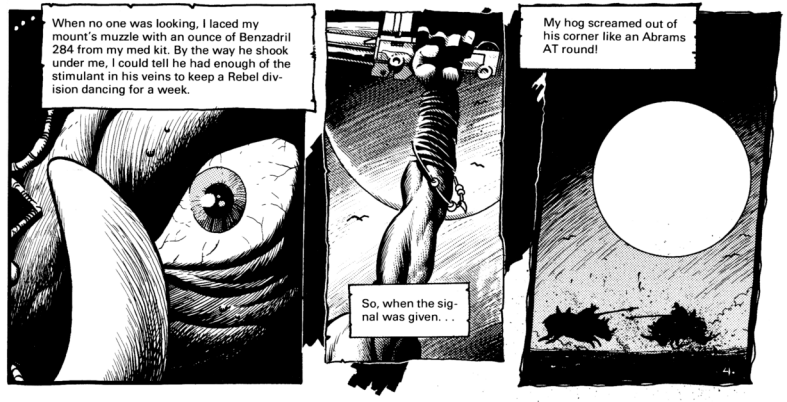
Illustrated by Timothy Truman

Story by David J. Ritchie and Timothy Truman


Suddenly, the Old Man stood. I knew I'd hit a nerve. I hoped it was the right one.
But, as they say, there's always a glitcher in every barrel. . .
By Tusker — No!
. . . This glitch was called **Buckdancer**, and he meant trouble — a powerful young lieutenant who was gathering much influence among the subchiefs.
You who have fought harness-to-web belt with these Domers — you Wolf Texiana, Buck Little Jack, Rocker Whipmac — you know the Union muties are fierce guerrilleros! Total devastators! And they paid mucho tesoro for our help — gold, food, and good steel!
You promise big things, Rebel man. But you ask much of us in return. You are willing to put our necks in the noose, but are you willing to risk yours as well?
Enough, Rebel man!
We hear your big chiflado talk. You promise much!
I cannot speak for my Brothers. But for myself, I say —
Yes! We **go**! We fight and **throw down**!
Then throw down with me! We **fight**! In the OLD WAY!
I was in trouble.


I'd never ridden a nomad warboar before, much less fought on one. Back in the Good Days, before the bombs dropped, these great, stinking razorbacks had been genetically engineered as extra meat-on-the-hoof for rich technocrats. During the Days of Confusion they had taken over the empty, devastated plains.
Buckdancer was decked out in his finest regalia and armed to the teeth. Ready to impress his buddies at my expense.
All told, I didn't have a chance.
But I **did** have an **edge**...
3


The nomads had finally tamed and trained them, turning them into brutal fighting machines of incredible endurance. On them, the nomads ruled the Badlands. Me, I'd have settled for a hovertank in this showdown!
TIMOTHY TRUMAN '87


When no one was looking, I laced my mount's muzzle with an ounce of Benzadril 284 from my med kit. By the way he shook under me, I could tell he had enough of the stimulant in his veins to keep a Rebel division dancing for a week.
So, when the signal was given. . .
My hog screamed out of his corner like an Abrams AT round!


My gamble paid off. Buckdancer's mount was caught totally unaware by the 8,000 pounds of crazed warboar.
His mount upended, and Buckdancer went spinning from his harness.
So, what's your verdict, Buckdancer?
Do you ride with me — or die?
We RIDE!


We rode for three days across that hellish blast furnace men charitably call the Badlands. Then, on mid-morning of the fourth day, we reached . . .
NU LUB. Our target.
Our little ride shows on you, Rebel man. Warren living didn't prepare you for the desierto, did it? Even your stimulant doesn't make you so strong, eh?
Soon, little warrior, it will be much hotter for you!
HOOKA-HAI, brothers ! We go in ! Now!


Like a wave of rolling thunder, the entire mounted might that was the White Mountain Horde came roaring down the cliffs.
It was a thing I never thought I'd live to see. . .
. . .And it was GLORIOUS!
Then, my heart stopped cold.
Nu Lub Dome, according to my superiors, was supposed to be lightly defended. Someone had snafued. Here we were, facing a Mutant Heavy Armor company with enough firepower to cut us to ribbons.
Mutie tanks! HEAVY ARMOR! It's an ambush!
The truth flashed clearly . . . we were to be a diversionary attack while Omega struck somewhere else. We were expendable.


But, through that hail of steel and flame, the hordes sped on without wavering.
Seventy tons of duralloy steel were bearing down on us.
And I didn't have any tricks to help me **this** time...
No, I was to be a sacrifice for Omega!
When unexpectedly...
HOOKA-HAI!
BUCKDANCER!


Before the mass of Buckdancer's charging warboar, the hovertank tipped like a floundering rowboat . . . and then flipped over. Without solid ground to support it, the cushions of air that kept the vehicle hovering spilled into space. As the helpless tank's huge ventral fans began a labored whining, the nomad left his mount and leapt atop it.
He stood there, screaming, pouring hot rounds into the machine.
The results were effective. . .
. . .and FINAL
Gods, Buck. That was — that was — real stupid!
ARGH! . . . perhaps — but, by Tusker — what a fight!
9.


Buckdancer, there's one thing I have to tell you — before —
I know, little warrior — our duel. You — tricked me. . .
By Tusker — yeah — a real — nomad. . .
Your medicine . . . argh . . . for the warboar. A trick — worthy of a real nomad.
The other nomads had learned from Buckdancer's example. All around us the fighting raged as the nomads took the offensive.
As one warrior attracted a tank's attention, another threw the weight of his mount against the machine's side, flipping it over. The muties inside never had a chance.
And with a wicked, satisfied smile on his lips, Buckdancer closed his eyes.
10


Explosions from inside the dome told us that the slaves were rising against their Union masters. Omega would be surprised that our attack had succeeded.
It would be a long step in our fight for freedom.
Our work here, we knew, was done.
And I knew the rolling thunder heard on the plains that day was just the BEGINNING. . .
END

THE ΩMEGA WAR

Science Fantasy Adventure Game

by

David James Ritchie

CREDITS

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IMPORTANT NOTE: These rules are organized differently from those found in most wargames. *Every* section must be read in order since information vital to play is presented throughout.

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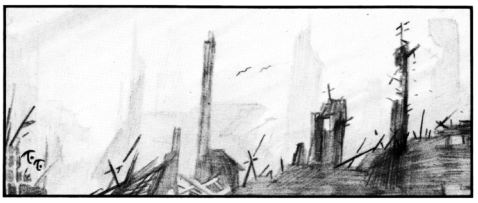
PART I

INTRODUCTION



Armageddon ....2121.... the year the missiles fell. For three-quarters of a century man had held the atomic genie in check. Then the long-dreaded nightmare happened. The nations of Europe and North America went to war . . . and took the atom with them. Over a 10-day period that spring some 11,000 warheads exploded over the northern hemisphere, turning most of the world's great cities into radioactive slag and filling the atmosphere with invisible death. When the great burning was over, the stunned survivors crawled out of their shelters to find a world unlike any they had known.

North America, Europe, Japan, North Africa, the Middle East, the Soviet Union and northern China were devastated. The world economy was in ruins. Food, fuel and manufactured goods were in short supply. Exposure to the fallout—laden air outside the shelters was possible for only brief periods each day. Communications were a shambles.

As the governments of those nations still intact struggled to restore order, the conviction grew that such wholesale destruction must never happen again. At the Rio Conference of 2122, delegates from 96 different nations penned their signatures to the charter of the World Union, an international organization designed to regulate conflict among nations. The Union, according to its charter, had the sole right to possess nuclear weapons of any kind, but could only use such weapons to keep anyone else from developing a nuclear capability. As its first official act, the Grand Assembly of the World Union voted to assume the administration of the so-called "devastated zone" of North America, Europe and the Soviet Union until such time as the native populace was capable of self-determination.

Almost three hundred years later, the World Union retained its trusteeship. Having grown fat from the exploitation of American and Russian agricultural and mineral resources, the Union and its member nations were reluctant to relinquish their hold. Within the boundaries of what had formerly been Canada, Mexico and the United States, almost a score of World Union plantations and cities housed three million foreign bureaucrats and soldiers and twelve million native workers whose status was little better than that of slaves. Outside the Union's domed settlements hostile "gangs" of American "freemen," loosely joined into "clans," controlled most of the countryside with the tacit approval of the Union. Nomad hordes roamed the Great Plains, attacking or trading with Union work parties, according to their mood. Within the wastelands where the continent's cities once stood, bands of savage mutants, descendents of those who never left the radiated areas, made their homes.

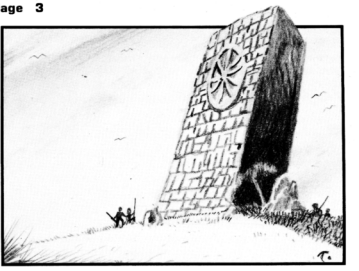
Slaves and clansmen, nomads and mutants . . . each group distrusted the other. By constantly playing on this distrust, the Union had always kept the populace at each other's throats. Never had the Americans been able to show a united front that would establish their fitness for self-rule. In the role of international policeman, the Union kept a garrison of heavily-armed troops supported by air fleets in North America to keep the natives in line. In troubled times, this force was supplemented by native auxiliaries who willingly fought their countrymen in exchange for Union gold. It had been this way for 300 years. It seemed that it would stay this way for 300 more.

Then came Omega. At first it was just a symbol . . . something scrawled over Union proclamations. The last letter of the Greek alphabet meant nothing to most natives when it first appeared. But, by the winter of 2419, its meaning was clear. Omega . . . an ending. An ending to foreign exploitation. An ending to slavery in the Union mines, factories and plantations. An ending to the phony trusteeship that kept America in thrall. Throughout the winter and spring . . . in the tents of the Dakotan Nomads staked on the high plains . . . deep within the bowels of the clanwarrens under the Alleghenies . . . in the cratered mutant strongholds of Nosia . . . inside the slave pens of Nu Denver . . . Omega was debated. The first slave revolt broke out on July 4th. The first clan rising took place a week later. The Omega War had begun.

THE OMEGA WAR is a two-player game of strategic warfare for control of North America in the 25th century. One player (the Union Player) takes the role of the High Commissioner for North America and controls the forces of the World Union. The other player (the Rebel Player) takes the role of the Directorate of the secret Omega Organization and controls the native forces opposing the World Union. The players alternately raise new forces (represented by the playing pieces) and maneuver them across a map of North America, using them to attack the other player's forces and to achieve their strategic objectives. ●

PART II

GAME PARTS



A. PARTS LIST: Each copy of the game includes . . .

- One 22" x 34" game map
- One sheet of 200 cardboard playing pieces
- One 32-page booklet of rules and support material
- Two 6-sided dice *(not included in magazine edition)*
- One game box *(not included in magazine edition)*

B. THE MAP: The game map shows the part of 25th-century North America where the Omega War was fought. A hexagonal (six-sided) grid has been laid over the map terrain. Each hexagon (hex) on the map represents an area 130 kilometers across. A number of charts, tables, tracks and displays are printed on the map. These include the . . .

● **TERRAIN KEY**, showing what the terrain symbols and colors mean and how they affect play. Opposite each terrain type is a pair of numbers separated by a slash. In each case, the number *before* the slash is the number of **Movement Points (MP's)** it costs a unit to enter that type of terrain during Clear Weather. The number *after* the slash is the number of MP's it costs to enter the terrain during Foul Weather. The use of MP's is described in detail in **PART VI. IMPORTANT NOTE:** If more than one type of terrain exists in a hex, read down the Key to the **lowest** terrain type in the hex. **This** is the type of terrain used for purposes of movement and combat. For example, a unit defending in a hex with both Clear and Wild terrain would use the Wild terrain row on the **COMBAT RESULTS TABLE**. The only exception to this rule is that hexes with both water and land consist of *both* types of terrain. See **PART VI** for how to move and fight in hexes containing both Land and Sea/Lake.

● **COMBAT RESULTS TABLE**, used to determine the outcome of combat. The attacker resolves each combat by indexing the Combat Ratio for the attack (found on the upper portion of the table) with a modified die roll result. Results *before* the slash in each case are steps lost by the attacking units. Numbers *after* the slash are steps lost by the defender's units. The use of the **COMBAT RESULTS TABLE** is explained in detail in **PART VIII.**

● **TURN RECORD TRACK**, used to keep track of time, weather, nomad winter attrition and the appearance of Rebel reinforcements. Each **TURN RECORD TRACK** box represents a month. Boxes shaded blue are **Foul Weather Game Turns** and are governed by the special rules listed in **PART X**. Unshaded boxes are **Clear Weather Game Turns** and aren't governed by these special rules. Boxes containing a Warren symbol (shown on the TERRAIN KEY) indicate turns in which the Rebel Player gets reinforcements as discussed in **PART IV**; those containing a Totem symbol (also shown on the TERRAIN KEY) indicate turns in which all Nomad Hordes are temporarily removed from the game.

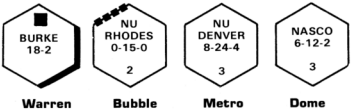
● **ABBREVIATED SEQUENCE OF PLAY**, listing the order in which the players perform game activities. **PART IV** explains this sequence in detail.

● **POLITICAL INDEX**, used to record the revolution's progress. The track consists of 50 boxes numbered 1 through 50 and organized into columns of 10 boxes each. At the start of the game, the **PI Level Marker** is placed in the "50" box. During set-up and play, the marker is moved along the numbered boxes to reflect changes in the players' fortunes (and the shifting political control of the continent). The number of the box the marker currently occupies is called the **PI Level**. The alphabetical designation of the column in which each box is located is called the **PI Stage**. For example, if the PI Level Marker is in the "30" box, the PI Level is 30 and the PI Stage is C (since the "30" box is in the "C" column of the index). As the PI Stage changes during play, the players' capabilities also change as described in **PART IV** and **PART XI.**

Most of the terrain on the map is self-explanatory. However, some features may be unfamiliar. These include . . .

● **SETTLEMENTS**: There are four types of Settlements: **Warrens, Metros, Domes,** and the **Bubble**. Warrens are under the control of the Rebel Player from the time the Clanhold they are in rises until the Warren is destroyed in combat. All other Settlements are controlled by the Union Player at the start of the game and stay under his control until they revolt or are destroyed. The destruction of a Settlement is noted by placing a **Ruin Marker** in the Settlement's hex. Placing a Ruin Marker in a Warren means that the Warren ceases to exist for the rest of the game. Placing a Ruin Marker in any other type of Settlement means that the Settlement ceases to exist for all purposes except movement and indexing the Combat Ratio on the **COMBAT RESULTS TABLE**.

Sample Settlements



UNION METROS: There are three Metros on the map (**Nu Denver, Nu Otwa** and **Ioway**). Metros are huge (2,000,000+ population) domed cities which serve as the administrative centers for the World Union in North America. Each Metro has a **Political Rating (PR)** printed at the bottom of its hex. In addition, each Metro also has three numbers under its name. These are (left to right) its **Attack Rating, Defense Rating** and **Range.** These three values work in the same way as the ratings of the same name described in **THE PIECES.**

UNION DOMES: There are 14 Domes on the map. Domes are vast mechanized mining, factory or farming complexes manned by native American slaves and protected by plastic domes and force fields. Each has a **Political Rating, Attack Rating, Defense Rating** and **Range** which function (and are shown) in the same way as Metro Ratings.

UNION BUBBLE: There is only one Bubble on the map (**Nu Rhodes** in hex 0622). It is a vast undersea aqua-cultural plant, port and city on the continental shelf protected by a pressurized, shock-resistant plastic dome. The Bubble has a **Political Rating, Attack Rating, Defense Rating** and **Range** which function like (and are shown) in the same way as Metro Ratings.

WARRENS: Spread over scores of kilometers, these underground Settlements consist of large numbers of individual towns and factories connected by a maze of tunnels and subterranean roads. Each Warren on the map contains two numbers. The *left-hand number* is the Warren's **Defense Rating** and works in the same way as the unit Defense Ratings described below. The *right-hand number* is the **Political Rating** of the Warren.

● **BARRIER HEXES**: These are large tracts of cleared land which are regularly sprayed with defoliants and sown with tiny sensors, mine fields and subsonic transmitters designed to limit passage through them. The World Union maintains such barriers to protect its agricultural settlements on the Great Plains from the Clans of eastern North America.

● **TOTEMS**: These towering monoliths of carved rock dotting the plains are meeting places and trading grounds where the various Nomad Hordes gather for festivals and to exchange artifacts and pelts for the technological devices offered by World Union traders.

● **CLANHOLDS**: There are 9 Clanholds shown on the map (**Columbia, Canialan, Mecklan, Zarkan, Nosia, Ute, Bama, Scotia** and **Yorkan**). Each Clanhold consists of a part of the continent claimed by the Gangs making up that Clan. Within each hold will be found one or more Warrens where the industrial strength of the Clan is centered. The Union Player may move in and out of the various Clanholds. The Rebel Player's ability to move in and out of a particular Clanhold is limited until the Clanhold has risen. Once a Clanhold rises, the Rebel Player gains control of the units attached to that Clanhold and may move in and out of it, get reinforcements in the Clanhold, etc.

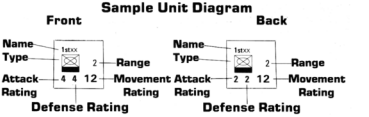
● **RESERVES**: There are three Reserves shown on the map (**Wyolan, Braska** and **Dakota**). Each Reserve is claimed by the Nomad Hordes of a particular Nation (similar to a Clan). Each Reserve contains one or more Totems. Both players' units may freely move in and out of Reserves throughout the game.

