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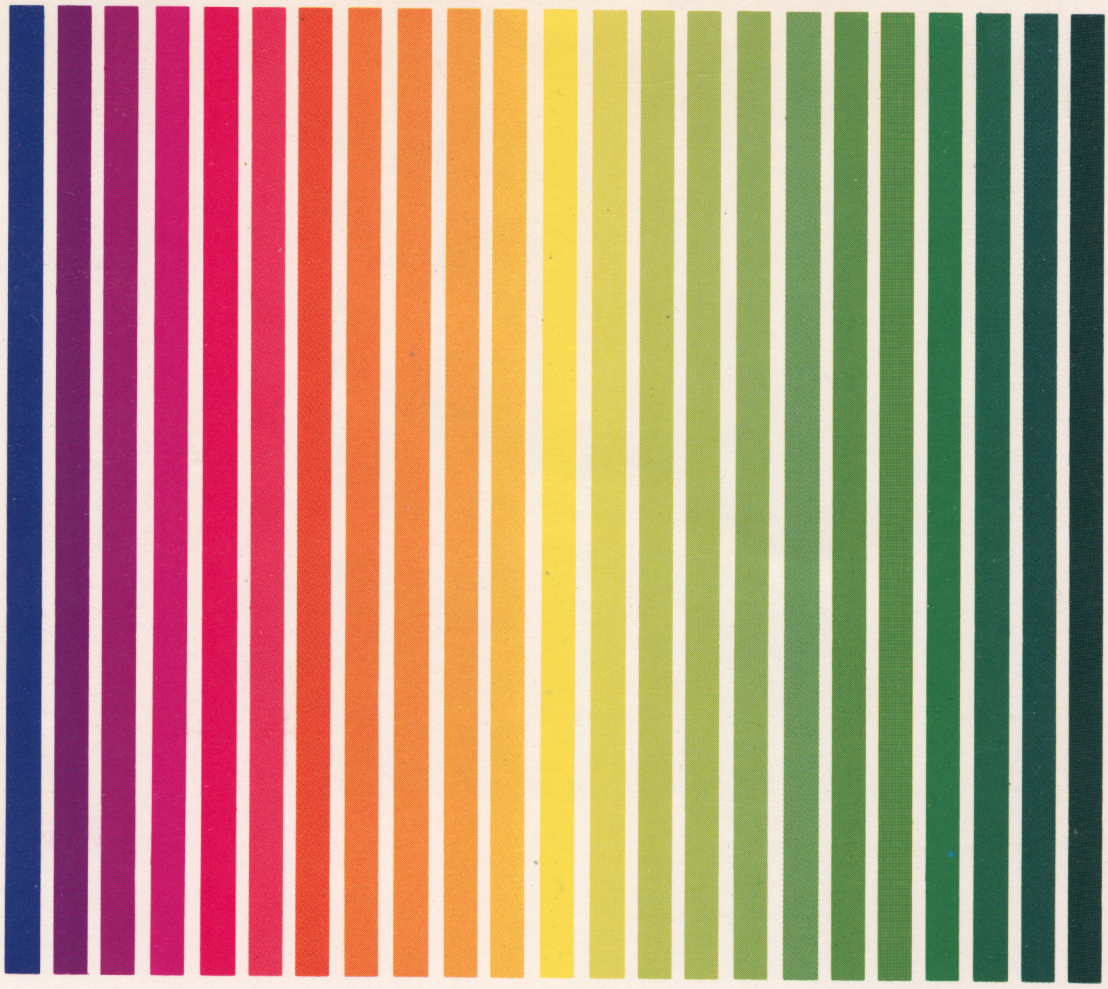

Chris Crawford

EASTERN FRONT (1941)

APX-10050 APX-20050

User-Written Software for ATARI Home Computers

Chris Crawford

EASTERN FRONT (1941)

APX-10050 APX-20050

EASTERN FRONT (1941)

by

Chris Crawford

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CONTENTS

INTRODUCTION

EASTERN FRONT 1941 is a simulation of Operation Barbarossa, the German invasion of Russia during World War II. The campaign that this invasion started lasted nearly four years and swept away perhaps 20 million lives. You play the part of the German commander, maneuvering your combat units to obtain a good position before the winter sets in and the Russian counteroffensives begin. The game is played on an ATARI 400™ or ATARI 800™ Personal Computer System with an ATARI 410™ program recorder or an ATARI 810™ disk drive. The cassette version requires at least 16K of RAM; the diskette version requires at least 32K of RAM.

