

WAR IN THE ICE

RULES OF PLAY AND SITUATION BRIEFING

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[1.0] INTRODUCTION

War In The Ice simulates a hypothetical war in Antarctica in the last decade of the 20th century. Players maneuver unit counters representing the land and air units of the United States, Soviet Union, and "South American Union." There are two versions of the game: one in which the nations contest each other with conventional weapons, and one in which the remnants of a strange subterranean civilization intercede with their advanced, alien technology and motivations. Thus, *War In The Ice* is both a conventional and a science-fiction game.

[2.0] GENERAL COURSE OF PLAY

War In The Ice is played by two or three players. Players alternate moving their units, resolving combat when Friendly and Enemy units occupy the same hex. Air units are moved by placing them on any hex within range of the airbase they are flying from. Land combat is resolved by comparing the Combat Strengths of opposing units and expressing the comparison as a differential. Dice are rolled and the outcome indicated on the Combat Results Table is applied. Air combat and anti-aircraft combat are resolved similarly. Weather, supply, and terrain affect movement and combat.

[3.0] THE GAME EQUIPMENT

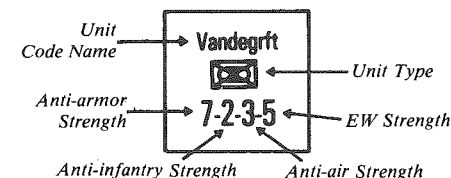
[3.1] THE GAME MAP

The mapsheet portrays the continent of Antarctica and the shelf ice that adjoins it. A hexagonal grid is superimposed on the map to regulate movement. The hexes are numbered for identification. A number of informational displays are also on the mapsheet.

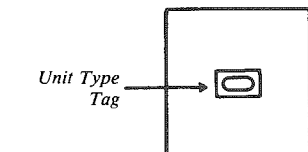
[3.2] THE PLAYING PIECES

The die-cut counters ("units") represent the combat and logistical support units of the three nationalities. Other counters are informational markers used in conjunction with the displays on the map.

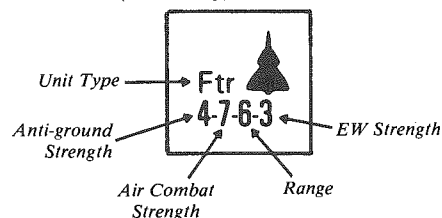
LAND UNIT (Front)



LAND UNIT (Back)



AIR UNIT (Front only)



LAND UNITS: Armor

Front		Back
Patton 7-2-3-5	Mechanized Combat Task Force	
Robby 2-1-1-5	Droid Team	
Skysweep 1-2-1-6	Laser Battery	
Fox 1-1-1-3	Van Convoy	
Cossack 4-3-4-5	Hovertank Team	

LAND UNITS: Infantry

Hercules 3-2-3-4	Engineer Brigade	
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Army GAR B 8-8-8-8	Garrison	
--------------------------	----------	--

Ranger 6-3-4-2	Airmobile Team	
-------------------	----------------	--

Bear 4-7-3-4	Paratroop Battalion	
-----------------	---------------------	--

AIR UNITS

Ftr 3-8-6-4	Fighter	
----------------	---------	--

GS 8-3-6-6	Ground Attack/Spotter	
---------------	-----------------------	--

EW 0-3-4-8	Electronic Warfare	
---------------	--------------------	--

M LT 0-1-5-2	Light Transport	
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A HT 0-2-4-5	Heavy Transport	
--------------------	-----------------	--

I TH 0-2-3-2	Transport Helicopter	
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Front

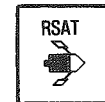


Attack Helicopter

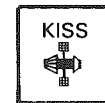
SATELLITE UNITS



STAR
(Satellite Targeted Recon)



MARS
(Maneuverable Recon Satellite)

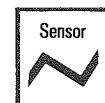


KISS
(Killer Satellite)

INSTALLATIONS

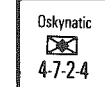


Temporary Base



Sensor

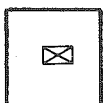
SUBTERRAN UNITS



"Sleeper" Infantry



Ice Drill



Converter



Lifter



Psimaster



MARKERS

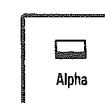
Primary Base
Supply Marker
(SAU)



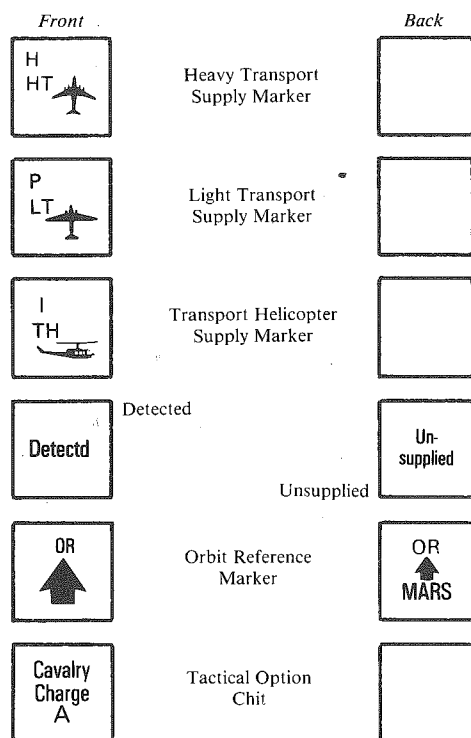
Secondary Base
Supply Marker
(USA)



Temporary Base
Supply Marker
(USSR)



Van Convoy
Supply Marker



[3.3] GAME CHARTS AND TABLES

There are numerous displays, charts, and tables, found on the map or on the separate chart sheet. These include the USA, USSR, and SAU Supply Tracks and Victory Tracks, the Transit Track, Game-Turn Track, Ground Combat Results Table, Tactical Option Matrix, Lock-On Chart, Hit Table, Anti-Aircraft Fire Results Table, Detection Tables, Terrain Effects Chart, Supply Cost Chart, Resource Cost Chart, Movement Allowance Chart, Weather Table, Order of Battle Option Chart, Stasis Revival Table, and Movement Allowance Chart (Subterranean).

[3.4] GLOSSARY OF TERMS

Combat Strength: The relative offensive and defensive ability of a unit, expressed in Strength Points. Land units have separate Combat Strengths for combat with infantry, armor, and air units. Air units have separate anti-ground and air Combat Strengths.

EW Rating: The relative electronic warfare capability of a unit. The EW Rating of a stack of Friendly units in a hex is equal to the highest EW Rating of any of the units.

Movement Allowance: Quantification of a land unit's ability to traverse a certain distance in one Game-Turn, expressed in Movement Points.

Range: The maximum distance in hexes from its airbase an air unit may move in one Phase, then return to an airbase within the same number of hexes.

Supply Capacity: The quantity of supplies (measured in Supply Points) that can be stored at one time in a base, van, or transport.

Detection: The process by which Enemy units are searched for and spotted. Only detected units may be attacked.

Type-Detection: If a unit has been detected, its type is not necessarily known (i.e., infantry, garrison, hover tanks, etc.). Type-detection is the means by which a unit's specific symbology is revealed.

Initiative: The process by which the "first" Player in movement, detection, and combat is determined. The Player with Initiative always goes first.

Base: Each Player possesses permanent "bases" printed on the map at the start of the game. Bases may also be built during the course of the game on the map by utilizing Friendly engineer units. There are three types of bases:

- Primary Base:** A permanent base able to hold 100 Supply Points.
- Secondary Base:** A permanent base able to hold 50 Supply Points.
- Temporary Base:** A base constructed during the course of the game by Friendly engineer units.

Note: Each base on the map has a separate chit which is placed on a Player's Supply Track, indicating how many Supply Points that base possesses at any given moment.

Resource Point: A quantification of a Player's ability to "purchase" various types of units and Supply Points. Normally, each Player chooses the type and number of units he receives, paying varying costs in Resource Points. Resource Points will be lost when units are eliminated. Players keep a constant track of their Resource Points during the course of the game. At the end of the game, the Player with more Resource Points will be declared the winner. Players lose Resource Points

- when one of their units is eliminated
- when they expend Resource Points to "purchase" units
- when they make "Amphibious landings"
- when they conduct "naval blockade"
- through "political influence"

Players gain Resource Points only when they "capture" an Enemy base (100 for a Primary base, 60 for a Secondary coastal base, and 40 for a Secondary inland base). **Note:** Players never lose RP's due to their bases being captured.

Supply Point: A quantification of a Player's capacity to supply his units on the map. A certain number of Supply Points are expended by the owning Player if he wishes to place his units in supply. Supply Points are "purchased" by the expenditure of Resource Points.

Tactical Option Chits: Before the resolution of a land combat, both Players must choose one of these chits. The ensuing combat is resolved around the basis of the Player's Tactical Option chit choice.

Lock-on: During the Air Combat procedure, Players compare Air Combat Strengths. This determines the number of "lock-ons", or times the owning Player may roll the dice during the Air-to-Air Combat Segment.

Transit Track: After units (not Supply Points) are "purchased" by expending Resource Points, they are placed on the Transit Track. After reaching "the end" of this Track, units may be placed in Friendly bases on the map.

[3.5] INVENTORY OF GAME COMPONENTS

A complete game of *War In The Ice* should include the following:

PARTS:

- two Sections of die-cut counters (400 total pieces)
- one Game-Map
- one rules booklet
- two plastic dice
- one game box

If any of these parts are missing or damaged, please write:

Customer Service
SPI
44 East 23rd Street
New York, New York 10010

Questions regarding the rules of the game will be answered if accompanied by a stamped self-addressed envelope and phrased in a yes/no, multiple choice, or other short-answer format. Send rules questions to the above address, marked "Rules Questions: *War In The Ice*."

[3.6] GAME SCALE

Each hex represents approximately 130 kilometers from side to side. Each Game-Turn represents 15 days. Each combat unit represents several hundred men and several dozen vehicles, or a squadron (twelve to twenty) of aircraft.

[4.0] VICTORY

GENERAL RULE:

Each Player keeps track of Resource Points gained and lost throughout the game on his Victory Track. Players lose Resource Points when they expend them and when their units are eliminated. Players receive Resource Points for capturing Enemy bases.

CASES:

[4.1] HOW RESOURCE POINTS ARE AWARDED AND LOST

[4.11] Each Player begins a scenario with a certain number of Resource Points. This number is constantly kept track of on the owning Player's Victory Track.

[4.12] A Player loses Resource Points under the following circumstances:

- When one of his units is eliminated. He loses a number of Resource Points equal to the unit's cost in Resource Points.
- When he "purchases" a unit by expending Resource Points.
- When he makes an amphibious assault. He loses 100 RP's.
- When the Player conducts a naval blockade. He loses 50 RP's.
- Through political influence (see Case 16.6). The RP cost varies.

[4.13] A Player gains Resource Points under the following circumstances:

- When he "captures" (occupies or was the last to pass through) an Enemy Primary base. In this case, he gains 100 Resource Points.
- When he captures an Enemy Secondary coastal base. In this case, he gains 60 Resource Points.
- When he captures an Enemy Secondary inland base. In this case, he gains 40 Resource Points.

A Player does not gain Resource Points due to the capture of an Enemy Temporary base. Note that a Player never loses Resource Points if he has one of his bases captured — his opponent simply gains Resource Points.

[4.2] KEEPING TRACK OF RESOURCE POINTS

[4.21] The number of Resource Points a Player has is recorded on his Victory Track. Players always know how many Resource Points their opponents have.

[4.22] Each track comes with a set of counters marked $\times 1$, $\times 10$, $\times 100$, $\times 1000$, backprinted with a minus (-) sign. These numbered counters are placed on the spaces marked one through nine. The number on the counter is multiplied by the number of the box it occupies to show a number of Resource Points. Thus, if a Player had -842 Resource Points at a given moment, the $\times 1000$ would be in the zero box, the $\times 100$ in the eight box, the $\times 10$ in the four box, and the $\times 1$ in the

two box. All counters show their negative sign. As the Resource Point Totals will be changing constantly throughout each Game-Turn, Players may check each other's math whenever a change is made.

[4.3] LEVELS OF VICTORY

[4.31] A Player wins by gathering the most Resource Points. In Two-Player scenarios the Player with the larger Resource Point Total at the end of the game subtracts his opponent's total from his, yielding his net Resource Point Total. The size of the net total determines the Level of Victory.

[4.32] In Three-Player scenarios, the Player with the largest total subtracts his opponents' totals separately to determine his net RP total over each, and thus the Level of his Victory over each. The second Player determines the extent of his victory over the third-place Player in the same way.

[4.33] The following Levels of Victory are listed in increasing order of success:

Marginal Victory: An inconclusive result — the war has dragged on without a clear battlefield success. While the victor can probably expect increasing success, it is more likely that the politicians will seek a compromise settlement. It is even possible that the losing nation's diplomats will deal well enough to wipe out any advantage gained by their opponents in Antarctica.

Substantive Victory: The victor's government is apt to be more intransigent in negotiations and less anxious to end the fighting. The loser will probably have to make concessions. A tactical defeat assures that the party in power in a democratic nation will be replaced in the next election, while the central committee of a socialist oligarchy is apt to see younger, more aggressive faces taking the fore. However, the loser has not been so seriously defeated that it feels its national honor is at stake. In all likelihood it will undertake a more antagonistic foreign policy to dissuade its opponent from getting overconfident and treating the losing nation as a "paper tiger."

Decisive Victory: Smashing battlefield success. Superpowers have been reluctant to achieve decisive victories since 1946, since the loser is so humiliated its government must take immediate action. A decisive victory could lead to a nuclear holocaust if the superpowers could not move carefully from the brink. Thus, while a marginal or tactical victory might be less satisfying to the military commanders, it is politically more desirable that the enemy not be pushed too far.

[5.0] SEQUENCE OF PLAY

CASES:

[5.1] THE GAME-TURN

War In The Ice is played in sequential turns called Game-Turns. Each Game-Turn is composed of several different Phases. *Phases must be carried out in strict order.*

[5.2] SEQUENCE OUTLINE

1. Unit Purchase/Arrival Phase: Players expend Resource Points for the purchase of units and Supply Points, which are placed on the Transit Track and Supply Track, respectively. Units already on the Transit Track are advanced on the track or placed in coastal hexes.

2. Weather Determination Phase: A die is rolled and the Weather Table consulted. Its effects for the Game-Turn are determined.

3. Supply Phase: Players expend Supply Points (SP's) to support units in bases or stacked with vans carrying Supply Points. Units for which Supply Points are not expended are marked *unsupplied*.

4. Airdrop Phase: Transports (and escorts) move from base hexes containing Friendly vans or unsupplied units, supplying units at triple normal cost. One-third the Supply Points subtracted from a transport may be added to a van. Transport flights are alternated according to Initiative. Interception may occur, before Supply Points transfer. Transports (and escorts) return to base after mission.

5. Air Transport Phase: Transports (and escorts) move between bases, transferring Supply Points to bases or unsupplied units at a 1:1 ratio. Transports may carry paratroops or airmobile units as well as Supply Points. Transport flights are alternated according to Initiative. Interception may occur, before SP/troop transfer. Transports (and escorts) return to base after mission.

6. Air Detection Phase: Electronic warfare (EW) and Ground Attack/Spotter (GS) units (and escorts) move from bases to hexes containing undetected Enemy land units, attempting to detect the units. Interception may occur before the detection die roll. EW and GS units (and escorts) return to base after mission.

7. Satellite Phase: Players may launch recon and killer satellites according to Initiative. Satellite combat may occur before any satellite detection die rolls.

8. Land Movement Phase: Players alternate moving stacks of land units according to Initiative. Units may be moved in any direction up to the limit of their movement allowance. Detection die rolls are made each time an undetected Friendly and detected Enemy stack occupy the same hex. Units may expend Movement Points to place sensors.

9. Air Scramble Phase: Simultaneously, Players place their fight helicopter, GS, EW, and transports (troop-carrying only) on hexes within range occupied by detected Friendly and Enemy land units. There is no interception.

10. Combat Phase: If detected Friendly and Enemy land units occupy the same hex, combat is resolved according to the combat sequence. Each battle (separate hex's combat) is resolved independently in order determined by mutual agreement or (failing that) Initiative.

Combat Sequence:

A. Air-to-Air Segment: Air combat is resolved for the units in the hex. Only units placed in the hex during the scramble phase participate; there is no interception. Units may return to base.

B. Anti-aircraft Segment: Land units execute anti-air fire. Aborted units return to base.

C. Paradrop/Airmobile Insertion Segment: Transports carrying paratroops or airmobile units drop them in the combat hex and return to base.

D. Tactical Decision Segment: Simultaneously, Players secretly choose Tactical Option Chits and reveal them to the Enemy Player.

E. Combat Resolution Segment: Players determine whether their land units use anti-armor or anti-infantry strength, add their air units' anti-ground strength, and resolve land combat.

F. Breakoff Determination Segment: Players determine whether or not they will execute another combat sequence. If so, go back to Segment A and continue this battle. If not, go on to segment G.

G. Basing Segment: Remaining aircraft in the hex return to base.

Return to Segment A and resolve the next battle, or go on to Phase 11.

11. Construction Phase: Engineers may build temporary bases in hexes not containing bases or Enemy land units.

12. Air Ferry Phase: Players simultaneously ferry air units. Transports may carry Supply Points or troops.

13. Game-Turn Advancement Phase: The Game-Turn is advanced one space and a new Game-Turn is begun.

[6.0] LAND MOVEMENT

GENERAL RULE:

A land unit expends a portion of its total movement allowance to enter each hex. The cost to enter depends upon terrain type. The unit's movement allowance varies depending on the unit's type and the Game-Turn's weather. During the Land Movement Phase, the Players may move as many or as few of their supplied land units as desired. *Unused portions of the movement allowance cannot be accumulated from Game-Turn to Game-Turn or transferred between units.* Movement allowances are found on the Movement Allowance Chart.

PROCEDURE:

Move each stack of units together, tracing the path of its movement through a path of contiguous hexes on the hexagonal grid. Once a stack has been moved and the Player's hand withdrawn, the stack may not move again during that Game-Turn. Players alternate moving their stacks according to Initiative (see Section 8.0).

CASES:

[6.1] HOW TO MOVE UNITS

[6.11] Land units are moved only during the Land Movement Phase. All, some, or none of each Player's units may be moved. *A unit does not have to expend its entire movement allowance.*

[6.12] Movement is calculated in terms of *Movement Points*. Basically, each unit expends one Movement Point of its Movement Allowance for each hex it enters. Some hexes cost more; see Terrain Effects Chart (6.3).

[6.13] No combat or air unit movement occurs during the Land Movement Phase.

[6.14] Players alternate moving stacks according to Initiative (see Cases 8.2, 8.4).

[6.2] MOVEMENT INHIBITIONS AND PROHIBITIONS

[6.21] A unit may not enter a hex unless it has sufficient Movement Points to pay the cost for the hex's terrain.

[6.22] A unit *cannot* enter an all-sea hex or cross an all-sea hexside.

[6.23] A detected unit *must stop* upon entering a hex containing a detected (see Section 12.0) Enemy land unit *and may move no further* that Game-Turn.

[6.24] If a detected unit enters a hex containing an undetected Enemy land unit, or an undetected unit enters a hex containing a detected Enemy land unit, *it must stop*. A detection die roll is made (see Case 12.2). If the undetected unit is detected by the roll, the moving unit may move no further that Game-Turn. If the roll is unsuccessful, the moving unit may continue (assuming it has movement points remaining).

[6.25] If an undetected unit enters a hex containing an undetected Enemy unit, there is no detection die roll and the moving unit may continue moving.

[6.26] Whenever an undetected unit enters a hex containing an Enemy sensor there is a detection die roll, but there is no effect on the unit's movement during that Game-Turn.

[6.27] There is no extra Movement Point cost to enter or leave an Enemy-occupied hex. A unit beginning its movement in an Enemy-occupied hex may freely leave if one or both Players' units are undetected, but *cannot* move at all if both Players' units are detected.

[6.28] Unsupplied units *cannot* move (see Section 11.0).

[6.29] Units do not have "zones of control" over adjacent hexes or the hex they occupy.

[6.3] TERRAIN EFFECTS CHART (see map)

[6.4] MOVEMENT ALLOWANCE CHART (see map)

[7.0] AIR MOVEMENT

GENERAL RULE:

During the Airdrop, Air Transport, Air Detection, and Air Scramble Phases, Players may move as many or as few of their supplied air units as they wish (though certain units may move only in certain of the Phases). Air units may operate freely anywhere within the restriction of their range. *Unused portions of the range allowance cannot be accumulated from Game-Turn to Game-Turn or Phase to Phase, or transferred between units.*

PROCEDURE:

Move each stack of air units together, placing the stack directly on any desired hex within range from its base. *Do not trace a path of hexes.* Once a stack has been moved and the Player's hand withdrawn, the stack may not move again during that Game-Turn (except to return to base). Players alternate moving their stacks according to Initiative. (See Section 8.0).

CASES:

[7.1] WHEN TO MOVE AIR UNITS

[7.11] Transports (including transport helicopters) and fighters flying escort (see Case 7.3) or interception (see Case 7.4) are the only units that may move in the Airdrop and Air Transport Phases.

[7.12] GS and EW units, and fighters flying escort or interception, are the only units that may move in the Air Detection Phase.

[7.13] GS, EW, fighter, attack helicopters, and transports (only if carrying airmobile or paratroops) are the only units which may move in the Air Scramble Phase.

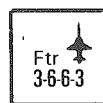
[7.14] A unit may move once in each Phase, assuming it is eligible.

[7.2] HOW TO MOVE UNITS

[7.21] No land movement or combat takes place during any of the Air Movement Phases. Interception combat (see Case 7.4) may occur.

[7.22] Players alternate moving individual units and stacks according to Initiative (see Cases 8.2 and 8.4) in the Airdrop, Air Transport, and Air Detection Phases. In the Air Scramble Phase, all air units move simultaneously — Players plan all air unit moves before any are executed, ignoring Initiative. (Players may wish to write down their

moves secretly to assure they are not influenced by other Players' moves, revealing and executing the moves simultaneously.)



[7.3] ESCORT

[7.31] Fighters may move in the Airdrop, Air Transport, and Air Detection Phases if they begin the Phase stacked with and continue to move with a Friendly air unit that is eligible to move (see Case 7.1). The distance moved by the stack is limited by the shortest ranged unit (usually the fighter).

[7.32] Any number of fighters may escort a Friendly transport, EW, or GS unit. The purpose of escort is defense against interception (see Case 7.4).

[7.4] INTERCEPTION

[7.41] Fighters may move after an Enemy air unit or stack moves in the Airdrop, Air Transport, and Air Detection Phases, moving only to the hex the Enemy unit/stack occupies. (If the Enemy unit moved legally, this hex must also include an Enemy land unit or base to be supplied, or a fighter to be detected.) This hex must be within the Friendly fighter's range. Only fighters may intercept. If the interception occurs in a base hex containing units besides the moving air units, escort, and intercepting fighters, these other units do not participate.

[7.42] Any number of Friendly fighters may intercept a given hex in a Phase. A given fighter may intercept only once per Phase. There is no interception in the Air Scramble Phase.

[7.43] When the owning Player has placed all of his desired fighter units in the Enemy-occupied interception hex, air combat is immediately resolved (see Case 9.1). Intercepting fighters not eliminated in combat return to base. Enemy units not eliminated perform their supply or detection mission, then return to base. Then a Friendly unit/stack moves and Enemy fighters have the option to intercept, and so on.

[7.44] Intercepting fighters may move to a single stack's hex from different bases, *in exception* to the rule that units must begin in the same hex to move together. (They also may return to separate bases.) The Friendly Player must exercise his option to intercept immediately after the Enemy Player moves a stack; i.e., before the Friendly Player moves a stack of his own. *Interception is never required.* It is the Player's option.

[7.45] Interception combat is resolved before the intercepted unit performs its supply or detection mission. A unit may not be intercepted when returning to base. A unit that does not move *cannot* be intercepted. A fighter on an interception mission may not be intercepted in turn.

[7.5] BASING

[7.51] After an air unit or stack moves and carries out its mission (airdrop, air transport, air detection) it must return to the base it began the Phase in. This occurs after interception, before any other units move.

[7.52] Escorts and intercepting fighters return to base immediately after the interception combat is resolved. If there is no interception, an escort returns to base at the same time the unit it escorts performs its mission.

[7.53] Units moved in the Air Scramble Phase return to base throughout the Combat Phase:

1. A Player may voluntarily return some, all, or none of his units to base after the Air-to-Air Segment.

2. Units aborted in the Anti-aircraft Segment return to base.

3. Transports may return to base after dropping airmobile or paratroops in the Paratroop/Airmobile Insertion Segment.

4. Any remaining units return to base in the Basing Segment.

[7.54] A unit which performs a mission, escorts, intercepts, or flies during the Scramble Phase on its own Friendly base hex could "return to base" by staying in the hex. Units in a stack must return to the same base (see Case 7.44).

[7.55] Any number of air units may use one base. If a unit's base is captured while it is in the air (after scrambling), it may Ferry (see Case 7.6) to any Friendly base within range. *If there are no Friendly bases within range of the hex in which it performed its mission, it is eliminated.*

[7.56] Friendly units may return to a base hex occupied by Enemy land or air units *only if it is Friendly-controlled* (occupied by Friendly land units that were there before the Enemy).

[7.6] AIR FERRY

[7.61] *Ferry* is a special kind of air movement. Any air unit (supplied or not) may move between any two Friendly bases in the Air Ferry Phase, disregarding range limits. There is no interception. Ferrying units perform no mission. A unit may Ferry even if it has moved and fought earlier in the Game-Turn.

[7.62] Ferries are performed simultaneously by all Players, ignoring Initiative. **Note:** Players may wish to write down their moves to assure that they are not influenced in their planning by other Players' moves.