● **BORDERS**: The dashed lines on the map represent the borders between the Clanholds and Reserves. The Rebel Player's units are limited in their ability to cross *some* Borders.

● **WASTE HEXES**: These areas are the sites of pre-holocaust cities, industrial zones or resource centers which were hit by multiple nuclear warheads. They are occupied by small bands of mutants who "mine" the ruins for precious metals and artifacts for resale to World Union traders. Though the background radiation at most sites is low, folk tales about the holocaust make them taboo to all Nomads and most other non-Mutants.

C. THE PIECES: The playing pieces represent the different military units that fought in the war. There are three Classes of units: **Air Units, Mobile Units** and **Land Units**. All unit pieces, regardless of class, use similar numbers and symbols to convey information as shown in the **SAMPLE UNIT DIAGRAM**.

Sample Unit Diagram



NAME: The name of the unit. Unit names are included only for flavor. They have no effect on play. A **"XX"** as part of the unit's name means that the unit is a *division* (if a Mobile Unit) or *fleet* (if an Air Unit). Thus, **"1st XX"** is read "First Division."

TYPE: A symbol showing the unit's type. Different unit types have special capabilities described elsewhere. If the unit's Type symbol box is colored in (e.g. is a different color than the rest of the piece), the unit counts as half a unit for purposes of combat die roll modifications.

ATTACK RATING: A number showing the unit's ability to attack enemy units.

DEFENSE RATING: A number showing the unit's ability to defend itself when attacked by enemy units.

RANGE: A number showing the maximum distance in hexes that can separate the unit from an enemy unit it is attacking or a friendly unit it is supporting. The hex the attacking unit occupies isn't counted when figuring Range. The hex the target of the attack occupies *is* counted. If there is a patch of color over the unit's Range, the unit's Attack Rating is halved for all purposes at ranges greater than 1.

MOVEMENT RATING: a number showing the unit's ability to move across the map. A unit's Movement Rating is made up of Movement Points which are expended when the unit moves. In general, it costs a unit 1 Movement Point (MP) to enter a Clear Hex. Other types of hexes have different costs.

Some units have a color bar along the bottom of their piece. Units with this bar have a **Zone of Control** which inhibits the movement and supply of enemy units. Please note that some of the numbers on the back of some pieces are different from the numbers on the front of the pieces. In such cases, the back side of the piece shows the unit at **Reduced Strength** (after it has taken losses) and the front side shows the same unit at **Full Strength** (before losses have been suffered). The three classes of units and how they function are described below.

AIR UNITS

Air units represent fleets of huge, cigar-shaped, sealed airships and their land-bound support crews. There are three types of Air Units: **Battle Fleets** of 12 large vessels similar to 20th century naval Missile Cruisers in size and power, **Patrol Fleets** of 24 vessels similar to 20th century Missile Frigate in size and power and **Assault Fleets** of 18 large vessels similar to 20th century Battle ships in size and power. All three types of vessel are armed with lasers and ballistic cannon for antimissile defense and are sheathed in laminate-armor

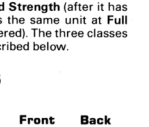


plate. All vessels are equipped with a variety of sophisticated missiles capable of delivering ballistic, sonic or NBC warheads, but only Assault Fleets carry tactical nuclear warheads (and only in small numbers).

Assault Fleet

Only the Union Player has Air Units. Air Units may move only during the **UNION MARCH PHASE**. This represents a change of base, not the movement of the ships through the air. Air Units have both a **Full Strength** and a **Reduced Strength** side. When flipped over to their Reduced Strength side, Air Units count as only a half unit for combat purposes. However, they lose their ability to attack.

MOBILE UNITS

Mobile Units represent divisions, brigades and Rebel Gangs equipped for nape-of-earth movement via hovercraft or personal jetpacks. Mobile Units are indicated by a black band at the bottom of the unit's Type symbol. There are five types of Mobile Units, **Union Light Divisions** have 12,000 men equipped with 1500 Armored Personnel Carriers (APC's) and 250 Heavy Weapons (HW) Platforms. **Union Heavy Divisions** have 10,000 men equipped with 750 HW Platforms and 1000 APC's. **Union Strike Divisions** have 10,000 men equipped with 250 Air Transport Craft 600 Heavy Lifters and a prefab Mass Converter, **Rebel Gangs** have about 15,000 men equipped with individual suits of jet-powered Battle Armor and supported by 500 small HW Platforms and 250 Heavy Lifters. **Rebel HW Brigades** have 5000 men equipped with 1000 HW Platforms. **Mutant Legions** have 10,000 men equipped with individual suits of jet-powered Battle Armor and supported by 250 small HW Platforms and 200 Heavy Lifters.

Front **Back**

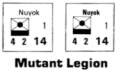
Union Light Div.

Union Heavy Div.

Union Strike Div.

Rebel Gang

Rebel HW Brigade



Mutant Legion

Each player controls different unit types. *Only* the Union Player has Light, Heavy and Strike Divisions. *Only* the Rebel Player has Gangs and HW Brigades. Mutant Legions may only be recruited by the Union Player, but the Rebel Player may gain control of the Union Player's Mutant Legions during play. The front of each Mutant Legion piece is flipped up when the unit is controlled by the Union Player. The back of each Mutant Legion piece is flipped up when the piece is controlled by the Rebel Player. Except for their different color, the front and back of all Mutant Legions are the same. The backs of all Mobile Units other than Mutant Legions show the unit at Reduced Strength. Please note that in some cases units at Reduced Strength lose the color bar indicating that they have a Zone of Control and/or gain a color patch over their unit Type symbol to indicate that they count as only half a unit for combat purposes while at Reduced Strength.

LAND UNITS

Front **Back**

Nomad Horde

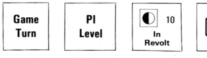
Partisan Column

Land units represent those units whose transport consists of a mix of vehicles of various types or which include substantial numbers of riding animals. There are two types of Land Units in the game. **Nomad Hordes** consist of 8000-10,000 nomad warriors mounted on War Boars (huge, carnivorous mutant razorback pigs developed from pre-holocaust experimental breeding stock) and armed with lasers, blasters and small missiles. **Partisan Columns** consist of 6000-8000 men equipped with ground vehicles and hovercraft. Land Units include a number of non-combatants equal to the number of fighters in the unit.

Land Units may only attack enemy pieces that are next to them. They may expend their entire Movement Rating to move during a friendly **MARCH PHASE** or **EXPLOITATION PHASE**. They may not move during any **REACTION PHASE**. The front and back of each Nomad Horde is identical except for color. Nomad Hordes are kept front face up when controlled by the Union Player and back face up when controlled by the Rebel Player. Both players may recruit Nomad Hordes. The backs of Partisan Columns and Ruin Markers.

MARKERS

In addition to the various classes of units in the game. Some pieces are used to record game functions. These are called **Markers**. There are four types of Markers in the game, each of which is illustrated below. The function of each Marker is explained later in these rules.



Game Turn Marker **PI Level Marker** **Revolt Marker** **Ruin Marker**

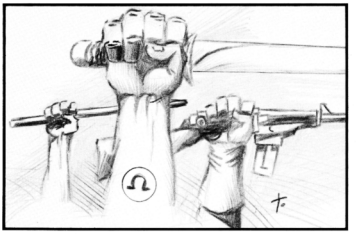
NOTE: When a Revolt Marker is placed in a hex, that hex loses its **ATTACK RATING** and **RANGE** (if any). Its **DEFENSE RATING** is replaced by the number on the Revolt marker. Its PR stays the same. The hex loses its ZOC, but, otherwise, continues functioning as a normal Settlement (under the Rebel Player's control). If a Settlement is destroyed, any Revolt Marker in the hex is flipped over to reveal the Ruin Marker on the back. The marker is **not** replaced in its opaque container.

GAME TERMS

These rules use a number of special terms to explain play. The terms **ENEMY** and **FRIENDLY** are used to distinguish the playing pieces and actions of one player from those of the other. All pieces controlled by one player are friendly to one another and are enemies of all pieces controlled by the other player. Phases during which players may undertake certain activities (see **PART IV**) are also referred to as friendly or enemy (for example, a "friendly" **MARCH PHASE**). All friendly units occupying the same hex constitute a **STACK**. ●

PART III

HOW TO START



1. Choose who will play each side and unfold the map between the players so that the Union Player sits on the north edge of the map and the Rebel Player sits on the south edge. To make the map lie flat, carefully fold it back against the machine-made creases. Punch out the playing pieces and sort them by color and type.

2. The Rebel Player places the the Game Turn Marker in the first box of the **TURN RECORD TRACK (July, 2419).**

3. The Union Player places the PI Level Marker in the "**50**" box of the **POLITICAL INDEX** (the box labelled **START**).

4. The Rebel Player places the 18 Revolt Markers in an opaque container (like a coffee mug) from which they are drawn during play.

5. The Union Player randomly draws a Revolt Marker, looks at it and places it on any **Union Dome** of his choice that is inside a Clanhold (not a Reserve). That Dome is **in revolt** and its PR is immediately subtracted from the PI Level.

6. The Rebel Player randomly draws a Revolt Marker, looks at it and places it on any **Union Dome** of his choice that is inside any Clanhold **or** Reserve. That Dome is **in revolt** and its PR is immediately subtracted from the PI Level.

7. The Rebel Player places one **Partisan Column** on each of the two Domes chosen in Steps 5 and 6.

8. The Union Player picks 32 Union units of his choice (other than Mutant Legions) and places 2 units Full Strength side up in each Union Settlement without a Revolt Marker. He then places 1 Mutant Legion in each Metro and 1 Mutant Legion in the Union Bubble. Air Units may not be placed in the Bubble at start.

9. The Union Player picks any one of the nine **Clanholds.** That Clanhold has **risen** (is under the Rebel Player's control) at the start of the game. Its PR is immediately subtracted from the PI Level.

10. The Rebel Player picks any **two Clanholds** in addition to the one chosen in Step 9. These Clanholds have also **risen** at the start of the game. Their PR's are immediately subtracted from the PI Level.

11. The Rebel Player places all units of the three Clans picked in Steps 9 and 10 Full Strength side up (any number per hex) in any **Warren(s)** inside their respective Clanholds.

12. The Rebel Player places all **Nomad Hordes** in their own opaque container from which they are randomly drawn during play.

13. Units not placed on the map or in a container are set aside for later use. **NOTE**: The number of units of various types (other than Partisan Columns) is an intended design limit. If all units of a particular type are already on the map, no new units of that type may enter the game.

14. Play now begins with the July, 2419 Game Turn and follows the Sequence of Play in **PART IV** until one side wins as described in **PART V**. ●

PART IV

COURSE OF PLAY

The game is played in **GAME TURNS** during which players take action according to a rigidly-defined **SEQUENCE OF PLAY**. This Sequence of Play is divided into various **PHASES**, each of which is devoted to the performance of particular game activities by only one player (in most cases). The player who is performing game activities during a Phase is called the **ACTIVE PLAYER**. His opponent is called the **INACTIVE PLAYER**. Game activities may not be performed out of sequence. For ease of play, an **ABBREVIATED SEQUENCE OF PLAY** is printed on the map.

SEQUENCE OF PLAY

A. UNION RECRUITMENT PHASE

1. The Union Player finds out how many **NEW STEPS** worth of units he gets this turn by reading across the **NEW STEPS** row of the **POLITICAL INDEX** until he comes to the column showing the current PI Stage. Where the row and column meet, he will find a pair of numbers separated by a slash. The number *before* the slash is the number of **AIR UNIT NEW STEPS** he gets. The number *after* the slash is the number of **MOBILE UNIT NEW STEPS** he gets. He may use these Steps to flip over Reduced Strength units or to add new units to his forces as described in Steps 2 and 3, below. However, Mobile Unit New Steps may only be used to bring up to Full Strength or add to the game Union Mobile Units (other than Mutant Legions) and Air Unit New Steps may only be used to bring up to Full Strength or add to the game Union Air Units. New Steps that are not used during the

Phase they become available are permanently lost. They may not be accumulated from turn to turn.

2. The Union Player flips over any of his Supplied Reduced Strength units he wants to their Full Strength side, expending 1 New Step of the appropriate type for each unit.

3. The Union Player picks which Union Units not on the map (other than Mutant Legions and Nomads) will be placed on the map this Phase, expending one New Step for each new unit entering the game with its Reduced Strength side up and two New Steps for each new unit entering the game with its Full Strength side up. Units entering the game are placed on any friendly Settlement (any number per hex). If there are no friendly Settlements on the map, no new units may enter the game. Air Units may *not* be placed in the Union Bubble.

SPECIAL OPTION: Twice per game the Union Player may choose to skip Steps 1, 2 and 3 of this Phase and rebuild one destroyed Union Dome instead. Only Domes that contain a Union Strike Division and which do not have any Rebel units next to them may be rebuilt. Whenever this option is used, the Ruin Marker is immediately removed from the Dome and put back in its container. The Dome's PR is added to the PI Level. The Dome immediately begins functioning in all ways as a normal Union Dome. It can be put in Revolt by the Rebel Player and can be destroyed in combat.

4. If the PI Stage is A, skip this Step. Otherwise, the Union Player reads across the **Mutants** row of the **POLITICAL INDEX** until he comes to the column showing the current PI Stage. Where the row and column meet, he will find a pair of numbers separated by a slash. The number *before* the slash is the number of times he must immediately roll one die. For each die roll that is less than or equal to the number *after* the slash, the Union Player places a Mutant Legion in any unoccupied Waste Hex anywhere on the map. Rolls greater than this number are ignored. Mutant Legions are always placed on the map during this Step, one per hex, with their Union side up. The Union Player may, at any time, refuse to roll for Mutant recruitment during this Step. ***However, once he does so, he may never again recruit Mutant Legions and this Step is skipped for the rest of the game.***

5. If the PI Stage is A, B or C or if it is a Foul Weather Turn, skip this Step. Otherwise, the Union Player reads across the **U Nomads** row of the **POLITICAL INDEX** until he comes to the column showing the current PI Stage. Where the row and column meet, he will find a pair of numbers separated by a slash. The number *before* the slash is the number of times he must immediately roll one die. For each die roll that is less than or equal to the number *after* the slash, the Union Player places one Nomad Horde, drawn at random, on any Totem in that Horde's Reserve (Dakota Hordes in the Dakota Reserve, etc.) that is not occupied by an enemy unit or units. Die rolls greater than this number are ignored. If all Totems in a Reserve are occupied by enemy units, no unit from that Reserve may be placed on the map. Put the unit drawn back in the container and do not draw again. Nomad Hordes are placed on the map this Phase with their Union side up. The Union Player may refuse at any time to recruit Nomad Hordes. ***However, once he does so, he may never again recruit Nomad Hordes and this Step is skipped for the rest of the game.***

B. REBEL POLITICAL PHASE

1. If the PI Stage is E or all Clans that can rise have risen, skip this Step. Otherwise, the Rebel Player reads across the **Rising** row of the **POLITICAL INDEX** until he comes to the column showing the current PI Stage. Where the row and column meet, he will find a pair of numbers separated by a slash. The number *before* the slash is the number of times during this Step that the Rebel Player must check to see if a Clanhold rises. For each of these possible Risings, the Rebel Player picks any Clanhold that has not yet risen and rolls a die. If the modified die roll result is less than or equal to the number *after* the slash, the chosen Clan rises (joins the Rebel Player's forces) and the Rebel Player immediately places all of the Clan's units (any number per hex) in any Warren(s) in the Clanhold. Modified die rolls greater than the number after the slash are ignored. The Rebel Player announces and rolls for Risings individually. He can make multiple attempts in a Phase to raise a particular Clan, if he desires. Each die roll is modified by subtracting 1 for each Union Settlement inside the Clanhold that has a Revolt Marker and adding 1 for each Union Settlement inside the Clanhold that doesn't have a Revolt or Ruin Marker on it. In addition, 1 is added to the die roll if one or more Union Mobile Units occupy hexes inside the Clanhold other than Barrier Hexes or Union Settlements.

2. The Rebel Player reads across the **Revolt** row of the **POLITICAL INDEX** until he comes to the column showing the current PI Stage. Where the row and column meet, he will find a pair of numbers separated by a slash. The first number is the number of Union-controlled Settlements that must be checked for Revolt during this Step. For each of these possible Revolts, in turn, the Rebel Player picks any Union Settlement without a Ruin or Revolt Marker and rolls a die. If the modified die roll result is less than or equal to the number *after* the slash, the Revolt succeeds. Modified results greater than the number *after* the slash are ignored. The Rebel Player rolls individually for each Revolt, resolving each attempt before deciding which Settlement to check next. He can make multiple attempts in this Step to cause a Revolt in the same Settlement. As soon as a Settlement revolts, all Union units stacked in it are eliminated and the Rebel Player randomly draws a Revolt Marker and places it in the hex. If the hex in which it is placed contains the Union Bubble, the piece is placed with the Ruin Marker side up. The Bubble is always automatically destroyed when a Revolt occurs in its hex. The die roll is modified by the addition of 1 for each Union Mobile Unit in the Settlement and by the subtraction of 1 for every 2 Rebel units in a hex next to the Settlement. In addition, 1 is subtracted from the die if the Settlement is in a Clanhold that has risen and contains one or more Warrens that have not been destroyed. If the Settlement is a Metro or the Bubble, 3 is added to the die roll.

3. If the PI Stage is C, D or E or if it is a Foul Weather Turn, skip this Step. Otherwise, the Rebel Player reads across the **R Nomads** row of the **POLITICAL INDEX** until he comes to the column showing the current PI Stage. Where the row and column meet, he will find a pair of numbers separated by a slash. The number *before* the slash is the number of dice that he must immediately roll. For each die roll result that is less than or equal to the number after the slash, he randomly draws one Nomad Horde and places it on any Totem within its Reserve that isn't occupied by one or more enemy units. Die rolls greater than the number *after* the slash are ignored. If all Totems in a Reserve are occupied by enemy units, no new Nomad Hordes may be placed in that Reserve. Nomad Hordes are placed on the map in this Phase with the Rebel side up.