This is an exceptionally complex game. You should read this manual thoroughly before attempting to play the game. If you try to play the game before you have digested the rules, you will probably become confused and frustrated. If you are new to wargames, you may find some of the concepts strange. All of the factors in the game have been put in for good reasons; the game really does make sense. If you go through the trial run, read the explanations and think them over, you will have a more enjoyable and rewarding experience than you would have by just grabbing a joystick and starting to play.

LOADING THE PROGRAM

If you have the cassette version, remove any program cartridges from the computer and slide the cassette into the program recorder. Rewind it to the beginning, then press PLAY. Hold down the START button on the console and turn on the computer. The console speaker will sound once. Release the START button and press RETURN. The program will automatically load and run.

If you have the diskette version, turn on the disk drive and insert the diskette. Remove any program cartridges from the computer and turn on power to the computer; the program will automatically load and run.

It is essential with both versions of this program that you start with the computer turned off and with no program cartridges in place. Once the program begins, you may find the colors more appealing if you turn up the brightness control on your television set or monitor.

TRIAL RUN

We shall begin with a trial run to familiarize you with the mechanics of the game. Plug a joystick into port 1 and you are ready for the trial run.

TOURING THE MAP

You will see a map of a portion of Russia. In the center of the map is a square pink cursor. (Because of adjustment differences between different televisions, colors on your television set may not be the same as in this description.) Manipulating the joystick will cause the cursor to move. When the cursor bumps into the edge of the screen, the entire map image will scroll to reveal other portions of the map. The white boundary marks the edge of the map. Wander over the map to familiarize yourself with the

terrain. Some symbols are not immediately obvious. Swamps are marked by a group of blue v-shaped symbols. Cities are white arrays of tiny rectangles. Mountains are orange triangles. Military units come in two shapes and two colors. Squares with x's in them indicate infantry units. Squares with smaller squares inside them (they are supposed to be ovals) indicate armored or cavalry units. Red units are Russian; white units are German or German allies. A map of the entire theater of operations is included at the end of this manual.

INSPECTING UNITS

Place the cursor on any unit and press the red joystick button. The unit will disappear, revealing the terrain underneath it. The cursor will light up to indicate that you have a unit in the cursor. Vital information on the unit will appear in the dark orange text window at the bottom of the screen. The unit's designation will appear on the upper line; its strength will appear on the lower line. There are two measures of strength. The first is muster strength, which measures how many men, tanks, and guns the unit has. The second is combat strength, which measures how effectively these resources can be brought to bear in battle. There is a difference between the two because no military organization operates perfectly in the shock of battle. The chaos and crisis of combat will generate confusion within the organization which will prevent it from fully deploying all of its strength. Loss of supplies can have a similar effect. The combat strength of the unit measures how much of the unit's military potential can be brought to bear by the commander.

The unit's designation is provided for purposes of historical color only. It does not affect the play of the game in any way. The unit type (infantry, militia, armor, panzer, or cavalry) is significant to the play of the game. Infantry or militia units (shown as a square with an X) move more slowly than armor, panzer, or cavalry units (shown as a square with a smaller square inside). The unit strengths are measured in arbitrary units which cannot be directly related to the absolute numbers of men, tanks, or guns.

GIVING ORDERS

If the unit is a German unit, a yellow cross appeared underneath the unit when you pressed the red button. This cross is the Maltakreuze, or maltese cross, and has been a symbol of the German nation for many years. In this game, the Maltakreuze marks the current objective of a German unit.

While still holding down the button, press the joystick in any direction (except diagonal). You will hear a feedback beep and the Maltakreuze will move one step in the direction indicated by the joystick. Release the joystick and the beep will stop. You have just given one order to that unit. A green arrow will appear at the unit's location and will travel to the Maltakreuze, thereby indicating the path that the unit will take. You can add more orders by pressing the joystick in another direction, or the original direction, and releasing it after each order. Each time you do, the

Maltakreuze will step in the direction you indicated. You can enter a maximum of eight orders for each unit. If you try to add more, a nasty buzzer will sound and an error message will appear in the yellow text window. If you release the red joystick button, you must wait for the Maltakreuze to appear before you can add more orders. If you make a mistake in giving orders, you can erase your existing orders by pressing the space bar on the keyboard while the red button is depressed. The Maltakreuze will return to the location of the unit in the cursor and you can start over.