[7.63] A unit that Ferries may not move or attack next in the Game-Turn, except to Ferry again. The owning Player should note this fact or rotate the unit 180° as a reminder.

[7.64] A Ferrying transport may carry supply points, paratroops, or airmobile troops with it normally, *even if unsupplied.*

[7.65] If an Enemy land unit enters a Friendly base hex containing Friendly air units but no Friendly land units, the base is captured and the air units move immediately to another Friendly base of the owning Player's choice. They cannot be intercepted while moving. They are considered to have Ferried and *cannot* move or attack the rest of the Game-Turn and the next Game-Turn. (If Friendly land units had been present in the hex, the air units could have continued to operate from the base.)

[8.0] INITIATIVE AND STACKING

GENERAL RULE:

Players alternate moving stacks of units in the Land Movement, Airdrop, Air Transport, and Air Detection Phases. The order in which Players alternate (i.e., who goes first in a Phase) is determined by Initiative procedure. The order of combat resolution (i.e., which battle is resolved first) is also determined in this manner.

CASES:

[8.1] INITIATIVE IN AIR MOVEMENT

[8.11] At the start of the Airdrop, Air Transport, and Air Detection Phases, each Player rolls two dice. The Player with the highest total moves one unit or stack of units. The Player with the second highest total then moves one unit or stack, and so

on. **Note:** Interception occurs between Friendly and Enemy moves, and does not count as a move for Initiative purposes; i.e., a Friendly unit moves, an Enemy unit may Intercept, an Enemy unit moves.

[8.12] If Players roll the same number, they roll again.

[8.13] Players decide which of their units or stacks they will move in what order. If one Player has more units or stacks to move than the other, his "excess" is moved after the rest are alternated. **Example:** If one Player has four stacks to move and another seven stacks, the Players alternate moving four units, and the second Player then moves three.

[8.14] A Player *cannot* "pass" a move. If he does not move when his turn comes, he cannot move further in the phase.

[8.2] INITIATIVE IN LAND MOVEMENT

[8.21] Each Player rolls two dice at the start of the Land Movement Phase. The same procedure as in Case 8.11 is followed, with the Players alternating the movement of units or stacks. **Exception:** In poor weather Game-Turns, the Soviet Player always moves first in the Land Movement Phase; the USA and SAU Players roll to see who moves second.

[8.22] A Player may not pass a move. A laser melt attempt (see Case 14.4) counts as a move for Initiative purposes.

[8.3] INITIATIVE IN COMBAT

[8.31] Initiative does not affect Interception. If two Players wish to Intercept the third Player's air unit, both place their Intercepting air units before combat is resolved. (I.e., they attack together.)

[8.32] The order in which separate battles (combat in separate hexes) are resolved is *determined by mutual agreement*. If a dispute arises, each Player rolls two dice and Players alternate in choosing which battle will be resolved next.

[8.4] STACKING

[8.41] Any number of Friendly and Enemy units may occupy a hex at the same time, as well as one base and three sensors (one of each nationality).

[8.42] For air movement, a stack is defined as a group of air units beginning the Phase in one hex, moving together to the same hex, and returning to the same base. For land movement, a stack is defined as a group of land units beginning the Phase in one hex, moving through the same hexes, and ending the Phase in the same hex. One unit may constitute a stack.

[8.43] A stack of air units may move only as far as the lowest range of any unit in the stack. Air units moving to separate hexes must move as separate stacks.

[8.44] A stack of land units may "drop off" units in its path and continue moving, but the units dropped off may not move further in the Phase. If units with different movement allowances were stacked and the Player wanted to move the faster unit its full movement allowance, the slower would have to be dropped off. Since air units do not move through hexes, *air unit stacks cannot drop off units*.

[8.45] Units may begin a Phase in the same hex and move to separate hexes. These units are considered to be separate stacks, and one stack of each foreign nationality will move between their moves.

[9.0] COMBAT

GENERAL RULE:

Air units attack air units through Interception in the Airdrop, Air Transport, and Air Detection Phases, as well as in the Air-to-Air Combat Phase. Land units attack air units in the Anti-aircraft Segment of the Combat Phase. Land and air units attack land units in the Combat Resolution Segment of the Combat Phase. Units may only attack Enemy units in the same hex. Terrain does not affect combat.

CASES:

[9.1] AIR COMBAT

[9.11] **Lock-On Procedure:** Each Player adds the air combat strengths of his units in the hex. The smaller sum is subtracted from the larger, yielding the *combat differential*. The Player with the larger sum is the attacker. (If the sums are identical, either Player can be the attacker, it makes no difference.) Consult the Lock-On Chart (9.5) to find the number of "Lock-Ons" (rolls on the Hit Table — see Case 9.12) the Player receives.

[9.12] **Hit Procedure:** Each Player subtracts the others' "gross" EW rating from his own to yield his own "net" EW rating. A Player's "gross" EW ratings is that of the highest rated EW unit of his in the hex; lower ratings are ignored. Each Player rolls two dice and consults the Hit Table (9.6) once for each Lock-On (see Case 9.11) he received, rolling on the column for his net EW rating.

[9.13] Due to a result on the Hit Table, a Player's unit may receive a "Hit." Each Hit eliminates one air unit; the owning Player decides which to lose. All combat dice rolls are made before any losses for any combats are taken; all Hit losses are decided upon simultaneously. **Example:** Two Soviet fighters (air combat strengths 7, EW ratings 3) Intercept a heavy US transport (air combat 2, EW 5) escorted by a US fighter (air combat 8, EW 4). The Soviet Player is the attacker, with a combat differential of 4 ($(7 \times 2) - (2 + 8) = 4$). The Soviet Player makes four rolls while consulting the Hit Table; the US Player makes two rolls. The US Player rolls on the 2 column of the table (EW 5 - 3 = 2). The Soviet Player rolls on the -2 column of the Hit Table (EW 3 - 5 = -2). The Soviet Player rolls 7, 4, 11, 8. The US Player rolls 3 and 10. Both sides lose one unit. The surviving Soviet fighter returns to base. The US Player chooses to lose his fighter; his transport executes its supply mission and returns to base.

[9.14] A given unit can participate in combat once per Phase. Air combat between two opposing units in the same hex is mandatory. **Exceptions:** Unsupplied air units never participate in air combat. If Friendly and Enemy air units occupy a Friendly base hex, the Friendly Player may leave all, some, or none of his air units out of the combat.

[9.2] ANTI-AIRCRAFT COMBAT

[9.21] Lasers (see Case 14.4) may attack any type of air unit. Other land units may only attack helicopter, GS, and fighter units. Each land unit may attack once per Anti-aircraft Phase.

[9.22] Players obtain their "net" EW ratings (see Case 9.12). One die roll is made for each land unit on the Anti-aircraft Fire Results Table (9.7). The column used depends upon the anti-air strength of the unit in question. The firing Player's net EW rating is subtracted from the die roll result, rendering a result of "Hit" (elimination) "Abort", or "Miss" (no effect).

[9.23] All Players' land units attack before air unit losses are taken. (The order of attacks is determined by mutual agreement or, failing that, Initiative). Players decide which of their air units will

be eliminated or aborted in the event of an adverse result, although they must be helicopter, GS, or fighter units. **Exception:** see Case 9.24.

[9.24] Lasers fire at Enemy air units of their choice. Before a laser fires, the firing Player chooses which unit will be eliminated if a Hit is scored. Lasers *do not* have an anti-air strength, *do not* subtract a net EW rating from the die roll, and *never* score Aborts (only eliminations).

[9.25] Lasers have an increased probability of scoring a Hit if occupying a Friendly base (see Case 9.7).

[9.26] A Hit result eliminates one air unit. An Abort result forces one unit to return to base immediately.

[9.27] Units are not required to fire. Anti-aircraft fire may only be made by detected land units. **Example:** Two Soviet GS (EW rating 7), one Soviet fighter (EW 3), one US EW (EW 8) and one US attack helicopter (EW 2) are left in a US base hex after the Air-to-Air Segment. A US laser (EW 6), US mechanized force, (EW 5, anti-air strength 3), and a Soviet paratroop (EW 4, anti-air 3) also occupy the hex. The US Player's net EW rating is 1 ($8 - 7 = 1$). The Soviet's is -1. The US Player's mech unit fires while consulting the "3" column, subtracting one from the die roll (a "5") producing a "4"-Abort. The US Player declares that the laser is firing at the fighter, rolls a "6", and misses. (If he had chosen to fire at the GS, he would have Hit). The Soviet paratroop rolls on the 3 column, subtracting -1 (in other words, adding 1) from the roll, which is a "2" (changed to a "3")-Abort. The Players now simultaneously choose which units to Abort. The Soviet chooses to Abort the fighter, since he will need the GS units more in the Combat Resolution Segment. Since EW units are immune to non-laser anti-aircraft fire, the US Player must Abort the attack helicopter.

[9.28] A unit aborted in a Friendly hex may return to base by staying in the hex, but may not participate in the upcoming Combat Resolution Phase. It may participate in the next combat round, if there is one.

[9.3] LAND COMBAT

[9.31] The Player with the larger combat strength subtracts the Enemy's combat strength from his, yielding the combat differential. A die roll is rolled and a result achieved on the Land Combat Results Table (9.7). The die roll is modified according to the Tactical Option Matrix Result (see Case 9.33). This modified die roll is cross-indexed with the combat differential, yielding the number of attacker and defender units eliminated.

[9.32] Total combat strength is determined in the following manner: if more than half the Enemy land units in a hex (regardless of strength) are armor, Friendly units use their anti-armor (AA) strengths. If more than half are infantry, Friendly units use their anti-infantry (AI) strengths. If half are of each type the Friendly Player chooses AA or AI strength. *All his units in the same hex must use the same type of strength.* The anti-ground strengths of Friendly air units in the hex are added, yielding the total combat strength. The Enemy Player makes the same calculations.

[9.33] After informing each other of their total combat strengths, Players secretly pick Tactical Option Chits. The Player with the higher total combat strength (attacker) chooses from chits A, B, C, and D. The defender chooses from W, X, Y, and Z. If both Players have the same combat strength each rolls a die and the higher number is the attacker.

[9.34] The attacker may choose option:

- A) **CAVALRY CHARGE:** Only if half or more of his land units are armor.
- B) **METHODICAL ASSAULT:** May be chosen regardless of force mix. A laser alone in a hex must choose B.
- C) **AIR-INTENSIVE:** Only if at least one fighter, attack helicopter, or GS is participating in the attack.
- D) **COMBINED ARMS:** Only if at least one armor unit, one infantry unit, and either a laser, garrison, fighter, attack helicopter, or GS are participating in the attack. **Note:** A laser fulfills the armor requirement as well, and a garrison fulfills the infantry requirement.

[9.35] The defender may choose option:

- Y) **MOBILE DEFENSE:** Only if half or more of his land units are armor.
- W) **RETREAT LEAVING SCREEN:** May be chosen regardless of force mix.
- X) **HEDGEHOG PERIMETER:** May be chosen regardless of force mix.
- Z) **SURRENDER:** May be chosen regardless of force mix (see Case 9.38).

[9.36] If both Friendly and Enemy units in a hex are detected, all land units must participate in land combat. If only one or neither stack is detected, no land combat is possible.

[9.37] Players choose which of their units will be eliminated. The attacker chooses his losses first. Air units are never eliminated in the Combat Resolution Segment. A Player cannot lose more units than he has in the hex.

[9.38] When the defender chooses the surrender option, all his land units within the hex are eliminated with no loss to the attacker. Defending air units never surrender; they return to base in the Basing Segment (see Case 10.12).

Example: At the start of the Combat Resolution Segment, the following detected units occupy a hex; two US mech (anti-armor 7, anti-infantry 2), one US van (AA 1, AI 1), one US GS (anti-ground 8), one Soviet droid (AA 1, AI 1), one Soviet engineer (AA 2, AI 4), one Soviet fighter (AG 6). The Soviet Player must use AA strength since the US force is more than one-half armor. The US Player chooses to use AA strength since the Soviet force is evenly divided and the US AA strengths are higher than the AI. Adding in AG strengths, the US is the attacker with combat differential of 14 $[(7+7+1+8)-(1+2+6)]=14$. The US chooses a *cavalry charge*. The Soviet chooses a *hedgehog* defense. Cross-indexing A with X yields a -3 die roll modifier. The US Player rolls on the 8+ column, receives a 5, modified to a 2. The attacker chooses to lose the van and one mech unit. The Soviet Player chooses to lose the droid. The air units return to base.

[9.4] BREAKOFF

[9.41] After the Combat Resolution Segment, Players state whether or not they wish to continue the battle in progress. If both want to continue, the units in the hex participate in another combat sequence — repeat segments A through F. If neither wants to continue combat, air units return to base and the battle is completed. If necessary, resolve the next battle (combat in another hex). If there are no more, go onto the next Phase. **Note:** One combat sequence is mandatory between detected units.

[9.42] If only one Player wants to continue combat, a die roll is made. Consult the Breakoff Table (9.9). If breakoff is successful, air units return to base and the battle is completed. If breakoff is unsuccessful, return to Segment A and resolve another combat round.

[9.43] Unless a battle is completed by Player agreement or successful breakoff roll, the battle continues until all of one Player's land units in the hex are eliminated.

[9.5] LOCK-ON CHART
(see separate sheet)

[9.6] HIT TABLE
(see separate sheet)

[9.7] ANTI-AIRCRAFT FIRE RESULTS TABLE (see separate sheet)

[9.8] LAND COMBAT RESULTS TABLE
(see separate sheet)

[9.9] BREAKOFF TABLE
(see separate sheet)

[10.0] RESOURCES AND UNIT PURCHASING

GENERAL RULE:

Each Player chooses the type and number of units he receives, paying a different cost in Resource Points for each unit. Players pay a cost in Resource Points when their units are eliminated. Players are limited in the number of units of each type they can buy by the number of that unit-type provided in the counter mix.

PROCEDURE:

In the Unit Purchase/Arrival Phase of each Game-Turn, Players secretly and simultaneously remove units from the pool of unused units and place them on the Transit Track. The purchase cost of each unit (given in the Resource Cost Chart 10.3) is subtracted from the purchasing Player's Victory Track. Units already on the first space of the Transit Track are advanced to the second space, while units already in the second space are placed in coastal bases of the owning Player. Supply points are placed in coastal bases the same Game-Turn they are purchased, their presence noted by the advance of the base's marker on the Supply Track.

CASES:

[10.1] PAYING FOR UNITS

[10.11] Any number of units may be purchased in a single Game-Turn within the limits listed in the scenario. Players may have a negative Resource Point total (i.e., may engage in deficit spending).

[10.12] When a unit is eliminated, a number of Resource Points equal to its purchase cost is subtracted from the owning Player's Victory Track. **Exception:** Droids cost less than purchase cost when eliminated. There is no cost for expending Supply Points or eliminated satellites.

[10.13] When a land unit is eliminated by surrendering (see Case 9.35) the cost for its elimination is only 20% of its purchase cost, rounding fractions up. Droids may surrender (and must if stacked with other surrendering units) but at their regular elimination cost. **Example:** A surrendering Soviet engineer (purchase cost 13) costs 3 Resource Points $(20\% \times 13 = 2.6, \text{ rounded up to } 3)$.

[10.2] UNIT ARRIVAL

[10.21] A unit is placed on the Transit Track in the Phase it is purchased. USA and USSR units are placed on the first space, SAU units in the second space. Supply Points are placed immediately in coastal bases, without spending time on the Transit Track.

[10.22] During the Unit/Purchase Arrival Phase, Players must adjust the status of their units on the Transit Track (if any). Any units which were not

placed on the Track in the current Game-Turn (due to unit purchase) are advanced one box towards "arrival" (i.e., if a unit occupied the "First Game-Turn" box, it would be advanced to the "Second Game-Turn" box). If a unit is moved out of the "Second Game-Turn" box on the Transit Track, it is eligible to be placed on the map.

[10.23] Units may move and function normally the first Game-Turn they arrive on the map from the Transit Track.

[10.24] If a Player has no Friendly coastal bases (i.e., they have been captured), his air units may arrive in any inland base. His land units may not arrive in inland bases (except airmobile and paratroops carried by transport); instead, they are placed in any single coastal hex at least five hexes from the nearest Enemy unit. The Player making this "amphibious landing" pays an extra cost of 100 Resource Points. Amphibious landings may not be made by Players in possession of coastal bases. Any partial-sea hex is coastal.

[10.25] Vans and transports may arrive loaded with supply points (SP's) or troops, but only if the SP's and troops are paid for. In an amphibious landing, supply points may be placed on a non-base hex only if carried by a van.

[10.3] RESOURCE COST CHART (see map)

[11.0] SUPPLY

GENERAL RULE:

Players purchase Supply Points (see Case 10.1) which are stored in bases and transported by vans and transports. In the Supply Phase of each Game-Turn, Players expend Supply Points to supply Friendly units in the same hex as the Supply Points being expended. Unsupplied units are sharply limited in movement and combat capabilities.

PROCEDURE:

The Supply Cost Chart (11.6) lists the number of Supply Points which must be expended to keep each type of unit supplied. The Supply Track is used to show the number of Supply Points currently held by each base, van and transport. In the Supply Phase, each Player subtracts a number of Supply Points from a base, van or transport equal to the supply cost of the units in the hex being supplied. Supply Points are expended by moving the appropriate Supply Track marker towards the "0" box on the Supply Track.

CASES:

[11.1] EFFECTS OF BEING UNSUPPLIED

[11.11] Units which are not supplied in the Supply Phase (because there are no Friendly Supply Points in the hex, or because the owning Player does not wish to expend the points) are marked with *unsupplied* counters. Units cannot be "partially" supplied by expending a portion of their supply cost.

[11.12] Unsupplied land units may not move. They add 4 to their die roll result when executing anti-aircraft fire. Their anti-armor and anti-infantry strengths are reduced by 3, to a minimum of zero. A unit cannot have a negative combat strength. They may make detection attempts within their hex (see Case 12.2). Unsupplied lasers may not attack.

[11.13] Unsupplied air units may not move except to Ferry. They have no air combat or anti-ground strengths and may not perform missions.

[11.14] The EW rating of an unsupplied unit is unaffected.

[11.2] AIRDROP

[11.21] Units can be supplied in the Airdrop Phase. A transport carrying Supply Points moves to a hex containing the unsupplied units and expends up to as many Supply Points as it is carrying. Triple the normal number of Supply Points is used to supply the unsupplied units. **Example:** A transport carrying ten Supply Points moves to a hex containing an unsupplied garrison (supply cost = 3). Nine Supply Points are expended to supply the unit. One Supply Point remains unexpended when the transport returns to base.

[11.22] Airdrop may also be used to transfer Supply Points to a van. The procedure is identical to Case 11.21, with $\frac{1}{2}$ the number of Supply Points expended by the transport being added to the van on the Supply Track. The remaining $\frac{3}{2}$ (rounding up) are expended in transfer.

[11.3] AIR TRANSPORT

[11.31] A procedure similar to airdrop can be used to transfer Supply Points to bases or unsupplied units in bases. A transport moves to the base, transfers any Supply Points it is carrying to the base or expends them to supply units. All the Supply Points transferred may be used; i.e., none are expended in transfer. Unsupplied markers are removed from any units thus supplied.

[11.32] A transport may also transfer paratroops or airmobile troops by air transport. Each unit costs 6 Supply Points against capacity. The units are moved between bases just like Supply Points. Unsupplied units may be air transported.

[11.4] SUPPLY CAPACITY

[11.41] The number of Supply Points that may be carried by a unit or stored in a base is limited. A unit or base may never hold more Supply Points than capacity. A unit other than a van or transport may never hold Supply Points. The supply capacity of units and bases is marked on the Supply Track.

[11.5] SUPPLY CAPTURE, DEMOLITION, AND TRANSFER

[11.51] If, at the end of a Combat Phase, a Friendly land unit occupies an Enemy base and no Enemy land units are in the hex, the base and any Supply Points in it are captured. The base is considered Friendly to the Player who has captured it.

[11.52] If Supply Points are captured, one-half (rounding up) are immediately expended (destroyed). The remaining Supply Points may be transferred to any vans owned by the capturing Player in the hex, assuming they are not already loaded to capacity. Supply Points may be left in the base, and are now treated as belonging to the Player capturing the base. Bases and Supply Points may be captured any number of times, but half the Supply Points are eliminated each time. When a Player captures a base, he is given its Supply Track markers.

[11.53] A Player may voluntarily expend (destroy) any Supply Points in his vans, transports, or bases at any time in the sequence of play simply by announcing it and subtracting them on the Supply Track. However, to destroy Supply Points in a base, the Player must have at least one land unit (supplied or unsupplied) in the hex. A Player expecting to lose a battle in a Friendly base hex can destroy his Supply Points before the combat resolution die roll, but cannot destroy them after the roll if all his land units were eliminated. A Player may transfer Supply Points between his units and bases in the same hex at any time during the Supply and Land Movement Phases, without penalty.

[11.54] When a van or transport is eliminated, any Supply Points or troops it carries are destroyed.

[11.6] SUPPLY COST CHART

(see map)

[12.0] DETECTION

COMMENTARY:

Each hex contains over 22,000 square kilometers of wilderness terrain. The extraordinary weather conditions and endless snow and ice make it simple to conceal white-painted vehicles from visual observation. Each unit contains electronic warfare teams who jam Enemy detection gear and mask Friendly equipment and emanations. The approximate location of units is always known, due in part to intelligence and infrared observation of engine heat, but *units cannot be attacked until their exact location is detected.*

GENERAL RULE:

Air units are always detected. Undetected land units may not be attacked. If Friendly and Enemy land units in a hex are both detected, they may not move (see Case 6.2). The exact type of undetected land unit is concealed. Players attempt to detect undetected Enemy units throughout the Game-Turn. If one Friendly land unit in a hex is detected, all Friendly units in the hex are.

CASES:

[12.1] AIR DETECTION

[12.11] In the Air Detection Phase, Players alternate moving EW and GS units (with or without escorts) to hexes occupied by Enemy undetected units. If any EW or GS units remain in the hex after Interception is resolved, each EW or GS unit resolves its detection attempt individually on the Air Detection Table (12.7). The column used is determined by the EW rating of the EW or GS unit. **(Important: For other functions, the EW rating of a Friendly stack is equal to the highest EW rating in the hex, air unit or land unit. For detection, air units use their own rating, even if a higher-rated Friendly unit is in the hex.)** The roll is made and modified for terrain. If any of the detection attempts are successful, all Enemy units in the hex are marked with detected markers.

[12.12] Recon satellites also use the Air Detection Table in attempting to detect Enemy units (see Case 13.1).

[12.2] DETECTION DURING LAND MOVEMENT

[12.21] Whenever a Friendly undetected and Enemy detected land unit occupy the same hex during the Land Movement Phase (see Case 6.24), a detection attempt is made on the Detection During Land Movement Table (12.7). The roll is modified according to weather. If successful, all Friendly units are marked with detected markers.

[12.22] If undetected Friendly and undetected Enemy units occupy the same hex, there is no detection attempt.

[12.3] SENSOR DETECTION

[12.31] Any mech, droid or hovertank unit may expend two Movement Points during the Movement Phase to place a sensor marker in the hex it occupies. This placement can be before, during, after or instead of movement. If done instead of movement, it counts as a movement for Initiative purposes (see Case 8.2). A unit may place as many sensors as it expends Movement Points for (although see Case 12.33). A hex may contain only one sensor of each nationality.

[12.32] Whenever an undetected Enemy unit begins the Land Movement Phase in a hex containing a Friendly sensor, or subsequently enters such a hex, a detection attempt is made on the Sensor Detection Table, modifying the dice roll for weather (see Section 15.0). If successful, all Enemy units in the hex are marked with detected markers.

[12.33] Sensors have no effect on movement or combat, do not require supplies to operate, and cannot be eliminated. Unlike Supply Points, sensors are not carried by units before deployment. Each Player may deploy a *maximum of eight* sensors during the course of the game.

[12.34] If an undetected Enemy unit enters a hex containing a Friendly detected unit and Friendly sensor, the two detection die rolls are made separately.

[12.4] UNIT TYPE CONCEALMENT

[12.41] Land units (except garrisons) are back-printed with an armor (or infantry) symbol, which is face-up when the units are undetected. Players know the number, but not the exact type, of undetected units.

[12.42] When a unit is detected, a second die roll is made. If a stack is detected, each unit is rolled for individually, while consulting the Unit Type Detection Table. (Note that *type-detected* and *type-undetected* units may exist in one hex, unlike regular detection.) If the roll is successful, the unit is inverted to reveal its type.

[12.43] If Friendly and Enemy detected units occupy the same hex at the start of the Tactical Decision Segment of the Combat Phase, their types are automatically revealed so combat strengths can be calculated.

[12.44] The Friendly Player may attempt to type-detect a previously detected Enemy unit through air, sensor or land movement detection. A type detection roll is made normally. Automatic detection by virtue of being in a base is not accompanied by a type-detection roll.

[12.5] EVADING DETECTION

Once detected, a unit stays detected until:

1. Poor weather is rolled in the Weather Determination Phase (see Section 15.0). All detection markers are removed and all units are inverted to conceal unit type.
2. The unit leaves a Friendly base hex which does not contain any Enemy units (of course, a unit must enter a Friendly base hex before it can leave it). Units in Friendly or Enemy base hexes are always detected.

[12.6] VOLUNTARY DETECTION

[12.61] A Player may voluntarily place a detection marker on any of his units at any time. Remember that if one Friendly land unit in a hex is detected, all are. The presence of Friendly air units in a hex does not affect the detection status of land units.

[12.7] DETECTION TABLES

(see separate sheet)

[13.0] SATELLITES

GENERAL RULE:

There are *two types* of satellites. *Recon satellites* move in rigid paths (orbits) over the map and attempt to detect units they overfly. *Killer satellites* attempt to eliminate recon satellites. All satellite action occurs in the same Satellite Phase.