4. If the PI Stage is C, D or E, skip this Step. Otherwise, the Rebel Player reads across the **Defection** row of the **POLITICAL INDEX** until he comes to the column showing the current PI Stage. Where the row and column meet, he will find a pair of numbers separated by a slash. The number *before* the slash is the number of Union Mutant Legions and/or Nomad Hordes the Rebel Player must check for Defection during this Step. For each unit that he must check, the Rebel Player picks an enemy Mutant Legion or Nomad Horde and rolls one die. If the modified result is less than or equal to the number *after* the slash, the chosen unit defects (immediately joins the Rebel Player's

forces). The unit is immediately flipped over to its Rebel side. If it is stacked with other Union units or in a Union Settlement, the defecting unit is placed in any adjacent hex that is unoccupied or occupied only by Rebel units (Rebel Player's choice). If no such hex is available or if the only available hex is one into which the unit could not normally move, it is destroyed. The Rebel Player may roll repeatedly for the Defection of the same unit during this Step. Modified results greater than the number following the slash are ignored.

5. If the weather is Clear, the Rebel Player places one Partisan Column on each Revolt Marker on the map that isn't flipped over to its Ruin Marker side. If the Weather is Foul, Partisans are placed only on Revolt Markers in hexes south of the Weather Line.

6. On any Game Turn from **January, 2420** until the end of the game the Rebel Player may announce that he is *"**forming a Continental Army**"* into which the Mobile Units of all Clans will be drafted. Upon making this announcement, the Rebel Player rolls one die and immediately adds the result to the PI Level. For the rest of the game, the Rebel Player may ignore the –1 die roll modification normally required when Rebel Mobile Units from more than one Clan are attacking the same hex. In addition, Rebel Gangs and HW Brigades may, for the rest of the game, freely trace a Line of Supply to Warrens in *any* Clanhold that has risen (not merely to Warrens in their own Clanhold).

C. REBEL MARCH PHASE

1. The Rebel Player determines which of his units are **SUPPLIED** by tracing a **SUPPLY LINE** from the unit to any friendly **SUPPLY SOURCE** within the unit's **SUPPLY RANGE** as described in **PART IX.**

2. The Rebel Player moves any or all of his Supplied units that he wants up to their *full* Movement Rating, paying appropriate terrain and ZOC entry costs as described in **PART VI.** Unsupplied units may expend only ***half*** their Movement Rating (round down) to move during this Phase.

D. REBEL COMBAT PHASE

1. The Rebel Player announces which of his units (if any) will attack Union units during this Phase and which Union unit(s) will be attacked by each of his units.

2. The Union Player announces which Union Air Units, Domes or Metros that are not being attacked during this Phase will provide **SUPPORT** to Union units under attack and which unit(s) they will Support. Any units of the appropriate type may be assigned to provide Support, but only units that are Supplied at the moment a combat is resolved may provide the Support allocated. It is possible that a unit assigned to provide Support may be unable to do so because its Line of Supply was cut as a result of previous combat during a Phase. Conversely, a unit may be Unsupplied at the beginning of a Phase and still give Support announced in this Step if a Line of Supply is opened up during Step 3 of this Phase.

3. The Rebel Player individually resolves each attack announced in Step 1. In so doing, he first figures the **COMBAT RATIO** for the attack and then follows the Steps described in **PART VIII.** So long as all Union units listed in Step 1 are attacked by the Rebel units announced, the Rebel Player may resolve his combats in any order he chooses. However, each attack must be entirely resolved (and any losses removed) before the combat resolution procedure is applied to the next combat.

E. UNION REACTION PHASE

1. The Union Player determines which of his units are **SUPPLIED** by tracing a **SUPPLY LINE** from the unit to any friendly **SUPPLY SOURCE** anywhere on the map as described in **PART IX.**

2. The Union Player moves any or all of his Supplied Mobile Units up to *half* their Movement Rating (round down), paying appropriate terrain and ZOC entry costs as described in **PART VI.** Mobile Units may employ mass converters to Teleport between friendly Settlements (paying *all* their MP's to do so) during this Phase.

F. REBEL EXPLOITATION PHASE

1. The Rebel Player determines which of his units are **SUPPLIED** by tracing a **SUPPLY LINE** from the unit to any friendly **SUPPLY SOURCE** within the unit's **SUPPLY RANGE** as described in **PART IX.**

2. The Rebel Player moves any or all of his Supplied Mobile and Land Units up to their *full* Movement Rating, paying terrain and ZOC entry costs as described in **PART VI.**

G. UNION MARCH PHASE

1. The Union Player determines which of his units are **SUPPLIED** by tracing a **SUPPLY LINE** from the unit to any friendly **SUPPLY SOURCE** anywhere on the map as described in **PART IX.**

2. The Union Player moves any or all of his Supplied units up to their *full* Movement Rating, paying terrain and ZOC entry costs as described in **PART VI.** Unsupplied units may expend only *half* their Movement Rating (round down) to move during this Phase. Units may Teleport between friendly Settlements and Strike Divisions during this Phase, paying all or part of their MP's to do so.

H. REBEL REACTION PHASE

1. The Rebel Player determines which of his units are **SUPPLIED** by tracing a **SUPPLY LINE** from the unit to any friendly **SUPPLY SOURCE** within the unit's **SUPPLY RANGE** as described in **PART IX.**

2. The Rebel Player moves any or all of his Supplied Mobile Units up to *half* their Movement Rating (round down), paying terrain and ZOC entry costs as described in **PART VI.**

I. UNION COMBAT PHASE

1. The Union Player announces which of his units (if any) will attack this Phase and which Rebel unit(s) each will attack.

2. The Union Player individually resolves each attack announced in Step 1. In doing so, he first figures the **COMBAT RATIO** for the attack and then follows the Steps described in **PART VIII.** So long as all Rebel units listed in Step 1 are attacked by the Union units announced, the Union Player may resolve his combats in any order he chooses. However, each attack must be entirely resolved (and any losses removed) before the combat resolution procedure is applied to the next combat.

J. UNION EXPLOITATION PHASE

1. The Union Player determines which of his units are **SUPPLIED** by tracing a **SUPPLY LINE** from the unit to any friendly **SUPPLY SOURCE** anywhere on the map as described in **PART IX.**

2. The Union Player moves any or all of his Supplied Mobile and Land Units up to their *full* Movement Rating, paying terrain and ZOC entry costs as described in **PART VI.**

K. REBEL REINFORCEMENT PHASE

1. The Rebel Player checks the **TURN RECORD TRACK** to see if he is due Reinforcements this Game Turn. If the box occupied by the Game Turn Marker contains a colored square, the Rebel Player does get Reinforcements and should proceed to Step 2 of this Phase. Otherwise, the remainder of the Phase is skipped and play proceeds to the **GAME TURN RECORD PHASE.**

2. The Rebel Player adds 4 steps of the appropriate Clan to his forces for each of that Clan's Warrens that are not destroyed.

These added steps may be used to flip Reduced Strength units over to their Full Strength side or to add new units to the Clan's forces (or any combination of the two). New units are placed on any Warren in their Clanhold without a Ruin Marker (but no more than 4 steps worth of units may be placed per hex). Any excess steps that cannot (for any reason) be added to the Rebel Player's forces during a Phase are lost. They can't be "saved" for later use or "loaned" to another Clan. Reinforcements may only be placed on Warrens in Clanholds that have risen.

L. GAME TURN RECORD PHASE

1. If the **PI Level** indicated on the **POLITICAL INDEX** is less than 5 or greater than 45 or if the Game Turn Marker is in the last box on the **TURN RECORD TRACK** (November, 2421), the game is over and the winner is determined as described in **PART V**. Otherwise proceed to Step 2.

2. If it is a December Game Turn, remove all Nomad Hordes from the map and put them back in their opaque container (from which they may be drawn again later in the game). The removal of Nomad Hordes at this time represents the migration of the nomads to their winter camps.

3. If Nu Denver contains a Ruin or Revolt Marker, the PI Stage is B, C, D or E or if the Union Player has previously activated his Orbital Strike Stations, skip this Step. Otherwise, the Union Player must announce whether he is activating the World Union's system of missile-armed Orbital Strike Stations. If he chooses to activate this system, he rolls a die and immediately subtracts the result from the PI Level. For the rest of the game, the Union Player may, in each **UNION COMBAT PHASE**, attack any one stack of enemy units anywhere on the map with his network of Orbital Strike Stations. The network has an Attack Rating of 60 (which is never modified for any reason). It may attack alone or together with other Union units, but it never suffers any combat losses. Units attacking together with the network suffer combat losses normally. The network's Attack Rating may never be split up and used in more than one attack during a Phase. If Nu Denver Revolts or is destroyed, the Union Player cannot use his Orbital Strike Station network to attack for the rest of the game.

4. If the PI Stage is C, D or E or if the Union Player has previously announced that he is *"using the nuclear option,"*, skip this Step. Otherwise, the Union Player must announce whether he is using the nuclear option. If he chooses to do so, he rolls a die and immediately subtracts the result from the PI Level. For the rest of the game, all Union Assault Fleets automatically use nuclear weapons when attacking during the **Union Combat Phase.** Two is added to the die roll whenever one or more Union Assault Fleets are participating in an attack. There is no additional modification if more than one Assault Fleet is participating in the same attack.

5. Move the Game Turn Marker ahead one box on the **TURN RECORD TRACK** to indicate the passage of time and continue play with the **UNION RECRUITMENT PHASE** of the next Game Turn. ●

PART V

HOW TO WIN

There are three possible ways to win the game. Each is described below:

1. If the game ends because the PI Level was greater than 45 at the start of a **GAME TURN RECORD PHASE**, the revolution collapses and the Union Player wins a **DECISIVE VICTORY.**

2. If the game ends because the PI Level was less than 5 at the start of a **GAME TURN RECORD PHASE**, the Grand Assembly of the World Union votes to withdraw from North America and the Rebel Player wins a **DECISIVE VICTORY.**

3. If the game ends because it is the end the November, 2421 Game Turn, the PI Level determines the winner as described below:

● **PI Level A**: The rebels gain control of North America and Union troops hold onto only a few enclaves. The World Union Grand Assembly votes to negotiate a withdrawal of all forces, trading political recognition for guarantees that private property will not be nationalized without compensation. The Rebel Player wins a **DECISIVE VICTORY.**

● **PI Level B**: The rebels drive Union forces from the countryside, but fail to take the most important settlements. The World Union Grand Assembly adopts a partition plan that keeps a small part of the protectorate under World Union control. The rebels make economic concessions in exchange for independence for most of the continent. The Rebel Player wins a **SIGNIFICANT VICTORY.**

● **PI Level C**: The rebels gain control of part of the countryside, but fail to defeat World Union forces. The World Union Grand Assembly votes to establish "independent homelands for Native Americans" in those areas under Rebel control. The Rebel Player wins a **MARGINAL VICTORY.**

● **PI Level D**: The rebels are beaten in the field, but continue to fight a guerilla war. The World Union Grand Assembly adopts a 20-year program of phased independence for America while keeping economic control in World Union hands. The Union Player wins a **MARGINAL VICTORY.**

● **PI Level E**: Rebel activity is gradually suppressed. The World Union Grand Assembly keeps control of America, but grants limited autonomy in order to win the hearts and minds of the people. The Union Player wins a **DECISIVE VICTORY.** ●

PART VI

HOW TO MOVE

During each friendly **MARCH PHASE**, **REACTION PHASE** and **EXPLOITATION PHASE**, the Active Player may move as many of his eligible units as he wishes in any direction(s) up to the limit of each unit's individual Movement Rating (half their Movement Rating during a **Reaction Phase**.) Units are moved one at a time through a path of adjacent hexes, paying one or more Movement Points (MP's) from their Movement Ratings to enter each hex. The costs to enter each type of hex on the map are listed in the **TERRAIN KEY**. The number *before* the slash on each line of the key is the MP cost to enter that hex type during most Game Turns. The number *after* the slash is the MP cost to enter the hex during **Foul Weather** Game Turns (indicated by shading on the **TURN RECORD TRACK**). In addition to these costs, units pay extra MP's to enter or leave hexes that are in an enemy Zone of Control as discussed in **PART VII**. The ability of units to move is also affected by supply as described in **PART IX**. Finally, units are restricted in their ability to move by the following rules:

A. All types of units may move during a friendly **MARCH PHASE**, but *only* Supplied Mobile and Land Units may move during a friendly **EXPLOITATION PHASE** and *only* Supplied Mobile Units may move during a friendly **REACTION PHASE**. Movement during an enemy **MARCH**, **EXPLOITATION** or **REACTION PHASE** is not allowed. Units may advance during a **COMBAT PHASE**, but advances do not use MP's and are not considered movement.

B. A unit may expend any or all of its MP's to move during a Phase, but it cannot enter a hex unless it has enough MP's remaining to pay all MP costs to enter the hex. A unit need not expend all (or any) of its available MP's during a Phase, but it cannot "save" MP's for use in another Phase or "lend" MP's to another unit.

C. Units are moved individually and each unit must finish its movement before any other unit is moved. Once a player begins moving a unit, he cannot go back and move another unit that was moved previously in the Phase.

D. Units cannot move into hexes occupied by enemy units. Union units cannot move into a Union Settlement containing a Revolt Marker. They can freely move in and out of Union Settlements that don't

contain a Revolt Marker. Rebel Units can't move into a Union Settlement that doesn't contain a Revolt or Ruin Marker. Union units may only move into Warrens that contain a Ruin Marker. For purposes of this rule, a Warren, Bubble, Metro or Dome counts as a unit unless it contains a Ruin Marker. Totems do not count as units and unoccupied or friendly-occupied Totem Hexes may be entered by either player's units. The presence of friendly units in a hex never affects the ability of a unit to enter or move through the hex. Any number of friendly units can be stacked together in a hex at the end of a Phase, but the number of defending units in a hex has an important effect on combat.

E. Air and Land Units may enter a hex only if it contains some land. Air and Land Units may not enter an all-Sea or all-Lake hex and may only enter a hex through a hexside that contains some land. Mobile Units may enter all-Sea and all-Lake hexes, but may only end a Phase on a hex that contains some land. The cost to enter a hex that is both a Sea/Lake and a land hex is always determined by the cost of the land terrain (*not* the Sea/Lake) in the hex. If the Union Bubble is destroyed, hex 0622 becomes an all-Sea/Lake Hex for all purposes. **NOTE**: Sea/Lake hexsides have no effect on combat and units may freely attack across such hexsides even if prohibited by this rule from moving across them.

F. Union Air and Mobile Units treat Barrier Hexes as Clear Hexes for movement purposes. All other units pay 6 MP's to enter them (except for Nomad Hordes which can't enter Barrier Hexes). The six hexes surrounding Nu Otwa (**2934, 2935, 2833, 2835, 2734** and **2735**) cease to be Barrier Hexes (and are considered Clear Hexes for all purposes) as soon as a Ruin or Revolt Marker is placed in Nu Otwa. All other Barrier Hexes become Clear Hexes when a Ruin or Revolt Marker is placed in Ioway.

G. Nomad Hordes may not enter Waste Hexes. Mutant Legions may freely enter Waste Hexes and end a Phase in them. All other units may freely enter Waste Hexes but may *not* end a Phase in them. All types of units may attack enemy units in Waste Hexes.

H. Air Units may not enter (but may attack into) Rough Hexes or the Union Bubble.

I. Union Nomad Hordes may not enter any hex outside of their Reserve. Thus, Braskan Nomad Hordes can't enter hexes outside the Braska Reserve. Rebel Nomad Hordes may not enter any hex outside of the three Reserves, but all Rebel Nomad Hordes may enter hexes in all three Reserves (not just those in their own Reserve). In addition, neither player's Nomad Hordes may enter a Dome or Metro unless it contains a Ruin or Revolt Marker. Nomad Hordes may freely attack enemy units in any hexes, even if they are prohibited by this rule from entering those hexes.

J. Rebel Gangs and HW Brigades may not enter a hex in a Clanhold that has not yet risen . . . including Union Settlements that contain a Revolt Marker. They may freely enter Clanholds that have risen and may attack into *any* Clanhold (regardless of status).

K. Units may not move off the map.

L. Supplied Union Air and Mobile Units may expend *half* their MP's in a **UNION MARCH PHASE** and Union Mobile Units may expend all of their MP's in a **UNION REACTION PHASE** to **Teleport** between friendly Settlements. Units using this special type of movement employ mass converters to beam from one hex to another without entering the intervening hexes. Instead of moving along a path of hexes, they are picked up by the Union Player and moved from whatever Settlement they occupy to any other friendly Settlement on the map. Units using this type of movement during a **REACTION PHASE** must begin their turn on a friendly Settlement and expend *all* their MP's, to move into another friendly Settlement. Units using this type of movement during a **MARCH PHASE** may move before and/or after Teleporting, but must expend *half* of their printed Movement Rating to Teleport. Union Strike Divisions that don't move during the **UNION MOVEMENT PHASE** and don't occupy Rough Hexes are treated as Settlements for purposes of Teleportation during that Phase (only) . . . however, it costs *all* of a unit's MP's to Teleport into or out of a Strike Division's hex. Air Units may not Teleport into the Bubble.