EXECUTING ORDERS

Give orders to several units in the same vicinity; when you are done press the START button and watch them closely. The computer will execute the orders you have given your units. It will attempt to move them according to the rules of movement. If a unit attempts to enter a position held by an enemy unit, the computer will resolve the resulting combat according to the rules of combat. Whenever a battle occurs, the computer will make a gunshot sound. The many battles fought during movement execution will generate a sound rather like a machine gun. The computer will also flash the defending unit in solid color. Thus, you can hear and see the process of combat.

NEW TURN SEQUENCE

Once the move is completed, the computer takes about three seconds to perform a variety of calculations related to the passage of time. It updates the date message at the top of the screen and figures the passage of the seasons. It brings any reinforcements onto the map and adds replacements to units already on the map. It figures logistics and imposes penalties on units which are out of supply. It figures your current point score and posts it on the upper left corner of the dark orange text window. Finally, it notes if you have any reinforcements this turn; if so it places an asterisk in the upper right corner of the dark orange text window to remind you. When it is done, it will prompt you to begin entering your orders for the next turn. The game proceeds until March 29, 1942, when your performance is evaluated and you are assigned a score.

This completes the trial run. Now read the rest of this manual before playing your first real game of EASTERN FRONT 1941. The rest of this manual is devoted to discussing in detail each of the major subsystems of the game. Each topic is introduced with an explanation of the historical background for that section of the rules.

MOVEMENT

Historical Background

Movement is just as important a component of modern war as firepower. Napoleon's adage, "Impact equals mass times velocity", is still true. Indeed, the "Blitz" in Blitzkrieg refers to the speed of motion of the

attacking units. Thus, the primary effort in any general's job is figuring out how to move all the troops as quickly as possible. Numerous factors make this job difficult. First, many geographic factors combine to slow the troops down. The open steppes were excellent places for high-speed maneuvers, but swamps, rivers, mountains, and forests all slowed the units down. Second, weather could have a serious impact on the mobility of the combat units. Third, traffic jams often developed which tied up thousands of troops in gigantic snarls. Fourth, movement is simultaneous, meaning that orders given on one day may not work when they are executed. The general must somehow prepare his orders with all these factors in mind.

Mechanics

Movement is executed by a process that simulates real-time motion. Each turn is divided into 32 subturns. A unit which is ordered to move into a square does not do so immediately; instead, there is a delay of several subturns before it does so. The amount of delay depends on the terrain being entered, the type of unit, the season, and the presence of other units.

Open sea provides the longest delay, so long that no unit will ever enter an open sea square. Swamps provide the next longest delay. Next come rivers and coastline squares. Then come forests and mountains. Cities impose only a small delay and clear terrain offers the least delay. Units may not cross narrow sections of sea or lakes. The exception to this rule is the crossing at the Kerch Straits, connecting the Sea of Azov with the Black Sea. Units can cross there.

Armored units move faster than infantry units, except during mud season. Russian militia units cannot move of their own accord. They can retreat normally but cannot attack or move on their own.

ZONES OF CONTROL

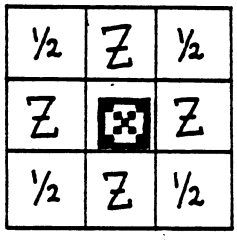
Historical background

The standard unit in this game, the corps for the Germans and the army for the Russians, would typically have thirty to fifty thousand men in it. However, if you were to fly over the unit on the battlefield, you would not see 50,000 men congregated together in a large mass. Instead, you would see many of the troops occupying the front lines, with a smaller number behind the lines acting as local reserves. Thus, the strength of the unit would be stretched out in a long line. Depicting this on a wargame map is difficult. The only way to accurately do it is to stack up lots of units shoulder to shoulder. There would be too many units for one person to control in any reasonable way. Wargame designers have developed a solution to this problem called the Zone of Control. The Zone of Control is a region surrounding a unit which restricts the motion of enemy units. You might imagine it to be like a force field around a unit. It is supposed to represent a portion of the unit spread out into nearby squares. Its real purpose is to keep the number of units in the game down to a reasonable level.