PROCEDURE:

Each Satellite Phase, Players may alternate launching recon satellites. *A recon satellite makes three*

Detected

passes over the map in the Satellite Phase. At the completion of each pass, the Enemy Player may launch a killer satellite which attempts to Intercept the recon satellite, resolving the attack with a die roll. After the recon satellite is eliminated or completes its third pass, the Enemy Player may launch a recon satellite (which the Friendly Player may try to Intercept in turn with his killer satellite, as described above).

CASES:

[13.1] RECON SATELLITE LAUNCH

[13.11] The US Player always has Initiative for satellite launch. Both Players may launch one recon satellite each Satellite Phase. The SAU Player may not launch satellites.

[13.12] When a Player launches a recon satellite, he places an *orbit reference* (OR) marker on any hex of the map. The recon satellite enters the map on any map-edge, moves in a straight line through the hex containing the orbit reference number and exits the map, still following a straight hexrow. On its second pass, it enters and passes through the orbit reference marker moving 120° (left or right, Player's choice) to its previous pass. The third pass is made at 240° to the first pass.

[13.13] There are two types of recon satellites, code-named *Star* and *Mars*. Star satellites (satellite, targeted recon) repeat the same pass pattern for as many Game-Turns as they remain active. They make three passes each Game-Turn, as described in Case 13.12. Mars satellites (Maneuverable, recon satellite) are less limited in their movement. If at the start of each Satellite Phase the unit is still active, the owning Player may move the Mars' orbit reference marker up to

five hexes from its current position. The Mars unit must reenter the map in the same direction it would have if the OR marker was in its original position. **Example:** If the OR marker is in hex 1815, the Mars might enter the map in 3208, 1802, 0107 for its three passes, exiting through 0522, 1832, 3524. If the OR marker is moved to 2318, the Mars enters in 3711, 2302, 0107 and exits in 1024, 2333, 3524.

[13.14] If not eliminated by a killer satellite or laser, a recon satellite stays active, making three passes per Game-Turn during the Satellite Phase until it malfunctions. This is determined by rolling two dice at the beginning of each Satellite Phase for each recon satellite already in orbit. On a roll of 2-4 for a US or 2-6 for a Soviet satellite, the satellite malfunctions and is eliminated.

[13.15] At any time, each Player may have *only one* Mars unit and one Star unit in orbit. A Player may voluntarily eliminate his own satellite in order to launch another with a different orbit reference. Players pay Resource Points to launch satellites, but not when they are eliminated. Satellites do not require Supply Points.

[13.16] Each time a Mars or Star moves through a hex with undetected Enemy units, it makes a detection attempt as if it were an air unit with an EW rating of 9. If successful, a die roll is made to reveal the unit's type (see Case 12.42). A satellite may attempt to detect any number of units.

[13.17] When a recon satellite is launched, it and its OR marker are placed with the *RSAT* side showing. When the satellite is attacked by a killer satellite, the OR marker and the recon satellite are inverted to reveal type — Mars or Star. The Enemy

Player will not know its type until he attacks. **Note:** If the Enemy Player is observing your Victory Track carefully, he will see the cost of your satellite. To maintain secrecy, the resource cost for satellites may be paid after the unit is attacked. If the unit is eliminated through malfunction, its type is revealed and its cost then paid.

[13.2] KILLER SATELLITES

[13.21] Killer satellites (*KISS*) are launched to intercept and eliminate Enemy Mars and Star satellites. After each Enemy recon satellite is launched and completes its first pass, the Friendly Player may launch one or two *KISS* units. *KISS* do not follow an orbit; they are simply placed on the map, on the orbit reference number of the satellite they are attacking. *KISS* units do not malfunction.

[13.22] Each *KISS* attacks its target separately. The owning Player rolls two dice. A US *KISS* unit eliminates a Soviet Star automatically, a Mars on a roll of 2-10. A Soviet *KISS* eliminates a US Star on a roll of 2-11, a Mars on a roll of 2-9. **Important:** Recon satellites are always placed on the map with their *RSAT* side showing. Their identity (Mars or Star) is only revealed when the *RSAT* is attacked, or when (in the case of a Mars) it moves its orbit reference marker. Whether or not an attack eliminates an *RSAT*, the *KISS* is eliminated.

[13.23] If an *RSAT* is attacked unsuccessfully by one or two *KISS* units, it cannot be attacked again until after its first pass in the next Satellite Phase. (Placing the *KISS* on the orbit reference marker is only a convenience.) When an *RSAT* is eliminated, its orbit reference marker is removed from the map.

[13.3] LASERS ATTACKING SATELLITES

[13.31] Lasers cannot attack *KISS* units. If a Star or Mars unit passes over an Enemy laser unit, the laser may fire at it. This is an optional attack and may be made whether or not the laser is detected (though it is automatically detected and has its type revealed by firing).

[13.32] The laser attacks during the Satellite Phase, while the owning Player consults the Anti-aircraft Fire Table. Note that the laser's chance of eliminating the satellite is increased if the laser is in a Friendly base because it can draw on superior power and fire direction facilities. Whether or not the *RSAT* is hit, a second die roll is made. On a 2-4, the laser is eliminated (burned out).

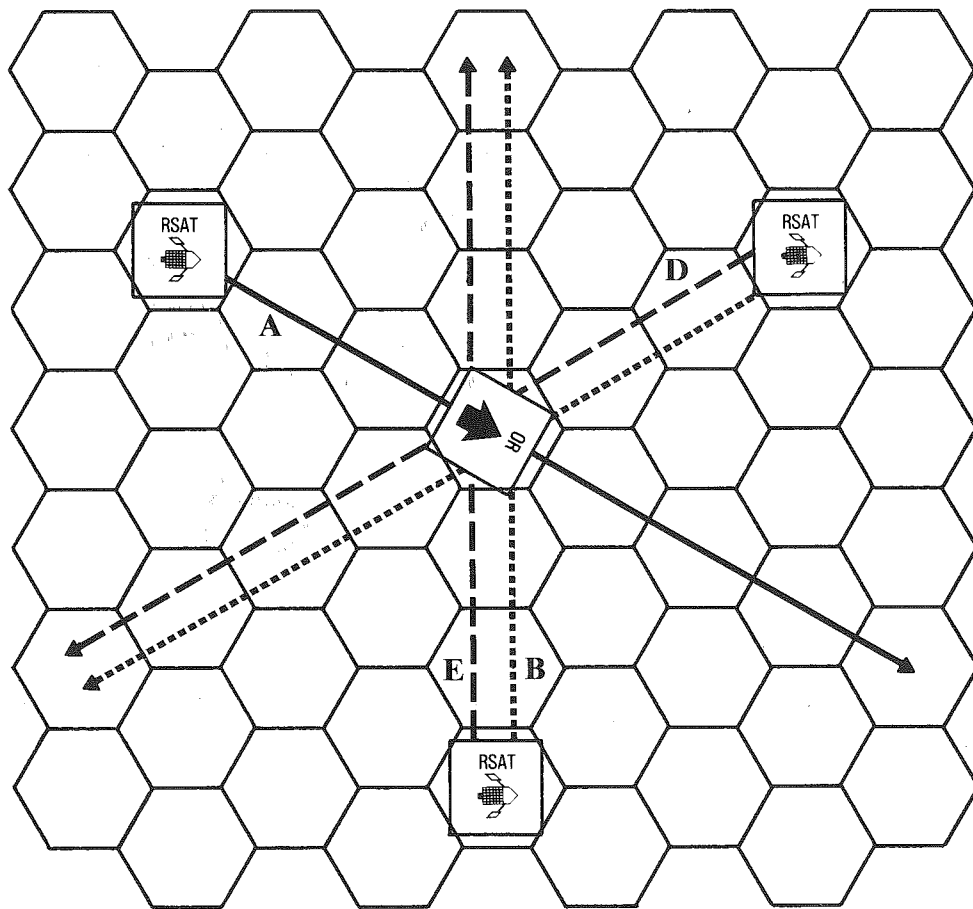
[14.0] SPECIAL UNIT CAPABILITIES

[14.1] ENGINEERS

[14.11] Engineers may construct temporary bases. Temporary bases have the normal characteristics of primary and secondary bases: supplies may be stored there, air units may base there, units are always detected in the hex. Temporary bases may be captured (see Cases 11.5), but no base can ever be eliminated.

[14.12] If, during the Construction Phase, a supplied engineer and van, carrying at least five Supply Points, occupies a snow, shelf ice, or mixed terrain hex, with no existing bases or Enemy units in the hex, a temporary base marker may be placed in the hex. Five Supply Points are expended by the van. To build a temporary base in a mountain/glacier hex, ten Supply Points must be expended.

[14.13] There is no Initiative in base construction; Players may carry it out simultaneously. Each Player may build up to four temporary bases during the course of the game.



A Recon Satellite making its first pass along line A may make its second pass along either line B or C. If the Satellite makes its second pass along line B,

its third pass must be along line D. If the Satellite's second pass is along line C, its third pass must be along line E. See Case 13.12.

[14.2] HOVERTANKS

[14.21] A hovertank in a completely shelf ice hex has 3 added to its anti-armor strength. Its other strengths are unaffected.

[14.22] A hovertank may leave a hex occupied by detected Enemy units even if the hovertank is detected (in exception to Cases 6.23, 6.27). Any Friendly units stacked with the hovertank are still immobilized.

[14.3] PARATROOPS AND AIRMOBILE TROOPS

[14.31] Paratroops and airmobile units may be carried between bases by transports in the Air Transport and Ferry Phases (see Cases 7.64, 11.32). A given unit may be carried by any number of transports in a single Phase so long as each transport moves only once.

[14.32] A transport may move in the Scramble Phase only if it is carrying one or more paratroop or airmobile units. If the transport is not eliminated or returned to base before the Paratroop/Airmobile Insertion Segment, the troop unit(s) is placed in the hex and the transport returns to base. The troop unit participates normally in combat resolution.

[14.33] Each paratroop or airmobile unit costs 6 Supply Points against a transport's supply capacity. A van may not carry troops as it would supplies. A transport carrying Supply Points may unload them in a base to make room for troops, and vice versa. Troops may not be carried in the Airdrop Phase.

[14.4] LASERS

[14.41] In addition to their special anti-air and anti-satellite capabilities (see Cases 9.24, 9.25, 9.6, and 13.3), lasers may attempt to completely melt shelf ice hexes. (The lasers are not turning 22,000 square km of ice to water; they are heating seismically-detected fault lines to shift ice masses, create crevasses, and make land movement in the hex treacherous.)

[14.42] Instead of moving, a laser may make a melt attempt in good weather Game-Turns only, but only if the laser is detected and no detected Enemy unit is in the hex.

[14.43] Each laser makes its melt attempt separately (this is counted as separate moves for Movement Initiative purposes). The owning Player rolls two dice. A roll of 2-4 (or 2-6 if the hex contains a Friendly base) succeeds in melting the hex. Place a melted marker on the hex. After each melt attempt, successful or not, a second die roll is made. A roll of 2-3 burns out (eliminates) the laser.

[14.44] A melted hex costs *double* the normal Movement Point cost to enter. A base in the hex is neutralized (see Case 15.3); air units may not enter or leave a neutralized base. A melted hex remains melted until the next time poor weather is rolled for, at which time the melted marker is removed and the hex is returned to normal.

[14.5] GARRISONS

[14.51] Garrisons always have their type revealed although they may be undetected.

[14.52] Garrisons have two sets of strengths. The stronger set (marked B) is used when the garrison occupies a Friendly base hex. The weaker set (marked T) is used when the garrison occupies any other hex. Strengths may be modified by lack of supply, like any other land unit.

[14.6] DROIDS (DRONES, REMOTELY OPERATED, INDEPENDENTLY DIRECTED)

[14.61] The anti-armor strength of a Droid is doubled if it is stacked with a supplied, Friendly

mech unit. More than one Droid may have its strength doubled by a single mech.

[14.62] Droids may only surrender if other Friendly land units are stacked with them. In this case, the Droid surrenders at the regular elimination cost, not at 20% of the cost (see Case 10.12).

[15.0] WEATHER

GENERAL RULE:

Each Game-Turn takes place in good, normal or poor weather. Weather affects movement, combat, detection, and laser melting operations.

PROCEDURE:

In the Weather Determination Phase of each Game-Turn, a die roll is made while consulting the Weather Table (15.5), determining the weather until the next Weather Determination Phase. The weather condition applies to all units and all areas of the map.

CASES:

[15.1] GOOD WEATHER EFFECTS

Laser melt attempts may be made only in good weather. All normal, movement, combat and detection rules are unaffected.

[15.2] NORMAL WEATHER EFFECTS

[15.21] Land units have reduced movement allowances as listed on the Movement Allowance Chart (6.4) during normal weather.

[15.22] Detection during land movement and detection by sensors is more difficult, as noted on the Detection Tables (12.7). Air and satellite detection is unaffected during normal weather.

[15.23] During normal weather, paratroops may not be dropped. Airmobile units may be dropped by transport helicopters only. Air transport of troops and supplies and supply airdrop is unaffected.

[15.3] EFFECTS OF POOR WEATHER

[15.31] When poor weather is in effect, land unit movement allowances are further reduced (see Case 6.4). Some units are completely immobilized.

[15.32] All air units except heavy transports, EW units, and US fighters are immobilized in poor weather. (**Exception:** all air units except helicopters and light transports may ferry). If helicopters or light transports occupy a Friendly base hex in poor weather when Enemy land units capture the base, these helicopters or transports are eliminated (see Case 7.65).

[15.33] Parachute and airmobile units may not be dropped during poor weather.

[15.34] During poor weather, no air unit may attack except US fighters, which may intercept and fight in the Combat Phase normally.

[15.35] During poor weather, all detected markers are removed during the Weather Determination Phase (although units in base hexes are still considered detected). All units whose type is already shown are flipped back over so that only an armor or infantry symbol is revealed to the Enemy Player. Garrisons, however, are unaffected by poor weather. Additionally, sensor and land movement detection is more difficult during poor weather (see Case 12.7).

[15.36] During poor weather, all melted markers are removed during the Weather Determination Phase.

[15.37] During poor weather, all temporary bases are neutralized. Air units may not enter or leave a neutralized base. **Note:** Laser-melted neutral-

ization may occur in good weather and last through normal weather, but is cancelled when the melted marker is removed (see Case 14.44).

[15.38] Any unit that spends two consecutive entire poor weather Game-Turns in a hex not containing a Friendly base while unsupplied is eliminated. This is the only occasion in which a unit may be eliminated due to being unsupplied.

[15.4] WINTER

The Game-Turns between Game-Turn 7 (February I) and Game-Turn 22 (September II) are winter Game-Turns. The only effect of winter is that shelf ice hexes cost armor units four movement points to enter rather than five. Winter is independent of weather determination. **Note:** Some scenarios last less than 22 Game-Turns; winter still runs from Game-Turn 7 to the end of the scenario.

[15.5] WEATHER TABLE (see map)

[16.0] OPTIONAL RULES

These rules can be used or omitted in any combination at the option of the Players.

[16.1] MAGNETIC DISRUPTION

All land and air units within four hexes of the *South Magnetic Pole* (hex 2233) have their EW rating reduced by 4, to a minimum of 1. Satellites are not affected.

[16.2] SEA TRANSPORT

[16.21] In the Unit Purchase/Arrival Phase, Players may simultaneously transfer land units already on the map between Friendly coastal bases. The units need not be supplied.

[16.22] In summer, a *maximum* of eight US, eight USSR, and five SAU units may be transferred by sea each Game-Turn. In winter Game-Turns, six US, five USSR, and four SAU units may be transferred. They arrive at their new base the same Phase they leave their old one.

[16.23] Units transferred by sea have their movement allowance halved throughout the Game-Turn of transfer, rounding fractions down.

[16.24] Units to be transferred need not start in, nor be transferred to, the same base. It is possible to transfer units into and out of the same base in a Game-Turn. Amphibious landings (see Case 10.23) are still forbidden unless the Player making the landing controls no bases. Supply Points may not be transferred.

[16.3] NAVAL BLOCKADE

[16.31] Once per game, each Player may declare at the start of a Unit Purchase/Arrival Phase that one Enemy coastal base is under blockade. No Enemy land units or Supply Points may enter or leave the base by sea that Phase of that Game-Turn. The Player declaring the blockade immediately loses 50 Resource Points.

[16.32] Air units, including those carrying Supply Points or troops, may arrive normally.

[16.4] SENSOR-ACTIVATED MINES

The sensors used in the basic rules are "active" — they exert energy (radar, sonar) and can be detected easily. "Passive" sensors listen for the emanations of Enemy units (sound, heat) and are easier to hide, though often less effective and easier to jam. Mines can be laid along with sensors to destroy units detected by the sensors; mobile mines (missiles) are especially effective.

[16.41] Instead of placing a normal sensor, a mech, droid, or hovertank can place a passive sen-

sor by the same procedure. There are no counters; *Players note the location of their passive sensors on paper.* They do not tell the other Players when they place a passive sensor. There may be only one passive sensor of each nationality in a hex, *in addition to normal, "active" sensors.* Each Player may place a *maximum of five* passive sensors in a game.

[16.42] When an Enemy unit enters a hex occupied by a Friendly sensor, the Friendly Player may announce its presence and make a detection attempt against the moving Enemy unit. It is resolved like a normal sensor attempt, with an addition of 2 to the die roll. If the Friendly Player does not make a detection attempt, the Enemy Player is not told of the sensor's presence.

[16.43] Passive sensors include sensor-activated mines. When a passive sensor detects a unit (or an Enemy detected stack enters the passive sensor's hex) a die roll is immediately made for each Enemy unit. On a roll of 2-4 for armor or 2-5 for infantry units, the unit is eliminated.

[16.44] A passive sensor may attack one stack, after which it retains only its detection ability. A Player may delay the attack in the hope that other (presumably more valuable) units will enter the hex and be detected.

[16.5] AERIAL SENSOR EMPLACEMENT

[16.51] In the Airdrop Phase, a light or heavy transport may fly a normal airdrop mission to any hex within range, dropping a sensor (active or passive) in the hex rather than Supply Points. The unit may be escorted, and is subject to Interception.

[16.52] Each Player is still limited to a total of eight active and (using Case 16.4) five passive sensors/mines for the game.

[16.6] POLITICAL INFLUENCE

In a limited war, such as the *War In The Ice*, governments do not always pursue a "victory at any cost" policy, and the political situation at home can profoundly influence — even decide — the outcome on the battlefield. A democracy like the USA is apt to polarize, with doves calling for withdrawal after each minor defeat and hawks using the same setback as an excuse to reinforce. The USSR would seek to maintain its strong image — even at the risk of disrupting its fragile civilian economy. A newly formed coalition like the SAU has trouble accomplishing anything because of the multiplicity of special interests.

[16.61] Each time a Friendly primary base is captured, three secondary bases are captured, or the number of Friendly units on the map (not on the Transit Track) falls to 10 or fewer, the Player rolls one die while consulting the appropriate Political Influence Table at the end of the Game-Turn. If more than one event has occurred in the Game-Turn (e.g., three secondary and one primary base are lost) the Player rolls once, adding one to the roll. If three secondary bases are lost over a period of Game-Turns, the roll is made at the end of the Game-Turn in which the third is lost.

[16.62] Political Influence Table

DIE	Nationality		
	USA	USSR	SAU
1	MC	PH	IC
2	IC	DS	IC
3	IC	NE	NE
4	NE	IC	NE
5	DS	MC	NE
6	PH	MC	DS
7	PH	MC	PH

MC: Major Commitment. Players may purchase up to eight land and/or air units next Game-Turn at half price (rounding fractions up). Friendly units eliminated in the next two Game-Turns cost only half normal elimination cost. Soviet Player (only) pays 100 Resource Points for economic dislocation. **IC:** Increased Commitment. Player may purchase up to four units next Game-Turn at half price. Elimination costs unaffected. Soviet Player pays no penalty. **NE:** No Effect. **DS:** Disillusionment. All purchase costs are doubled for two Game-Turns. No satellites may be launched for two Game-Turns. **PH:** Peace With Honor. Player may pay 100 Resource Point penalty and treat result like Disillusionment (RP's go for pro-war propaganda effort at home), or declare *gradual withdrawal*. Under withdrawal, the Player must reduce the number of his units on the map by two each Game-Turn, either by having them eliminated in combat or removing them from Friendly coastal bases during the Unit Purchase/Arrival Phase. The Player may purchase new units, but must balance their arrival by removing an equal number of units (presumably of other types) that same Game-Turn, in addition to the two units removed for a net loss. Thus, if a **PH** is rolled on Game-Turn Three, at which time the Player has twelve units on the map, his last units must be withdrawn on Game-Turn Nine — at the latest.

[16.63] If a Player rolls a result while a result from an earlier roll (due to an earlier defeat) is in effect, the earlier result is cancelled and the new result immediately takes effect. **Exception:** A No Effect roll does not cancel a previous result.

[17.0] SCENARIOS

GENERAL RULE:

There are several conventional game scenarios. Each scenario is presented as follows:

- Initial Forces:** Lists the number of Resource Points available to the Players, from which they may "purchase" land, air, and supply units. In addition, set-up instructions are included which indicate where the owning Player may set up his units.
- Victory:** Lists the means by which the Players gain or lose Resource Points.
- Victory Levels:** Explains the meanings of the Resource Point differentials between the Players at the end of the game.
- Game-Length:** Lists the Game-Turn in which the game begins, as well as how long it lasts.
- Special Rules:** Lists any additions or alterations to the standard rules for *War In The Ice* which govern the flow of the scenario.

[17.1] USA VS USSR: GRADUAL ESCALATION

The USA and USSR had been aware of the presence of Antarctic energy resources (oil, coal, gas, uranium) for decades, but only in the late 1980's did far-sighted governments begin to seriously survey the resources, with the knowledge that one day it would be economically feasible to bring them out. American and Soviet civilian survey teams spread across the continent, and inevitably came into contact — and conflict, fighting with rifles and pistols. Both nations eventually shipped real armies south. The game begins as true warfare breaks out.

INITIAL FORCES: Each Player begins the game with a maximum of 100 Resource Points of land units, 100 Resource Points of air units and 5 Resource Points of Supply Points. Players choose

their own forces, purchasing units from their initial "budgets"; they may choose to begin the game with fewer units than allowed. Players set up simultaneously (in secret) by first writing the hex numbers of their units' locations, and then revealing them simultaneously. A maximum of one air unit and two land units may begin in each inland base. Any number of units may begin at coastal bases. All units must be deployed in Friendly primary or secondary bases at the start of the game. No temporary bases or sensors are deployed at the start. No units begin on the Transit Track. All units begin type-concealed.

FORCE POOL: Each Player may purchase units of the type and number in the counter mix. Additional units may not be made up (*i.e.*, the counter mix limits unit purchase). Eliminated units are returned to the Force Pool and are again available for purchase. A full counter mix contains the following units:

USA: 8 Mech, 9 Droid, 6 van, 3 laser, 2 garrison, 3 engineer, 4 airmobile, 8 heavy transport, 4 light transport, 4 transport helicopter, 5 attack helicopter, 4 EW, 5 GS, 5 fighter, 1 Star, 1 Mars, 2 KISS.

USSR: 7 Mech, 8 Droid, 6 van, 3 laser, 3 hover-tank, 2 garrison, 2 engineer, 4 paratroop, 6 heavy transport, 6 light transport, 3 attack helicopter, 4 EW, 5 GS, 6 fighter, 1 Star, 1 Mars, 2 KISS.

VICTORY: In addition to Resource Points (RP's) lost for the purchase and elimination of Friendly units (see Case 10.3), amphibious landings (Case 10.23), naval blockade (Case 16.3), and political influences (Case 16.6), Players gain Resource Points for the capture of Enemy bases. A Player receives 100 RP's for capturing an Enemy primary base, 60 RP's for capturing an Enemy secondary coastal base, and 40 RP's for capturing an Enemy secondary inland base. If a Player loses a base he captured, he loses the RP's he gained for its capture. **Note:** A Player does not lose RP's for losing his own base.

VICTORY LEVELS: +500 RP's at end of Game = Decisive Victory; +300 RPs = Substantive Victory; +100 RPs = Marginal Victory; 0 to +99 = Draw.

GAME LENGTH: 12 Game-Turns, beginning November 1.

SPECIAL RULES:

- Players may freely move through SAU bases, but gain no advantage thereby. SAU bases and stasis complex are ignored.
- No unit purchases may be made on the first two Game-Turns. Supply Points may be purchased.

SCENARIO VARIANTS:

1) **Early Victory:** Game ends at the conclusion of any Game-Turn in which one Player has a net Victory Level of +500 and controls at least three Enemy bases.

2) **Open Ended:** Game continues until one Player has a net Victory Level of +500 and controls at least three Enemy bases at the end of a Game-Turn. All unit purchase and elimination costs during Game-Turns 13-24 are doubled, during 25-36 tripled, and so on in sequence. Supply purchase costs are unaffected.

3) **Winter Start:** Game begins on February 1 Game-Turn.

[17.2] USA vs USSR vs SAU: GRADUAL ESCALATION

This is basically identical to the USA vs USSR scenario, but has the SAU rejecting neutrality.

INITIAL FORCES: The USA and USSR mix is identical to that found in Case 17.1. A full SAU counter mix contains:

SAU: 7 mech, 7 droid, 6 van, 2 laser, 3 garrison, 2 engineer, 3 paratroop, 5 heavy transport, 7 light transport, 4 EW, 5 GS, 5 fighter.

VICTORY: As Case 17.1. Two Players may choose to share a RP cost or award by any formula they devise.

VICTORY LEVELS: As Case 17.1. Players subtract their opponents' totals separately to obtain their net Victory Levels over each other.

GAME LENGTH: 12 Game-Turns, beginning November I.

SPECIAL RULES:

1) No unit purchases may be made on the first two Game-Turns.