M. Rebel Partisans and Mutant Legions may enter a Clanhold that hasn't risen, but can't enter a Warren inside that Clanhold. ●

PART VII

ZONES OF CONTROL

The six hexes surrounding a unit constitute that unit's Zone of Control **(ZOC)**. All Domes, Metros and units with a color bar on the bottom of their piece (over the unit's Attack, Defense and Movement Ratings) have a ZOC. In some cases, units lose their ZOC when flipped over to their Reduced Strength side. Domes and Metros lose their ZOC when a Revolt or Ruin Marker is placed in their hex. ZOC's never affect friendly units. However, units cannot trace Supply through unoccupied hexes in an enemy ZOC and must expend 2 MP's to enter and 1 MP to leave a hex in an enemy ZOC. There is no additional effect resulting from more than one unit exerting a ZOC on a hex. If both enemy and friendly units are exerting a ZOC into a hex, neither of the ZOC's is affected by the presence of the other ZOC. Both ZOC's coexist in the hex and affect enemy units and supply lines running through the hex. ZOC's extend into all types of hexes (even into hexes which the unit exerting the ZOC could not enter under the provisions of **PART VI**).

NOTE: For purposes of this rule, all Supply Sources (Warrens, Domes, Metros and the Union Bubble) are always considered to be occupied by units of the side that draws supply from them even when there are no units in them. Thus a Rebel unit can trace supply from an unoccupied Warren in an enemy ZOC. When a hex ceases to be a Supply Source, this consideration is no longer in effect. ●

PART VIII

COMBAT

During his **COMBAT PHASE**, the Active Player may use any or all of his units to attack enemy units within range. The Inactive Player may use any or all of his eligible units not under attack to provide **SUPPORT** to those units being attacked. The order and manner in which attacks are announced and Support is committed is described in the Sequence of Play. **NOTE**: The announcement of attacks and commitment of Support is executed differently in the two **COMBAT PHASES**.

In any combat, the Active Player is always called the Attacker and the Inactive Player is called the Defender, regardless of the overall strategic situation. The Active Player's units are sometimes called "the attacking units" and the Inactive Player's units "the defending units."

WHO CAN ATTACK

A. Only the Active Player's units may attack. Units may only attack enemy units within range. In all cases, a unit is within range of an attacking unit if the distance in hexes between the two units is less than or equal to the Range printed on the attacking unit's piece. The distance between two units is always the shortest possible path in hexes (regardless of intervening terrain) between the hexes the units occupy, including the hex occupied by the unit being attacked, but not the hex that the attacking unit occupies.

B. Attacking is completely voluntary. A unit is never forced to attack. If more than one of the Attacking Player's units is stacked in the same hex, some units may attack while others do not attack (or attack different enemy-occupied hexes). Units which don't participate in an attack aren't affected by its results.

C. Any number of units may attack the same hex, but no unit may attack and no enemy unit may be attacked more than once in a Phase. If more than one enemy unit occupies a hex, all of the enemy units stacked in that hex must be attacked in a single combat if any are attacked. The Attacker can't selectively attack only certain units in the hex and the Defender can't "withhold" some units from participation in the combat.

D. The Attack Rating of a unit can't be divided for purposes of combat against more than one unit in different enemy-occupied hexes. If a unit is next to more than one hex containing an enemy unit, the unit may attack units in either hex individually, but he can't attack units in both hexes during the same Phase. Units with an Attack Rating of "0" can't participate in an attack. They defend normally.

E. For purposes of combat, Warrens, Metros, Domes and the Bubble are treated as units. They may attack and be attacked the same way as a unit. The Attack and Defense Ratings and Ranges of these

hexes remain constant. They are unaffected by supply and range.

F. The Union Player may attack Warrens inside Clanholds that have not yet risen, but such attacks result in the Clanhold inside which the Warren is located immediately rising and joining the Rebel Player's forces (adjust the PI Level accordingly). In such situations, the Rebel Player immediately places two units of his choice in each Warren of the newly risen Clanhold after the Union Player has announced all his attacks for the Phase but **before** he actually resolves any attacks. Please note that in some cases, the Rebel Player may not immediately get all of a Clanhold's units if that Clanhold is attacked before it rises.

RESOLVING ATTACKS

Follow these steps each time you resolve an attack:

1. Add together the Attack Ratings of all units attacking a particular enemy occupied hex. **NOTE**: The Attack Rating of some units may be halved (round down) due to range, terrain or lack of supply. Units whose Range contains a colored patch have their Attack Rating halved at ranges greater than 1. Union Patrol Fleets have their Attack Rating halved when attacking units in a Warren Hex that does not contain a Ruin Marker. Units that are Unsupplied when combat is resolved have their Attack Rating halved. If a unit's Attack Rating has to be halved more than once, divide by 4 and round down. A unit's Attack Rating can never be divided by more than 4. If reducing a unit's Attack Rating would result in a number less than 1, treat the Attack Rating as 1.

2. Add together the Defense Ratings of all the defending units in the hex under attack and add to the total the Attack Ratings of all units providing **SUPPORT** to them. Any of the Inactive Player's Air Units or Settlements that are Supplied and are not under attack may provide Support to friendly units within range that are under attack. The Range of Union Patrol Fleets is half their printed Range for this purpose. The Rebel Player does not have Air Units or Settlements with an Attack Rating and may never use this option.

3. Compare the total in Step 1 to the total in Step 2 (the Attacker's strength to the Defender's strength) and state the comparison as a ratio (rounded off in favor of the Defender so that the result conforms to the simplified **COMBAT RATIO** on the **COMBAT RESULTS TABLE**). For example, if attacking units with a combined strength of 19 attacked defending units with a combined strength of 10, the ratio would be "19 to 10" which would be rounded off into a simple Combat Ratio of "1 to 1."

4. Find the row on the **COMBAT RESULTS TABLE** representing the type of terrain in the hex occupied by the Defender's units and read across that row to the Combat Ratio that is the same as the Combat Ratio found in Step 3. Attacks at Combat Ratios less than the lowest ratio found in a row are not allowed and units which are inadvertently committed to such attacks may do nothing during the Combat Phase. If the Combat Ratio of an attack is reduced below the lowest allowable ratio due to loss of supply during the Phase, no unit (of either player) involved in the attack may perform any action during the Phase. Combat Ratios greater than the highest ratio in a row are treated as the highest ratio found in the row. If a hex contains both Sea/Lake and some type of land terrain, use the land terrain as the terrain type for combat purposes. Ignore Ruin Markers for purposes of determining what row on the **COMBAT RESULTS TABLE** should be used to resolve a particular combat. **NOTE**: In some cases, the commitment of Support or a change in Supply status will cause the Combat Ratio to drop to a very unfavorable, but nonetheless legal, level. In such cases, the attack must still be resolved (at the lower Level). Neither player may "withdraw" from a combat because he "doesn't like the odds."

5. The Attacker rolls a die and modifies it as discussed in **DIE ROLL MODIFICATIONS** below. He indexes the modified die roll result (found on the left-hand column of the **COMBAT RESULTS TABLE**) with the Combat Ratio column found in Step 4, above. This result will be a pair of numbers separated by a slash. These numbers are the step losses suffered by the units involved in the combat (representing casualties suffered, equipment damaged and, in the case of HW Brigades, munitions depletion).

6. The Defender removes any losses from his units involved in the combat.

7. The Attacker removes any losses from his units as a result of the combat.

8. The Attacker may move any eligible units that he wants into the Defender's hex if that hex is currently empty.

9. The players proceed to the next combat situation that has to be resolved.

DIE ROLL MODIFICATIONS

The die roll used to resolve combat is modified as follows:

Add . . .

1 . . . if the defender is in a Clear or Barrier Hex and one or more Union Heavy Divisions are participating in the attack.

1 . . . for each full unit (ignore fractions) or Settlement in the defender's hex.

2 . . . if the Union Player has announced that he is "using the nuclear option" and one or more Assault Fleets are participating in the attack during the **UNION COMBAT PHASE**.

Subtract . . .

2 . . . if the hex under attack is north of the Weather Line during a Foul Weather Game Turn.

1 . . . if the Rebel Player is using Mobile Units from more than one Clan to attack the hex and he has not announced the formation of a Continental Army.

All modifications are cumulative, but modified die rolls less than 0 are treated as "0" and die rolls greater than 7 are treated as "7."

EXAMPLE: The Rebel Player is attacking Nu Bank during a Foul Weather Game Turn. There are 3 Reduced Strength Union Light Divisions in the hex (each counting as half a unit). The die roll is 3. It is modified by the addition of 2 (one for the Settlement in the hex and 1.5 . . . rounded down to 1 . . . for the three units in the hex) and by the subtraction of 2 due to the weather. Since the two modifications cancel out, the final modified die roll is 3.

REMOVING COMBAT LOSSES

The numbers on the **COMBAT RESULTS TABLE** refer to **STEPS** lost by the forces involved in the attack that led to the result. Only Active units which attacked and Inactive units that were attacked may suffer losses as a result of a particular attack. Those units providing Support may never be made to suffer any losses as a result of combat. In all cases, the number *before* the slash refers to the Attacker's losses and the number *after* the slash refers to the Defender's losses. **NOTE**: If the net die roll modification was greater than +4, the defender loses an additional step for each modification above 4. For example, if the net die roll modification

was +6, the defender would lose an additional 2 steps.

The individual players always remove losses from the units under their control. Each step loss called for by the **COMBAT RESULTS TABLE** may be satisfied in any one of the following ways:

● By flipping a Full Strength unit over to its Reduced Strength side. **NOTE**: This option may be used only if a unit has both a Full Strength and a Reduced Strength side.

● By eliminating (removing from the map) a unit that has only one step (e.g. one that does not have a Reduced Strength side).

● By eliminating (removing from the map) a two-step unit (one with a Reduced Strength side) which is at Reduced Strength.

Two step losses may be satisfied by totally eliminating (removing from the map) a two-step unit that is at Full Strength. In cases where a Warren, Bubble, Dome or Metro is under attack, a Ruin Marker is automatically placed in that hex if the Defender suffers 1 or more step losses in a single attack which cannot be satisfied by the elimination (removal from the map) of the units occupying the hex. Domes and Metros that participate in an attack against Inactive enemy units are never affected by the results of that attack. Should there be unsatisfied step losses remaining after a player has eliminated all of the units he can which participated in a combat, any excess losses are ignored. Players may use any combination of the three methods listed above to satisfy step losses.

ELIMINATED UNITS

Units eliminated in play (removed from the map) may be reused (entering the map as reinforcements). Nomad Hordes that are eliminated are replaced in the container with other Nomad Hordes and randomly drawn as needed. Other units are set aside with units that have not yet entered the game until they can be brought onto the map. Settlements destroyed in play are permanently destroyed. They can't be "rebuilt" or "reenter" the game.

EXCEPTION: See **PART IV, Section A.**

ADVANCE AFTER COMBAT

After all losses resulting from an attack have been removed, the Active Player may enter the Defender's hex with any of his Mobile and/or Land Units that participated in the attack and are still adjacent to the Defender's hex. Such an "advance after combat" is permitted *only* under the following conditions:

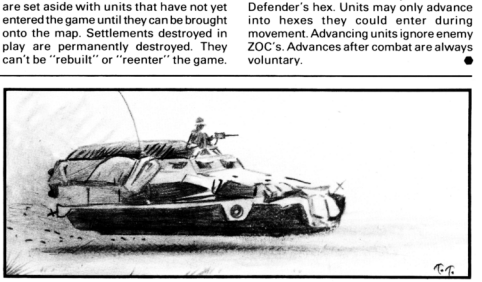
● The Defender's hex was vacated by the elimination of all enemy units in the hex.

● The Defender's hex does not contain a Settlement that isn't destroyed.

Advancing units may only enter the hex that was actually attacked. Any number of units may enter the enemy hex, but all advancing units must have participated in the attack and must be adjacent to the Defender's hex. Units may only advance into hexes they could enter during movement. Advancing units ignore enemy ZOC's. Advances after combat are always voluntary. ●

PART IX

SUPPLY



All units except Partisan Columns, Nomad Hordes and Union Strike Divisions must be **SUPPLIED** in order to function properly. Strike Divisions, Partisans and Nomad Hordes ignore supply effects. Other units must be able to trace a **LINE OF SUPPLY (LOS)** to a friendly **SUPPLY SOURCE** at the beginning of every friendly **MARCH PHASE, REACTION PHASE** and **EXPLOITATION PHASE** and at the moment the unit participates in combat. Units that cannot do so suffer a decrease in mobility and strength.

UNION SUPPLY SOURCES

Union units may trace an LOS to any Metro, Dome or Bubble that does not contain a Ruin or Revolt Marker. They may **not** trace an LOS to a Strike Division even when it is being used for Teleportation purposes.

REBEL SUPPLY SOURCES

Rebel units may trace an LOS to any Metro, Dome or Bubble that contains a Revolt Marker or to any Warren without a Ruin Marker that is within a Clanhold that has risen. **EXCEPTION:** Until the Rebel Player "forms a continental army," Rebel Gangs and HW Brigades may only trace an LOS to a Warren if that Warren is inside their own Clanhold.

TRACING LINES OF SUPPLY

A Line of Supply (LOS) consists of a path of hexes from a unit to a friendly Supply Source. The exact manner in which an LOS is traced depends on which player controls the unit tracing the Line of Supply. For example, the same Mutant Legion would trace its LOS not only to a different Source, but in a different manner, depending on which player controlled it. The methods of tracing LOS are described below:

A. The Union Player's units may trace an LOS through any number of hexes that do not contain enemy units, Settlements or ZOC's. The presence of a friendly unit in a hex that is in an enemy ZOC negates the ZOC for purposes of tracing an LOS.

B. The Rebel Player's units may trace an LOS through a number of hexes whose total entry cost does not exceed the printed Movement Rating of the unit tracing the LOS. Rebel Lines of Supply may not be traced into or through hexes containing enemy Settlements, units or ZOC's. The presence of a friendly unit negates an enemy ZOC for purposes of tracing an LOS (only).

An LOS may be traced through any type of terrain including all-Sea and all-Lake hexes. The current entry cost (modified by weather) for each hex of a Rebel unit's LOS is used to determine the maximum length of the LOS. The costs to enter or leave enemy ZOC's are ignored when calculating the length of a Rebel unit's LOS. Only terrain costs are relevant to LOS length. When tracing an LOS, the

Supply Source hex is included in the LOS. The hex occupied by the unit tracing the LOS is *Not* included.

SUPPLY EFFECTS

Supply is checked at the points listed in the Sequence of Play and at the moment that any Combat Ratio is calculated. If a unit is able, at these times, to trace an LOS to a friendly Supply Source, the unit is **SUPPLIED**. If not, it is **UNSUPPLIED**. The effects of being Unsupplied are described below.

A. Units that are Unsupplied at the start of a friendly **MARCH PHASE** have their Movement Rating halved (round down) for the rest of the Phase.

B. Units that are Unsupplied at the start of a friendly **REACTION** or **EXPLOITATION PHASE** may not move during the Phase.

C. Units that are Unsupplied at the moment that the Combat Ratio is calculated for a combat in which they are involved have their Attack Ratings halved (round down). Only Supplied units may provide Support (though Unsupplied units may be allocated to provide Support at the beginning of the Phase). Supply effects on combat only last for the resolution of the combat situation that triggered the supply check and advances during combat may cause a unit's supply status to change. If such changes result in a situation in which the attack is no longer permitted (due to a low Combat Ratio), the attack is not executed and all units (of both sides) involved are prohibited from participating in combat during the Phase. ●

PART X

WEATHER

Certain Game Turns (shaded blue on the **TURN RECORD TRACK** are **FOUL WEATHER** Turns. The following special rules are in effect during those turns:

A. The cost to enter and trace supply through certain hexes is increased. See the **TERRAIN KEY** for details.

B. The die roll used to resolve combats is reduced by 2 for all attacks against defenders north of the **WEATHER LINE** (see **TERRAIN KEY**) printed on the map.

C. Air Units occupying hexes north of the **WEATHER LINE** may not provide Support. Domes and Metros are unaffected.

D. Nomad Hordes may not be recruited by either player. All Nomad Hordes are removed from the map during each December Game Turn (when the Nomads make their winter camps and stop campaigning). No new Nomad Hordes are added until the next May Game Turn.

E. The Rebel Player gets no new Partisan Columns on Revolt Markers north of the Weather Line in the **REBEL POLITICAL PHASE**. ●

PART XI

THE POLITICAL INDEX

The **POLITICAL INDEX** is the heart of the game. This section summarizes the way the PI Level changes and how these changes affect play.

HOW THE PI LEVEL CHANGES

The PI Level is constantly changing during set-up and play to reflect the suppression of Rebel bases and the destruction or capture of World Union installations. Changes in the PI Level due to capture or destruction of bases take place immediately whenever the base is captured or destroyed. These changes are implemented by adding or subtracting the numbers given below from the current PI Level (and moving the PI Level Marker to reflect the addition or subtraction).

Add . . .

The Political Rating (PR) of a Warren whenever a Ruin Marker is placed in the Warren's hex.

The PR of a Settlement in Revolt whenever the Union Player destroys that Settlement in combat.

The PR of a destroyed Dome whenever the Union Player rebuilds the Dome instead of receiving New Steps.

A number between 1 and 6 if the Rebel Player announces that he is forming a Continental Army.

Subtract . . .

The PR of any Metro, Bubble or Dome whenever a Revolt Marker is placed in that hex.

The PR of any Union Settlement not in Revolt whenever the Rebel Player destroys that Settlement in combat.

The PR of all undestroyed Warrens inside a Clanhold whenever that Clanhold rises.

A number between 1 and 6 if the Union Player announces that he is activating his Orbital Strike Stations.

A number between 1 and 6 if the Union Player announces that he is using the nuclear option.