Mechanics

No unit can enter a square already occupied by a friendly unit. If a unit finds that its orders would take it into a square already so occupied, it politely waits until the blocking unit vacates the square.

The motion of units is hampered by the existence of zones of control created by enemy units. Each unit exerts a zone of control into the squares around it as shown in the following diagram:



A square marked Z has a zone of control; a square marked 1/2 has a zone of control only if another nearby friendly unit casts at least a half zone of control into it. A unit's motion is affected by enemy zones of control only, not by friendly zones of control.

No unit may move from one enemy controlled square to another enemy controlled square (exception: see combat discussion). Units may move into or out of enemy controlled squares freely, so long as they do not move directly from one enemy controlled square to another. For example, the movement shown on the left is legal, but the movement shown on the right would not be allowed.

COMBAT

Historical Background

Combat on the Eastern Front on the scale of corps and armies normally took one of three avenues. Sometimes it was nothing more than a bloody bashing match in which thousands died but neither opponent was badly enough damaged to give way. This was particularly frequent with Russian attacks. German attacks would frequently pierce the Russian unit and the Germans would pour through. German tactical skill played as much a part in this as Russian blundering. The third type of resolution obtained came infrequently at this stage of the war: the Russians would attack with such overwhelming strength that the German defenders would be crushed. In all types of battles, the Germans demonstrated better group cohesion than the Russians. They stood up and stayed fighting under conditions which would have precipitated collapse in their Russian counterparts. This was an important element in the early successes of the German army.

Mechanics

Combat occurs whenever a unit attempts to enter an enemy occupied square. This triggers a series of small battles. In each small battle, each unit attempts to inflict losses on the other. The probability that a unit will succeed in inflicting losses on its opponent is proportional to its combat strength. This probability is affected by terrain. Units defending in forest, mountains, or cities enjoy a defensive bonus. Units attacking from a river square suffer a penalty. The probability is also affected by the motion of the defender. Stationary defenders put up a better fight than moving ones. If the attempt to inflict losses succeeds, the opponent's muster strength is reduced by 1 and its combat strength is reduced by 5. Both units continue to slug it out until either the turn ends or one unit breaks. A unit breaks when its combat strength falls below its threshold for breaking. For German units this threshold is one half of the muster strength; for all other units the threshold is three quarters of the muster strength. Thus, German units can stand up and fight for longer than other units.

When an attacking unit breaks it simply stops attacking. When a defending unit breaks it must retreat. No unit may retreat into another unit, enemy or friendly. Furthermore, no unit may retreat into an enemy zone of control. A retreating unit first attempts to retreat directly away from its attacker; if the path is blocked it tries to go to the side. It loses 5 combat strength points each time its path is blocked. If the defender retreats, the attacker immediately advances into the defender's square. This happens regardless of the presence of enemy zones of control. If at any time a unit's combat strength reaches zero, the unit is destroyed and removed permanently from the map.

Units reorganize themselves automatically, thereby recovering combat strength. If no other processes act to deplete its combat strength, a unit will eventually recover all of its combat strength up to the limit of its muster strength. The rate of recovery depends on the muster strength of the

unit. Large units will recover combat strength faster than small ones.

Finnish units cannot attack; they defend normally.

The purpose of these rules is to emphasize the organizational aspect of warfare over the brute force aspect. A simple frontal assault will only cause some small losses on both sides without achieving decisive results. However, by concentrating a great deal of power on a single enemy unit, the unit can be pushed below its threshold in a single turn. The losses it suffers when it breaks will be much higher than the losses that could be inflicted by simple firepower. Furthermore, if the unit can be surrounded or otherwise denied a retreat route, it can be annihilated with far less effort than a simple frontal push. The emphasis is thus placed on maneuver (for surrounding) and concentration (to break the unit).