2) Players may negotiate and plan throughout the Game-Turn; there is no special "Negotiation Phase". Two Players may leave the room so the third doesn't overhear. Players may always lie and betray deals, but are discouraged from cheating.

3) The rule of thumb for the three Player scenarios is "It takes two to make peace, but only one to make war." In any situation where units of two or three nations share a hex, the units are considered Friendly unless one or more Players declare that they are Enemy. Even in a single Phase, units of two nations may be Friendly in one hex and Enemy in another.

4) **Units Purchase/Arrival Phase:** Player #1's units may arrive at Player #2's bases if #1 agrees. If #2's base holds #1's air units at any time (and #1 has no land units in the hex) #2 may eliminate #1's air units simply by declaring it.

5) **Supply Phase:** Players may use each other's Supply Points, but for each of Player #1's SPs used to supply #2's unit (or transferred to #2's base, van, or transport) one of #1's SPs is destroyed, just as if the SPs were being captured. If SPs are later returned to #1, half the SPs are again eliminated in transfer.

6) **Air Movement Phase:** Players may freely air-drop and air transport each other's troops. If #1 intercepts #2's air unit, Player #3 has three options: he may do nothing, join in the interception (#1 and #3 fight together), or send fighters to #2's rescue. Combat is resolved like Interception except #3 and #2 fight together.

7) **Detection Phases:** If Player #1 detects or type-detects #2's unit through any detection method, Player #3 is also considered to have detected or type-detected the unit. Player #1 may voluntarily inform Player #2 of the type of his units without telling #3.

8) **Land Movement Phase:** If detected units of two or three Players occupy a hex, they are immobilized only if one or more Players declare that they are immobilized.

9) **Combat Phase:** If detected units of two or three Players occupy a hex, combat is mandatory only if one or more Players declare it. Two-Player combat is then resolved normally. If three Players have units in the hex, there is negotiation. Two Players must agree to combine forces against the third. The combined force is treated as if the units were of one nationality, and the combat proceeds normally. The two "allies" must agree on a Tactical Option Chit and which units to lose if losses are called for. If they cannot agree, Player #3 decides for them.

10) **Construction Phase:** Player #1 can construct a base in a hex containing units of Players #2 and #3 if both of them allow it.

11) Players may freely bribe each other by using Resource Points as money; simply subtract RPs from one Player and add them to the other. To keep the third Player in the dark, these transfers may be made by written "I.O.U.", but these chits

must be honored *before victory is computed* at the end of the game.

12) If a combined force captures an Enemy base, the two Players must decide which controls it; Players may not share control of a base, though they may split the RP award for its capture. Any time only one Player has land units in a base, he controls the base.

13) Units of two nationalities may not move together for Initiative purposes, even if they are making identical moves. Three Players always alternate the movement of their units.

14) Players are not obligated to cooperate because of previous cooperation or promises. Even in a single Phase, Player #1 may attack Player #2 in one hex and join forces with him against #3 in another hex. However, an "alliance" made in any single combat in one hex during the Combat Phase is maintained for the entire Phase; *i.e., alliances may not be changed from Segment to Segment, or round to round.*

SCENARIO VARIANTS:

The scenario variants 1, 2, and 3 in Case 17.1 may be used.

4) **True Alliance:** One Player controls the units of two nations. These units are considered to be of the same nationality for all purposes (including Initiative) except that the transfer of Supply Points still eliminates half of them. The second Player is compensated by having all his costs for unit purchase, Supply Point purchase, and unit elimination halved, rounding fractions up. He is also given a Resource Point handicap of 300 RPs.

[17.3] USA vs USSR: PRIOR BUILDUP

In this scenario, actual warfare was delayed until both nations had built up large forces on the continent, built some advanced bases, and girded themselves for a major war. The SAU increased its presence by issuing an order to the USA and USSR to stay away from SAU territory.

INITIAL FORCES: Each Player begins with a maximum of 250 Resource Points (RP) of land units, 200 RP of air units, and 15 RP of Supply Points. Players set up simultaneously (in secret). Any number of units may begin in any Friendly primary or secondary base. One land unit may begin in each temporary base. Each Player may deploy up to three temporary bases at start. None may be within five hexes of an Enemy primary or secondary base. If two Players wish to deploy a base in the same hex, each rolls a die; highest roll wins. All bases are deployed openly before units are deployed. No sensors are deployed at start.

FORCE POOL: As described in Case 17.1

VICTORY: As described in Case 17.1. In addition, each time a land unit or stack enters a SAU base hex, the owning Player pays a penalty of 50 RPs.

VICTORY LEVELS: As described in Case 17.1.

GAME LENGTH: 24 Game-Turns beginning November I.

SPECIAL RULES:

1) No units may be purchased on the first Game-Turn. Supply points may be purchased at this time.

SCENARIO VARIANTS:

The scenario variants 1 and 3 in Case 17.1 may be used.

2) **Open-Ended:** As in Case 17.1, except that unit purchase and elimination costs are doubled for Game-Turns 25-36, quadrupled for 37-48, and so on in sequence.

4) **More Active SAU:** No unit may enter an SAU base hex.

[17.4] USA vs. USSR vs. SAU: PRIOR BUILDUP

This is basically identical to the USA vs. USSR scenario, but has the SAU rejecting neutrality.

INITIAL FORCES: As in Case 17.1 for USA and USSR. SAU Player begins with 200 RP of land units, 160 RP of air units, and 15 RP of supply points. They are deployed in any SAU primary or secondary base. One land unit may be deployed in each of three temporary bases (deployed as in Case 17.3).

FORCE POOL: As in Case 17.2.

VICTORY: As in Case 17.2.

VICTORY LEVELS: As in Case 17.2.

GAME-LENGTH: 24 Game-Turns beginning November I.

SPECIAL RULES:

1) No units may be purchased on the first Game-Turn. Supply points may be purchased.

2) All guidelines on 3-Player behavior as described in Case 17.1 are in effect.

SCENARIO VARIANTS:

The scenario variants 1 and 3 in Case 17.1 may be used.

2) As in Case 17.3.

4) As in case 17.2.

[18.0] THE SCIENCE FICTION GAME

COMMENTARY:

The Subterrans did not participate in the *War In The Ice*. An ancient civilization, they were driven from Antarctica in a war in the distant past — leaving behind an army in cryogenic suspended animation, awaiting the day of their return to rise up and strike the now-unknown Enemy from within.

The Subterrans never returned, and the army (secure in stasis complexes deep beneath the surface) slept through the *War In The Ice*, until their discovery by archeologists in 2122. The possibility that the Subterrans might be awakened by a random radio or laser message duplicating their "wake up code" during the *War In The Ice* is one of the more tantalizing "what-ifs" of the campaign, which is the rationale behind the Science Fiction game.

Subterrans use normal rules (including Initiative) except where noted in the following rules.

CASES:

[18.1] SUBTERRAN CHARACTERISTICS

Subterranean units are not purchased; there are no Subterranean Resource Points or Supply Points. At the start of the game, the Subterranean Player chooses one of four forces from the Subterranean Force Option Chart (18.3). He secretly writes down the hex number of the stasis complex each unit occupies. Any number of units may occupy a stasis complex. The units are not initially deployed on the map. (He receives no other units.)

[18.12] At the start of each Land Movement Phase (before the Initiative is determined) the Subterranean Player may attempt to revive some, all, or none of his units. Units being revived are placed on the map in the previously noted hexes. Each is rolled for individually on the Stasis Revival Table (18.4). Units that malfunction are permanently eliminated; units that are revived may move and function normally this Game-Turn. Units in a

WAR IN THE ICE

CHARTS & TABLES

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[9.6] HIT TABLE

Firing Player Net EW Rating

-8/-7	-6/-5	-4/-3	-2/-1	0/1	2/3	4/5	6/7
2...3	2...4	2...5	2...6	2...7	2...8	2...9	2...10

Result is range within which a roll of two dice must fall in order to eliminate one Enemy unit.

[9.5] LOCK-ON CHART

Combat Differential

	0	1	2	3	4	5	6	7	8
Attacker:	1	1	2	3	4	4	5	6	7
Defender:	1	1	1	2	2	2	2	2	1

Results are number of hit rolls for Attacker or Defender (as appropriate) on Hit Table. Note that Player with larger combat strength sum is the Attacker. A Combat Differential greater than 8 is resolved on the 8 column.

[9.7] ANTI-AIRCRAFT FIRE RESULTS TABLES

LAND UNIT ANTI-AIRCRAFT	Dice Range to Hit	Dice Range to Abort
1	n	2
2	2	3
3	2	3...4
4	2	3...4
5	2...5	6
6	2...6	7...8
7	2...7	8
8	2...8	9
9	2...9	10

Note that the firing Player's net EW Rating is subtracted from the dice roll to obtain a result. Land units may attack only GS, Fighter, and Helicopter units with Anti-Aircraft fire. n = no hit possible.

		Dice Range to Hit
LASER FIRING AT HELICOPTER, GS	Laser in Friendly Base	2...8
	Laser Outside Friendly Base	2...5
LASER FIRING AT RECON SATELLITE	Laser in Friendly Base	2...4*
	Laser Outside Friendly Base	2...3*
LASER FIRING AT OTHER AIR UNITS	Laser in Friendly Base	2...5
	Laser Outside Friendly Base	2...3

*Note that a laser firing at a recon satellite must roll the dice again; on a second dice roll of 2 through 4, the laser is burned out, whether it hit the satellite or not.

Do not subtract net EW from laser dice rolls. Lasers never score aborts.

[9.8] LAND COMBAT RESULTS TABLE

Combat Differential

DICE	0	1	2	3	4	5	6	7	8
2	3/0	3/0	3/0	3/1	2/0	2/0	2/1	2/1	2/1
3	3/0	3/0	3/0	3/1	2/0	2/0	2/1	2/1	2/1
4	3/0	2/0	2/0	2/1	2/1	2/1	1/1	1/1	1/1
5	2/0	1/0	1/0	2/1	1/0	1/1	1/1	0/0	0/0
6	1/0	1/0	2/1	1/0	1/0	1/0	1/0	1/1	1/2
7	2/1	2/1	1/1	1/0	0/0	0/0	0/1	1/2	0/2
8	2/1	2/2	2/2	0/0	1/1	0/1	1/2	1/3	1/3
9	0/0	0/0	0/0	0/1	0/1	0/2	1/3	1/3	0/3
10	0/0	0/1	1/2	0/1	0/1	0/2	0/2	0/3	0/4
11	0/1	0/1	1/2	1/2	1/3	0/3	0/3	0/4	0/5
12	0/1	0/2	1/3	1/3	0/3	0/4	0/4	0/5	0/6

or
more

Results are numbers of Attacking/Defending units lost. The Player with the larger combat strength sum is the Attacker. A Combat Differential greater than 8 is resolved on the 8 column. **Note:** Refer to Tactical Option Matrix to determine dice roll modification.

TACTICAL OPTION MATRIX

	Attacker			
Defender	A	B	C	D
W	+2	-2	+1	0
X	-3	+2	-2	+3
Y	0	+1	-1	-1
Z	DEFENDERS SURRENDER			

Result is the dice roll modification applied to the Land Combat Results Table.

Attacker Chits: A = Cavalry Charge; B = Methodical Advance; C = Air-Intensive Attack; D = Combined Arms Assault.

Defender Chits: W = Retreat Leaving Screen; X = Hedgehog Perimeter; Y = Mobile Defense; Z = Surrender.

[9.9] BREAKOFF TABLE

Net EW Rating of Player Attempting Breakoff

0	1	2	3,4	5,6	7,8
2...5	2...6	2...7	2...8	2...9	2...10

Result is range within which a roll of two dice must fall in order to successfully break off. Net EW Ratings of less than 0 are resolved on the 0 column.

Dice Roll Modifiers:

Add 2 in completely shelf ice hex.

Add 2 if land units attempting breakoff are all infantry.

Subtract 2 in normal weather.

Subtract 2 in mountain/glacier hex.

Subtract 2 if land units attempting breakoff are all armor.

Subtract 4 in poor weather.

Note that dice roll modifiers are cumulative.

[12.7] DETECTION TABLES

LAND MOVEMENT DETECTION

To detect unit in:	Dice Range
Shelf Ice	2...6
Snow or Mixed	2...5
Mountain/Glacier	2...4

Dice Roll Modifiers:

Add 2 in normal weather.

Add 4 in poor weather.

SENSOR DETECTION

Sensor nationality:	Dice Range
USA	2...7
USSR	2...6
SAU	2...4

Dice Roll Modifiers:

Add 1 in normal weather.

Add 3 in poor weather.

AIR/SATELLITE DETECTION

Air Unit EW Rating									
1	2	3	4	5	6	7	8	9	
n	2	2...4	2...5	2...6	2...7	2...8	2...9	2...10	

Note: Satellites use the 9-column..

Dice Roll Modifiers:

Add 3 in Mountain/Glacier.

No change in Snow or Mixed.

Subtract 2 in completely Shelf Ice.

Important: Units in Friendly or Enemy base hexes are automatically detected.

UNIT TYPE DETECTION

Units Detected...	Dice Range
by Air or Sensor	2...7
by Satellite	2...4
by Land Movement	2...10

To attempt to detect unit type, roll separately for each unit in a stack.

Note on Detection Evasion

Once detected, a unit remains detected until:

1. Poor weather is rolled in the Weather Determination Phase (see Section 15.0). All detection markers are removed and all units are inverted to conceal unit type.

2. The unit leaves a Friendly base hex which does not contain any Enemy units (of course, a unit must enter a Friendly base hex before it can leave it). Units in Friendly or Enemy base hexes are always detected.

[18.3] SUBTERRAN FORCE OPTION CHART

Unit Type	Option			
	A	B	C	D
<i>Sleeper</i>	12	16	8	12
<i>Lifter</i>	4	2	4	2
<i>Drill</i>	2	1	2	2
<i>Converter</i>	1	2	2	2
<i>Psimaster</i>	1	-	2	1

Numbers represent quantity of unit type available in that option.

[18.4] STASIS REVIVAL TABLE

Unit Type	Dice Range for...	
	Revival	Malfunction
<i>Sleeper</i>	2...9	10...12
<i>Lifter</i>	2...8	9...12
<i>Drill</i>	2...8	9...12
<i>Converter</i>	2...6	7...12
<i>Psimaster</i>	2...10	11...12

[18.5] SUBTERRAN MOVEMENT ALLOWANCE CHART

Unit Type	Weather		
	Good	Normal	Poor
<i>Sleeper</i>	2	2	2
<i>Lifter</i>	8	8	6
<i>Drill</i>	2	2	2
<i>Converter</i>	4	3	3
<i>Psimaster</i>	8	8	6

Number is unit's Movement Point Allowance in that weather state.

WAR IN THE ICE

CHARTS & TABLES

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[9.6] HIT TABLE

Firing Player Net EW Rating

-8/-7	-6/-5	-4/-3	-2/-1	0/1	2/3	4/5	6/7
2...3	2...4	2...5	2...6	2...7	2...8	2...9	2...10

Result is range within which a roll of two dice must fall in order to eliminate one Enemy unit.

[9.5] LOCK-ON CHART

Combat Differential

	0	1	2	3	4	5	6	7	8
Attacker:	1	1	2	3	4	4	5	6	7
Defender:	1	1	1	2	2	2	2	2	1

Results are number of hit rolls for Attacker or Defender (as appropriate) on Hit Table. Note that Player with larger combat strength sum is the Attacker. A Combat Differential greater than 8 is resolved on the 8 column.

[9.7] ANTI-AIRCRAFT FIRE RESULTS TABLES

LAND UNIT ANTI-AIRCRAFT	Dice Range to Hit	Dice Range to Abort
1 n	2	
2 2	3	
3 2	3...4	
4 2	3...4	
5 2...5	6	
6 2...6	7...8	
7 2...7	8	
8 2...8	9	
9 2...9	10	

Note that the firing Player's net EW Rating is subtracted from the dice roll to obtain a result. Land units may attack only GS, Fighter, and Helicopter units with Anti-Aircraft fire. n = no hit possible.

		Dice Range to Hit
LASER FIRING AT HELICOPTER, GS	Laser in Friendly Base	2...8
	Laser Outside Friendly Base	2...5
LASER FIRING AT RECON SATELLITE	Laser in Friendly Base	2...4*
	Laser Outside Friendly Base	2...3*
LASER FIRING AT OTHER AIR UNITS	Laser in Friendly Base	2...5
	Laser Outside Friendly Base	2...3

*Note that a laser firing at a recon satellite must roll the dice again; on a second dice roll of 2 through 4, the laser is burned out, whether it hit the satellite or not.

Do not subtract net EW from laser dice rolls. Lasers never score aborts.

[9.8] LAND COMBAT RESULTS TABLE

Combat Differential

DICE	0	1	2	3	4	5	6	7	8
2	3/0	3/0	3/0	3/1	2/0	2/0	2/1	2/1	2/1
3	3/0	3/0	3/0	3/1	2/0	2/0	2/1	2/1	2/1
4	3/0	2/0	2/0	2/1	2/1	2/1	1/1	1/1	1/1
5	2/0	1/0	1/0	2/1	1/0	1/1	1/1	0/0	0/0
6	1/0	1/0	2/1	1/0	1/0	1/0	1/0	1/1	1/2
7	2/1	2/1	1/1	1/0	0/0	0/0	0/1	1/2	0/2
8	2/1	2/2	2/2	0/0	1/1	0/1	1/2	1/3	1/3
9	0/0	0/0	0/0	0/1	0/1	0/2	1/3	1/3	0/3
10	0/0	0/1	1/2	0/1	0/1	0/2	0/2	0/3	0/4
11	0/1	0/1	1/2	1/2	1/3	0/3	0/3	0/4	0/5
12	0/1	0/2	1/3	1/3	0/3	0/4	0/4	0/5	0/6

or
more

Results are numbers of Attacking/Defending units lost. The Player with the larger combat strength sum is the Attacker. A Combat Differential greater than 8 is resolved on the 8 column. **Note:** Refer to Tactical Option Matrix to determine dice roll modification.

TACTICAL OPTION MATRIX

	Attacker			
Defender	A	B	C	D
W	+2	-2	+1	0
X	-3	+2	-2	+3
Y	0	+1	-1	-1
Z	DEFENDERS SURRENDER			

Result is the dice roll modification applied to the Land Combat Results Table.

Attacker Chits: A = Cavalry Charge; B = Methodical Advance; C = Air-Intensive Attack; D = Combined Arms Assault.

Defender Chits: W = Retreat Leaving Screen; X = Hedgehog Perimeter; Y = Mobile Defense; Z = Surrender.

[9.9] BREAKOFF TABLE

Net EW Rating of Player Attempting Breakoff

0	1	2	3,4	5,6	7,8
2...5	2...6	2...7	2...8	2...9	2...10

Result is range within which a roll of two dice must fall in order to successfully break off. Net EW Ratings of less than 0 are resolved on the 0 column.

Dice Roll Modifiers:

Add 2 in completely shelf ice hex.

Add 2 if land units attempting breakoff are all infantry.

Subtract 2 in normal weather.

Subtract 2 in mountain/glacier hex.

Subtract 2 if land units attempting breakoff are all armor.

Subtract 4 in poor weather.

Note that dice roll modifiers are cumulative.

[12.7] DETECTION TABLES

LAND MOVEMENT DETECTION

To detect unit in:	Dice Range
Shelf Ice	2...6
Snow or Mixed	2...5
Mountain/Glacier	2...4

Dice Roll Modifiers:

Add 2 in normal weather.

Add 4 in poor weather.

SENSOR DETECTION

Sensor nationality:	Dice Range
USA	2...7
USSR	2...6
SAU	2...4

Dice Roll Modifiers:

Add 1 in normal weather.

Add 3 in poor weather.

AIR/SATELLITE DETECTION

Air Unit EW Rating									
1	2	3	4	5	6	7	8	9	
n	2	2...4	2...5	2...6	2...7	2...8	2...9	2...10	

Note: Satellites use the 9-column.

Dice Roll Modifiers:

Add 3 in Mountain/Glacier.

No change in Snow or Mixed.

Subtract 2 in completely Shelf Ice.

Important: Units in Friendly or Enemy base hexes are automatically detected.

UNIT TYPE DETECTION

Units Detected...	Dice Range
by Air or Sensor	2...7
by Satellite	2...4
by Land Movement	2...10

To attempt to detect unit type, roll separately for each unit in a stack.

Note on Detection Evasion

Once detected, a unit remains detected until:

1. Poor weather is rolled in the Weather Determination Phase (see Section 15.0). All detection markers are removed and all units are inverted to conceal unit type.

2. The unit leaves a Friendly base hex which does not contain any Enemy units (of course, a unit must enter a Friendly base hex before it can leave it). Units in Friendly or Enemy base hexes are always detected.

[18.3] SUBTERRAN FORCE OPTION CHART

Unit Type	Option			
	A	B	C	D
<i>Sleeper</i>	12	16	8	12
<i>Lifter</i>	4	2	4	2
<i>Drill</i>	2	1	2	2
<i>Converter</i>	1	2	2	2
<i>Psimaster</i>	1	-	2	1

Numbers represent quantity of unit type available in that option.

[18.4] STASIS REVIVAL TABLE

Unit Type	Dice Range for...	
	Revival	Malfunction
<i>Sleeper</i>	2...9	10...12
<i>Lifter</i>	2...8	9...12
<i>Drill</i>	2...8	9...12
<i>Converter</i>	2...6	7...12
<i>Psimaster</i>	2...10	11...12

[18.5] SUBTERRAN MOVEMENT ALLOWANCE CHART

Unit Type	Weather		
	Good	Normal	Poor
<i>Sleeper</i>	2	2	2
<i>Lifter</i>	8	8	6
<i>Drill</i>	2	2	2
<i>Converter</i>	4	3	3
<i>Psimaster</i>	8	8	6

Number is unit's Movement Point Allowance in that weather state.

single stasis complex may attempt revival on the same or different Game-Turn.

[18.13] Before a unit is revived, it does not function in any way. Normal units may freely move through a stasis hex but do not affect it.

[18.14] A Subterranean unit is in supply if within two hexes of any stasis complex hex. It is unsupplied if farther than this distance. Unsupplied Subterranean units suffer the same effects as normal units, except that they move normally.

[18.15] Subterranean units are always type-detected, like garrisons. Subterranean units are automatically detected in bases or stasis complexes, but normal units are not automatically detected in stasis complexes. Detected Subterraneans that leave complexes are then undetected (like normal units leaving bases).

[18.16] When a normal unit or sensor is attempting to detect a Subterranean unit, normal procedure is followed with the following change: When a Soviet unit makes the attempt one is subtracted from the die roll; an American or SAU unit adds one to the die roll. (Subterranean "EW" is really done psionically; their psionic expertise is far advanced.)

[18.17] Subterranean units may not lay sensors; they may attempt to detect units only during land movement. They subtract 4 when attempting to detect USA or SAU units, subtract 2 when attempting to detect Soviet units. In addition, they ignore die modifiers for weather. **Note:** Normal units detected by US, USSR, or SAU Players are considered detected by the Subterranean Player as well.

[18.2] SUBTERRANEANS IN SCENARIOS

[18.21] Any two Player scenario (USA vs. USSR or a true alliance variant of the USA vs. USSR vs. SAU) can be converted to three Player by the addition of the Subterranean Player. Generally, normal three Player rules (see Case 17.2) apply *except where noted below*.

[18.22] The Subterranean scores no Resource Points. He wins if the net Victory Level of the two modern Players indicates a Draw at the end of the game.

[18.23] The non-Subterranean Players may negotiate freely. They may be Enemy or Friendly (according to Case 17.2). Subterranean units are always Enemy to normal units. The Subterranean Player may negotiate with the normal Players, but any time his units occupy a hex with normal units, these normal units are considered Friendly to each other and Enemy to the Subterranean.

[18.3] SUBTERRANEAN FORCE OPTION CHART (see separate sheet)

[18.4] STASIS REVIVAL TABLE (see chart sheet)

[18.5] SUBTERRANEAN MOVEMENT ALLOWANCE CHART (see separate sheet)

[19.0] SUBTERRANEAN SPECIAL UNIT CAPABILITIES

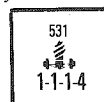
[19.1] ANTI-GRAV LIFTERS

[19.11] The anti-armor strength of this unit is 3 in shelf ice, doubled in a snow or mixed hex, and tripled in a mountain/glacier hex.

[19.12] While the unit's anti-air strength is normally 2, the Subterranean Player may declare that a Lifter executing anti-air fire is making a high-energy attack. Its anti-air strength is increased to 9 for this attack. A second dice roll is made after the attack; on a 2-8 the Lifter is eliminated.

[19.13] A Lifter may carry one "sleeper" infantry unit. Both units move at the Lifter's movement allowance. The Lifter and the infantry function normally; there is no loss of combat ability to either.

[19.14] Like hover tanks, Lifters may leave a hex containing Friendly and Enemy detected units.



[19.2] ICE DRILLS

Ice drills use lasers to melt transit tunnels deep beneath the surface.

[19.21] Ice drills and units stacked with them cannot be detected, except that they are automatically detected in a base or stasis complex, and must be voluntarily detected in order to have combat.

[19.22] Ice drills may not enter completely shelf ice hexes.

[19.3] ENERGY CONVERTERS

The Converter draws upon the energy produced through laser bombardment of fissionable material to produce far more firepower than a standard laser. The power produced can be varied easily, but the more energy produced, the greater the possibility that the fissionable material will be triggered to a fullscale nuclear blast. (The material is an unstable artificial element not yet synthesized by contemporary physicists).