EFFECTS OF PI LEVEL CHANGE

Changes in the PI Level as a result of the performance of any of the above game functions are made immediately, but they do not affect any remaining die rolls during the Step in which the change occurs. For example, if the PI Level is 11 at the start of Step 3 of the **REBEL POLITICAL PHASE** and the Rebel Player's first Revolt die roll during the Step results in a Revolt in New Bank (PR of 2), the PI Level would immediately change to 9 and the PI Stage would drop from "B" to "A." However, the two remaining Revolt die rolls would still use the **REVOLT NUMBER** current at the beginning of the Step (in this case, "3"). Any changes in die roll modifications as a result of previous die rolls during a Step are applied normally. Thus, if the first die roll in the example above had resulted in a Revolt in one of two Union Settlements in a Clanhold, a Revolt die roll affecting the other Union Settlement in that Clanhold would be modified to reflect the fact that there was now a Revolt Marker in the first Settlement. ●

PART XII

THE SHORT CAMPAIGN

Those who don't have time to play a complete 29-turn game may wish to play the "Short Campaign" provided in this part of the rules. This "campaign" covers only the period from **January, 2421** through **November, 2421** (11 Game Turns) during which the two sides mounted their last full-scale offensives.

The Short Campaign is played in the same way as the regular game *except* that the steps followed in **PART III** are modified as noted below. Victory is determined as described in **PART V**. Set-up modifications include:

A. The Game Turn Marker is placed in the **January, 2421** box of the **TURN RECORD TRACK** during **Step 2.**

B. The PI Level Marker is placed in the "**45**" box of the POLITICAL INDEX during **Step 3.**

C. Each player randomly draws 3 (not 1) Revolt Markers and places each in a Union Dome during **Steps 5** and **6** (subtracting the PR of each from the PI Level).

D. During **Step 7**, the Rebel Player places 4 (not 1) Partisan Columns in each of the Union Domes picked in Steps 5 and 6. When he is finished, the Union Player picks any 4 Domes that don't contain a Revolt Marker and randomly draws a Revolt Marker for each of them, placing each marker in the Dome's hex with its Ruin Marker side up. No PI Level adjustment is made as a result of this Step. These Domes are destroyed at the game's start.

E. During **Step 8**, the Union Player places 40 of his units Full Strength side up and 14 of his units Reduced Strength side up in any Union Settlement(s) of his choice (no stacking limit) that don't have a Ruin or Revolt Marker. He then rolls a die and places a number of Mutant Legions equal to the result in any Union Settlement(s) that don't have a Ruin or Revolt Marker.

F. During **Step 9**, the Union Player ignores the normal procedure and instead picks any two Clanholds and places a Ruin Marker in every Warren inside each of those Clanholds, adding the Warrens' PR to the PI Level as he does so. No units of those Clanholds appear in the game since their Warrens are all destroyed.

G. During **Step 10**, the Rebel Player ignores the normal procedure and instead picks any 3 Warrens that don't have Ruin

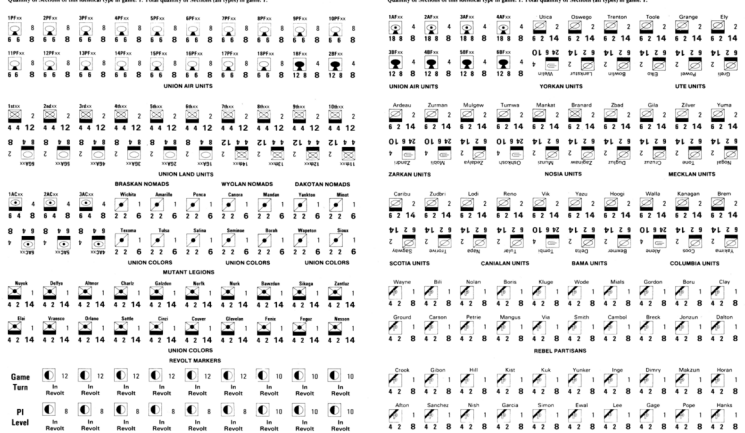
Markers and places a Ruin Marker in each. These Warrens are destroyed at the start of the game.

H. During **Step 11**, the Rebel Player places *all* of the units of *all* Clanholds with at least one undestroyed Warren in any Warren(s) within the Clanhold. He then subtracts the PR of all Warrens without Ruin Markers from the PI Level.

In addition, the Union Player is considered to have already rebuilt one Dome (and may rebuild one more during the game) and to have activated his Orbital Strike Stations and "used the nuclear option." He may continue to benefit from the use of the latter two options so long as Nu Denver does not revolt and is not destroyed. The Rebel Player is considered to have previously "formed a Continental Army." ●

THE OMEGA WAR™ Game Counter Section Nr. 1 (200 pieces): Front

Quantity of Sections of this identical type in game: 1. Total quantity of Sections (all types) in game: 1.



THE OMEGA WAR™ Game Counter Section Nr. 1 (200 pieces): Back

(continued from page 12)

planet. The game would come with a 22"×34" map, 200 counters, and 16 pages of rules.

86. Invasion Fleet. The intense rivalry between the expanding human colonies and the long-established Hydran Confederation inevitably led to local conflicts and, at last, to total war between the species. Leaving her colonies to fend for themselves, the Hydrans launched an all-out attack against Earth with the intent of destroying the home world before taking on the weaker colonies. The jump point between the Hydran space and Earth was but 2 A.U.'s from Sol, and though the whole Solar System donated to the defense of the mother planet, there were not enough forces ready when the Hydran fleet successfully jumped. *Invasion Fleet* would pit the massed space armada of the Hydran Confederation against the hastily assembled Earth defense. Rules would cover wave attacks, planetary defenses, missile and beam weaponry, exotic weaponry, and military doctrine of each side. Movement of the fleets would be kept track of on a strategic sheet, and combat would be resolved as it occurs on smaller tactical combat displays. Multiple scenarios would be included, ranging from simple ship-to-ship combat situations to the complete campaign. The game would include a 22"×34" mapsheet divided into eight tactical displays, 200 counters, and 16 pages of rules.

87. Death Trek. The crew of the *Polaris* deep-space probe was delighted to be the first to encounter an alien probe when it zipped past them. Ordered to retrieve the probe, the crew was less than thrilled to discover it had landed on one of the most dangerous planets in known space — Jake's Peril. Planet of a double sun, Jake's Peril was bathed in heavy radiation part of its day from a neutron star it circled, and suffered flares during other times from the sister star being torn apart by the neutron star. Even worse, for some unknown reason life forms had survived, and they were mean. Some of the beasties thrived on the hard radiation while others hid; others braved the light of the second sun despite the unexpected solar flares. Against their better judgment, the crew of the *Polaris* decided to break out their landmobiles and seek the alien probe. *Death Trek* would be a solitaire game of exploration and discovery. The crew must travel across the planet in search of the probe, being ever prepared to retreat to the landmobiles should a solar flare occur or danger threaten. The 22"×34" map would show the sector of Jake's Peril where the probe landed and include a tactical combat display. The 200 playing pieces would include the crew members, their transport, and the various creatures they might meet. A random placement system would allow the alien probe to land almost anywhere on the map, and the game system would allow for the creatures to have multiple talents.

88. Time and Time Again. When an American soldier stationed in South Vietnam stumbled onto the secret of time travel, the Pentagon was, predictably, delighted. The discovery was immediately classified top secret and the backroom boys were turned loose to find a way of exploiting the potentially devastating weapon. But how can you keep something that good a secret when the only vehicle needed for a trip through time is a slightly modified radio equipped with $1.39 worth of extra hardware available at any electronics store? The answer is, you don't. *Time and Time Again* would be a sequel to the popular *Time-Tripper*™ game and would use an extended version of that game system, including multiple "temporal environ maps" similar to those in the *Voyage of the Pandora*™ game and a variety of new equipment and foes. The game would include 6-10 different mini-games, each of which would be a complete scenario exploring some logical puzzle connected with time travel. As envisioned, *Time and Time Again* would consist of a 22"×34" map, 200 back-printed counters, 32 pages of rules, encounters, scenarios and support material.

89. The Harriman Gambit. The first probe found the planet Cchug to be rich in all the substances beloved by trade commissions — jewels, metals, rare chemicals — Cchug had it all. In fact, it was just the sort of planet that both the Terran Concordat and the rival Oil Hegemony classed as "Status Prime"...ripe for immediate exploitation. There was only one problem: the planet was thoroughly inhabited by a most independent-minded sentient race who had no intention of letting their planet become yet another pawn in the game of interstellar intrigue that raged between the two galactic superpowers. But diplomats being, after all, very highly trained in how to overcome such outbreaks of good sense as the Cchug were prone to display, a "compromise" suitable to Terrans, Oil, and Cchug was soon arrived at. Both Concordat and Hegemony would provide economic missions to the Cchug for a period of three years, during which both sides would study the Cchug economy and provide whatever aid they could in the form of technicians, public works and development projects. At the end of the three year trial, the Cchug World Assembly would vote to graciously accept one of the superpowers' missions on a permanent basis and would sign a trade agreement with that power. The other superpower's mission would be asked to depart. *The Harriman Gambit* would be a two-player game of intrigue and exploitation in which each player takes on the role of Head of the Mission of one superpower. During the course of the game, players would accumulate points for ascertaining Cchug economic and cultural needs and helping fill them. Points would also be given for sabotaging the efforts of the other player. The player whose mission accumulated the most points would win the game by getting his mission accepted by the Cchug. *The Harriman Gambit* would include a 22"×34" map, 200 counters and 16 pages of rules.

90. Against the Empire. The Grand Assembly dissolved! More than 100 Senators detained in preventive custody! Martial law declared on eleven worlds! With these headlines, United Tachyon Press commed the news of the coup to a hundred systems...before being silenced. The Republic had been dissolved. The Empire was now a reality. *Against the Empire* would portray the struggle for political control of a galactic civilization by two opposing camps: on one side, the partisans of the upstart Imperium, and on the other, those who would defend the old Republic. With the coup a success, the entire machinery of galactic bureaucracy is at the disposal of the Imperial forces. They control armies, fleets and most planetary defense systems. But they don't control the people...and on a few backwater planets on the fringes of the galaxy, the Republicans are able to gather their forces, preparing for the day when the Empire can be challenged openly. The game would emphasize political decision-making (mounting propaganda campaigns, using assassination and terror, calling strikes, etc.) for most of its course. The Empire player's goals would include smashing the Republican network of agents, ferreting out the hidden Republican bases, and winning the hearts and minds of the people. The Republican player would have to concentrate on setting up a shadow government and slowly building a military organization, while conducting enough anti-Imperium activities to keep the cause alive. When the Republican player has enough political and military strength, he can try to spark a revolt against the Empire (played out in the game as a short, sharp conventional war). A Political Index, similar to that used in *The Omega War*™ game would be used to portray the shifting strategic picture resulting from player actions. *Against the Empire* would include a 22"×34" starmap, 200 counters, 112 cards, 32 pages of rules and support materials, dice, and a plastic counter tray. The boxed game would sell for $18-19.

91. Creature Deluxe. An expansion of the classic *Creature That Ate Sheboygan*™ game, this version would allow your favorite monster to thrash and smash through the whole Sheboygan area. The countermix would be expanded to 200 and would be backprinted to allow for more monsters and many human weapon systems. In addition to the existing Basic Game, rules for an Advanced Game will contain chrome elements that could not be included in the original game system. Special rules would include the use of exotic experimental weapons to stop the monsters, a "Nuke 'em till they glow" rule, the inclusion of classic mega-monsters from the great B sci-fi movies, and the great stereotype heroes and heroines who have confronted the menaces (the rugged, windblown scientist, his screaming girlfriend, and the mad doctor aiding and abetting the monsters).

92. Space, 1889. In 1887, during the Golden Anniversary of Queen Victoria's reign, Professor Derringer of the Royal Society did discover the Ether Flyer, and, accompanied by his young assistant, did make the first voyage beyond the realm's of Earth's gravity, visiting the far side of the Moon where he did implant the British flag. Word of his achievement soon spread around the world, and Derringer's invention was soon common knowledge to all nations. The colonization of the Solar System had begun. The moon was quickly partitioned by Britain, France, Belgium and Germany, with small areas being doled out to America, Spain and Austria-Hungary. Luna proved neither hospitable nor profitable, and soon Imperial eyes turned towards Mars, Venus and the other members of the Solar System. Discoveries of indigent intelligences on Mars and Venus sparked growing trade wars, and human agents attempted to set up their trading posts among the natives, while limiting the availability of same to their competitors. The hostility amongst the nations of Earth inevitably fanned into the Great Solar War; not only were the gigantic Ether Dreadnaughts engaged in great cosmic battles, but the small trading companies enlisted the natives for raiding parties against their rivals. Battles large and small were fought on Earth, in the clear ether, and on far-distant outposts of civilization. Meanwhile, the normally placid natives of Mars and Venus had grown irate at the high-handed manner of the Earthlings and rose in revolt. The end of the Great Solar War would see the old order fall and a new order rise in its place. *Space, 1889* would include a colorful 22"×34" mapsheet of the solar colonies and Earth, a counter tactical display map for resolving combat, 400 counters, and a rules booklet with numerous scenarios and 'background' information, re-creating the 10-year-long struggle. A boxed game would sell for $15-18.

93. Pandora Deluxe. Combining the *Wreck of the Pandora*™ and *Voyage of the Pandora*™ games together, this package would include one 22"×34" mapsheet, containing the mapsheets from both games, 200 counters, and a combined rules booklet. The rules would also include a section on an extended campaign game so that any creatures found in the *Voyage* game would then appear in the *Wreck* game. Room allowing, there might also be a second paragraph-story section or an extension to the paragraphs that already exist. The combined game would sell in boxed format for $15-18.

94. The Dark Dimension. There is a gate to another dimension — a strange place where the very laws of reality change from time to time. Magic will open a gateway to this strange dimension, where adventurers will find great treasures, bizarre weapons, and the path to great power, as well as terrible monsters, surprising self-realizations, and death. Many are willing to try their luck in this land of horror and delight, but only a few return with their original quest fulfilled. *The Dark Dimension* is a game of fantasy and technology for one to six players who take on the roles of adventurers in search of power, glory and wealth. Each character begins with certain abilities — magic, stealth, combat, technology, etc. — when entering the dimension; these abilities will either help or hinder the characters in their search, depending on the direction they choose. The dimension changes from game to game — it will always contain two dualisms (such as between science and magic, good and evil, truth and falsehood, etc.). The dimension is created from 100 1"×1" tiles with path structures, odd terrain, and dead ends that may be explored. If a character is heading in a direction that is inimical to him, he may have to split off from his party and try a way in which his attributes are more applicable. The game would include 200 additional counters for characters, weapons, monsters, special features, etc. The rules booklet would contain numerous skills and talents for the characters and multiple random encounter tables and charts. The boxed game would sell for $12-15.

95-96. No question

THE ALPHA OF O

Notes on Simulating the Future

by David J. Ritchie

And so the fall of Lo-Tan was accomplished. Somewhere in the seething activity of those few days, San-Lan, the "Heaven-Born" Emperor of the Hans in America, perished, for he was heard of never again. The unified action of the Hans vanished with him, though it was several years before, one by one, their remaining cities were destroyed and their population hunted down, thus completing the reclamation of America and inaugurating the most glorious and noble era of scientific civilization in the history of the American race.

— Philip Nowlan, *The Air Lords of Han*

I've always been nuts about pulps. Which is not to say that I remember them. By the time I was born in 1950, the era of the pulps was over. The cheap, often trashy, pulp-paper magazines that had, from the 1890s, flourished as a major entertainment medium and corrupter of callow youth, had largely died out by 1950, victims of the realities of Auschwitz and Hiroshima. But the newfangled comic books and paperback books that soon replaced them freely stole their characters, their values and even their stories. Thus, while I never read Philip Nowlan's *Armageddon 2419 A.D.* and *The Air Lords of Han* when they first appeared in *Amazing Stories*™ Magazine, by the time I was ten a paperback reprint of these stories was among my most treasured possessions. It still is. The pages are yellowed and the cat has eaten the best part of the cover...but the magic is still there.

Doubtless, most readers of *Ares*™ Magazine are also too young to remember the original pulps. But their imprint is on us all in one way or another. Putting it another way, without the pulps there would have been no Tarzan of the Apes, John Carter of Mars, Carson of Venus, Conan of Cimmeria, Doc Savage, the Shadow (or his competitor, the Phantom), Fu Manchu, Bran Mac Morn, Hopalong Cassidy, Solomon Kane, Continental Op, Philip Marlowe, or Sam Spade. We would know nothing of the Skylark of Space or Shoggoths or Banths. Robert Heinlein, Clifford Simak, Theodore Sturgeon, Poul Anderson, A. E. Van Vogt and Arthur Clarke would probably have become famous writers of gothic horror or teen romance stories. *Star Wars, Raiders of the Lost Ark* and *E.T.* would almost certainly never have been made — and *Ares* Magazine would not exist.

Frank A. Munsey is generally credited with having originated the idea of publishing fiction periodicals on cheap, rough pulpwood paper...and *Argosy* was the first such "pulp."

MEGA

Aside from the money Munsey saved by using low-grade paper, the periodical format also gave *Argosy* another economic advantage in relation to the dime novels which had been the main source of pop fiction since the Civil War — namely, that *Argosy* could qualify for second-class postage rates denied to dime novels. This allowed *Argosy* to offer a lot of material for its price tag, and the magazine soon had a circulation of 80,000 per issue. By the turn of the century, this figure had climbed to almost half a million. Munsey was a very rich man and competitors soon were making their entry into the new pulp market.