LOGISTICS

Historical Background

Modern war depends on the prompt provision of large quantities of materials for the fighting troops. The amount of supplies consumed by an army is truly staggering. A typical German corps during this period required about 150 tons of supplies every day. Supplies included ammunition, food, fuel, clothing, weapons parts, and medical supplies. Of these, ammunition was normally the largest portion. A single artillery piece can shoot off a ton of shells in a few minutes. A machine gun can run through 50 pounds of ammunition in the same time. It is easy to see then that supplies are vital to the combat effectiveness of any modern army.

Mechanics

Supplies are provided automatically to every unit which can trace a supply path to its edge of the map (exception: see Seasons). The Russian supply source is the east edge of the map. The German supply source is the west edge of the map. A supply path is traced by starting at the unit and heading straight for the map edge. The supply path is not affected by terrain, except open sea. The supply path can be blocked by enemy units or enemy zones of control. However, enemy zones of control are negated by the presence of friendly units for the purpose of evaluating supply. The path of supply need not be a straight line; it can bend around intervening blockages. However, it cannot twist and turn too much. When a unit's path of supply is threatened by enemy units in its rear, the evaluation of supply has a small random element in it. Thus, in tricky situations it is not possible to know precisely whether a unit will get supplies. Russian units cannot trace supply across open sea; German units can. Russian supply lines can be more convoluted than German supply lines.

Supply paths are traced and evaluated at the beginning of each weekly turn. The process takes about three seconds, during which time you cannot enter orders. Russian units in supply will get replacements to augment their muster strength, amounting to two additional muster strength points per turn.

German units and any Russian units that are out of supply get no replacements. Units out of supply have their combat strength cut in half. If a unit remains out of supply for several turns, the cumulative result of loss of supply can be devastating but not sufficient to destroy the unit.

SEASONS

The character of the war changed dramatically as the seasons changed. During the dry summer season, the Germans could take full advantage of their superior mobility and flexibility to wreak great destruction on the Soviets. When the mud season arrived in October, the German vehicles were mired and the German armies ground to a halt. Later, when the winter started, the Germans were back in business. Their successes in early winter soon evaporated as the temperature fell. The soldiers froze and the equipment malfunctioned.

Mechanics

To simulate the effects of the Russian weather, certain seasonal effects have been added. There are three seasons, each indicated by a ground color. Summer season is indicated by brown ground. Mud season is indicated by grey ground. During mud, all movement and combat slow to a crawl. All German units lose supply. Thus, not much happens during mud season. This gives both sides a chance to catch their breaths. Of course, time is working in the Russians' favor, so mud is ultimately a bad time for the Germans. Winter is indicated by white ground. During winter, mobility is better than in mud season but not as good as in summer. German units which can trace supply lines might nevertheless lose supply. This is meant to simulate not only the supply situation but also the precipitous drop in combat efficiency that the Germans experienced when the winter set in. Supplies did get through, but engines froze, guns jammed, and men suffered frostbite. The effect on combat strength was approximately the same as a loss of supplies. The farther east a German unit is, the smaller the chance that it will get supplies.

END OF GAME

The game lasts until March 29 1942, which is the 41st turn. The score you have reached on that turn (which is posted in the upper left corner of the orange text window) is your final game score. Victory points are earned by projecting as much muster strength as far to the east as possible. Victory points are lost for allowing the Russians to push combat strength to the west. Thus, maximum victory points are gained by moving as many muster strength points as far to the east as possible, while destroying as many Russian combat strength points as possible and pushing the remainder to the east. In addition, capturing and holding Moscow gains you 20 points. Leningrad, Stalingrad, and Sevastopol are each worth 10 points.

The highest possible score is 255 points. It is not difficult to achieve this score during the course of the game but it is very difficult to maintain it right to the end of the game. The game has been playtested many,

many times, but we do not know if our playtester's scores are representative of the scores that you might earn. Our own experience is that any score above 200 is excellent, while a score between 100 and 200 is very good. From 50 to 100 is good, and less than 50 points is not so good. Scores of 0 are not uncommon. This is a difficult game.

HANDICAP

There is a handicap provision for beginning players. If you press the OPTION key at any time, your troops will have their muster strength increased by 50%. It is best to exercise this option immediately upon beginning the game. This will give you a large handicap in your battles with the Soviets. There is a penalty for using this handicap option: your score will be halved if it is used. Therefore, I recommend you use this option only until you can beat the Russians enough to capture and hold Moscow. Once you have been able to take Moscow, refrain from using the handicap option. When you use the handicap option, the text window will change color from a dark orange to a tan color. This will remind you that you have used the handicap option. The handicap option can be used only once during the course of a game.