[19.31] In a combat situation, the Subterranean Player may declare that the Converter is using anti-armor or anti-infantry strength (under normal rules) and then declares the strength — anywhere from 1 to 9. Before the combat is resolved, a die roll is made to see if the Converter is triggered. The die roll needed to trigger a Converter is from 2 to the strength being used by the Converter; e.g., if the Converter is being used at a strength of 7, a die roll of 2-7 triggers the Converter. (If used at a strength of 1, the Converter cannot trigger.) If the Converter is triggered, every land unit in the hex is eliminated. Air units are unaffected. If shelf ice, the ice is permanently melted.

[19.32] The Converter carries out anti-air fire just like a laser; it cannot trigger. It cannot fire at satellites or attempt to melt hexes. *It cannot be purposely triggered.*

[19.4] PSIMASTERS

As previously noted, Subterranean science includes a sophisticated knowledge of psionics. The Psimaster has attained the highest achievement in telekinesis ("mind over matter") and precognition yet known on earth.

[19.41] A Psimaster must be stacked with a Subterranean unit at all times. A Psimaster is eliminated if left alone in a hex without a Subterranean unit. A Psimaster may not be chosen as a "unit" eliminated in combat, since he is not a "unit" — he is an individual. A Psimaster has no combat strengths. He raises the EW rating of Subterranean units stacked with him to 9.

[19.42] If a Subterranean stack containing a Psimaster participates in land combat, the Subterranean Player may be allowed to see the Enemy's Tactical Option Chit before choosing his own. After the Enemy Player chooses a chit, a single die is rolled for each Psimaster in the hex. On a roll of 1-4 if the Enemy stack contains Soviet units, or 1-5 otherwise, the Enemy Player shows the Subterranean his chit before the Subterranean chooses his own.

[19.43] Instead of moving, a Psimaster may melt a shelf ice hex. He succeeds automatically. Two dice are then rolled, on a 2-3 the Psimaster has exhausted himself. He may not function (use his EW rating, detect a chit, melt a hex, induce an avalanche) for two entire Game-Turns. He may move normally.

[19.44] Instead of attempting to detect a chit in a combat situation, a Psimaster may attempt to induce an avalanche. This is possible only in mountain/glacier hexes. Before the Anti-aircraft Segment, the Subterranean Player rolls a single die. On a roll of 1-4, the attempt fails, the battle proceeds normally, and the Psimaster is exhausted for two Game-Turns. On a 5-6 the attempt succeeds, and the Psimaster is exhausted for one Game-Turn. A die is rolled for each land unit in the hex. A unit is eliminated on a roll of 1-3, unharmed on a roll of 4-6. After each land unit is rolled for, the surviving units proceed with the combat. If all the land units on one side are eliminated, all air units return to base immediately.

[20.0] DESIGNER'S NOTES

War In The Ice was originally proposed in *S&T* 62 as a pure science fiction game, in which the discovery of the Subterraneans in stasis provokes the war, with the stakes being "control of the lost land and its incredible technology, and thereby the world." As I never intended that the proposal be printed, I was caught unprepared when a large minority of *S&T*'s subscribers voted to publish the game.

It was obvious that the notion of fighting for control of the world wouldn't work, since such a conflict would quickly spread beyond Antarctica, and I wanted to show a limited war in an isolated, "caged" battlefield. First I planned to stick with the idea of fighting over less technologically advanced archeological finds, but while they might be important, they wouldn't be important enough to cause World War III. Some of my colleagues expressed concern over the initial rationale by laughing hysterically every time the game was mentioned. Steve Cole, a Natural Gas Engineer and former publisher of *Battlefield* Magazine, wrote me an impassioned letter lobbying for an energy-based limited war, and the current rationale was adopted. The science fiction elements were retained because the audience obviously expected it, and the SF game creates a pleasant change of pace from the conventional game.

Logistics will be crucial in any endeavor in Antarctica. The distance from the Northern Hemisphere ports to the Antarctic coast is enormous, as is the distance from the coast to the inland bases. The problems of overcoming such hostile terrain are extraordinary. A poor administration of supplies will cripple a war effort, and though in real life the commander usually leaves these matters to the staff, the Player has no staff and so must deal with it himself. Most games abstract logistics, but I think it's important enough to merit the extensive treatment given it here. (Incidentally, a really accurate supply system would differentiate between fuel, ammunition, and maybe food, and so on.) Players should not really be allowed to look at each other's Supply Tracks. If Players trust each other they may be concealed.

Electronics are just as important. The US Army has recently taken steps to correct its neglect of electronic warfare, and sophisticated electronic systems are the determinant in air warfare. Sure, it's important to have a fast, maneuverable, powerful airplane, but if an enemy fighter can fire a missile from fifty kilometers away and splash you while his own EW jams your missiles, it won't matter much how good a cannot shot you are or how well you can execute a barrel roll. Human reflexes, while still important, are taking a back seat to cybernetics. Area sensor grids (first used extensively on the Ho Chi Minh Trail), recon aircraft, and satellites would be needed to track down

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[continued from page 13]

the relatively tiny enemy units in the huge expanses of Antarctica. In some ways *War In The Ice* resembles a game on a World War II Pacific carrier battle, with task forces sneaking unseen through vast expanses, sending out scout planes to find the enemy and then setting the foe up for a first strike. Only when the action shifts to heavily patrolled base areas is the surprise factor negated.

I had trouble with the Basing rules. The idea is that an air unit chased out of its base can Ferry to any other base on the continent (tankers for air-to-air refueling are assumed to be present in sufficient numbers, though I didn't want to hassle with discrete units). A unit in the air during the combat phase is not prepared to do that, and unless a Friendly base is within its normal range it won't be able to make it. Units cannot do anything the Game-Turn after Ferrying because of the need to establish facilities, move the ground crews, and deal with sundry other administrative chores. The rule prohibiting fighters from providing escort unless stacked in base with the unit being escorted is admittedly a simplification and not totally accurate, but it simplifies the movement Initiative system considerably, and rewards players who plan ahead. Units can only be intercepted over target (or mission location) and cannot be intercepted while Ferrying because it is hard to plan a point defense mission for a wide area. Unless an air unit is loitering over an area the planes will be gone before the Interceptors arrive. A mission, incidentally, represents a series of sorties over a period of days, or sometimes just one short flight. Each combat round is about an hour, and it's not unreasonable to assume planes are returning to base to rearm after each round or three.

This war is being fought for economic gain, so every economic loss is more important than in a "crusade" like WWII or Vietnam. At the same time human life is less expendable. Hence the 80% "discount" on units that surrender rather than be destroyed. Droids are useful because they are expendable, plentiful, and no more expensive than manned machines.

Players must be aware of their special units' abilities to win. Engineers are necessary, since most of the bases on the map are uncomfortably out of range of enemy bases. (Incidentally, there are other bases in Antarctica, either too small, too isolated, or too close to the enemy to be important. Small bases too close to the enemy are unlikely to be built up in a time of tension, since they might

prove untenable.) Hovertanks are fast, can avoid battles, and are very effective on shelf ice, but useless in bad weather. The paras and airmobiles are a mobile reserve. Light Transports are good for short-range shuttling, while Transport Helicopters are good for carrying troops, especially in weather where airplanes cannot drop them.

The weather rules are also something of a simplification, in that the whole continent is affected equally by weather. While the worst weather generally hits all at once, it would have been possible to develop a Weather Area system whereby delineated zones suffered weather effects individually. We could have cyclone counters zipping around, and rules for weather control. Scott Rosenthal, who used to work on such affairs for the Defense Department, came up with all sorts of ideas for weather control based upon detonating nuclear devices in the atmosphere to shove winds around. I toyed with incorporating this, but doing it right would have entailed an excess of complexity in return for very little play value. Doing it simply would have been unfair to the idea. Some day we'll probably do a game with detailed weather rules, but this game has enough subsystems now. Scott also suggested nukes, pointing out all sorts of nifty uses they have (like melting ice, fracturing fault lines, wiping the few bases). I avoided this for three reasons. First, anything one side can do with nukes, the enemy can immediately counter. Second, it would make for a lousy game, since skillful player actions and maneuver would have less effect on deciding the game than tossing around kilotons. Third, the idea is obscene. Let us hope that no chief of a superpower state ever decides to use nuclear (or biological, or advanced chemical) weapons for a minor advantage in a minor war. Sure, it's natural for DoD personnel to plan for contingencies, but the idea of escalating to nukes in a war as minor and controlled as the *War In The Ice* scares the hell out of me. (I may be overly pessimistic, but I firmly believe that if any commander is allowed to use a tactical nuclear weapon anywhere, no matter how small, the escalation to citybusting multimegatonners is inevitable. Given the sort of leadership that would authorize a small one in the first place, that is.) No nukes. Not in my game.

There were lots of other suggestions, many of which have been incorporated. Some of my colleagues made helpful suggestions which I was very happy to ignore. Eric (*Swords & Sorcery*) Goldberg has been nagging me to put in killer

penguins for months. Lynn Willis pushed for dolphin suicide squads and radioactive seals. One of the playtesters suggested killer whales, which would attack units in shelf hexes by smashing up through the ice. Another one, somewhat misinformed, wondered where the polar bears were. Al Nofi wanted a Scott-Amundsen Race to the Pole scenario, which I suppose you could institute without much trouble. (After hours of watching documentaries on Antarctica as part of my research, I hope I never see another penguin, seal, or killer whale the rest of my life.)

I think *War In The Ice* is successful as a simulation. It could have been a much simpler game, but I'm counting on you to realize that a war in a place as strange and alien as Antarctica deserves a few details to illustrate its differences. As a game, it has quite a bit of flexibility. *Invent your own scenarios!* Don't feel limited by the information given here. If you wish to experiment with different force pools, unit types, weather effects, alliances, base locations, or anything else, go ahead and do it! Some of you folks have been known to write us, asking for "permission" to make changes in SF and fantasy games. If this comes from a confidence that we know more about what will happen in the future, it's flattering. But it's not true. Please, if you come up with some interesting information, share it by sending it to SPI's *MOVES* magazine.

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WAR IN THE ICE SITUATION BRIEFING

by Phil Kosnett

The *War in the Ice* erupted in earnest on 4 November 1991, after years of skirmishing. A product of confused and inept diplomacy, of paranoia and misunderstanding, of face-saving and unintentioned escalation, the War would last only six months. Not a civilian would die, not a city would be bombed. Only a few thousand soldiers would perish. Yet the war would topple governments and wreck the world's already hurting economy. Not since the Second World War had a conflict so disrupted the way of the world.

By October 1991, the USA and USSR had both decided to end to indecisive "Almost War" of patrolling and skirmishing. Negotiations had yet to yield any hope of a peaceful decision (see "Stumbling into War" Module), and now that true Antarctic combat units were available (see "Cold Steel" Module) the commanders were anxious to achieve a victory in the field. President Bradley and Premier Molosov gave the green light that month: as soon as Marshal Alexandrov and General Levine wished they could begin large-scale offensive operations. The Antarctic-trained units in reserve at home (training in Siberia and Alaska) were prepared to ship south as reinforcements. The winterization of aircraft was stepped up. The few thousand troops already in Antarctica were placed on alert; as soon as the weather cleared they would move out.

Marshal Alexandrov was an aggressive commander, a veteran of Angola and Ethiopia. He had decided months before that a sudden offensive could capture the forward American bases before they could be reinforced. He divided his land forces into three columns, each supported by air units.

Column Lenin would leave that base and take Wilkes, then advance along the 0026 axis toward McMurdo. (All map coordinates are given in the notation used in the 1991 USA Antarctic Survey maps.) It consisted of one mechanized task force ("mech" in USA slang), one team of drone tanks, and one van convoy. A squadron of An-42 "Tubby" transports based at Lenin was assigned to the Column for resupply.

Column A, of two mechs, one engineer brigade, and one van convoy, would move on Pole from Vostok and Komsomolskaya. The

engineers would construct a temporary base at the halfway point, within fighter range of the American base. Two MiG-47 "Flasher" fighter squadrons and two squadrons of Su-39 "Anchor" attack planes would ferry to the new base from the coast.

Column B would also close on Pole, approaching from Inaccessability through the 0015 axis. It was composed of a single mech and convoy. One squadron each of Flashers and Anchor were ferrying inland to Inaccessability (just out of range of Pole), while a Tubby squadron out of Molodezhnaya was assigned for resupply missions.

In addition, Alexandrov kept a single drone team at Nerolazarevskaya to discourage an American advance along the coast. A handful of tankers (used to refuel aircraft ferrying in from the coast) operated out of Molodezhnaya. Alexandrov's timetable called for the capture of Wilkes and Pole by the end of November, and McMurdo by March. Considering McMurdo's isolation behind a wall of mountains, glaciers, and the Ross Shelf, the last objective seems somewhat ambitious in retrospect. Alexandrov was confident that one quick victory at Pole would assure the success of subsequent operations. He had been promised any reinforcements and supplies he needed.

The American commander, Marine General Thomas Levine, had prepared a more circumspect plan. Levine was a tough, experienced officer with medals from Korea (he lied about his age), Vietnam, and Panama. Though somewhat out of his element, he was anxious to attack, as were most of his Marine officers. His Army staff argued to allow the Soviets to commit themselves first, exhaust themselves trekking across the Polar Plateau, then hit them when they reach the American zone. (This was also more acceptable politically, though by October of '91 the President was angry enough to authorize a first strike.) In the end Levine decided to hold on the defensive. His forces were also divided into three.

StrikeForce McMurdo, of one mech, one drone ("droid" to the men) team, and one van convoy, would advance through Victoria Land and move to threaten — but not attack — Vostok,

It would also be in position to block a thrust from Lenin. Two C-5Z Galaxy transport squadrons, one F-25 Polecat fighter squadron, and one airmobile team were stationed at McMurdo. The airmobile team was assigned as a mobile reserve for the whole of Antarctica Force.

StrikeForce Ellsworth would traverse Filchner Shelf between the Forrestal and Shackleton Ranges and take up position near the SAU's South Ice base. From there it could reinforce Pole or threaten Inaccessability. Two mechs and two van convoys composed the unit.

StrikeForce Pole was the strongest. A mech task force backed up a powerful garrison, with the only heavy artillery on the continent. A squadron of AH-18 Skua attack helicopters provided air cover. Two squadron of Polecats and one of EW-7 Hawk electronic warfare planes were to ferry in from Ellsworth at the end of the month. The base was crammed with supplies stored in underground warehouses and fuel tanks.

The American deployment ignored any possible threat from the SAU, whose neutrality had been assured by ultimatum. SAU forces in Antarctica were small, though both superpowers planned to avoid SAU bases — there was no reason to confront the SAU, and there was certainly room to go around.

After months of argument, the Americans decided not to defend Wilkes. Some officers lobbied for a large force in Wilkes to draw Soviet forces from the central front and to threaten Lenin and Mirnyy. While agreeing that this would be nice, the bulk of the officers — Levine included — thought Wilkes too exposed and too close to Soviet airpower. There was also a very real possibility that the Soviet Navy would blockade Wilkes (despite the danger of such an escalation) and cut off supply and retreat routes. Soviet forces in the area (the Indian Ocean) substantially outnumbered US Navy units. The last US contingent pulled out of Wilkes in late October after mining and booby-trapping every millimeter of the base.

The 200 kph winds of October gave way to

calm, clear skies at the end of the month. Projections indicated the good weather would last, though the meteorologists warned that Antarctic weather was less predictable than the weather in temperate zones. On 4 November the Soviet columns chugged out of base. CIA, NSA, and NASAS Intelligence reported this at once. American units left base the next day.

All went according to plan the first two weeks. All columns and StrikeForces reached their destinations, all aircraft reached their new stations. Column Lenin entered Wilkes on the 19th, losing two drones to the booby-traps. This triggered the political leaders on both sides, who "went public" and announced that there was a war on, something the public had been only dimly aware of. Bradley and Molosov, predictably, accused each other of causing the trouble and pledged to keep it controlled. To their credit, at no time did either man threaten to escalate to fullscale war — as Kennedy and Khrushchev had over the Cuba Incident, as Carter and Brezhnev had over the Seventh Arab-Israeli War. Both men *did* "uncork" their military, pouring men and equipment into Antarctica. The first reinforcements would not arrive by sea until December. Until then Levine and Alexandrov were on their own.

"It was Thanksgiving day — rumours were flying — we'd see action today — we'd be home by Christmas — you know, army holiday. Eating our cold C-Ration turkey, thinking about our families and why we were there — well, nobody felt too thankful. The order came down to move out and we did. That was it."

The first battle came on 21 November. The Hawks had pinpointed the position of B column 130 km from Pole at 1717. StrikeForce Ellsworth drove south and intercepted the Column, while Column A — minus the engineers, who were guarding the temporary base at 2120, diverted from the drive on Pole to join the battle. No fighters or attack planes were available — they were still ferrying or being installed in their new bases by the ground crews — but the Hawks and Skuas from Pole flew into the fray. The land force element of StrikeForce Pole remained at the base.

Lacking covering terrain, the Skuas could not employ the standard ground-hugging nape-of-earth tactics that had proved so successful in Panama and Lebanon. Ellsworth's commander, Colonel Hilleboe, nevertheless decided to let the helicopters spearhead his assault. At 1040 hours the Skuas screamed down on the Soviets, firing anti-armor missiles and dropping smart bombs. T-90 snowtanks and SAM-19s returned fire, but the superior Hawk electronics scrambled their fire control systems. Column B's Colonel Gaptchenko ordered both Columns into a loose hedgehog to close up the dome of anti-aircraft fire. The Skuas were reluctant to close on the killzone, jamming or no; they retired to stations several kilometers off and pumped barrages of standoff missiles into the hedgehog.

Hilleboe had chosen an air-intensive assault, thinking the Soviets would attempt to retreat, thereby breaking up their air defense zone. At 1100 he committed his mechs. Snowtanks advanced by bounding overwatch, half the platoons advancing, half suppressing fire from Soviet tank-killer teams. American personnel carriers disgorged their troops, who advanced with the tanks, while mortars gave covering fire with high explosive and smoke. The Marines advanced steadily and were giving better than they got. Gaptchenko decided to break off, leaving a van convoy as a decoy, but the EW-7 Hawks alerted Hilleboe to the withdrawal (by monitoring communications and infrared emanations they gained a clearer picture than visual observation in the confused battle) and he maintained contact.

At 1200, the Skuas returned from rearming and refueling at Pole. This time Ellsworth made a more methodical advance, working units around the flanks of the Soviet position. When the pincers closed, the embarrassed Colonel found the Soviets had retreated, leaving a small screen as rearguard. Again the Hawks provided a decisive edge, allowing Hilleboe to catch the Soviets as they withdrew toward Pole. By 1300 both sides had lost about 60 vehicles, the equivalent of a whole mech task force. Hilleboe sensed the Soviets were about to break and ordered an all-out attack, a "cavalry charge." The snowtanks charged right into a hedgehog, and in another savage melee, each side lost another 70 vehicles. At the same time, an American van convoy moving up to resupply what was left of Task Force Ellsworth ran into the remaining Soviet van convoy — there was no rear area in this battle — and their escort vehicles quickly wiped out each other as well as the vans in an orgy of exploding ammunition and fuel. The only intact land units were a single American van convoy, but the Skuas were returning for another round. He wisely decided to break off and was not pursued, since his mech, free of the need to combat enemy land forces, could form an invulnerable air destruction zone.

The First Battle of Pole Base was over. In five hours over fifty percent of the armor on the continent had been fireballed, a thousand men killed, a thousand more wounded. Gaptchenko and Hilleboe were both free from discipline; they were dead. In fact, the former had done an excellent job of predicting the latter's tactics. His defeat could be blamed on one flaw in the Soviet plan — they advanced too far without air support; more to the point, without *electronics*. The EW systems attached to the Soviet mechs were adequate for their primary mission — confusing enemy forces as to their precise location — but the advanced, flexible gear on the EW-7 Hawk AWACS (Airborne Warning and Control System) scrambled Soviet communications and worse, totally disrupted the SAM and cannon anti-aircraft systems. Comparable Soviet aircraft, or fighters to take down the Hawks, would have eliminated the threat.

"We thought the aircraft would end it for us fast..."

The first air battle of the war came the next day. A squadron of An-42s from Inaccessability attempted to airdrop supplies to the remnants of Columns A and B, escorted by two fighter squadrons. Two Polecat squadrons intercepted the Soviets over the drop zone. Both sides lost the equivalent of a full squadron in a few minutes. The transports made their drop and returned to base. It was clear that at this rate there would soon be few combat units left on the continent — but massive reinforcements were on the way, by air and sea. In the first week of December, StrikeForce McMurdo charged across the Plateau toward Vostok and Komsomolskaya; Lenin Column moved to intercept, but could not pin the American force down.

The Second Battle of Pole Base was joined, like the first, 130 km from the base. The difference was that the land forces — StrikeForce Pole and the survivors of First Pole, who had been intercepted before they could retreat to Inaccessability — were supported by newly arrived air units in impressive numbers. This time the American Skuas and Hawks were joined by a single Polecat squadron, while three squadrons of Flashers and two of Su-39 Anchors flew from Inaccessability and the temporary base dubbed "Vladivostok." Levine also dispatched a C-5Z squadron with para-equipped airmobile troops. After only an hour of combat, the Soviet mech and American airmobile team had been chewed to

pieces. One Flasher squadron had been downed by SAMs and another forced to abort its mission and return to base. American losses were crippling — the fighter, EW, and attack helicopter squadrons were all put out of action.

By now it was clear that aircraft were the weapon of decision in what had just been dubbed the "War in the Ice." Yet they were frustrated each time they tried to attack land units without the assistance of friendly land units, since the enemy could form an air defense zone which was "all but suicide to penetrate" in the words of one of the few pilots to try it and bring his aircraft out intact.

The war became less centralized around New Years, as ships disgorged men and vehicles at McMurdo, Ellsworth, Molodezhnaya, and Mirnyy. StrikeForce Pole detached a mech, which sped into Inaccessability; the aircraft based there fled to Vladivostok. Three hovertank teams (Column Mirnyy) beat StrikeForce McMurdo into Komsomolskaya, so the Americans rode into Vostok instead, hours ahead of Column Lenin — which had been shadowing it for weeks, never quite catching it. The American outfit was in big trouble — deep in enemy territory and beyond the range of air support. With a lot of luck and some well-timed fighting withdrawals, McMurdo managed to inflict as much damage as it received. Both StrikeForce McMurdo and Column Lenin were destroyed. Soviet aircraft losses were minimal, for this time the Soviets had the advantage of better electronics — on their Su-39s — and the American air defense was helpless. The Americans retreated from Inaccessability, which was also out of American fighter and ground support range.

The rest of the month was a period of reorganization. Supplies were brought forward by transport and van, and the Americans built a new base at 1824 — Miami. It was within fighter range of Vostok and Vladivostok; Levine would not advance without air support again. The distances discouraged any sort of patrolling or raiding between offensives, though there were air battles as fighters intercepted transports and EW planes snooping around the forward bases. The Soviets planned another two-pronged strike at Pole for early February, but postponed it because of the expected arrival of reinforcements. The reinforcements — three mechs, supply vans, engineers, and two squadrons each of Flashers and Anchors — arrived at Nerolazarevskaya on 17 February. Another mech and convoy were diverted to Wilkes. The new plan called for Column Mirnyy and Column C (which had relieved Inaccessability — two mechs, two convoys, a drone team and a laser battery) to move on Pole through the old Column A and B routes. Column Wilkes would threaten Hallett, north of McMurdo. Column D (the units from Nerolazarevskaya) would take Ellsworth. With winter coming on, the comparatively excellent weather the pilots had enjoyed could not be expected to last.

The Americans had received almost identical reinforcements — four mechs, two convoys, engineers, and two Polecat squadrons — and funnelled them all into Ellsworth. The American offensive plan was almost a mirror image of the Soviet. StrikeForces Miami and Ellsworth (now operating out of Pole) would take Vladivostok. The newly arrived force (dubbed StrikeForce Ellsworth-Bravo, in a fit of originality) would move to threaten both Inaccessability and Nerolazarevskaya. Weather was worsening, slowing ground movement and threatening to keep the air forces out of action altogether.

"Fighting there felt crazy, like we didn't exist, like it was happening in a movie nobody went to see."

The Americans kicked off their offensive on

20 February, the Soviets two days later. The bad weather was especially tough on Column Mirnyy's hover tanks, which were buffeted badly and reduced to a glacier-like crawl, unable to maintain steady lift. The two armies advanced, circling and lunging like two scorpions in a bottle. In March the armies made contact in a furious series of battles. From 4 March to 8 March, StrikeForce and Columns converged and blasted each other. When it was over, the strategic situation was drastically changed.

StrikeForce Ellsworth detached a droid team and convoy to make a diversionary attack on Vladivostok and charged into Inaccessability, which was occupied by a van convoy and some Tumbomolskaya. The transports flew to safety at Komsomolskaya. Ellsworth's Colonel Alsever issued a call for surrender, which the base commander declined. He called for air support and was rewarded with two squadrons of Flashers from Vladivostok. As the American snow tanks duelled with the convoy's escort vehicles and dismounted infantry mopped up in room-to-room fighting under the ice, Soviet planes dove through anti-aircraft fire to smash vehicle after vehicle. But the planes could not recapture the base without land units, and turned for Vladivostok to hear it had been captured by the droid detachment from Ellsworth.

The Americans had divided the droids and vans into several small units and attacked the base's engineer defenders from several directions. The engineers were copiously equipped with small arms, but had few anti-armor weapons. When they relinquished the base, the planes returning from Inaccessability were running low on fuel. The pilots ejected and three hundred million dollars worth of aircraft crashed into the ice near the base.

Meanwhile, back at the Pole, Column C had reached the base — the first Soviet force to make it all the way. Both sides lost aircraft, leaving the Soviet mechs to go in alone. The Soviet armor suffered heavily from the laser-guided 155mm cannon. By sacrificing the drones in diversionary charges, the Soviets overcame the defense. Tenacious Marine and Army infantry retreated underground and the battle replayed the Battle of Vladivostok hours before. Dismounted infantry traded grenades and bursts of automatic weapons fire until the base commander finally called a halt.