It took a few years for the pulp format to become standardized, but by the early 1920s most pulps consisted of 120 rough-edged pages of text with very few interior illustrations and a higher quality color cover printed on coated stock. This format would remain virtually unchanged until the 1950s. Contents also tended to be fairly standardized. Most of each fat issue (about 200,000 words) would be fiction of the variety known as "boilerplate." The rest of the magazine would be taken up with sensational short features, letters to the editor, advertisements, and similar "fillers." But it was the fiction that sold the issue, and the pulps seemed to have an almost inexhaustible craving for formula pieces on whatever theme was currently "hot." Detectives and other crime fighters, cowboys, soldiers of fortune, barbarian types in the Tarzan mode — they all had their followings and two entire generations of writers were paid by the word to crank out stories that would meet the expectations of the readers of each particular genre. The results were, predictably, uneven.

Despite the throw-away format and the emphasis on hack writing (in the strictest sense of the term), a great deal of creditable work managed to find its way into the pages of the pulps. Among the best (and worst) of the fiction to appear were those items known, for lack of a better term, as "other stories." All that we today recognize as imaginative or speculative fiction found a home under this umbrella. At first, such stories consisted mainly of well-formed, all-American heroes rescuing buxom, blue-eyed ladies from the clutches of bug-eyed monsters (BEM's) of the extraterrestrial persuasion. But, by the late '30s, the audience for what had come to be called "science fiction" had matured. Readers expected more thought-provoking stories and less absurd science. It was at this point that the genre entered what has been called its "golden age" during which most of the concepts taken for granted in today's science fiction were given coherent expression.

Genesis of Omega

Given the pulps' influence on science fiction, it was natural that when Editor Michael Moore asked for a sort of "designer's choice" game for *Ares* Magazine nr. 14, I would turn to them for inspiration. A mental promenade through some popular anthologies of old pulp material proved unsatisfying. But then I remembered that favorite treasure from my wasted youth, the 1928 story, *Armageddon 2419 A.D.* Together with its sequel, *The Air Lords of Han*, this futuristic romance was the source for what would eventually become the popular comic strip, "Buck Rogers in the Twenty-Fifth Century." As I remembered it, the "science" in the original stories was only marginally less ludicrous than that in the comic strip. What better model for a world-construct that would express the spirit of the pulps, their disregard for realism in search of a good story, and their devotion to broadly-drawn standards of good and evil?

Philip Nowlan's story has his hero, Anthony Rogers, spending the time from 1927 until 2419 in an accidentally-induced state of suspended animation deep within a Pennsylvania coal mine. When he awakens, he finds everything has changed. Having slept through 500 years of history, Rogers has managed to miss the conquest of America by the Airlords of Han, a race of futuristic Mongols who now reside in air-conditioned pleasure domes that would make old Kublai Khan green with envy. Rogers' own countrymen are savage (but high-tech) barbarians hunted for sport by the Hans. While the Hans maintain a decadent but united continental culture, the Americans are divided into warring "gangs" ruled by "bosses," a system of government common in the large urban centers of Nowlan's day. Rogers immediately appreciates that the only thing keeping his countrymen from reclaiming their nation is their own divided state, and he proceeds to capitalize on his "outside" status to unite the gangs under his leadership and send the Hans packing. It's a simple story, uncluttered by such niceties as extensive character development or major subplots. But the thing has so much energy and innocence it sings.

This, then, was the inspiration for *The Omega War*™ game. There was no intention, even at the beginning, to copy Nowlan. But every game starts with an idea, and the idea that became *The Omega War* game started with a simple question: What if I woke up five hundred years from now to find that the America I knew was gone and that my own descendents were high-tech savages enslaved by foreigners?

That question, in turn, led to others, the most important of which was: How would such an odd situation have come to pass? My answer to that question, as outlined in the introduction to *The Omega War* game, was that America became vulnerable to conquest after the so-called "northern tier" of economically-advanced nations managed to make radioactive dust of each other. Not a new premise. And no more sophisticated really than Nowlan's crude "yellow peril" *deus ex machina* sweeping out of Mongolia to conquer the world. But Nowlan appealed to the nightmares of his generation and modern authors (and designers) must appeal to the

nightmares of their own generation.

Having decided that America's vulnerability to conquest arose out of the nuclear holocaust we hope to avoid, the next step was to settle on a conqueror. Conquerors were easily come by in Nowlan's day. The power of Japan was growing in the east and in the west, the memory of the Great War was fresh in everyone's mind. The Luftwaffe was not yet scaring the bejeezus out of the world, but there were plenty of military theorists predicting the wholesale destruction of civilization by airpower. It did not take much imagination for Nowlan to combine the elements of an occidental civilization weakened by a new bout of prolonged butchery, an emergent oriental civilization equipped with superior weaponry, and the idea of Douhet-style strategic bombing...and, presto, the Air Lords of Han had conquered America.

The Devastated Future

Our age has different devils. After almost 40 years of limited wars and police actions, the fear of conventional conquest is somewhat muted. But Americans can certainly appreciate (at least abstractly) what it would mean to be a weak nation administered in whole or in part by some international commission. So the villainous foreign devil of Nowlan's story becomes a sort of super-UN, dominated by all the self-interest and policy disputes that one would expect from such a body. Concerned with the temporary administration of the ravaged northern hemisphere, the World Union soon becomes something of a law unto itself. The temporary administration becomes permanent. Colonies of bureaucrats are planted in the administered areas. To ensure continued control, the Union foments political splits within the indigenous populace. Union policy becomes one of "perpetual (civil) war for perpetual (world) peace." The needs and desires of the surviving Americans must, of course, take a backseat to the greater good in this scheme of things. America has become the Lebanon of the 25th century.

This scenario, in turn, determined the most important of the game's mechanical systems, the Political Index. The Index would change many times during development, as new factors were added to the game or as the importance of other factors was altered. But the basic organization of the Index and its use in the game was set even before the world-construct for the game was complete. In a sense, the Political Index is the game. Certainly, it is its heart and soul, the thing that powers everything else. Without the Index (or something like it), events would have occurred in a vacuum. With the Index in place, all game decisions became political decisions. This fact reflects the post-Vietnam bias of the designer. Perhaps the one single lesson of the American experience in 'Nam that everyone can agree upon is that, in a limited war at least, there is no such thing as a purely military decision. All decisions are affected by politics. This lesson is clearly incorporated into the game.

In fact, many of the game's political elements share a common genesis is the Indochinese wars (and the Chinese Civil War that preceded them). My assumptions - that the Union presence in North America would have to be limited to a few secured enclaves and that the Rebels would have to control the countryside to win — were consciously predicated on a revolutionary model drawn from the works of Mao Tse Tung and Vo Nguyen Giap. The mechanics in the game of Mercenary and Partisan Recruitment, Revolt, Rising and Defection all have their (rough) analogs in the wars of insurgency in Southeast Asia. So do the barrier hexes on the map. Both the French and the Americans attempted to establish *cordons sanitaire* as a means of protecting the parts of Indochina under their "control," and the barrier hexes on the map are merely the technological great-great-grandchildren of the DMZ. Even the victory conditions are firmly rooted in the realities of the French and American experiences in Indochina. Victory is always expressed in terms of political results stemming from the combatants' perceived battlefield and conference-table positions.

'Perhaps the one single lesson of the American experience in 'Nam that everyone can agree upon is that, in a limited war at least, there is no such thing as a purely military decision.'

Speculating on Technology

After politics, technology was the most important subject that had to be addressed in the initial planning for *The Omega War* game. For the most part, this would, I knew, be military technology. Two approaches were used in creating the game's technological background. First, attempts were made to extrapolate broad trends in warfare into the future. Over the last 500 years, the ground, time, and unit scale of operational-level warfare has been steadily increasing. Whereas Frederick the Great once played out grand strategy on the stage of Central Europe, today we speak of strategy only in a global context and Central Europe is a purely operational theater in which a small part of that strategy is played out. Similarly, the firepower available to the average soldier has increased geometrically in just the last two decades...to the extent that a platoon of soldiers armed with the latest surface-to-air missiles can play a significant role in operations several hundred miles away.

Second, absolutely no attempt was made to extrapolate specific technologies from those that exist today. Considering the inability of our best minds to accurately predict advances in semi-conductor technology three years away, I felt that any attempt at realistically predicting what specific technologies would exist 500 years from now would be ridiculous. With that decision, I gained the freedom to tailor the available technology to the game's needs in much the same way that the old pulp writers found themselves free to tailor the "science" in their stories to plot and character needs.

The combination of a game-driven technology with a war-fighting technique based on continental-level operational distances gave the game its non-political framework. The entire North American continent would be the theater of war. The war itself would be portrayed as a strategic conflict, but activity during each turn would be operational. The basic operational unit would be a division employed within a box (not on a frontage) 50-100 kilometers on a side. This "operational box" would be the unit's "fire base" from which it would control the surrounding terrain by a combination of firepower and aggressive patrolling. Union military technology was assumed to be "heavier" than Rebel technology. That is, Union units were presumed to be supported by a stronger industrial base, allowing them to be equipped with heavier weapons at lower levels and extending their operational range (due to better development of their logistical train). Both sides were assumed to have abandoned most ground-based transport for nape-of-earth transport systems (hovercraft, jet packs, helis, etc.), and the Union was assumed to have developed airpower to such a level that actual navy-sized fleets of airships were available for purposes of exercising strategic control over large areas. Weapons were assumed to be energy-based (pulsed lasers and blasters) at the tactical level and "smart" explosive missile-type weapons at the highest level.

I consciously determined that neither side would use atomics, due to the effect on world opinion. This last premise was modified during testing so as to place in relief the old question: Who will watch the watchers? That is, if you give a World Union a monopoly on the use of nuclear force, how do you guarantee that it is going to use that force only as you intended?

Most of the game's futuristic technology is fairly humdrum...even cliche...by today's standards. Domed cities, vast subsea aquacultural tracts, orbital weapons platforms and the like have all been posited in detail by scientists and technicians. But the game's huge matter converters are definitely a "Buck Rogers" element. Their inclusion in the game was a purely mechanistic decision. I had previously developed the mechanics needed to portray revolts and reprisals within the domed cities. These mechanics worked in such a way that the World Union's offensive (and even defensive) abilities in certain areas would be rather severely affected by the destruction of settlements, since any reinforcements would usually have to march over long distances to reach the tactical battlefield. The introduc-

tion of matter converters into the situation allowed for rapid shifting of limited reserves by the Union without burdening the game system with extensive air or strategic transport rules. With that decision, it became possible for the Union to (barely) meet its substantial garrison requirements while conducting limited mobile offensives. This capability kept the game from being a continuous series of Rebel offensives versus an ever more constricted Union defense. It is a typical pulp solution in that it not only posits the fantastic, but it does so in order to keep the "story" (game) moving apace.

Pacing the Fight

The politics and technology merge most clearly in a single game element: operational pace. In its most essential form, pace is a function of how many reserves each player has available. Game technology dictates that units are burned up at a frightening rate. Game politics dictate that new units or replacements will be available at an equally frightening rate, but in a different part of the map. Generally, it takes a turn or two to bring newly-arriving units into the immediate tactical area where they can be most useful. What this means to the game is that a player who gains the initiative locally has a window of one to three turns within which to exploit his success. Unless he can force the other player to protect multiple targets so that reinforcements have to be spread over many battlefields, this window will close before any but strictly tactical gains can be consolidated. As a consequence of the rapid closing of the initiative "window," it becomes necessary for both players to lay their plans of operation several turns in advance and to emphasize the use of feints, multiple-objective attacks and rapid force shifts to seize and hold the initiative. In a basic sense, the player who keeps the initiative will almost always win the game.

I could claim, of course, that this emphasis on initiative was based on my reading of the lethality of modern warfare and the growing importance of maintaining a strategic reserve. Certainly, that would have been a defensible reason. But the fact is, I just wanted the game to have a lot of drama, so I constructed the interface between the Combat Results Table and the Political Index (which governs reinforcements and replacements) so as to maximize the swing between elation and despair.

A number of game elements are pure chrome...small puzzles thrown into the design like an extra descriptive adjective, for flavor. The inclusion of indigenous mercenaries was, for example, integral to the game's world-construct from the beginning, but the choice of a mutant population as the main source of these mercenaries was chrome. This choice had certain advantages in terms of game mood, including the fact that it furthered the image of a divided nation kept fragmented by World Union political machinations and also tied in with the background of a nuclear holocaust. But those advantages were recognized after the fact.

Similarly, the choice of nomads as a secondary pool of recruitable manpower was made mainly for flavor. To be sure, there were some mechanical reasons behind the development of the game's nomad culture. I wanted the western plains to be a sort of "safe zone" for the Union...a place the Union player could retire to when things got too rough in the hinterlands. But I did not want to show the plains as totally depopulated...especially since the food resources of the area would undoubtedly be a major reason for the World Union presence in North America. That's when the warboar-riders were born. There was no reason why they had to be nomads (or ride warboars, for that matter), but their existence was plausible enough and I wanted some sort of low-tech contrast to the high-tech flavor of the rest of the game. Besides, the nomads were very visual and we were thinking from the beginning of doing an illustrated story to accompany the game in the issue.

One of the most notable aspects of *The Omega War* game is the extent to which the game is "engineered." I have already mentioned the Political Index as the controlling mechanism for the game's strategic elements. The Terrain Key and Combat Results Table exercise the same functions in relation to movement and combat, of course. But the primary engineering feature of the game is the sequence of play. The ordering of player decisions in such a way as to illustrate the strengths and weaknesses of the two sides is accomplished by the sequence of play. After the decision to use a Political Index to express the game's political themes, the use of the asymmetrical sequence of play to express the game's military themes was the next most crucial choice made.

The option to present this sequence in extended form in the rules also, gave those rules their unique form. Theoretically, there are enough mnemonics built into the map and counters so that a player who has read the rules need only check the Course of Play section to play the game like an expert. Or so we hope. The use of this type of engineering in place of Simulation Publications' aged case format, requiring extensive cross-referencing just to integrate the rules, reflects a designer preference for games and fiction which are straightforward in their presentation. Novels that plead "scope" as a justification for leaving a lot of unresolved character conflicts and unexplained plot elements lying around give me heartburn. I feel the same way about games that use "system complexity" as a justification for being obtuse or obscure.

There is a still-respectable school of literature that holds to the premise that one cannot understand an author's work unless one also understands the experiences that formed the author of the work. Perhaps. Certainly, one must understand something of the sources from which the author drew his material. What is true of the writer of fiction is even more true of the designer of fiction games. In the case of *The Omega War* game, the source was a literary genre that died thirty years ago. The emphasis of the game on action, unpredictability, rapid player adjustment to a shifting situation, entertainment instead of slavish "realism," and dramatic use of "catch-up" factors is a result of using the pulps as inspiration. That the grimmer realities of post-pulp warfare and politics keep shouldering their way into the game does not, I think, detract from the excitement of the pulp vision. Rather, such realities serve as a counterpoint to the "pulpiness" of the game, making this quality shine through even more brightly. If so, then the game is at least a partial success. ■ ■

SOFTWARE

Edited by Ian Chadwick

Editor's Notes:

Steve has written a good review of one of the more delightful games in my library, but since he doesn't have a disk system, I thought to add a few notes. The disk system allows you to create your monster, but there are few enough points allocated to each creature to make them really terrible; they are mostly enormous nuisances to the cities. In the TRS-80™ version, to improve the quality of your monster, edit line 2010 to read — CC=CC+NP(0)+500. The only change is in the addition of the number. 1000 will make your creature nigh on invincible (not completely . . .). For those of us who really like to see the monster level Tokyo, this is the way to bliss. Steve accuses the rules booklet of being "unnecessarily overwritten," but I found it quite humorous and enjoyable to read. Ah, who can account for taste? The TRS-80 version comes with TRSDOS on the disk but will not work with any of the NEWDOS systems. Quite a pain since NEWDOS80 2.0 is pretty much the Cadillac in DOS, while TRSDOS is relatively a Chevette.

The Apple™ version of *Crush* is the same in play but the graphics are super: color, highres and fun. There is also a good sound routine for the Apple while the TRS-80's sound is mostly annoying. Some computers have all the breaks.

Ian Chadwick

Crush, Crumble and Chomp™ Game

Automated Simulations, Inc.

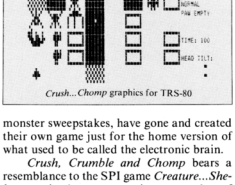
Solitaire "War Game"; BASIC; sound
Graphics: Apple: **A**, and TRS-80: **C**;
Playability: **A**; Enjoyment: **A**
Apple II disk; TRS-80 cassette or disk

As the radio announcer used to say: "Return with us now to those thrilling days of yesteryear when Japanese movie monsters roamed the earth, spitting fire and devastating whole regions all for the sake of kicks!" Games dealing with the silly monsters of the 1950s movie plots are beginning to show up on the stands lately and they are threatening to subvert (horrors!) serious game players away from their mapboards full of Wehrmacht units.

First off the presses was *The Creature That Ate Sheboygan*™ game of a few years back (what did Sheboygan ever do to deserve that fate?). It was a map and counter game pitting one of several user-designed creatures in vicious combat against the forces of law and order (not to mention truth, justice and the Sheboygan way). Then came the *Attack of the Mutants*™ game, an entry from Yaquinto, dealing with a labful of malevolent meanies attempting to do harm (and worse) to the scientist and his beautiful daughter.

Other movie adaptations continued with GDW's *Asteroid*™ game in their series 120 their I guess that one has shades of the film *Forbidden Planet*), the SPI™ *Dawn of the Dead*™ game (this one is about a shopping mall full of malevolent zombies) and TSR Hobbies' take-off on the film *Body Snatchers'* popularity, the *They've Invaded Pleasantville*™ game (is that seemingly friendly storekeeper one of *them*?).