RESTARTING THE GAME

There is no provision for restarting this game nor is there a provision for saving the game for later retrieval. After all, the game takes about two or three hours to play.

COMPUTER THINKING

The computer plans its move while you plan yours. It considers its units one by one, plotting a move for each one. Initially the move it plans is rather clumsy, but the more time you give it to work on the move, the better the move will be. You should not try to hurry your move to give the computer less time to think; with the computer working at 1.79 Megahertz the odds are that you will be the only one to suffer from lack of time.

HINTS ON STRATEGY AND TACTICS

The basic flow of this game is very similar to the historic sequence of events. The Germans sweep in, wiping out Russian armies right and left. But the Russians keep fielding new armies and the Germans, depleted by a long campaign, start to run out of steam as they approach Moscow. They reach Moscow just as the mud season sets in but are unable to take it. When winter starts they resume their offensive and make further gains but are unable to achieve decisive results. Their rapidly fading strength and the growing strength of the Russians combine to first halt their advance and then turn it into a retreat. That's what should happen. The game does a fair job of duplicating that performance.

The strategies required to do all this revolve around mobility and concentration of strength. The armored units must be concentrated at weak points in the Russian line. Once the line is breached, the armored units must be poured through the hole without hesitation. After penetrating to the Russian rear, they must turn to encircle the retreating Russian armies. In so doing they will place both themselves and the Russians out of supply. The Russians will frantically try to escape from the trap and will hurl themselves at the beleaguered panzer corps. The deciding factor is the speed of the German infantry corps. Will they be fast enough to destroy the Russian armies before the Russians destroy the Panzers? If you handle your armies with skill and nerve, you will succeed. Be careful not to get your Panzer corps too far ahead of the infantry or they will be cut to shreds. You cannot afford to lose any Panzer corps during summer. Do not attempt to bite off more than, say, six Russian armies at a time. It is very difficult to reduce a pocket with too many Russians in it.

Plan the paths of attack of your units carefully. Sloppy planning will only produce traffic jams. You don't have time to sort out all the traffic jams. Get the orders right in the first place. Mobility is your biggest advantage over the Russians. Keep the army moving. Do not allow yourself to be bogged down in frontal attacks. Find the weak spot and concentrate your armor on it. When you have made a breakthrough, send one unit onto each shoulder of the hole to pin the retreating Russian units. This will prevent them from interfering with the deep penetration of the armored units.

Often you will cut off a single Russian army from the rest of the line. Do not waste valuable troops mopping it up. Only two corps, one on either side, will finish it off.

The Russian winter counteroffensive is a frightening experience. The Russians look overwhelmingly powerful. They cannot be stopped. They can be slowed. With good generalship, your losses can be minimized. Don't fight for every inch of ground. Give ground as necessary. Keep a small mobile reserve of armor. When a penetration occurs, send the armor to isolate the penetrating unit. Cut off its supplies, starve it, then finish it off. This mobile defence requires great skill but is very effective in slowing the Russian steamroller. Don't be alarmed when your point score steadily falls through the winter. This is the normal result of the Russian winter offensives.

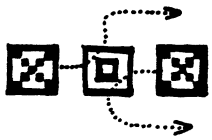
Remember the winter supply rule: the further east your troops are, the fewer supplies they will get. You should plan to pull back your troops during the winter to get better supplies. If a section of front is in serious trouble, pull it back quickly. It will give the troops some time to recover from the beating as well as giving them better supplies.

A final comment: this game is complex. In your first playing you will probably botch it. Don't feel bad. It will take a while to learn the techniques. Unlike an arcade game, this game requires a considerable investment of your time and intellectual effort to master. The rewards for this investment are correspondingly greater.

DESIGNER'S NOTES

There are a number of complaints levelled against this game design which emerged during playtesting. The first complaint is that the logistics rules are wrong. The random element of supply rankles some players. Supply on the Eastern Front was not a certain thing. Sometimes the supplies got through, sometimes they didn't. If a unit has a straight path of supply, it will certainly get supplies. Probability enters the picture in only two situations: when the supply path becomes twisted and during winter.