The next "day" (Antarctica is perpetually dark in March), StrikeForce Miami moved into Vostok's perimeter. Vostok was defended by a single hover-tank team, but the other two teams of Column Mirnyy were recalled from their slow drive on Pole and reached Vostok about the same time. Miami was supported by a squadron of Polecats and one of Falcons from Miami base; Mirnyy by a squadron of Anchors. Three hours after the first shot was fired, a single American mech held Vostok; casualties in the other units had broken them.

The last battle of "Bloody March" came on the 26th in Queen Maud Land. StrikeForce Ellsworth-Bravo was hunting for Column D. Both forces had left their engineer contingents behind, struggling to advance in their civilian-style snowcats. The mechs collided at 2109 after days of stalking for an advantage. In a throwback to ancient days when heralds met to negotiate the location of a battlefield, the frustrated commanders instructed their EW officers to lower their anti-sensor jamming, allowing the enemy to detect their precise locations. Out of air support range, the two forces met in a wild, swirling melee. After an hour of punishment in which he lost a third of his armor and inflicted insignificant losses on the Americans, the Soviet commander surrendered two intact mechs. (Colonel Torischeva thus gained his place in history — or so some historians

have claimed — by being the first Soviet officer to surrender his command intact and not be shot upon repatriation.) Again, both commanders tended to sacrifice vans in diversionary movements; sometimes it worked. For Torischeva, it hadn't.

Thus, on 1 April, the USA controlled all Soviet inland bases save Komsomolskaya, and they were in position to take that. The only Soviet forces left on the continent were Column D's retreating engineer brigade, Column Wilkes near the SAU's Charcot base, Column C's remaining mech, convoy, and laser battery around Pole, and six scattered aircraft squadrons. Premier Molosov had a problem.

"We weren't getting the reinforcements we thought we needed. We couldn't understand it."

Molosov, again, had the sense to reject escalation. Several contingency plans for action elsewhere — attacks on USA merchant shipping, a threat to Berlin or Moon Base — were presented to him, and in a stormy session of the Party Council, he ripped the hardcopies to shreds. Foreign Minister Kostidinov was instructed to go back to the bargaining table. At the same time Marshal Alexandrov in Molodezhnaya was relieved. His replacement, General Antopol, was instructed to do what he could to win at least a propaganda victory to influence negotiations, or at least hold onto as much as he could. He was not to expect reinforcements soon; the war was proving an unexpected drain on the nation's resources.

As difficult as Antopol's mission appeared on the surface, a close examination makes it look worse. Not only were his land forces weak and scattered, they were low on supplies. Some had been captured at Pole, but administrative foul-ups (not to mention wholesale slaughter of supply convoys) had wasted stocks. He had some transport aircraft, which he used to supply Columns by airdrop — although outrageously expensive because of the need for dummy drops (see Air War module). Antopol rightly decided that holding onto Soviet bases would not produce a propaganda victory. A bold stroke was needed to unsettle the Americans and make them anxious to agree to peace. An attack on the American bases might do it.

On 6 April, the same day the Americans entered Komsomolskaya without resistance, Column Wilkes moved toward Victoria Land. The weather had cleared, surprisingly, and the Column reached 1825 by the middle of the month. From there it could move on Nome (as Antopol wanted Levine to think) or McMurdo (which was the real objective). The American split StrikeForce Ellsworth-Bravo in four. The engineers fell back on Ellsworth to protect it against the engineers of Column D, who Antopol resupplied by airdrop and sent to threaten the base. One mech and a van pressed on to Nerolazarevskaya, driving between the Sor Rondane and Wohlthat Mountains. One mech headed for Molodezhnaya. Two more mechs headed for Pole, along with the mech from Inaccessability, to recapture the key airbase. What was left of StrikeForce Nome had already taken Komsomolskaya; it continued on toward Wilkes.

The great Soviet stroke came on 7 April. Leaving the vans and the laser battery to defend Pole, Column C's remaining mech struck out across the Polar Plateau for Byrd and Little Rockford! These bases had played no part in the war, far from the Soviet zone. They were ungarisoned. The Column commander, Colonel Vugin, hoped to take both and move on toward Little America. The wear and tear on his vehicles had been partially relieved by a refit in the American garage at Pole and if the weather stayed clear he

could be in Little Rockford by the end of the month. The Americans saw his objective, but could put nothing in his path.

The last battle of the war came on 20 April when the Americans assaulted Pole. The Soviets had flown four squadrons of fighters and ground attack planes into the base in March, and these dispatched two squadrons of Polecats flying from Vladivostok. The planes chewed up one of three attacking mechs, but the others had no trouble wiping out the convoy and laser battery holding the base. If the Soviet aircraft had been equipped with air-to-air refueling pods and avoided the last battle, they could have ferried to the coast. Instead, they were committed to action with weapons pods; with no more friendly bases within range, they repeated the action of the previous month, at Vladivostok. The planes went into the snow and the pilots into captivity. The "campaigning season" ended abruptly at the end of April when the first great gales began. With units all but immobilized by the weather, Levine and Antopol were ordered to cease fire.

Peace talks began in Geneva in mid-May, with the Soviets in an embarrassing military posture. American mechs sat in Wilkes and Nerolazarevskaya, ready to move down the coast. Another mech was only 150 km from Molodezhnaya. Vostok, Vladivostok, Inaccessability, and Komsomolskaya were in American hands. The Soviets had taken Byrd and had mechs in Little Rockford and Victoria Land (near Horseshoe Mountain — 1625), but they were being supplied only tenuously, by transports flying out of Mirnyy and Lenin. American reinforcements would arrive in Little America before Column C could. Things looked bad for the Soviets.

The first Interim agreement was signed in mid-May and entailed American withdrawal from Nerolazarevskaya and the Molodezhnaya area. In return, the Soviet units in American territory were to pull out. Weather made this a slow process, but by the end of July all units were in their own base areas. Some Soviet units were supplied by American fuel depots, and Column C was shipped home via Little America. Other Interim treaties proposed a timetable for the partial demilitarization of the continent, the establishment of the Antarctic Disarmament Board under United Nations auspices, and revived scientific cooperation — this time with energy prospecting the primary goal.

"Yeah, I lost a lot of friends. Funny, most of them didn't even know why."

The casualty figures for the First Antarctic Conflict (or, as the press christened it, the "War in the Ice") were low for a six-month war, but high considering there were fewer than a dozen pitched battles. The official figures show 2897 US Marine, 1211 US Army, 305 US Air Force, 191 US Navy dead from combat and combat-related accidents. Another 40-odd Americans died from exposure. Soviet losses are recorded as 200 Marine, 6200 Army, 330 Air Force, 16 Navy. Three New Zealanders were killed when a Polecat mistook their van for Soviet; other noncombatants had the sense to stay in their clearly-marked bases. Over 2000 prisoners were exchanged. An expedient means of guarding prisoners was to disarm them, drive them out into the wilderness, and leave them in quick-built emergency shelters. They couldn't walk to friendly bases and had no radios or communication lasers to call for help. Because both sides provided their prisoners with plenty of food and fuel for heating units, very few prisoners suffered from the bad winter; building the shelters in snowbanks saved them from the worst of the gales. Medical care for wounded men was

generally good despite shortages of medivac helicopters. Forward mobile hospitals accompanied the task forces, but had trouble keeping out of the line of fire. Providing insufficient medical personnel and equipment was only one mistake the Americans and Soviets committed.

Both armies had committed the cardinal sin of advancing into enemy territory beyond the range of friendly air cover. The Americans were especially guilty of this, largely because they had failed to commit engineer brigades in the opening phase of the campaign. Both sides had neglected to maintain airmobile or paratroop reserves — flying troops into Byrd or Nerolazarevskaya would have prevented their bloodless capture. Both sides kept insufficient garrison forces at their own bases when the mechs rolled out on offensives; the phenomena of Bloody March — where the USA and USSR traded bases — was the result. The Americans committed no laser anti-aircraft batteries, and the Soviets misused theirs by sending it across the Plateau in an offensive. In a friendly Base, the laser is an immensely potent weapon, able to draw on base power and immune to electronic jamming. (On the other hand, they are still very expensive, and reasonable men thought their worth would not outweigh their cost.) Light transports were neglected. The Soviets prepared squadrons of An-81 Terns; the Americans winterized C-171 light transports, but neither side shipped them to Antarctica. They would have been useful to shuttle supplies from forward bases to temporary bases or advancing units. Instead heavy transports had to carry out these dangerous missions when they were busy enough bringing supplies up from the coast.

Both sides have been accused of underestimating the usefulness of droid armor for diversionary movements. Essentially diversionary missions (Column Wilkes' move on Hallett, the American January occupation of Inaccessibility) were assigned to mechs badly needed elsewhere.

Probably the biggest mistake the combatants made was not deploying sensor grids. Plenty of land-deployed sensors were available in bases and depots throughout Antarctica. Instead of deploy-

ing the early warning grids, the armies relied on support from electronic warfare planes and ground attack/spotter aircraft, but these were vulnerable to anti-aircraft fire and enemy aircraft and suffered heavily. Their failure to utilize sensor grids meant the armies could seldom intercept forces approaching their bases; they had to wait until they entered the base perimeters. As for strategy, arguments have been raised and debated countless times. Many books and documentaries have dealt with the issue in more detail than is possible here. It does seem fair to say that Levine, Alexandrov, and Antopol were flexible; they did not fear changing objectives and shifting forces to meet new threats. If the overall strategy — charging for the enemy continually, with only the shortest of pauses between offensives — prevented forces from building up, it must be remembered that the commanders were prepared for a short war, not a long, savage "crusade." A little muscle, and the enemy would agree to a political settlement. In the end, this is what happened. The possibility always existed that Molosov and Bradley would be intransigent and the war drag on for years. That this did not happen is due in part to the fundamentally political (compromise-oriented) nature of the two men. It was due primarily to the popular uproar in the home countries.

"The worst of it is, I get back and find out everybody wants to forget it. I wish I could."

No one over twelve need be reminded of the anti-war riots in Washington, San Francisco, Moscow, Leningrad. Calling the anti-government grumbings in the Soviet Union "riots" may sound hyperbolic, but their meaning was not lost on Molosov. When the War in the Ice was only an extensive, expensive skirmish, the people tolerated it in the belief (carefully nurtured by government propaganda) that energy wealth would be won. After 4 November 1991, the true nature of the war was clear. The Americans had still not recovered from the trauma of Indochina and Panama; the Soviets were smarting from the guerrilla actions in Eastern Europe. The people were tired of war.

More importantly, it was hurting the economy. Traditionally the USA had operated more efficiently under a war economy. This time it was different — rather than allowing American industry to work at full capacity, the war was biting into increasingly limited American energy resources. Rich America was in no danger of having to make the classic decision between "guns and butter," yet the "butter" was not to improve if a war competed with the transition of the civilian economy from wasteful gluttony to thrifty, controlled gluttony. Bradley's breathtakingly one-sided defeat in the '92 election was clearly a result of the war — even though the USA was clearly the "winner" on the battlefield.

As for the USSR, the economy was becoming increasingly dislocated. For the first time in its existence, the USSR was beginning to meet the consumer needs of its people when another war came about. And while Molosov or Brezhnev might sell a small war in Africa or Asia by making sincere speeches about "Socialist Solidarity" and "Capitalist Imperialism," the Soviet people were not about to return to a permanent military economy in order to win another Siberian wasteland. They were still only beginning to develop the one they had. The Kaylar group on the Party Council was anxious to maintain the country's relative prosperity. These pressures on Molosov led to his retirement in '93 and his subsequent replacement by Chairman Kaylar. Kaylar and President Pangwynn have made impressive strides toward the institution of permanent peace and cooperation; the Kaylar-Pangwynn Treaty is a remarkable document promising true reductions in arms and a reassignment of resources toward the development of the Third World. It may be mankind's salvation. It would be an oversimplification to credit the War in the Ice with bringing this about. If the superpowers are growing tired of war, it is about time.

One last note: the quantity of fuel, fossil and fissionable, used in the War in the Ice is *greater* than the amount projected to be mined from Antarctica in the next hundred years. ■■

HOMO MYSTERIOUS

(Excerpt from the March 2126 Issue of the *Journal of Archeology*)

Since the Antarctic Survey has announced the completion of fall deep-radar and seismic operations after carefully examining the entire continent, we may assume that the 25 Stasis Complexes already found are indeed the sole remnant of the Subterranean Civilization. It is possible that somewhere deeper in the bedrock we will someday come across additional signs, but current deep-radar and laser-drill technology is not equal to the task of a methodical examination of the bedrock. In any case, the 25 Complexes found in the icecap are a coalmine of information.

There are 25 Complexes. Each is hexagonal, with a diameter of 287.6 meters and a height of 32 meters. Exterior insulation is provided by a sandwich of ordinary steel and a heat-retaining synthetic petrochemical plastic, but mineral — rather than petrochemical — based. Each contains 6561 individual stasis chambers, 729 vacuum equipment storage chambers, 81 larger vehicular storage chambers, and 9 elaborately protected individual chambers (for officers?). Power is provided by laser-activated nuclear fuel cells. All equipment is elaborately failsafed. Tectonic pressures have slipped some of the Complexes at crazy angles, yet none of the vacuum chambers have ruptured.

Of the 164,250 personnel Chambers on the continent, all but six were empty upon discovery. The six chambers holding Subterraneans had failed, killing their occupants. Analysis of the remains suggests that the last one died as recently as 1816.

The Vacuum Chambers were all intact. Hundreds of vehicles and thousands of personal weapons were recovered intact. While the vehicles are powered by fuel cells, the weapons are mostly conventional firearms not unlike bolt-action rifles and rocket launchers. All the equipment was discovered lubricated and ready to go into action.

Using uniforms, equipment, and the remains of the six Subterraneans, a tentative conclusion has been drawn that the Subterraneans were *homo sapiens*. The average male specimen was 190 cm tall, weighed 72 kilos, and was in every physical way identical to a modern man. The same was true of their women. *They were human*.

The following is conjecture. It is the generally accepted theory endorsed (for the want of anything better) by the World Science Foundation, suggested originally by the Antarctic Survey, reviled by individuals, civilian science groups, UFO Studies professors, and the newly founded Church of the Iceman Cometh. (The major religions have yet to comment officially, as theological debate has been dragging on for four years; they *have* agreed in condemning the Church of the Iceman Cometh as a group of lunatics.)

Sometime between 50,000 and 400,000 years ago, an advanced civilization existed in

the Pacific, perhaps on Mu — a continent once thought mythical, but now being given serious study. Just why this branch of humanity achieved a technological state so long before the rest of the world unknown. The date is so approximate because the unstable radioactive isotopes used by the Subterraneans have defied accurate dating — and there is little organic material in the Complexes — outside of that in Stasis.

The civilization established a colony on Antarctica, even then a frozen and inhospitable place. (It has been suggested that the Subterraneans possessed energy resources sufficient to melt whole sections of continental ice and render Antarctica temperate. There is no indication of this among the equipment discovered, but it cannot be ruled out.) Other representatives visited the developing primitives in other areas, leaving behind legends of alien visitors — gods. (This idea was widely embraced in a popular-culture craze of the 1970's, with extraterrestrials taking the place of Subterraneans. While it quickly ran its course as the "UFO nuts" were outdebated by archeologists and anthropologists, recent events have made the theory more reasonable. It has also been suggested that "Mu" might have been Australia or Chile.)

There was a war — probably a civil conflict, though we know absolutely nothing of Subterranean government or society. The losers retreated from Mu(?) and Antarctica, leaving behind a secret force in the Complexes. When the losers could mount a counterattack, they would activate the men in the Complexes, who would blast their way to the surface with the "icebreaker" demolitions and energy weapons and attack from within.

Mu, if it ever existed, is long gone. The defeated army never returned to Antarctica, and the "sleepers" never woke. What happened to the winners is unknown, of course. The theory has flaws — the most obvious is that it suggests a civilization on a continent as mysterious and possibly as mythical as Atlantis. Yet the other theories that have been offered are just as imperfect. Those who reject Mu and claim that Antarctica was the natural home of the Subterraneans ignore the difficulty of building any sort of culture in that environment — and the presence of thermal suits in the Complexes suggests that the Subterraneans, like us, are alien to the continent.

There are those who suggest Subterranean civilization is *much* older than thought — millions of years older, dating from the time when Antarctica was a temperate land. Civilization could have arisen there, and could have died there when the climate changed. The last survivors divided into two groups. One journeyed to the other continents and somehow lost its technology, perhaps even devolved physically (the most controversial aspect of the theory). The second group prepared to go into Stasis to await a time when the continent would be ice-free. Now, this seems extreme to us, but the anthropologists and psychologists are quick to point out the

folly of attaching modern motivations to a group as alien as the Subterraneans. But why all the weapons, and why no pioneering equipment? All the supplies recovered from the vacuum storage of the Complexes are things needed to maintain an army in the field: food, clothing, stimulant drugs, ammunition.

Another theory, borrowed from the "gods from outer space" proponents of the 1970's is that the Subterraneans are aliens. Evolution is a myth; Earth was colonized space. The aliens divided by choice or accident into two groups: the Antarcticans, who maintained technology, and the rest of us, who lost it and had to work our way up slowly from Cro-Magnon culture. Perhaps the Antarctic "originals" sent forth the occasional observer or advisor. Some time later (this time the argument is that the Subterraneans went into Stasis a *shorter* time ago, perhaps 4000 years), because of a civil war as generally accepted, or some other unknown reason, the Antarcticans prepared to go into Stasis. In this theory, as in all others, something went wrong and nobody, save the six, reached the Stasis complexes in time. But why would such a recent group be buried so deep in the ice?

It is this unarguable fact — that the Stasis Complexes are empty of men — that makes any theory containing "sleeper warriors" reasonable. If there was a war, then a sneak attack could have disrupted the plans of the losing faction, forcing them to retreat from the continent before they could execute the Stasis operation. Perhaps the six who did reach the Chambers were technicians making a final check. If all other evidence of the Subterraneans' civilization — their cities, their libraries, their laboratories — is gone, buried with Mu or even in the bedrock of Antarctica, we may know now all we ever will about the Subterraneans. The hope remains that somewhere beneath the armored Stasis Complexes something more indicative of the culture lies recoverable. But if the only way to reach the land is to melt the icecap (and raise the oceans 70 meters, drowning the coastal cities) that knowledge is forever lost to us. At the least, it must wait for a technological solution to the problem of unearthing the land beneath the ice.

While the mysteries remain mysteries, there is one tantalizing notion that invites speculation. Since the Subterraneans seemed ready to come up fighting, what might have occurred if they *did* "march to the sound of the guns" during the 1992 War in the Ice? That conflict (the first of the Energy Wars that plagued the 21st Century) was fought to determine survey rights for Antarctic fuel sources, and thousands of men in land vehicles and atmosphere craft covered the continent. If the Stasis Complexes had been ready and loaded, the heavy energy expenditures of the 20th Century vehicles and weapons might well have activated the Revival mechanisms. The image of the Subterranean infantry fighting to free the continent from a long-dead ancient enemy is one of the most haunting and bizarre "what-ifs" of modern history.

STUMBLING INTO WAR

When President Bradley ordered the geological survey of Antarctica he did not expect a profitable drilling operation right away. The relative expense of exploiting Antarctic oil (assuming a major strike was made) made it impossible. But he was farsighted enough to know that as other resources were exhausted, increased demand would someday make Antarctic fuel viable — and at the rate fossil fuel was being exhausted, it might not be long. The sooner any fuel was located, the sooner it could be used. If there was no major deposit, that would be worth knowing too. By mid-'86 a dozen American survey teams were making geologic and seismic examinations of the coastal zones and ice-free nunataks — the bare mountain peaks and plateaus poking through the ice cap.

The significance of this modest operation was not lost on the Soviet Union. Premier Molosov was very sensitive to the concept of "spheres of influence" and suspected Bradley was planning to issue a territorial claim to huge slices of Antarctica based on the doctrine of economic development; the Americans were doing something with the land, thus they deserved it. Neither the USA nor the USSR had ever had a territorial claim to Antarctica, but now that there was incentive things were apt to change. Molosov met secretly with Bradley's Secretary of State Bratek to discuss a *de facto* division of the continent. Since none of the other nations with interest in Antarctica had copied or challenged the American effort (and CIA and KGB intelligence showed they would not) it seemed the issue was purely American-Soviet, like most of the power struggles since 1945 had been. To back up his position, Molosov dispatched thirty Siberia-based survey teams to Molodezhnaya and Lenin Base.

Since no major finds had made (i.e., there was as yet no sign that Antarctica had economic value) Bradley was willing to negotiate. In fact, by mid-1987, after long months of tedious claim and counter claim, low-level diplomats had agreed on an acceptable demarcation of the continent. It would settle the conflict between the superpowers easily. It had been one of the most cordially handled diplomatic crises of the century. And it was doomed by two tragic mistakes.

In 1987, the South American Union had been in existence only five years. It is often forgotten now that the SAU was originally only an economic community like the EEC or COM-ECON; the individual national governments were not reduced to Grand Provincial status until 1993. South America was making impressive strides in the mid-80's and the rest of the industrialized world was finally beginning to recognize that South American industry and resources could be a major bulwark against the increasing domination of the world economy by the USA and USSR. In June of 1987 the SAU signed a Treaty of Economic Cooperation with European Economic Community. The treaty provided for a lowering of tariff barriers and a joint effort on several prestige projects — a space program, an ocean-farming program, joint research on solar and MagnetoHydro-Dynamic energy. Buried deep in a minor provision was an agreement that the SAU would exploit any resources of value found in the area of

Antarctic bases run by EEC nations. Years later CIA and KGB intelligence proved conclusively that the EEC and SAU had no real plans for Antarctic mining; the agreement was purely a symbolic challenge to "Soviet-American hegemony."

The Soviet-American negotiations were wrecked by this development. The Americans were in favor of cutting in the SAU for a piece of the pie. The Soviets would countenance no such thing, and on this issue the Americans and Soviets parted. Survey teams were ordered across the "green line", the *de facto* border, to survey "foreign" territory. (Remember, the wealth the two nations were so zealously guarding was as yet only hypothetical; no meaningful strikes had been made.)

In December of 1987 a survey team under Navy command was drilling a test hole near Wilkes base, just a few hundred kilometers from Lenin. Wilkes outraged the Soviets, as it had been closed for years and reopened when the first survey teams arrived; it was clearly in the Soviet "sphere of influence" and an affront to the USSR. The "green line" treaty would have closed the station; now the Americans had stepped up activity in the area. The commander at Lenin, acting independently, sent a survey team of his own down to Wilkes. It sighted the American team on December 14.

What happened next has been the subject of propaganda for years, and likely an accurate account is impossible. The Soviet and American survey commanders had an argument over the claim. The American leader (a Navy Lieutenant Commander) accused the Soviets of claim jumping. Both sides produced rifles (despite the Antarctic Treaty, it was not uncommon for small arms to be smuggled into Antarctica since the USA-USSR trouble began) and somebody opened fire. Within minutes the American Seabees and the Soviet engineers were filling the air with automatic weapons fire and a few stray rocket rounds. Fortunately, the firefight was ended after half an hour when a wind whipped the snow into a milky whiteout, and both sides hastily mounted their snowcats and drove like hell back to base. The Seabee commander was surprised to find that none of her people had been killed in the exchange.

Events moved with predictable speed after that. Bradley and Molosov condemned each other in the halls of the United Nations. Platoons of marines were shipped in to protect the survey teams (secretly, at first). American and Soviet propaganda reached its most hysterical levels since the 1960's. And the militarists on both sides, who had been lobbying for the development of Antarctic military forces for two years, were given the go-ahead. Crash programs of research and development were undertaken.

The rest of the world reacted calmly to the incident. It was not the first time the two superpowers had threatened each other over trivial matters; it hardly seemed important. The superpower propagandists found nobody was listening to their claims. Europe and Japan and China had more important issues to worry about having allowed themselves to be frozen out of Antarctica, they pursued other sources of energy. Only the SAU, struggling to assert itself, took a stand on Antarctica. It proclaimed

armed neutrality and took steps to protect its bases in Antarctica — the former Chilean and Argentine stations, the British and French bases it was now responsible for, and a South African station picked up at a bargain price (the South Africans had more pressing concerns and needed the foreign exchange).

Through 1988 and 1989 the situation in Antarctica deteriorated. Surveying continued, now an issue of national honor. Though the civilians tried to keep out of each other's way, the military teams played a dangerous game of "chicken." One nation would arrive at a promising site and begin to survey it with seismographs, the new deep-radar, and geological analysis. Intelligence or a recon satellite or aircraft would spot the survey team, and the enemy (for they were now thought of in that way) would dispatch a team of its own to the area. Diplomats became very adept at coming up with claims decades (even centuries) old to areas that had never been visited on foot, based on the primacy of aerial or naval explorers in the region. Survey teams armed themselves more heavily. A platoon of marines accompanied teams expecting to run into the enemy.

The American and Soviet leaders were not insane. While they found it difficult to thrash out a compromise solution on Antarctica, they kept the trouble from spreading to less isolated areas of the world. The NATO border was calm. Cosmonauts visited Moon Base on a highly publicized peacemaking mission. Just why the leadership could isolate the "malignant growth" of war in Antarctica, but could not amputate, is still unclear. Perhaps in another ten or twenty years a reasonably clear historical focus will develop. For now, suffice to say that the firefights became bloodier and more frequent. Whole companies of troops were shipped into McMurdo and Molodezhnaya, while combat aircraft were hurriedly winterized and flown in. Scientists were shipped home by the hundreds to make room for soldiers and weapons. Research came to a grinding halt, and after a while the marines guarding "survey teams" left the geologists and seismographs at base and went out on patrol with machine guns and anti-armor missile launchers mounted on their snowcats.