The wonderful people at Epyx Games, feeling that computer freaks were being unfairly left out of their share of the movie



Crush...Chomp graphics for TRS-80

monster sweepstakes, have gone and created their own game just for the home version of what used to be called the electronic brain.

Crush, Crumble and Chomp bears a resemblance to the SPI game *Creature...Sheboygan*, in that you are given a number of standardized creatures, but can create your own monster (within a certain range of restrictions; this option is only available on the disk version for the TRS-80). Once the creature is selected or created, you simply turn him/her/it loose on a stylized computer map in the downtown area of one of your four available cities: Tokyo, New York, San Francisco and Washington D.C.

The game is played in a semi-real-time fashion, meaning that you as the creature (the computer always plays the human side) have only a limited time to enter your moves. Do you want to crunch a small building? Just press a key and the building disappears. How about lashing those nasty humans behind you with your tail? Just press "T" for tail and *kawhump* — they're gone. This is so much fun, isn't it?

Of course, the humans do have this sneaky little habit of attacking you too, with military units (infantry, armor and airborne). The idea is, however, to do unto them *before* they do unto you.

The game program allows you to set your own victory conditions (sort of) depending on whether you wish to emphasize destruction of property, life or military units in your city-mashing plan. If you feel in a less blindly destructive mood, you can choose the balanced set of conditions, which does not lay emphasis on any particular types of actions, or the Survival scenario, which emphasizes escape and evasion for the maximum amount of time above sheer destruction.

Those players who do not feel inclined to create their own monster (or are unable due to the program's restrictions) can choose from a set of six off-the-rack creatures. Each has its own strengths, weaknesses and destructive characteristics. There is Goshilla, who most closely resembles the famous devastator of the Tokyo cityscape, whom we've all come to know and love. There is the Glob, star of a famous Steve McQueen movie; Mantra, a flying Zen creature; Kraken, the sea monster who loves to treat the Golden Gate like after-dinner mints; Arachnis, one of those over-blown insect monsters (shades of *Them*) who think humanoids make great web fodder; and Mechismo, the robot machine gone on a rampage.

Certain monsters are limited in their ability to move: Goshilla is rather slow so he has difficulty catching his food; Kraken cannot leave the water, so bridges and coastal zones are his targets. Other monsters, such as Arachnis and Mantra, have a limited destructive ability due to lack of strength; they must depend upon their fire-breathing ability to score points. All monsters (except Mechismo) will get hungry after a certain amount of exertion and go berserk. At that point, you as the player have lost effective control of your own monster, and the computer begins to direct its actions.

The trick then is to select the right monster, in the right city with the right victory conditions and then play its various attributes properly (and quickly) against the machine to score the maximum possible points.

All in all, it is a fast-moving game. Just keeping ahead of the military can be a problem for some of the slower monsters (as is feeding on segments of the panicked population), while avoiding the ever sneaky mad scientist when he appears on screen can be a testy problem as well. A strategic sense becomes necessary when deciding whether or not it's time to move on to another part of the city, while a full knowledge of your particular monster's abilities (and which keys control them) is essential for good play.

The computer allows you to set your speed of play by choosing either the fast or slow mode. In either case, one does not have a great deal of time to sit there and think of what to do next. Play can sometimes become a matter of reflex key-pushing, especially in the fast mode.

The graphics for this game are excellent, with easily recognizable pictographs of running people, a lumbering monster, buildings, bridges, trees, police cars, tanks, etc. Unfortunately, this is not so for the TRS-80. Due to the graphics limitations of the computer system, the running people look like dashes, the monster is a blocky caricature of itself, and you have to be pretty good at guessing to figure out what the other things are when they appear on the screen. Once you get used to it, you can ignore it, but for this sort of game good graphics are half the appeal (think how much money an arcade game would lose using the same graphics as the TRS-80).

This game is definitely an evening's light entertainment on the computer (even though it will take half the evening to read through the rule book's 46 unnecessarily over-written pages). Presented in the same format as Epyx's earlier, more serious games such as *Rescue at Rigel™*, *Star Warrior™* and the *Dunjonquest™* games, *Crush, Crumble and Chomp* is a fine, well thought-out game that ought to keep our subdued destructive impulses at bay for one more evening. Anyone for seconds on the World Trade Center?

Steve Loniewski

SWORD THRUST #1:
"The King's Testing Ground"™ Game and Master Diskette
CE Software

Solitaire text adventure

Graphics: **na**; Playability: **C**; Enjoyment: **C**

48K Apple II™ with Applesoft in ROM, or Apple II Plus and one disk drive, DOS 3.3

(Note: Three other adventures in this series require the Master Diskette to play. These include: *The Vampyre Cave™*, *Kidnapper's Cove™*, and *The Case of the Sultan's Pearl™*).

Like any smart writer, Donald Brown knows the best way to hook people's interest is with a series. After all, if gothic, nurse, mystery and western writers can publish four books at a time about a character, why can't a software publisher? It's an attractive idea, if you've got a good character and good plots. Brown has the best character going: you. And his plots are interesting.

In these adventures, you don't play as much "programmer puzzler" as in others. You can have as many as 15 characters on disk, although you can only play one at a time. Each has a level of hardiness, agility, charisma, and left hand ability. These abilities can be changed by magic, after your character has gained experience (and loot).

So your characters are continuing ones (unless you get them killed). They can buy training, stronger weapons and better armor any time they enter the Main Hall. Their skills increase with each foray, and they become better with axe, sword, bow, spear or mace —whichever weapon they've mastered. An interesting aspect is that armaments suffer fatigue as well as the fighter, thus they should get replaced fairly often. As characters get more wealth, they can purchase magic spells and invoke them. They can also buy better weapons and armor.

Another good concept is Brown's use of the dungeon denizens as (sometimes) helpful sidekicks. When your character blunders into a room, type in SMILE. If a monster smiles back, it will help you. If it growls, every monster in the room will attack while you are standing there, grinning like an idiot.

Each adventure has special commands that won't work in the others. There are mechanical and magic traps.

The instruction book is clear and well-written, although I don't see much need for the description of the mechanics of weapons. I love the slogan of the Guild of the Free Rogues when your character first enters the Main Hall to sign in: "Anything that isn't nailed down is mine. Anything I can pry loose isn't nailed down." Brown is realistic about his fantasy world. That is, if you're carrying loads of loot, you can't very well swim, and you get tired easier when you're in combat.

In *Vampyre Caves*, you have to find the secret passages so you can free yourself of the vampyre's curse; just killing him isn't enough. One element I wish he would have added was the rescue of dead heroes and heroines. After you've spent some time developing a favorite, it's a shame some way hasn't been included to resurrect them.

You'll probably want to purchase a sequel to *Sword Thrust* soon; any character who has advanced any distance at all in the game is too strong for the beginning *King's Testing Ground.*

Dale Archibald

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BOOKS

The Guardians, Lynn Abbey, Ace Books, $2.95

A Rebel in Time, Harry Harrison, Tor Books, $3.50

Lady of Light, Diana L. Paxson, Pocket/Timescape Books, $2.75

Janissaries: Clan and Crown, Jerry Pournelle & Roland Green, Ace Books, $5.95 (Trade paperback)

Sideshow and **The Three-Legged Hootch Dancer,** Mike Resnick, Signet Books, $2.50

A Rose for Armageddon, Hilbert Schenck, Pocket/Timescape Books, $2.50

It is difficult to begin writing this column again after a hiatus of nearly a year's duration. My policy in the past has been to try to make these reviews as timely as possible; even so, given the length of time between sending in the manuscript and the appearance of the printed magazine, many of the books reviewed are hard to find by the time the column reaches the *Ares*™ Magazine readers.

However, two books have appeared in the course of the last year, which I think are Hugo-quality material. Since little attention has been given them, I think it worthwhile that they be mentioned here.

Lynn Abbey's *The Guardians* is a pagan novel, in the same sense that much of C.S. Lewis' work is Christian. The action takes place in modern New York and Britain, and the thesis is that at various locations around the globe there exist rifts in time and space through which demons and the forces of chaos may enter our world. Certain individuals and cults have taken upon themselves the task of guarding these rifts in order to safeguard the physical and spiritual well-being of the planet. One such group is an underground coterie of druidic cultists who are centered in Britain. For centuries these cultists have, on each Samhain (winter solstice), performed a ritual to keep the gates closed. Several decades ago, they sensed that a new rift had opened in New York, and they sent a number of their fellows to guard that rift as well. Now, however, the American guardians have aged and are dying, and they have been unable to recruit new members for their coven.

The rift itself is in an apartment on Riverside Drive in Manhattan, where the last cultist lives. In the course of the Samhain ritual, he dies — leaving the rift open and his apartment vacant. As I can attest, finding a reasonably priced apartment in New York is no mean feat, so our heroine, Annalise Brown — a solid, no-nonsense woman of the 20th century — quickly grabs it and moves in. The fate of the world is in the balance, and Ms. Brown must overcome her rationalist prejudices to safeguard it.

Lynn Abbey's first novel was published several years ago, and at the time I found it rather trite. Since then, she has matured into a writer of considerable power. Evidence of this is the fact that *The Guardians* is a book which both mainstream and science fiction readers will be comfortable with. The plot hangs together well, the characters are well-realized, and Abbey manages to transmit a sense of the horror of the situation without recourse to violence or nausea.

My second choice, Hilbert Schenck's *A Rose for Armageddon,* is a peculiar novel, managing to be at once a "hard" science fiction novel and perhaps the most romantic love story in the genre. The story centers around the invented discipline of morphological archaeology. The basic premise of the science is that by examining the land-use patterns of the centuries, the historical documents, the changing animal migration patterns, and so on, one can understand in great detail the history and personal lives of people who used the land. Certain areas seem to become nexi: important events occur there, buildings arise there, and movement patterns center on them. These nexi are explainable, of course; a certain hill may have buildings constructed on it repeatedly because it is a high point and commands a wide view. Even more important is that morphological archaeology becomes a tool for understanding the development of human societies, especially as influenced by the natural environment in which they are situated.

The two protagonists, Elsa Adams and Jake Stinson — elderly scientists and the deans of their disciplines — are working on the Hawkins Island project, an attempt to understand the complete history of a small New England island. They feel on the verge of a breakthrough which will enable them to understand and predict important aspects of societal behavior. At the same time, their society — the modern United States — is close to internal collapse, as extremist groups become the new barbarians. The scientists are perfecting the very tool which might have been able to prevent that collapse. Eventually, they discover the secret of Hawkins Island and of themselves — and find that a rational world can still be mystical.

In the science fiction genre, one is accustomed to writers who play with ideas. Few writers, however, have the wit or the breadth of imagination to play with ideas on as grandiose a scale as Schenck. Despite his rationality — or, as I think he would maintain, because of it — Schenck remains a romantic.

I picked up Harry Harrison's *A Rebel in Time* with some trepidation. First, though Harrison's humorous works are, by and large, excellent, I have been disappointed in the past by some of his more serious work. Second, any novel dealing with the Civil War must in some way deal with racial questions. Harrison has in the past been somewhat arrogant toward America's racial problems — arrogant as only a European can be, who has had little personal experience with such problems, and who lives in a country that until recently did not have to deal directly with them.

My trepidation was not justified. *A Rebel in Time* is an old-fashioned adventure story of the time-travel genre, something which, I trust, will appeal to those interested in history as well as science fiction. The plot is straightforward enough; an American colonel of Southern origins, who is charged with the task of guarding top-secret research into time travel, absconds into the past with a working model and a Thompson submachinegun. The implications are clear; he has returned to the 1860s in an attempt to reverse the outcome of the Civil War.

The head of a clandestine intelligence operation within Army Intelligence believes he is charged with the task of defending the integrity of the Union, not only in the present but in the past as well. Thus, he dispatches his top operative, Sergeant Harmon — a black — into the past to prevent the Southerner's schemes from reaching fruition. A black man necessarily has some problems operating in the 1860s, and the trials and tribulations of our hero make for a good story.

In the twentieth century, most "mundane" fiction attempts to understand and explain the psyches of human beings, and this in itself is not antithetical to science fiction. The intrusion of a human scale into a genre whose major appeal is its galactic scale is a tricky task to pull off, and few have done it successfully. Mike Resnick is one such writer.

Sideshow and *The Three-Legged Hootch Dancer* are Resnick's first and second novels in a series entitled *Tales of the Galactic Midway.* As the title implies, the series is about a carnival whose conniving owner manages to blackmail an interstellar company operating secretly on earth into playing on the interstellar circuit. In a way, the series is about the reaction of ordinary human beings, neither terribly brilliant nor terribly accomplished, to the existence of alien beings and to life on alien worlds. The problems are of human scale while the backdrop remains impressive. Too, carnival life has its own fascination, and the problems of carnival life among the stars are consistently amusing. Though one hopes *Galactic Midway* will not become just another interminable epic — I suspect there are only so many changes Resnick can ring on his basic themes — if the pitfalls are avoided, the series will an enduring and popular one.

There is a sort of subgenre of stories dealing with high politics and military strategy, the sort of thing which H. Beam Piper and Robert Adams are known for. *Janissaries: Clan and Crown,* the sequel to Jerry Pournell's *Janissaries* and co-authored with Roland Green, is of this ilk. Such a story requires extensive historical and military knowledge, something Pournelle possesses, and should appeal strongly to gamers.

The world of *Janissaries* is alien, though peopled by human beings. One of its native plants, called madweed by the locals, is a powerful drug that is highly desired among an interstellar civilization to which humanity is not party. In order to exploit the drug, which can be grown only during a small part of the

(continued on page 52)

GAMES

Edited by Steve List

Invasion: Earth™ Game

Design: Marc Miller, Frank Chadwick, John Astell
Components: One 16"x21" full-color map; 480 counters; 16-page rules booklet; 4 information sheets; two dice; box.
Game Designer's Workshop, $11.98

Reviewed by Tony Watson

Historical and science fiction games share a vast number of similarities; physical components, game mechanics and approaches to design are essentially the same. Half-inch square pieces of cardboard move across a blue hexgrid and the gamer accepts them as representations of World War II cruisers and battleships. Very similar playing pieces maneuvering on a field of black hexes will, with some appropriate rules changes, serve as the starships of conflicting interstellar empires. The situations may differ, but the design methods employed to address them are undeniably related. Despite a burgeoning and very impressive growth in the last five or six years of the science fiction aspect of wargaming, it is still an adjunct and derivative of the historical side of the hobby.

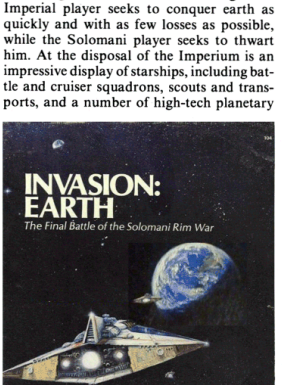
There is, however, one obvious and very salient point where the two types of games *do* diverge: historical games are (or at least aspire to be) just that, games that are based on historical evidence and seek to simulate historical facts and possibilities, while science fiction games are, by definition, not simulations of historical events. At best, SF games can strive for authenticity through reasonable and sound extrapolation; extrapolation, however, is only an educated and measured guess. Denied a grounding in past events, SF games are usually based on the most cursory of rationales. The background is often created to fit the mechanics rather than the opposite, which is more the case with historical games. Apart from those SF titles based on a novel (Avalon Hill's *Starship Trooper*™ game being the best example), most games lack a firm basis in anything that could be called, for lack of a better term, a "future history." (The background developed by Redmond Simonsen in the *Starforce*™ game and carried over into the *Outreach*™ and *Starsoldier*™ games could be mentioned as presenting a notable exception.)

Game Designer's Workshop, however, appears to be a leader in the attention paid to the creation of a consistent and coherent future history. Beginning with the highly respected *Imperium*™ game, and continuing on through the very popular *Traveller*™ game, Marc Miller and company have managed to create a remarkably rich and consonant setting for a line of related SF games. It is the Third Imperium, which has been detailed extensively in GDW products, especially in *Traveller* material. The wealth of information about the Third Imperium, from starmaps to Emperor's lists, makes its milieu one of the most, if not *the* most, completely explained and described future history in SF gaming.

Invasion: Earth is set in the year 1002 of the Third Imperium (about 5511 A.D. in Terran dating). It chronicles the final battle of the Solomani Rim War, a conflict in which the Imperium fought against the Solomani, or Terran branch of the species of humaniti, for control of a vast region of interstellar space. A brief history of the Solomani people and a synopsis of the course of the war and the events leading up to it are provided in a two-page piece appearing at the end of the rules. The twelve year war was capped by the Imperial assault on the home world of the Solomani - earth.

Invasion: Earth is a grand-strategic game covering the entire globe. Each hex on the icosahedron projection map is 1140 kilometers across. The units included range in size from regiments to field armies for ground forces and squadrons for spacecraft. Each turn represents a two-week interval.

The game situation is direct enough. The Imperial player seeks to conquer earth as quickly and with as few losses as possible, while the Solomani player seeks to thwart him. At the disposal of the Imperium is an impressive display of starships, including battle and cruiser squadrons, scouts and transports, and a number of high-tech planetary forces. Some of these units are of a specialized nature: jump troops for space landings, armored forces for assaults, and a smattering of marines and mercenaries for good measure. The Solomani player has only a rag-tag assortment of starships to face the Imperial squadrons, but these are supported by a more formidable force of interplanetary system defense boats. His ground forces consist of units of varied tech levels, as well as forces similar to the invaders. Uniquely Solomani types include units such as guerrillas, commandos and planetary defense units.