Another complaint levelled against the game concerns the aggravation of traffic jams. This is particularly irritating when two units attack a surrounded unit. Typically they destroy their victim but crash into each other. This prevents any further motion until their paths are straightened out. After much consideration I decided to leave the traffic jams in. Traffic jams were very much a part of Eastern Front combat. Besides, the problem can be minimized with careful planning. For example, if you have a Russian unit surrounded from two sides, it is quite possible to give orders that will work. The diagram illustrates the solution:



Having addressed the most obvious of the game's flaws I now turn to the pleasant task of discussing the game's strong points. The graphics elements are the most obvious. They are also the aspect of the game that I can take least credit for. Designing graphics on this computer is like riding a spirited horse---you loosen the reins and let it fly. Indeed, this game does not utilize all of the graphics capabilities of the machine. The game does not make use of one of the players, all of the missiles, player/playfield priorities and collision detection, four-color character sets, real-time color register indirection, and dynamic display lists. Thus, it makes use of only about 75 per cent of the graphics capability inherent in the machine. Much learning lies in front of us before we can say that we have mastered this computer.

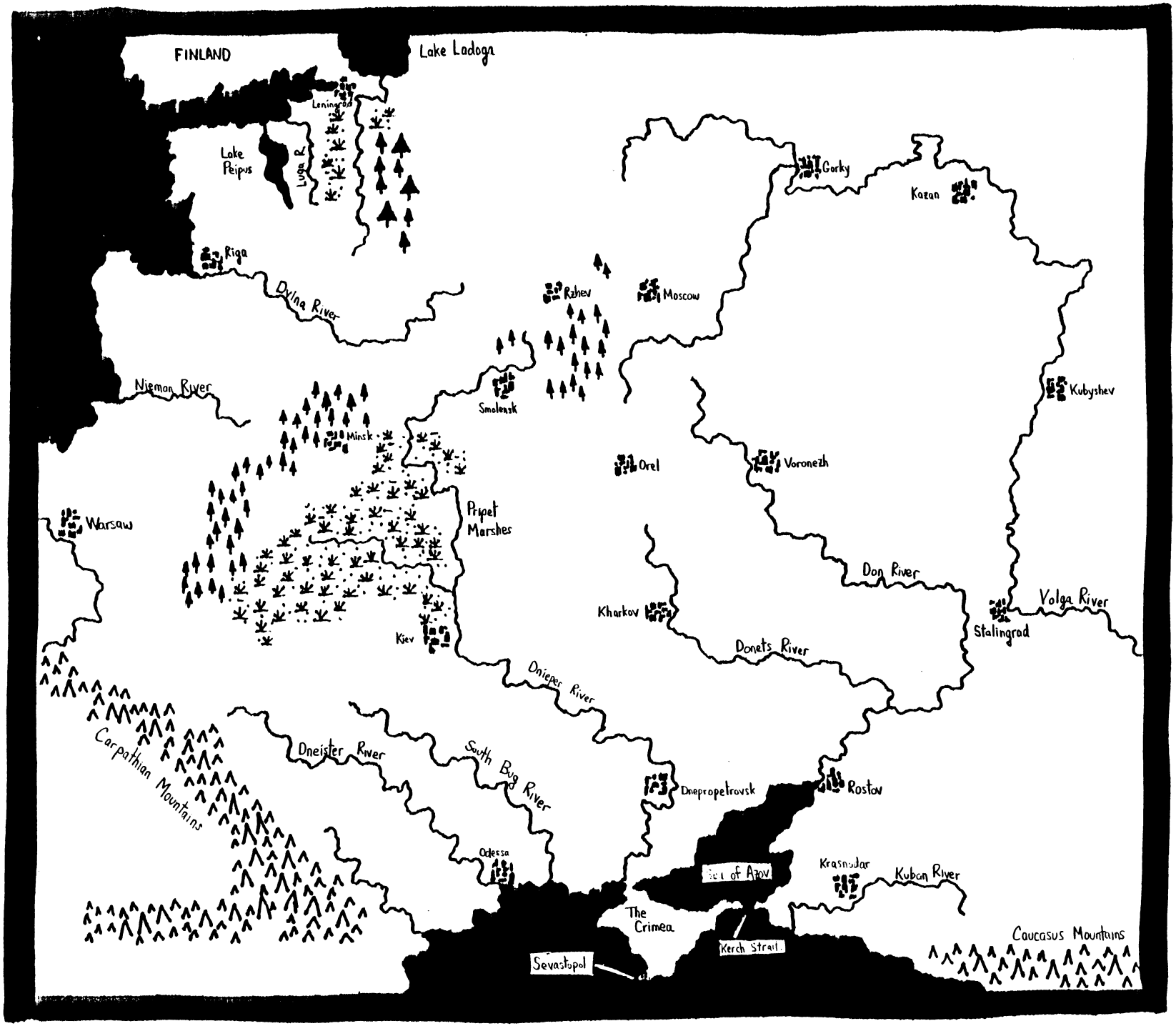
I take great pride in the input/output structure of this game. The joystick, graphics, and sound are integrated into a smoothly operating system. I spent nearly a month designing this arrangement, and another month implementing it. I wanted to design a game playable with only the joystick.