For it was a secret war. Civilians knew there was trouble in Antarctica; the Wilkes Incident had been shouted to the skies. But there was a communications blackout. Antarctica was easy to isolate, and the war was sufficiently low-key that mobilization was not needed. Civilians worried about inflation and the World Cup and especially about the cost of energy. They were willing to back up anything their government did in the pursuit of energy, and they asked few questions. And slowly, methodically, the United States and Soviet Union began to raise the stakes. By 1991 the jerry-rigged machine gun platforms had been replaced by spanking new experimental snowtanks and winterized hover tanks. Combat aircraft by the dozen flew recon and escort missions where sled dogs had trudged only thirty years earlier. Dozens of merchant ships (escorted by cruisers and frigates — just in case) maintained the massive supply line needed to support the armies and air forces. When Spring came in November, the snowtanks chugged out of base to settle accounts. ■ ■

COLD STEEL— ANTARCTIC LAND FORCES

Almost four years passed between the first skirmish of riflemen and the first tank battle in Antarctica, and in that interim a whole new type of combat force was designed from scratch on two continents. The Americans and Soviets drew on their experiences in Alaska and Siberia (peacetime training), in Antarctica (forty years of operating unarmed tracked vehicles), in World War II (armor battles in sub-zero weather) and computer model simulations to design a family of Antarctic combat vehicles. The results were surprisingly similar. The new Antarctic Mobile Force had to be capable of fighting in the world's harshest weather over equally perilous terrain, with a tenuous supply line and subject to electronic communication disruption. It might have to travel thousands of kilometers to battle — then deliver firepower to equal a much larger force. Considering the short time from blueprint to battlefield the new armies were remarkably effective. (The SAU's initial designs, in contrast, were demonstrable failures at the prototype stage; rather than redesign they saved time by bribing the American Secretary of Defense for a computer hardcopy blueprint of the entire series of Antarctica Combat Vehicles.)

The toughest problem in designing an Antarctic-environment tank was building a chassis that could maneuver at combat speeds with combat agility in soft snow. Civilian snowcats — even those with very low ground pressures and very high horsepower to weight ratios — have a disconcerting habit of bellying up in deep snow. Tail-heavy vehicles cannot climb any but the shallowest slopes. Nose-heavy tractors must climb very slowly and avoid any unevenness — which may cause the vehicle to swerve and slide downhill. Steering corrections (braking one track and accelerating the other) on soft snow may leave the vehicle spinning helplessly, unable to gain sufficient traction. A civilian vehicle can simply go into reverse, slide to the bottom of the slope, and try again. A combat vehicle stuck in the snow in a firefight is sure to be aflame in seconds.

The American solution was an articulated snowtank, the ACV-1. The Soviet design was almost identical, in part because of the unprecedented espionage effort by CIA and KGB which allowed designers of both nations to copy each other's strongest design innovations. The result was that American and Soviet vehicles required an aircraft-type IFF (Identification Friend or Foe) radio beacon in combat because visual identification was inaccurate, especially in bad weather. The SAU's use of exact copies of US designs contributed to the problem. A description of one vehicle serves to describe its counterpart.

The ACV-1 is an odd looking tank. It is articulated, with the two sections connected by a hydraulic ram which alters the angle between sections to keep the vehicle in balance. The center of gravity is just back of the center of area to facilitate climbing. Four independently suspended track sections (to stabilize the ride) draw power from the engine in the rear compartment, a diesel with a turbine "supercharger" for power boosts and cold-weather

starts. The track sections have two powered wheels (sprocket and bogie) while the road wheels and tracks are rubber-rimmed to prevent the wheels from freezing to the tracks. The tracks themselves are light and strong (an aluminum alloy) and extra-wide to reduce and better distribute weight. A ground pressure of 2 psi (a third or less that of normal light tanks) and a horsepower to weight ratio of 28 hp/ton (English system) give the ACV-1 excellent off-road mobility, which is particularly useful on a continent with no roads. While these characteristics alone are no guarantee of maneuverability on snow and ice, the novel articulated design and high-adhesion track cleats allow the ACV-1 to make 40kph on hard ice or flat rock, half that on snow. Safe cruising speed on shelf ice is 7 kph. On uneven, rocky slopes the ACV-1 moves like a conventional tank — none too quickly.

The need to keep weight down prohibited a heavy cannon or missile launcher for the ACV-2, so sophisticated lightweight weapons were substituted. The rear section holds an infantry-style Dragonslayer antiarmor missile package and gunner in addition to the engine and fuel tank. The front compartment holds the main weapon — a high-velocity 76mm cannon firing rocket-assisted shells and loaded automatically. Close anti-infantry protection is provided by a 12.7mm machine gun in the commander's cupola. Armor is a lightweight variant of the British Chobham sandwich. In addition, a bubble of bullet-resistant plastic over the commander's hatch gives him minimal protection against small arms fire while "heads up" as well as keeping the central heating from dissipating.

The Antarctic Combat Vehicle-1 was so successful in trials that its chassis was used as the base for the whole series of ACV's — personnel carriers, SAM and Laser platforms, self-propelled artillery (which developed bugs due to weight and was not used in action), and a standardized supply van. The van is very lightly armored and unarmed, enabling it to carry a payload of 2000 kilos. By far the most intriguing member of the ACV family is the Drone, Remotely Operated, Independently Directed — the "droid" tank.

The nature of modern war requires troops to carry out suicidal missions routinely. The nature of limited war requires commanders to spare their troops' lives wherever possible. The *War in the Ice* was a modern, limited war. Emphasizing the former requirement can lead to troops mutinying or at least a morale breakdown. Emphasizing the latter means some missions are not carried out at maximum efficiency. America has always been sensitive to casualties, and as the typical Soviet and South American peasant has become more educated their governments have been less able to throw away their soldiers' lives. Remotely piloted aircraft were introduced in the 1960's (by the USA, to fly dangerous recon and EW missions in Indochina) and now a need was perceived for a remotely crewed snowtank to make diversionary and suicide attacks, to ride point (advance scout — and first target) for a column of manned vehicles, to serve as rearguard in a retreat, and to act as "crevasse detector," riding point over shelf ice. (Despite the use of

FLIRT — Forward Looking Ice Radar Tester — more than one vehicle crew plunged to their deaths down an undetected fissure.)

The "droid" is a snowtank with computers and communication gear crammed into the crew compartments. A four-man tank crew in a control van, base, or, perhaps, even in Europe or America, sit in mock-ups of their crew positions, with TV cameras in the droid acting as their eyes. The crew activates controls just as they would in a snowtank; their actions are radioed or masered to the droid's data processor, which carries out the actions. The droid is *not* a match for a conventional crewed snowtank. The delay caused by the computer's order processing is only a matter of seconds, but in a tank battle that can be decisive. A tank is only as effective as its crew, and a crew whose effectiveness determines whether they live or die fights with a speed and ferocity unmatched by an equally talented crew whose mistakes only blank out their TV screens. In economic terms, a droid's computers and masers cost about as much as training for a four-man crew. In human terms, the droid is priceless.

In addition to the snowbank family, the Soviets introduced a type all their own, the hovertank. Armed and armored just like a snowtank, the hovertank has a distinct advantage on shelf ice and soft snow; it cannot belly up or slip down a crevasse and thus can maneuver in combat faster than a snowtank. Its fragile propulsion system used the most powerful fans yet used on a land-based hovercraft. The hovertank requires more maintenance (hence more logistics headaches than a snowtank), is useless on a slope, and cannot safely travel over the berg-strewn waters of Antarctica. Yet its value on flat ground is sufficient for the Soviets to have accepted it for use in Antarctica. The USA and SAU chose to build no hovertanks, cautious of its troublesome nature in high winds.

The *War in the Ice* was an armor war. Because a snow-mobile SP gun was not designed in time, artillery support was available only from the heavy howitzers of the base garrisons, which were broken down and carried in sections on vans for long distance travel, and from personnel carriers modified as mortar carriers. The tankers fell back on relying on aircraft for heavy firepower support. Mechanized infantry was integrated with the tanks in mobile task forces, but fought mounted most of the time. They dismounted only to develop — and suppress — tank ambushes. Ambush teams often had difficulty hiding in coverless, flat terrain; they either dug foxholes or crouched behind pressure ice — small ridge-like formations poking skyward from the snow. Ambush weapons were antiarmor missile launchers and laser designators which "painted" targets for mortars.

There were some pure-infantry formations. Combat engineers served a crucial purpose, constructing the temporary bases needed to base short-ranged aircraft in enemy territory; like combat engineers through history, they fought when necessary, "maybe not expertly, but bravely." The base garrisons relied on heavy infantry — men who could fight to hold a static position where the mobility advan-

tage of armored units was largely negated. The garrison's howitzer/laser designator team was instant death to a pure tank force.

The most important infantry units were Soviet and SAU paratroops and American airborne infantry. They were used sparingly in the war. Once dropped, they could not be used again until an airbase was captured and constructed and their transports flown in. Their threat while in reserve was usually greater than their usefulness in action against armor.

The nature of Antarctic battles was not unlike desert warfare. They were fought on tabletop terrain like that of the Western or Sinai Desert. Areas of soft snow slowed maneuver like soft sand. There was a similar reliance on infantry to clear prepared positions, on firepower for ground support, on powerful air defense systems to protect columns that could not take cover from air attack. Overall, there was the same reliance on armor for mobility and shock, and fluid battles fought over huge battlefields. Antarctica was every bit what Rommel called the desert — "a tactician's paradise and a logistician's hell."

UNIT ORGANIZATION

USA MECHANIZED COMBAT TASK FORCE (500 MEN)

Two droid platoons (ea. 6 × droid, 2 × control van)

Three tank companies (42 × ACV-1, 3 × ACV-1fc)

One mech company (14 × ACV-2, 1 × ACV-2fc)

One self-propelled artillery platoon (5 × ACV-5)

One laser platoon (5 × ACV-4)

One EW section (3 × EW van)

One supply company (20 × van, 8 × maintenance van)

In practice, the supply company (minus the maintenance platoon) was detached and grouped with other supply companies into a "Van Convoy," which was augmented by a tank platoon as escort. Tank and mech infantry companies consist of four platoons of three vehicles, a two-vehicle command element, and one vehicle modified to carry anti-air fire control gear. The special characteristics of the ACV's allows a simpler organization than conventional combined arms battalions. The anti-armor missile packs on ACV-1's and -2's negate the need for a separate missile company. Two platoons of droids attached from a Droid Team suffice as a recon element.

USSR "DROID" TEAM (300 men)

One mech platoon (3 × APC)

One laser section (2 × SAM-19)

Three droid companies (45 × droid)

Three sensor platoons (15 × control van)

One EW platoon (3 × EW van)

One supply company (5 × van, 5 × maintenance van)

When on a diversionary mission, manned infantry and anti-air elements were attached to increase the team's resemblance to a Task Force. When operating deep in enemy territory on a suicide mission, manned vehicles could be left at base and the droids controlled by satellite relayed laser communications from the base or home country. Anti-air fire is con-

trolled from the control vans; there are no droid-fc's.

USSR COMBAT ENGINEER BRIGADE (650 men)

One bulldozer company (10 × cat, 30 × dozer, 30 × dozer transport)

One hangar construction company (30 × cat, 20 × van)

One EW section (3 × EW van)

One infantry company (15 × cat)

One supply company (40 × van, 9 × maintenance van)

One laser platoon (6 × SAM-19)

The bulldozer company's task is the grading of airbases on snow or ice. The hangar construction company builds hangars, warehouses, and living quarters in air pockets scooped out of the ice. The EW section performs the usual jamming and detection missions, but has as a primary task the use of FLIRT radar to locate safe runway locations on shelf ice. A platoon of anti-air missiles is attached. All organic vehicles are civilian-style unarmored snowcats. The infantry company provides minimal security and "stiffening" for the lightly armed engineers.

USA GARRISON (1000 men)

Two infantry companies (30 × cat)

One artillery company (8 × 155mm, 24 × cat)

One laser company (8 × Falcon)

One sensor company (6 × EW van, 60 × RPV)

One engineer company (10 × cat)

The garrison is a powerful combined arms unit, which suffers from a lack of armored vehicles drastically reducing its ability in mobile combat. Defending a fixed position (which inevitably meant a base in the War in the Ice), its heavy artillery fires precision-guided shells which are guided to target by the laser designators of the infantry. Attackers surviving the artillery barrage can be picked off by the missile packs of the infantry — who are dug into camouflaged positions prepared by the engineers. The large EW detachment decreases the threat of serious communication disruption, while the RPV drone aircraft (D-997 "Watchdogs") are almost certain to pick up an enemy force penetrating the base's detection perimeter (radius: 65 km). Note: Supply and maintenance are carried out by base personnel; there is no organic S/M company. ■ ■

MAIN BATTLE TANKS

Characteristics	Mk IV Male	Panther	T-62	M-1	ACV-1	T-90
Nationality	UK	Germany	USSR	USA	USA	USSR
Year Introduced	1916	1943	1962	1979	1990	1990
Crew Size	8-9	5	4	4	4	4
Height (meters)	2.77	3.1	2.18	2.46	2.2	2.0
Weight (tons)	28	49.5	40.2	55	14.3	16.1
H/W (Hp/ton)	3.75	15.5	15.5	14	28	26.6
Ground Pressure	27.8	12.2	11.7	12.3	2.0	2.4
Max Armor (mm)	12.5	120	210	300	60	75
Main Gun (mm)	2 × 57	75	115	120	76RA	73RA
Ammo Quantity	204	79	40	75	70	75
Fire Control	none	none	stadia	laser	laser	laser
Effect Range (m)	500	1000	1500	3000	3000	3000
Secondary Armament	4 × MG	2 × MG	2 × MG	1 × MG 1 × GL	1 × MG 6 × AAGM	2 × MG 6 × AAGM
Cruising Range (km)	56	177	480	560	800	740
Road Speed (km)	6	46	50	72	40*	40*

RA = Rocket-Assisted

* Speed over solid ice or flat rock.

AIR WAR, ANTARCTIC STYLE

In contrast to their heavy investment in land force R&D, the superpowers put little money into developing specialized Antarctic aircraft. For decades they had used standard transports (modified to fly in harsh weather and low visibility) and now they found their latest all-weather fighters, electronic warfare planes, and ground attack aircraft equal to the rigors of the battlefield. Helicopters required expensive winterization, and were of limited usefulness due to their short range, but they were used in small numbers.

Aircraft in Antarctica had essentially four roles, all equally important to victory.

1) Air Transport. As they had done for decades, transport squadrons provided links between bases and land convoys. The limited number of supply vans available forced the armies to rely on airdrops for resupply. Transports also shuttled supplies from docks to inland bases and provided logistical flexibility — transferring supplies from central depots to threatened sectors as needed. Much *materiel* was wasted in airdrop, partly due to failed chutes and crushed crates — partly due to a new practice of dummy drops. Whenever a

squadron resupplied a column on the move, it made at least three drops of empty crates twenty to sixty kilometers away in case enemy aircraft spotted the airdrop. By the time the enemy could determine which drop was genuine, the column would be far away.

2) Air Detection. A *de facto* ban on reconnaissance satellites and commanders' misuse of ground-deployed sensor nets put the burden of recon on the EW and ground attack/spotter squadrons. The latter had begun to take on recon missions in the mid-'80s when air commanders found the heavy EW suites placed in the aircraft to defend them against anti-aircraft fire could be modified for ground scanning. While Intelligence could provide an approximate location for enemy troops, only air detection (or very rarely, land recon) could pin-point enemy concentrations. Ground scanning was a battle of electronics; trying to find an enemy column by visual observation was like looking for a marshmallow in a snow-drift.

3) Ground Support. Fighters and ground attack aircraft had the ability to attack enemy columns detected on the move, but they did not. Air attacks on ground units were made only when the ground units were locked in

combat with friendly land units. The new Interlock fire control system allowed fifteen or more tanks to tie into a single anti-air command, concentrating a powerful volume of fire from their dual-purpose anti-armor/anti-air missiles and rocket-assisted light cannon. Tanks once vulnerable to mass destruction by a few ground attack planes could now form circular hedgehogs to create an invulnerable air destruction zone up to 3000 meters. The surface-to-air missile batteries could handle anything higher, assuming the aircraft had no significant EW jamming advantage. With the number of combat aircraft on the continent measured in dozens, commanders were loathe to commit planes unless they could count on friendly ground forces scattering the enemy armor to nullify their anti-air strength. Individual anti-air attacks were still potent but far from sure kills. Even so, few aircraft survived intense air/land battles, the attrition rate for a four-hour battle was over 90%. Attack helicopters, usually restricted to base defense by their short range, were considered the most potent ground support aircraft; the USA had a longer experience with helicopters that showed in better, faster, more powerful attack helicopters. The Soviets countered by committing

THE NEW NEW WORLD

Until the 1980's few people in even industrialized, communication-intensive nations knew very much about Antarctica. Most people thought of it (when they thought of it at all) as a useless mass of ice and snow fit for only a few dedicated (if masochistic) scientists and penguins. The typical New Yorker or Muscovite or Paulista knew more about the Moon than Antarctica, even though the first permanent Antarctic base pre-dates Luna Base by four decades. And the notion of a war in this useless wasteland would have been laughed at, and with reason. Antarctica was probably the only land on Earth with no territorial claims on it. The 1959 Antarctic Treaty not only prohibited armament and the dumping of nuclear waste; it established the continent as an internationalized scientific reserve. The decades-old claims that had divided the continent into a gigantic pie graph were voided. The superpower might spend money furiously to improve their navies and iron the bugs out of the new KISS satellites and develop an efficient laser missile defense system, but they certainly didn't worry about confrontation in Antarctica.

While the nations of the world cared little about Antarctica, they had not invested in expensive scientific stations purely for love of science and abstract knowledge. Since exploration of the continent began in the 18th Century, prestige had been paramount in the minds of the men who funded the scientific expeditions. To this day, the question of who discovered landfall is argued by the proponents of the American sealer Palmer, the British explorer Bransfield, and the Russian explorer Bellingshausen. The year was 1820. The following decades saw hundreds of sealers and whalers in Antarctic waters, but by 1850 overcatching had exhausted the Antarctic sealing

ground and the continent was economically worthless. Save for a race between the USA, Britain, and France to find the South Magnetic Pole in 1840 — it turned out that the Pole was inland and the crews weren't equipped for a land expedition, so the search was abandoned — the continent was all but empty until the turn of the century.

The years 1897-1941 saw renewed and expanded activity. Belgian, Norwegian, and British exploratory teams established the first temporary bases, and in 1911 Amundsen made headlines by planting the Norwegian flag on the South Geographic Pole, beating the Briton Scott by a month. The introduction of the airplane and aerial photo-mapping gave the world its first picture of the interior — largely inaccurate, as it would turn out. By far the most important expeditions were those led by the American Admiral Byrd in 1929-30, 1934-5, and 1940. Byrd's force was military, but its mission was scientific. Byrd pioneered the air-ground cooperation that was to mark later, large-scale operations — supplying sled teams by air and using radio to communicate with bases established inland. He brought the first snowmobile and the first autogyro to Antarctic — both dismal failures. He photo-mapped thousands of square kilometers of the interior and used seismic soundings to measure the thickness of the shelf ice upon which his base, Little America, was built. Perhaps most importantly (though few recognized the significance of the find at the time) Byrd found coal and fossilized plants, just 350 kilometers from the Geographic Pole.

Antarctic operations, including Byrd's plan for a permanent settlement, were interrupted by World War II. Antarctica had no role in the war. A German expedition in 1938-39 had photo-mapped much of the area inland from present-day Tottenbukta Base, with an

eye toward staking a claim, and there was serious talk in Germany during the war of establishing a secret base for commerce raiders and U-boats in Antarctica, but it was deemed too dangerous because of the frequency of British traffic between the Falklands and South Africa. In 1946-7 Byrd returned to Little America with a huge war-surplus fleet, including an aircraft carrier, and 4700 men. This time he brought tracked vehicles and helicopters — the product of wartime technology. An advanced doctrine for the establishment and maintenance of bases was being developed, and it was about to be tested. In 1952 the major industrialized nations agreed to launch a coordinated scientific "assault" on the continent. Bases would be established all along the coast and throughout the interior. Scientists from all nations would travel freely between bases and share information. The program began in earnest in 1957 — the International Geophysical Year — and shockingly (considering the extraordinary nationalism and Capitalist/Communist paranoia of the time) it was a complete success. Half a hundred bases were established. Some were just tiny weather stations, others — such as Molodezhnaya and McMurdo — would have by 1980 populations running over a thousand. Ten years later the United States, Soviet Union, Britain, France, Norway, Belgium, Australia, New Zealand, Japan, Chile, Argentina, and South Africa still had permanent bases in operation.

Some of these nations had genuine scientific interests. Others established bases simply for national honor. The USSR needed to counter America's lead with similarly massive effort. Chile and Argentina found themselves in a smaller-scale but equally real contest. It was in a sense a terrestrial version of the "Space Race" just getting underway. Both

more fighters.

4) Interception. In addition to maintaining a traditional point defense — keeping fighter squadrons at numerous forward bases to protect them from enemy raids — air commanders used their fighters aggressively to deny enemy use of airspace within range of friendly bases. Air transport, airdrop, and especially air detection missions were subject to interception. Commanders became reluctant to commit aircraft to reconnoiter enemy bases defended by fighters. Commanders also took to augmenting transport squadrons with small fighter detachments to given them some air combat strength when unescorted.

There was little use of Remotely Piloted Vehicles (drones) in Antarctica. Recon drones maintained detection zones around bases. Light EW drones were used to scramble air defense EW systems, as decoys and jammer-platforms. But RPV fighters were not used, despite their availability in peacetime arsenals. It was officially maintained that RPVs were too fragile for the environment. Postwar memoirs have indicated that RPV fighters could have been used with no technical problems. Human fighter pilots were used simply because human fighter pilots wanted to fight. This is not the

place for a historical retrospective on fighter pilot *elan*; suffice it to say that no human fighter pilot was going to give up his berth in the cockpit and move to a control station. It was less exciting. Besides, RPVs were more expensive than manned fighters. Enough fighter pilots of general rank (older men remembering the "good old days") were around to block the march of progress. So fighter pilots flew, and fighter pilots died by the hundred.

Another high-technology weapon neglected during the war was the satellite. Reconnaissance satellites had been used for decades in peace and war — to keep track of potential enemy submarines and other forces, to inspect enemy activity on land from a height beyond the range of anti-air missiles. Not until the development of anti-satellite satellites in the mid-70's did recon satellites lose their position of invulnerability. The Laser ABM systems which neutralized ICBMs in the mid-'80's sealed the home countries off from satellite snooping. Recon satellites could have been used over Antarctica — the low power anti-air lasers used there offered only a minor threat. Anti-satellite satellites (like the newly deployed KISS models) would have killed the recon

satellites, but some useful intelligence could be obtained before the KISS swooped up for a kill. The recon satellites of the day were remarkably superior to contemporary recon aircraft, covering a vast area from high orbit. The decision to abstain from satellite warfare was a political one.

The war was limited by political restrictions that sometimes seem arbitrary. The combatants allowed laser weapons but grumbled ominously if the enemy moved gas south. Aircraft carried devastating firepower — but no naval combat support *at all* was tolerated. The stakes were not high enough for the war to escalate to non-conventional weapons or to spread beyond the continent. If recon satellites were launched they would be fair game; USA and USSR killer satellites had been downing reconsats for years, even in peacetime. And if reconsats were downed, the temptation to retaliate — by downing weathersats, civilian navigation sats, survey and geological survey sats, even manned spacecraft — would exist. The loss of only a few combatants refrained from sinking merchant shipping en route to Antarctica, they refrained from launching satellites. If they had, the results might have been decisive. ■■

Antarctica and the Moon offered nothing of intrinsic value, the benefits seemed restricted to a few ivory-tower scientists, and the general public didn't much care about Antarctica or Luna — though admittedly the television specials were exciting. (In hindsight, the technological benefits to *all* were priceless, but few realized the potential at the time.)

After much trial and some fatal error, a doctrine was developed for establishing and maintaining bases, influenced in part by Byrd's work. A convoy of transports and icebreakers would work its way through the pack-ice and bergs to the coast. Using photo-maps from earlier surveys, planes and helicopters from the convoy (and established bases in range) would scout out the best location. Supplies and equipment are then ferried in by aircraft, light planes landing on the ice and heavy transports dropping parachutes. A team of engineers would be flown in to grade a proper airstrip with bulldozers, allowing heavy transports to land. The construction of a permanent base could now begin.

Giant 'dozers scoop out huge trenches from the ice and snow. Steel arches roof the trenches to form air pockets. Pre-fabricated buildings are assembled in the trenches and snow scooped back onto the steel roof. The base is now insulated and protected from wind, with access to the surface by ladder and hatch. Living quarters, labs, warehouses, later reactors, desalination plants, even garages and hangars are constructed underground. The base can be expanded simply by flying in more pre-fab buildings.

Inland bases were built the same way, with a convoy of land vehicles preceding the transport aircraft. Bases were resupplied by air and land convoys, the latter using tracked vehicles (replacing dogs) exclusively by 1965. In winter aircraft were grounded (even those

that *could* fly in winter conditions generally stayed down for safety) and men left the warmth of their underground huts only to read the meteorological gear — and then they tied a rope from waist to hatch to keep from getting lost in the short walk. For as extensive studies have shown in detail, as any man could tell after an hour in Antarctica, it is a nightmare land.

Antarctica's statistics are impressive. It encompasses over 13,000,000 square kilometers, 140% of the area of the United States, with all but 800 km² of it covered year round by a sheet of ice up to 4000 meters thick. Much of the continent has been pressed below sea level by the ancient weight of ice; seemingly monolithic Antarctica would be an island group if the ice were to melt. (In 1978, ice-free lakes were detected beneath the cap.) Much of the coast is shelf ice over a kilometer deep. The shelf is far from solid; crevasses and caverns lie beneath the deceptive billiard-table smoothness of the surface. Vehicular movement, none too fast on the alternately solid and powdery snow of the plains, moves at a crawl — much like travel through a minefield. Slow-marching glaciers flow out to sea; paths of solid ice and snow must be scouted carefully, for even dogs have trouble climbing glaciers, and no vehicle can manage.