The Imperial player is seeking to seize control of 50 of the 61 urban hexes on the map; the urban hexes, by the way, in a reflection of possible population shifts, are nearly all on coasts and the majority are in the southern hemisphere. Once this is done, the number of quarter-years the invasion has taken plus the number of replacement waves is subtracted from ten; if the result is positive, the Imperials can claim victory. The Solomani task is to drag out the war and make it as costly as possible.

The mechanics for *Invasion: Earth* are borrowed directly from the *Fifth Frontier War*™ game, another GDW game set in the same future history. The rules for space and land combat, features which both games emphasize, are essentially the same.

The game-turn is broken into four segments, which are subdivided into phases. Action occurs in the space, space-surface and surface segments. Space movement is handled abstractly, with ships moving through close orbit, far orbit, and deep space boxes. Additionally, the Imperials may jump out-system to bases in other systems. Space combat consists of both sides totalling up combat factors and rolling on the appropriate column to see how many defense factors the enemy must lose. Combat between starships and system defense boats (SDB's) uses a slightly less bloody table.

Space combat is one area where the Imperium has a decided advantage. The Solomani space fleet is very quickly reduced to solar wind ships, and the SDB's that remain carry on a kind of guerrilla war from hiding places in the oceans of earth or in deep space. In the space-surface segment, SDB's in hiding in the sea may come out, and be attacked by Imperial ships on overwatch. Imperial fleet units can bombard Solomani ground units. The Solomani can use his planetary defense units (some of his most important units) and SDB's to attack Imperial ships in the close orbit box, fire against bombarding enemy ships or units in range, or attack Imperial ground units which are making landfalls.

The surface units portion of the game, by far the most involved segment, provides for movement and combat by Imperial units followed by Solomani units. All units in the game are "lift" or anti-gravity transportable, and have a movement allowance of ten; only the static planetary defense units cannot move. Because of the anti-gravity form of transport, terrain does not affect movement.

Only the zones of control of larger units slow movement.

Combat is between pieces in the same hex and utilizes a quick, innovative procedure. Units of the same size have the same combat factor: corps are rated at 100, divisions at 20, field armies at 500 and so on. This factor can be modified by type — armored and elite units are doubled — and by current strength. During combat, these factors can be allotted as the player desires, even splitting them against more than one enemy unit. A basic factor-to-factor odds total is figured and then modified by tech levels. Higher tech units get favorable odds column shifts corresponding to the difference in tech levels. This rule gives a pronounced advantage to the more technologically sophisticated units, allowing them to take on numerically stronger units on an equal and sometimes superior basis. Losses are inflicted in terms of a percentage reduction of the unit's original strength (a set of neutrally-colored counters are used to tag losses). Of course, units are destroyed when they reach 100 percent losses. The damage a piece takes will reduce its factor and thus its effectiveness in combat.

While the emphasis of *Invasion: Earth* is clearly on combat, it addresses other factors such as supply and replacement. The Solomanis trace supply to urban hexes which also provide one replacement point each turn. Those are traded in during a special segment after each quarter for replacements. The Solomani player also has the limited ability to replace SBD's based on his three starports. The Imperial player traces supply to bases he brings in to support his troops. His replacements come from off-board in the form of replacement waves, each wave replacing 100 factors of troops or three space squadrons. However, each wave he takes lowers his chance for ultimate victory, while the same is not the case for the Solomanis. Also included are simple rules to cover effects of weather and special abilities of Solomani guerrillas.

Invasion: Earth is billed as *"Traveller* Game 5" even though the scale is hardly appropriate for role-playing. To the end of incorporating the game into a role-playing campaign, three short *Traveller* adventures are included based on the Terra setting. The designers also suggest that the game system would be applicable to any large-scale military actions that might take place in a campaign.

Invasion: Earth has a richness in background that defies the impression of contrivance upon which many SF games seem to be built. One has the impression that the designers were very serious about their attempt to simulate a future assault of the planet earth from space. Still, it's difficult not to question some of the suppositions the game makes. Most salient of these deals with technology; the game is set three thousand years in the future, and though tech-14 weapons are a notch or two above anything current military forces may possess, they do not reflect what one might expect after three millenia. Play in *Invasion: Earth,* while definitely science-fictional in feel, has some very clear links to more conventional warfare.

Invasion: Earth is an interesting, well-balanced game. The situation is tense, requiring some attention to strategy and tactics on both players' parts, and though the ground combat tends to drag a bit at times, the game mechanics are appropriate and well-considered. Just as important as the attention paid to the game as a game, however, is the conscious effort to fit the game into an understandable future history.

of *RQ* has partially eclipsed *WB&RM,* which went out of print and even saw the conversion of *Wyrm's Footnotes* into the "official" *Runequest* Magazine.

Just as Sartar arose after the sacking of Boldhome, *WB&RM* has risen again in the form of the new *Dragon Pass* game. William Church has surpassed his original graphics, rendering the map in a pseudo-pictorial style that greatly clarifies the ambiguity of the original. The lavish use of color (including shading to delineate political boundaries) makes it

Dragon Pass™ Game

Design: Robert Corbett and Greg Stafford
Components: One 22"×34" four-color map; 300 counters; 32-page rules booklet; one addenda sheet; one die; box.
The Chaosium, Inc., $16
Reviewed by Steve List

In 1975, when fantasy games of any sort were exceedingly rare, the world of Glorantha was unknown outside a small circle of unconventional gamers in California. One such gamer, Greg Stafford, designed and produced the classic *White Bear & Red Moon*™ game by forming his own company, Chaosium. *White Bear & Red Moon* was based upon the Hero Wars in the Dragon Pass region of Glorantha. It chronicled the efforts of Argrath Dragontooth to drive out the occupying Lunar Empire and restore the Kingdom of Sartar.

For a variety of reasons, *WB&RM* was not a state-of-the-art wargame even when first released. The map graphics, while quite attractive, were also ambiguous and generally ignored lessons learned by the industry up to that time. But the game had excitement, whimsy and a great deal of charm.

In an irregularly-published fanzine called *Wyrm's Footnotes,* the designer and players established a dialogue that included a history of Glorantha, rules changes/interpretations, and new combat results tables and game counters. All this was fun, but it underscored the consensus that even after two editions of rules, *WB&RM* was flawed. On top of that, publication of a companion *Nomad Gods*™ game, and then the role-playing *Runequest*™ game diluted the attention that the faithful lavished upon the original. The great success

very attractive, as well as functional. In addition, his counter illustrations are far superior to the NATO symbols that are all too common (his depiction of the Sartar heroine Gunda the Guilty as an overweight Wagnerian soprano Valkyrie is delicious).

More importantly, the rules have been taken in hand by Robert Corbett and have been rationalized, modified and, above all, organized. The only sour note is one of intangible impact. While the new game is boxed, the cover illustration is less than satisfying. But don't judge the contents by the package. The game within is excellent, and while it has perhaps lost some element of wonder (as well as the element of "I wonder what this rule means") in the process of being turned into a polished product, it is still the most believably presented fantasy game on the market.

In scale and scope, *DP* is midway between operational and strategic. The ground scale is not given, but is probably on the order of four to five miles per hex; a turn represents one Glorantha day. Units are either individual beings or regiments of soldiers or magicians. There are nine scenarios, ranging in length from five to 28 turns. These are presented in progressive form. The first uses only military units with melee capability; the second introduces missile-firing skirmishers; the third Heroes; the fourth Magic Users and so on. Each scenario is increasingly complex due to the utilization of more of the rules and counters; each represents a later stage in the Hero Wars. This makes learning the system relatively easy.

While movement of units is fairly conventional, the mechanics of combat are dif-

ferent from most games. Melee combat occurs between units in adjacent hexes and is limited in the number of units in a stack which can fight. Only the top three "major" units (i.e., regiments) in a stack can fight, while any other unit stacked below the third major unit from the top is out of action. To resolve combat, the attacker totals his combat factors (adjusting for terrain, leadership and weather) and rolls one die. The result is cross-checked with the appropriate total combat factor column on the "attack table" to determine the number of combat factors in casualties the defender must lose; these are taken from the defending stack from the top down, in order, until as many are taken as can be while not exceeding the casualty result obtained. Since the value of the defenders can be modified by terrain also, it is possible for there to be no actual losses, depending on the combat factor of the top unit. The order of stacking has an obvious bearing on combat, so both the attacker and defender can rearrange the order in any stacks involved in melee prior to resolving it.

After defending casualties have been removed, the combat factors of the surviving defenders are doubled and this value (possibly modified) is used to determine the attacker's losses by rolling on the same table. The system is conducive to using large attacking stacks in order to reduce or eliminate the defenders before they can strike back. But at times this has to be tempered by the fact that some magic units have the power to destroy all the occupants of a hex at least once per game. Missile fire is resolved prior to melee with its own CRT, and will result in outright elimination of one or more units, or else in disruption (reducing combat and movement). However, the most common result is "no effect" unless many units attack.

The magic system has been totally revised. Indeed, it is now a system rather than a collection of special cases as was the situation in *WB&RM*. Almost all the magic units in *DP* use either a physical agent (e.g., the meteors of the Crater Makers) or else allied spirits. *DP* has only one "chaotic" unit, the Crimson Bat — such units have the somewhat simply manifested property of eliminating one or more units of their choice during a magic phase. Physical magicians apply their agents against targets within their range; losses to the target are determined as with melee combat (one would think of such magicians as analogous to artillery, and in the case of the Cannon Cult, this is the literal truth).

Spirit magic is conducted differently. The attacking magic units send their allied spirits to attack a stack, and combat between the spirits and defending units (plus any spirits which may have been designated as providing support) is resolved as in melee, except that there are no modifiers. Magic, rather than combat factors, is used; the defender counterattacks before his losses are removed. The bulk of the magic units in *DP* are spirit magicians, so this is the predominant mode of combat. It is worth noting that while defending magic units in such an attack can be destroyed, the attackers stand to lose only their allied spirits. Magic units can still defend against magic attack and in some cases are usable as reasonably powerful melee units.

The full sequence of play in a player-turn is: Random Movement Phase — uncontrolled units are moved; Alliance Phase — pacts between neutrals and the phasing player are negotiated; Movement Phase — phasing units move; Exotics Phase — magic use and dragon attacks are resolved; and Combat Phase — chaotic, physical and spirit magic attacks are resolved in that order, followed by missile attack, melee and advance after combat. Prior to the first player-turn in each game-turn is a Diplomacy Segment — Diplomacy Points are secretly allocated; and a Random Events Segment — chance occurrences are resolved by a die roll.

As in the original game, units may be endowed with up to four numerical factors — combat, magic, movement and range. Not all units have all four factors; a spirit has no combat factor, a magician's spirit has no movement factor and most combat units have no range factor. In addition to the numerical value, these factors can be modified by the presence of a specific symbol. One of the difficulties in learning the rules is the fact that many of the symbols have different meanings, depending on what factor they are associated with. A line beneath a factor can have four different meanings: under a combat factor, it means no support in chaparral; under a magic factor, the unit is supported in chaparral; under a movement factor, the unit can use "heroic movement"; and under a range factor, the unit is either a physical magician or an agent of one.

As a further hindrance, references to "chaparral" and "Dead Places" are confusing, as these do not appear in *DP*, but in the companion *Nomad Gods* game. Unfortunately, these references are not indicated; there are rules included that do not apply to *DP* per se. Aside from this omission, there are other minor rules imperfections that remain uncorrected, even with a sheet of addenda provided. Still, problems are minor; the rules of *DP* are gratifyingly clear and easy to grasp.

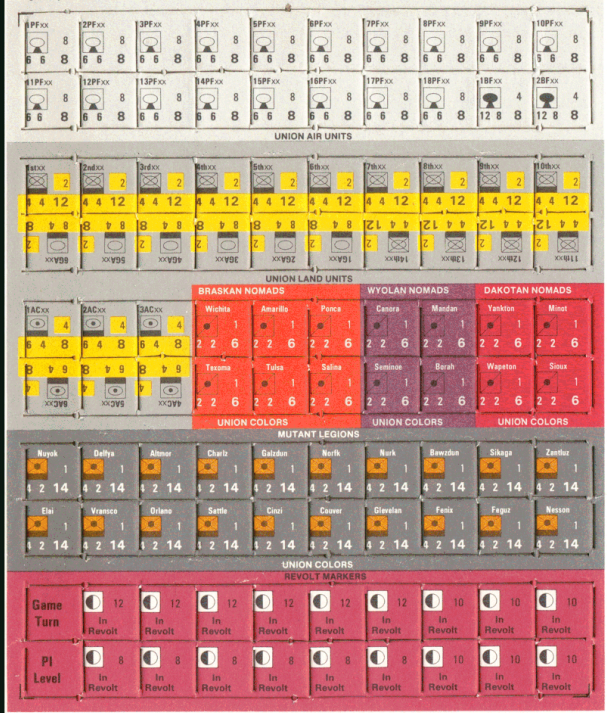
Two key elements of *WB&RM* have been retained in *DP* with little or no modification. Heroes and Superheroes are present, to act as leaders and as the mightiest of the mighty. Heroes such as Argrath and the Red Emperor can use magic as well, but all have the combat strength (four) of a regiment of ordinary troops. The three Superheroes have combat factors of twenty, are invulnerable to all but physical magic, provide similar protection to stacked units, and have a probable chance of surviving, via a "heroic escape." The Scapegoat rule has been retained as an option, for those who enjoy such things. This designates a hero as a "Best Friend" to a Superhero; if the "Best Friend" is killed, one of the units responsible is labeled a "scapegoat," and it is then pursued by the avenging Superhero.

Dragon Pass is the abode of many peoples, not all human, who have a natural interest in the wars fought in their domains, and who may be persuaded to join one side or the other. In *WB&RM*, all such independents were allied in the same way — a unit would go as an emissary to an independent and ask for an alliance. This was resolved by rolling a die and consulting a table, whose results granted or refused it. In *Dragon Pass* this same procedure has been retained, but only for minor forces. The Superhero Andogeus and the six most powerful independents (i.e., landholding powers like the Grazelanders) must be won over by diplomacy. Each player must outbid the others by a specified margin of Diplomacy Points to win over an independent. Since these points are allocated secretly, an element of uncertainty is added to the game, as the final outcome remains unclear until all players announce their bids. This uncertainty generally keeps the more powerful independents out of play, as players bidding defensively spread their Diplomacy Points around to keep enemies from clinching an alliance.

A review such as this can only begin to list, let alone do justice to, the variety and richness of the game. While in some ways it is less "magical" than its predecessor, it is a better product in general and can be appreciated by the average gamer and dedicated fantasy fan alike. Try it; you'll like it.

THE OMEGA WAR™ Game Counter Section Nr. 1 (200 pieces): Front

Quantity of Sections of this identical type in game: 1. Total quantity of Sections (all types) in game: 1.



THE OMEGA WAR™ Game Counter Section Nr. 1 (200 pieces): Front

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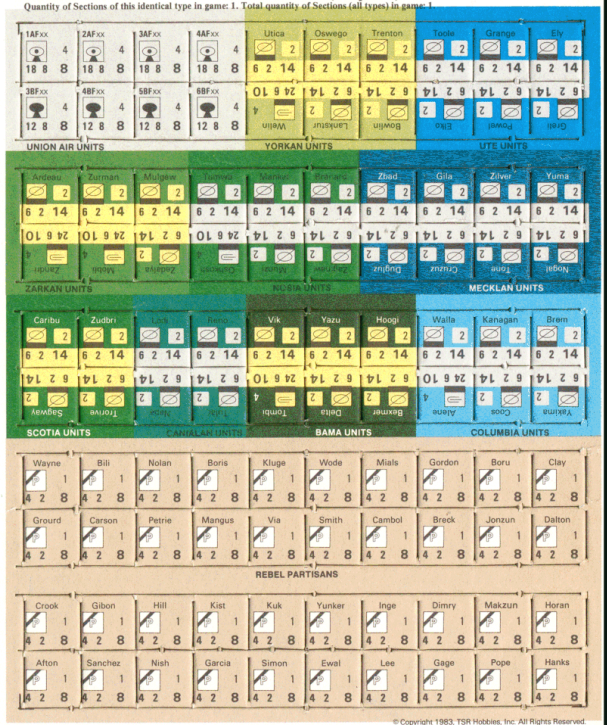

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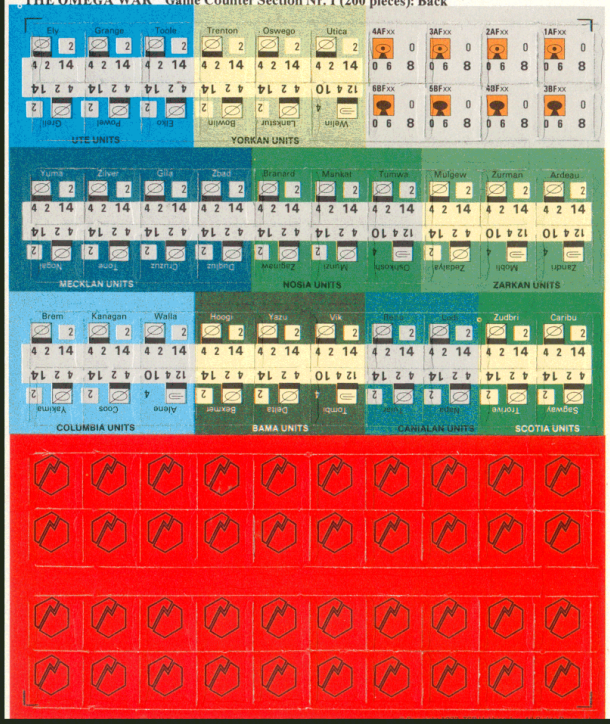

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