I failed; in the end there were those three buttons (START, OPTION, and SPACE BAR) that the user must also use to play the game. Those were painful concessions. Other game features were abandoned when I realized they could not be implemented without recourse to more keystrokes. I refuse to design a human engineering monstrosity.

The feature I am most proud of is the artificial intelligence the game uses. It is a trifle presumptuous of me to call it artificial intelligence, for the computer does not learn from its mistakes nor does it adjust its strategies in direct response to the human's move. However, it does analyze its position, it can recognize danger and opportunity, and it can react accordingly. It avoids (but cannot prevent) traffic jams. It also recognizes the combat value of terrain and plans its moves accordingly. The computer plans its moves while the human works on his own moves; this is accomplished with a vertical blank interrupt routine that separates the two processes. In effect, the computer is executing a technique called multitasking. The technique was difficult to implement but the result is well worth the effort. The other nifty aspect of the intelligence algorithms is that they are convergent approximations. The computer starts off with a rough guess of his best move, then refines it a little, then a little more, then a little more, and so on until the human finally presses the START key. Because of this the computer is always ready to begin a move, and yet will take the time to plan a move carefully if the human will let him. The human is never forced to wait for the computer.

This final version of EASTERN FRONT 1941 is the 317th version of the program. It took me eight months to complete. I am glad it's finished.

I AM TOO!- HIS WIFE


FINLAND
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Leningrad
Lake Peipus
Luga R.
Riga
Dvina River
Rzhev
Moscow
Gorky
Kazan
Kubyshev
Nieman River
Smolensk
Minsk
Orel
Voronezh
Warsaw
Pripet Marshes
Don River
Volga River
Kharkov
Stalingrad
Donets River
Kiev
Dnieper River
Carpathian Mountains
Dneister River
South Bug River
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ATARI PROGRAM EXCHANGE

REVIEW FORM

We're interested in your experiences with APX programs and documentation, both favorable and unfavorable. Many software authors are willing and eager to improve their programs if they know what users want. And, of course, we want to know about any bugs that slipped by us, so that the software author can fix them. We also want to know whether our documentation is meeting your needs. You are our best source for suggesting improvements! Please help us by taking a moment to fill in this review sheet. Fold the sheet in thirds and seal it so that the address on the bottom of the back becomes the envelope front. Thank you for helping us!

1. Name and APX number of program _____

2. If you have problems using the program, please describe them here.

_____

_____

_____

3. What do you especially like about this program?

_____

_____

_____

4. What do you think the program's weaknesses are?

_____

_____

_____

5. How can the catalog description be more accurate and/or comprehensive?

_____

_____

6. On a scale of 1 to 10, 1 being "poor" and 10 being "excellent", please rate the following aspects of this program?

_____ Easy to use
_____ User-oriented (e.g., menus, prompts, clear language)
_____ Enjoyable
_____ Self-instructive
_____ Useful (non-game software)
_____ Imaginative graphics and sound

7. Describe any technical errors you found in the user instructions (please give page numbers).

8. What did you especially like about the user instructions?

9. What revisions or additions would improve these instructions?

10. On a scale of 1 to 10, 1 representing "poor" and 10 representing "excellent", how would you rate the user instructions and why?

11. Other comments about the software or user instructions:

STAMP

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