The horror of the terrain is matched by the incredible weather. The lowest recorded temperature is -126.9°F (-88.3°C). There is little rain and snow (under 100mm annually) but cyclone-intensity winds whip up the snow, producing a condition called *whiteout* — inevitably described as traveling through "a bowl of milk." Except for the penguins, skuas, albatross, and seals on the ice, the Arctic terns who migrate annually to avoid the months of darkness, and the men who live under the snow and ice, the continent is dead.

But it has not always been so. Byrd discovered coal and evidence of prehistoric plant life. In 1961 men from McMurdo discovered fossilized wood — including one log over five meters in length — near the base. Oil was discovered as early as 1962, near Lenin, and later in other areas. It was, of course, economically submarginal; it would cost more than it was worth to get it out — though perhaps someday it would bring a workable price. But the news was greeted with glee by the geologists who made the strike (while drilling for core samples) and others who wondered what mysteries the ice held. The strike all but confirmed the theory of plate tectonics which was rapidly gaining adherents in the 1960's — the theory that the continents were in constant motion. Plants and organic petroleum were not the product of an Antarctic environment. The continent had almost certainly moved south.

Had animals once roamed Antarctica — crossing over from India or Africa millions of years earlier — when the three regions were a single continent? It seemed probable. Paleontologists dreamed of drilling deep enough, perhaps to the bedrock beneath the ice, and finding the fossilized remains of dinosaurs. Practically, though, by the early '80's scientists agreed that they were apt to find life on a Jovian or Saturnian moon before they would unearth a single dinosaur bone or footprint from Antarctica.

There was a greater buried treasure. In 1985 the Bradley Administration assigned the Department of Energy and the Navy to survey the region around the American Antarctic bases for fuel — oil, gas, coal, uranium ore. Accidental strikes had been made before, but this was to be the first concerted effort to plot all fuel resources in the American zone. This seemingly innocuous plan led to war. ■■

War in the Ice Counter Section Nr. 1 (200 pieces): Front





















Quantity of Sections of this identical type: 1. Quantity of Sections (all types) in game: 2















Vandegrift  7-2-3-5	Patton  7-2-3-5	Walker  7-2-3-5	Abrams  7-2-3-5	Bradley  7-2-3-5	Jones  7-2-3-5	Hodges  7-2-3-5	Rodriguez  7-2-3-5	Robby  2-1-1-5	Goliath  2-1-1-5
Holmes 4  2-1-1-5	Harlie  2-1-1-5	Hal  2-1-1-5	Nomad  2-1-1-5	M-5  2-1-1-5	Gort  2-1-1-5	Robotrix  2-1-1-5	Skysweep  1-2-1-6	Skyblast  1-2-1-6	Skysmoke  1-2-1-6

Alpha  1-1-1-3	Bravo  1-1-1-3	Charlie  1-1-1-3	Dog  1-1-1-3	Easy  1-1-1-3	Fox  1-1-1-3	Ranger  6-3-4-2	Special F  6-3-4-2	Raider  6-3-4-2	SEAL  6-3-4-2
Hercules  3-2-3-4	Seabee  3-2-3-4	ChainGang  3-2-3-4	Army  8-8-8-8	Marine  8-8-8-8	 AH 9-3-3-2	 AH 9-3-3-2	 AH 9-3-3-2	 AH 9-3-3-2	 AH 9-3-3-2

Ftr  3-8-6-4	Ftr  3-8-6-4	Ftr  3-8-6-4	Ftr  3-8-6-4	Ftr  3-8-6-4	GS  8-3-6-6	GS  8-3-6-6	GS  8-3-6-6	GS  8-3-6-6	GS  8-3-6-6
EW  0-3-40-8	EW  0-3-40-8	EW  0-3-40-8	EW  0-3-40-8	A HT  0-2-40-5	B HT  0-2-40-5	C HT  0-2-40-5	D HT  0-2-40-5	E HT  0-2-40-5	F HT  0-2-40-5





















USA





















I TH  0-2-3-2	J TH  0-2-3-2	K TH  0-2-3-2	L TH  0-2-3-2	M LT  0-1-5-2	N LT  0-1-5-2	O LT  0-1-5-2	P LT  0-1-5-2	G HT  0-2-40-5	H HT  0-2-40-5
RSAT  110	RSAT  111	OR  112	OR  113	KISS  110	KISS  111	Miami  112	Waikiki  111	Tiiana  112	TPCDS  113

Sensor  101	Sensor  102	Sensor  103	Sensor  104	Sensor  VP × 1	Sensor  VP × 10	Sensor  VP × 100	Sensor  VP × 1000	Cavalry Charge A  Air-Intnsive C	Method-ical B  Combined Arms D
McMurdo  101	Eights  102	Wilkes  103	Pole  104	VP × 1	VP × 10	VP × 100	VP × 1000	Air-Intnsive C	Combined Arms D





















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Nevsky  6-3-4-5	Donskoy  6-3-4-5	Ivan  6-3-4-5	Peter  6-3-4-5	Kutuzov  6-3-4-5	Frunze  6-3-4-5	Zhukov  6-3-4-5	Katerina  1-2-2-5	Lizaveta  1-2-2-5	Alyona  1-2-2-5
Ludmilla  1-2-2-5	Natalya  1-2-2-5	Sonechka  1-2-2-5	Dunechka  1-2-2-5	Lidochka  1-2-2-5	Hammer  1-2-1-5	Sickle  1-2-1-5	Star  1-2-1-5	Cossack  4-3-4-5	Mongol  4-3-4-5

Bear  4-7-3-4	Tiger  4-7-3-4	Wolf  4-7-3-4	A-1  1-1-1-2	B-2  1-1-1-2	C-3  1-1-1-2	D-4  1-1-1-2	E-5  1-1-1-2	F-6  1-1-1-2	Turkoman  4-3-4-5
Eagle  4-7-3-4	14 Bde  2-4-3-4	19 Bde  2-4-3-4	Guards  7-8-6-7	Marine  7-8-6-7	 AH 6-4-2-2	 AH 6-4-2-2	 AH 6-4-2-2	Ftr  4-7-6-3	Ftr  4-7-6-3

EW  0-3-30-8	GS  7-4-5-7	GS  7-4-5-7	GS  7-4-5-7	GS  7-4-5-7	GS  7-4-5-7	Ftr  4-7-6-3	Ftr  4-7-6-3	Ftr  4-7-6-3	Ftr  4-7-6-3
EW  0-3-30-8	EW  0-3-30-8	EW  0-3-30-8	A HT  0-3-30-4	B HT  0-3-30-4	C HT  0-3-30-4	D HT  0-3-30-4	E HT  0-3-30-4	F HT  0-3-30-4	G LT  0-2-8-2

USSR

H LT  0-2-8-2	I LT  0-2-8-2	J LT  0-2-8-2	K LT  0-2-8-2	L LT  0-2-8-2	RSAT  201	RSAT  202	OR  203	OR  204	KISS  205
Sensor  201	Sensor  202	Sensor  203	Sensor  204	Sensor  205	Vladivostok  201	Murmansk  202	Archangel  203	UlanBator  204	KISS  205

Sensor  201	Sensor  202	Sensor  203	Cavalry Charge A  UlanBator 204	Method-ical B  Molodez 205	Air-Intnsive C  Inaccas 206	Combined Arms D  Nerolaz 207	VP × 1  Vostok 208	VP × 10  Komsom. 209	VP × 100  VP × 1000
Vladivostok  201	Murmansk  202	Archangel  203	UlanBator  204	Molodez  205	Inaccas  206	Nerolaz  207	Vostok  208	Komsom.  209	VP × 1000

War in the Ice Counter Section Nr. 1 (200 pieces): Back

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○ ○ ○ ○ ○ ○ ○ ⊗ ⊗ ⊗

Marine
GAR T
3-5-4-5

Guards
GAR T
3-5-4-5

⊗ ⊗ ⊗

OR
↑
MARS

OR
↑
STAR

MARS
2-10

STAR
2-12

VP
x - 100

VP
x - 10

VP
x - 1

Surrndr
Z

Mobile
Defense
Y

Hedge-
hog
X

Retreat
w/scrn
W

VP
x - 1000

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○ ○ ○ ○ ○ ○ ○ ○ ○ ○

⊗ ⊗ ⊗ ⊗ ○ ○ ○ ○ ○ ○

Marine
GAR T
4-4-5-5

Army
GAR T
4-4-5-5

⊗ ⊗ ⊗

OR
↑
MARS

OR
↑
STAR

MARS
2-9

STAR
2-11

Hedge-
hog
X

Retreat
w/Scr
W

Surrndr
Z

Mobile
Defense
Y

VP
x - 1000

VP
x - 100

VP
x - 10

VP
x - 1

War in the Ice Counter Section Nr. 2 (200 pieces): Front

Quantity of Sections of this identical type: 1. Quantity of Sections (all types) in game: 2

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Ltl Rkfd ★ 105	Ltl Amer ★ 106	Hallett ★ 107	Ellsworth ★ 108	Byrd ★ 109	Miami ★ 110	Waikiki ★ 111	Tijuana ★ 112	TPCDS ★ 113	A HT ✈
M LT ✈	N LT ✈	O LT ✈	B HT ✈	C HT ✈	D HT ✈	E HT ✈	F HT ✈	G HT ✈	H HT ✈
P LT ✈	I TH ✈	J TH ✈	K TH ✈	L TH ✈	Alpha ✈	Bravo ✈	Charlie ✈	Dog ✈	Easy ✈
GAME-TURN	Detctd	Detctd	Detctd	Detctd	Detctd	Detctd	Detctd	Detctd	Fox ✈

Lenin ★ 210	Mirnyy ★ 211	A-1 ✈	B-2 ✈	A HT ✈	B HT ✈	C HT ✈	D HT ✈	E HT ✈	F HT ✈
C-3 ✈	D-4 ✈	E-5 ✈	F-6 ✈	G LT ✈	H LT ✈	I LT ✈	J LT ✈	K LT ✈	L LT ✈
Oskynatic ✈ 4-7-2-4	Sesleh ✈ 4-7-2-4	Osmensin ✈ 4-7-2-4	Zwicyak ✈ 4-7-2-4	Jancosk ✈ 4-7-2-4	Snomphot ✈ 4-7-2-4	Silwil ✈ 4-7-2-4	Lelrim ✈ 4-7-2-4	Silelon ✈ 4-7-2-4	Veinn ✈ 4-7-2-4
Cemyffarc ✈ 4-7-2-4	Movias ✈ 4-7-2-4	Clusa ✈ 4-7-2-4	Drolger ✈ 4-7-2-4	Ineinhle ✈ 4-7-2-4	Damanleh ✈ 4-7-2-4	9 ✈ 3-3(2)4	81 ✈ 3-3(2)4	729 ✈ 3-3(2)4	656 ✈ 3-3(2)4

Sao Paulo ✈ 5-3-3-4	Asuncion ✈ 5-3-3-4	Detctd	Detctd	Detctd	Detctd	Detctd	Detctd	Detctd	Detctd
Santiago ✈ 5-3-3-4	Buenos A ✈ 5-3-3-4	Mntevideo ✈ 5-3-3-4	La Paz ✈ 5-3-3-4	Lima ✈ 5-3-3-4	Rio ✈ 1-1-1-4	Cncepcion ✈ 1-1-1-4	Barrancas ✈ 1-1-1-4	Santa Fe ✈ 1-1-1-4	Mercedes ✈ 1-1-1-4

Janeiro ✈ 1-1-1-3	Fevereiro ✈ 1-1-1-3	Abril ✈ 1-1-1-3	Maiio ✈ 1-1-1-3	Junho ✈ 1-1-1-3	Agosto ✈ 1-1-1-3	Vinho ✈ 1-3-1-5	Cerveja ✈ 1-3-1-5	Sucre ✈ 1-1-1-4	Callao ✈ 1-1-1-4
Incendio ✈ 3-6-4-3	Sol ✈ 3-6-4-3	Verao ✈ 3-6-4-3	Amazon ✈ 4-4-3-4	Parana ✈ 4-4-3-4	Nebina ✈ 7-7-9-7	Bandeira ✈ 7-7-9-7	Aconcagua ✈ 7-7-9-7	Bolivar ✈ 301	K ★ 302

Ipanema ✈ 303	Guaruja ✈ 304	BoaViagem ✈ 305	Cpacabana ✈ 306	D'Urville ★ 307	Charcot ★ 308	Tottnbkta ★ 309	South Ice ★ 310	Belgrano ★ 311	Z ★ 312
A HT ✈	B HT ✈	C HT ✈	D HT ✈	E HT ✈	F LT ✈	G LT ✈	H LT ✈	I LT ✈	J LT ✈

Detctd	Detctd	Detctd	Detctd	590 ✈ 1-1-1-4	531 ✈ 1-1-1-4	478 ✈ ?-?-1-4	430 ✈ ?-?-1-4	Beldar ✈ 0-0-0-9	Prymaat ✈ 0-0-0-9
Ftr ✈ 3-6-6-3	Ftr ✈ 3-6-6-3	Ftr ✈ 3-6-6-3	Ftr ✈ 3-6-6-3	Ftr ✈ 3-6-6-3	GS ✈ 8-3-6-6	GS ✈ 8-3-6-6	GS ✈ 8-3-6-6	GS ✈ 8-3-6-6	GS ✈ 8-3-6-6

EW ✈ 0-3-30-7	EW ✈ 0-3-30-7	EW ✈ 0-3-30-7	EW ✈ 0-3-30-7	A HT ✈ 0-2-30-4	B HT ✈ 0-2-30-4	C HT ✈ 0-2-30-4	D HT ✈ 0-2-30-4	E HT ✈ 0-2-30-4	F LT ✈ 0-2-6-2
Ipanema ✈ 303	Guaruja ✈ 304	BoaViagem ✈ 305	Cpacabana ✈ 306	G LT ✈ 0-2-6-2	H LT ✈ 0-2-6-2	I LT ✈ 0-2-6-2	J LT ✈ 0-2-6-2	K LT ✈ 0-2-6-2	L LT ✈ 0-2-6-2

SAU



K LT ✈	Janeiro ✈	Fevereiro ✈	Abril ✈	VP ✈ × 1	VP ✈ × 10	Sensor ✈	Sensor ✈	Sensor ✈	Sensor ✈
L LT ✈	Maiio ✈	Junho ✈	Agosta ✈	VP ✈ × 100	VP ✈ × 1000	Sensor ✈	Sensor ✈	Sensor ✈	Sensor ✈

[illegible]

						Melted	Melted	Melted	Melted
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[illegible]

Un-supplied	Un-supplied	Un-supplied	Un-supplied	Un-supplied	Un-supplied	Un-supplied	Un-supplied		
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Aconcagua	Bandeira	Nebula					
 T	 T	 T					
4-4-4-4	4-4-4-4	4-4-4-4					

USSR Victory Track

0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9
14	15	16	17	18	19	20	21	22	23
14	15	16	17	18	19	20	21	22	23
28	29	30	31	32	33	34	35	36	37
28	29	30	31	32	33	34	35	36	37
42	43	44	45	46	47	48	49	50	51
42	43	44	45	46	47	48	49	50	51
56	57	58	59	60	61	62	63	64	65
56	57	58	59	60	61	62	63	64	65
71	72	73	74	75	76	77	78	79	80
71	72	73	74	75	76	77	78	79	80
86	87	88	89	90	91	92	93	94	95
86	87	88	89	90	91	92	93	94	95
99	98	97	96	95	94	93	92	91	90
99	98	97	96	95	94	93	92	91	90
100	99	98	97	96	95	94	93	92	91
100	99	98	97	96	95	94	93	92	91

USSR Supply Track

0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9
14	15	16	17	18	19	20	21	22	23
14	15	16	17	18	19	20	21	22	23
28	29	30	31	32	33	34	35	36	37
28	29	30	31	32	33	34	35	36	37
42	43	44	45	46	47	48	49	50	51
42	43	44	45	46	47	48	49	50	51
56	57	58	59	60	61	62	63	64	65
56	57	58	59	60	61	62	63	64	65
71	72	73	74	75	76	77	78	79	80
71	72	73	74	75	76	77	78	79	80
86	87	88	89	90	91	92	93	94	95
86	87	88	89	90	91	92	93	94	95
99	98	97	96	95	94	93	92	91	90
99	98	97	96	95	94	93	92	91	90
100	99	98	97	96	95	94	93	92	91
100	99	98	97	96	95	94	93	92	91

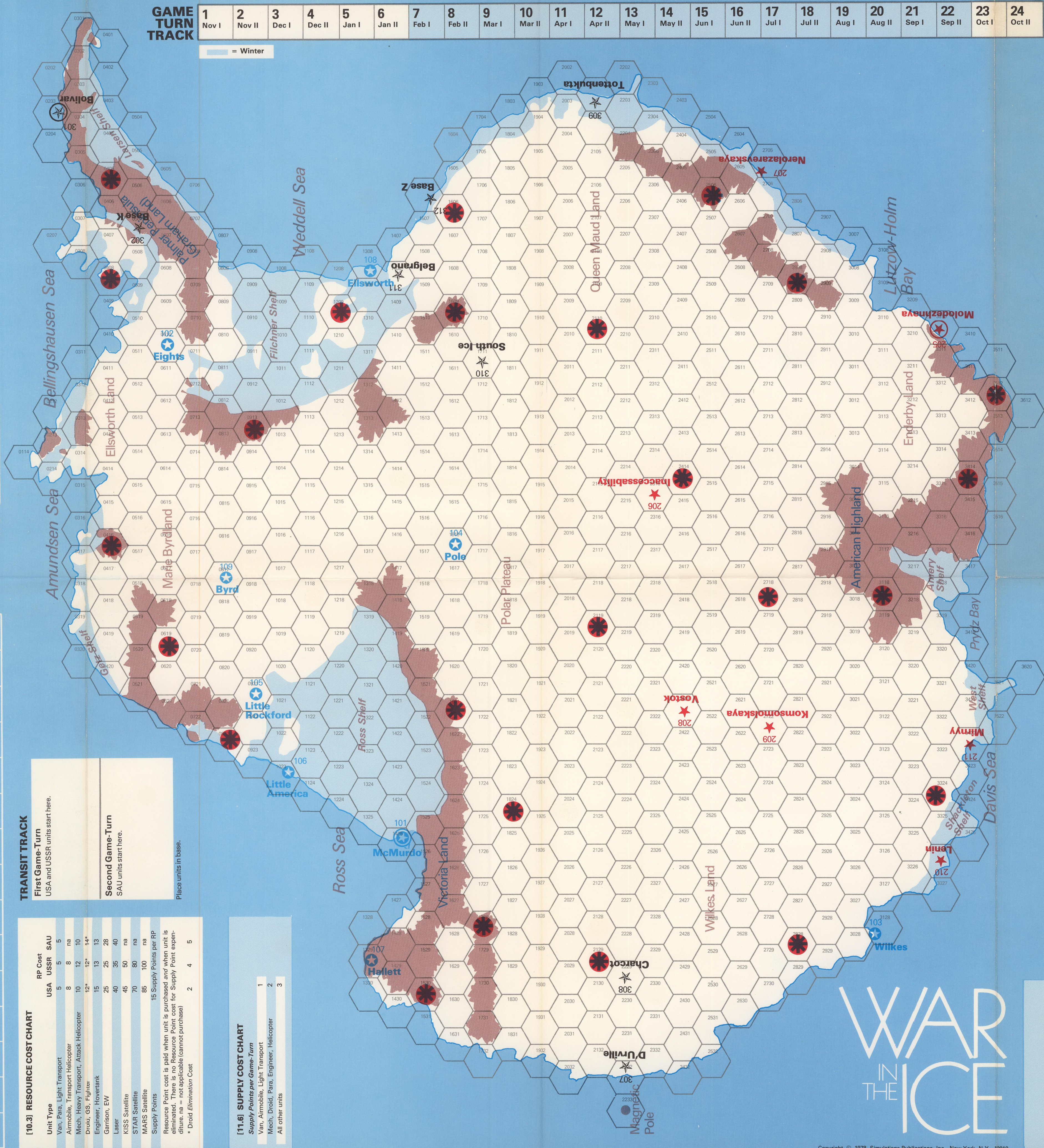
[6.3] TERRAIN EFFECTS CHART				
Terrain Type	Armor	Infantry	Hovercraft	
Snow	1	1	1	
Shelf Ice	5(4)	3	1	
Mountain/Glacier	4	1	P	
Snow & Shelf Ice	2	1	1	
Mountain/Glacier & Shelf Ice	4	3	P	

Numbers are movement point costs to enter hex of indicated terrain - Points, as indicated by the parenthesized cost.

[6.4] MOVEMENT ALLOWANCE CHART				
Unit Type	Good	Weather	Normal	Poor
USA & SAU				
Mech, Droid	6	4	2	
Van	5	3	2	
Laser	3	3	1	
Garrison	4	3	2	
Engineer	2	3	2	
Para	3	2	1	
Hovercraft	8	2	0	
USSR				
Mech, Droid	6	4	3	
Van	5	3	2	
Laser	3	3	2	
Garrison	4	3	2	
Engineer	2	3	2	
Para	3	2	1	
Hovercraft	8	2	0	

[15.5] WEATHER TABLE				
Time	Good	Normal	Poor	
1-3	2..7	8..9	10..12	
4-5	2..6	7..9	10..12	
6-8	2..6	7..8	9..12	
9-10	2..5	6..8	9..12	
11-13	2..4	5..7	8..12	
14-16	2..3	4..6	7..12	
17-18	2..2	3..4	5..12	
19-21	2..3	4..6	7..12	
22-24	2..4	5..8	9..12	

Results are range of results on two die necessary for indicated type of weather.



GAME TURN TRACK

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Nov I	Nov II	Dec I	Dec II	Jan I	Jan II	Feb I	Feb II	Mar I	Mar II	Apr I	Apr II	May I	May II	Jun I	Jun II	Jul I	Jul II	Aug I	Aug II	Sep I	Sep II	Oct I	Oct II

Winter

TRANSIT TRACK

First Game-Turn
USA and USSR units start here.

Second Game-Turn
SAU units start here.

Place units in base.

[10.3] RESOURCE COST CHART

Unit Type	RP Cost	USA	USSR	SAU
Van, Para, Light Transport	5	5	5	5
Airmobile, Transport Helicopter	8	8	na	10
Mech, Heavy Transport, Attack Helicopter	10	12	10	14*
Droid, GS, Fighter	12*	12*	12*	14*
Engineer, Hovercraft	15	13	13	13
Garrison, EW	25	25	28	40
Laser	40	35	40	40
KISS Satellite	45	50	na	na
STAR Satellite	70	80	na	na
MARS Satellite	85	100	na	na
Supply Points	15	Supply Points per RP		
Resource Point cost is paid when unit is purchased and when unit is eliminated. There is no Resource Point cost for Supply Point expenditure. na = not applicable (cannot purchase)				
* Droid Elimination Cost				

[11.6] SUPPLY COST CHART

Supply Points per Game-Turn	1	2	3
Van, Airmobile, Light Transport	1	2	3
Mech, Droid, Para, Engineer, Helicopter	1	2	3
All other units	1	2	3

USA Supply Track

0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9
14	15	16	17	18	19	20	21	22	23
14	15	16	17	18	19	20	21	22	23
28	29	30	31	32	33	34	35	36	37
28	29	30	31	32	33	34	35	36	37
42	43	44	45	46	47	48	49	50	51
42	43	44	45	46	47	48	49	50	51
56	57	58	59	60	61	62	63	64	65
56	57	58	59	60	61	62	63	64	65
71	72	73	74	75	76	77	78	79	80
71	72	73	74	75	76	77	78	79	80
86	87	88	89	90	91	92	93	94	95
86	87	88	89	90	91	92	93	94	95
99	98	97	96	95	94	93	92	91	90
99	98	97	96	95	94	93	92	91	90
100	99	98	97	96	95	94	93	92	91
100	99	98	97	96	95	94	93	92	91

SAU Supply Track

0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9
14	15	16	17	18	19	20	21	22	23
14	15	16	17	18	19	20	21	22	23
28	29	30	31	32	33	34	35	36	37
28	29	30	31	32	33	34	35	36	37
42	43	44	45	46	47	48	49	50	51
42	43	44	45	46	47	48	49	50	51
56	57	58	59	60	61	62	63	64	65
56	57	58	59	60	61	62	63	64	65
71	72	73	74	75	76	77	78	79	80
71	72	73	74	75	76	77	78	79	80
86	87	88	89	90	91	92	93	94	95
86	87	88	89	90	91	92	93	94	95
99	98	97	96	95	94	93	92	91	90
99	98	97	96	95	94	93	92	91	90
100	99	98	97	96	95	94	93	92	91
100	99	98	97	96	95	94	93	92	91

SAU Victory Track

0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9
14	15	16	17	18	19	20	21	22	23
14	15	16	17	18	19	20	21	22	23
28	29	30	31	32	33	34	35	36	37
28	29	30	31	32	33	34	35	36	37
42	43	44	45	46	47	48	49	50	51
42	43	44	45	46	47	48	49	50	51
56	57	58	59	60	61	62	63	64	65
56	57	58	59	60	61	62	63	64	65
71	72	73	74	75	76	77	78	79	80
71	72	73	74	75	76	77	78	79	80
86	87	88	89	90	91	92	93	94	95
86	87	88	89	90	91	92	93	94	95
99	98	97	96	95	94	93	92	91	90
99	98	97	96	95	94	93	92	91	90
100	99	98	97	96	95	94	93	92	91
100	99	98	97	96	95	94	93	92	91

WAR IN THE ICE