

An analysis of Cannon
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1.0 Setting the Stage – Town Location

The initial placement of the towns, the relative position to their own soldiers, enemy soldiers, and each other effects the style of the game that follows.

1.1 In the Wings

Placing a town as far to the right or left as possible eliminates or hampers the ability of some enemy soldiers to reach the town through independent movement and would require a special effort to put the town in the soldier's forward movement zone by either a lateral cannon move, a lateral replacement capture, or a retreat move. For example if Black places its town on b1 the red soldier at j7 cannot reach the town on its own to attack it. The red soldier needs to reach at least c1 and the best it can do independently is d1. The red soldier at j8 will suffer the same limitation if it ever makes a move other than diagonally towards the black town. The red soldiers at j9 and h7 suffer the same limitation if they make more than one move straight forward or a single move diagonally away from the black town. And so on and so on with diminishing effect. With a black town on b1 five of Red's fifteen soldiers are significantly impacted. Red can get the soldiers mentioned above into cannon formations and with cannon moves get those soldiers into more flexible movement positions. However, while Red is making those moves to simply to get soldiers more into the game Black can be using the same moves to build or improve an offense.

The same is somewhat true for placing the black town on i1 though the effect is noticeably lessened. All red soldiers can still reach the town using only independent movement. The red soldier on b7 must make all moves diagonally towards the black town to do so and the red soldier on b8 can make only one move straight forward and none diagonally away from the town. And so on and so on with diminishing effect. With a black town on b7 two of Red's fifteen soldiers are significantly affected

1.2 Center Stage

Placing a town towards the center allows more of a player's soldiers to get out in front of the town to be defenders or attackers as best fits the game's progress. A large group of friendly soldiers in the center of the board acts as a very effective shield for the town beneath it, exerting influence over most of the board and forcing the opposing player to take extra turns to go around.

1.3. Open or Column

A second aspect of town placement is whether the town ends up behind a column of friendly soldiers or on an open file between columns of friendly soldiers.

1.3.1 Column

For Black the town locations of c1, e1, g1, and i1 provide a starting point behind a friendly column of soldiers. The town is hidden from view along a forward approach and Red must face the fact that Black's town can not be threatened with a vertical cannon shot without first dealing with Black's vertical cannon that is already in place.

A possible limitation of placing the town directly behind a cannon is that if the lead soldier of that cannon is threatened it can not retreat as the town blocks the way. It can only move forward to avoid cannon fire. How much of a limitation it is is unclear as moving forward to avoid cannon fire seems to be a good response. Also retreating in response to a threat may be a disadvantage. If the end game comes down to a race the side advancing soldiers will have an advantage over the side retreating soldiers.

1.3.2 Open

The town locations of b1, d1, f1, and h1 provide a starting point between columns of friendly soldiers. While this setup looks more exposed it does have some advantages. Instead of three friendly soldiers in the area for defense there are six soldiers. No Red vertical cannon is going to get close enough for a shot at Black's town without being subject to attack by the friendly column leads. For example, if a black town is on h1 the head of a red cannon would have to be at h4 to threaten the town where it would be subject to attack from g3, g4, i3, and i4 and subject to blocking by g2 and i2.

1.4 Opposing or Diagonal

The placement of the second town establishes another element of the style of the game that will follow based on the relative positions of the two towns.

1.4.1 The Impact of Going 2nd

When the two towns are placed diagonally from each other the soldiers in front of the home town tend to become defenders while those on the other side of the board, and in front of the enemy town, are attackers. In an opposing position near the center of the board soldiers are better able to play either role and it is easier to adjust the relative proportions of those soldiers that defend and those that attack. When an opposing position is created out in the wings those soldiers not in front of the towns tend to be attackers while those in front of the towns can be either defenders or attackers since they can advance without leaving their towns exposed. The second player has some choice in what kind of game to play to take advantage of the opponent's weaknesses or the player's strengths.

2.0 The Game Phases

2.1 The Opening Phase

A game of Cannon starts off with a flurry of action. Most every turn will involve creating a threat, countering a threat, or executing on a threat.

2.1.1 Exchanges

Exchanges characterize the opening phase of a game of Cannon. A player will frequently have a choice of pieces to eliminate or save. Which pieces get eliminated or saved will impact the formations of soldiers that develop to attack and defend in the mid-game. You are going to lose soldiers in the opening. Lose them efficiently with an eye towards the mid-game such as keeping pieces grouped instead of broken into smaller clusters.

2.1.2 Rushing Forward to Avoid Cannon Fire

In the opening when a soldier is threatened with cannon fire there is usually a choice of creating a counter cannon fire threat of moving forward to avoid the cannon fire threat. It would seem that to move forward would leave a piece isolated and subject the player to a material loss. It does not often work out that way. In most cases the advanced piece acts as a block to enemy advancement until it is eliminated. Usually by exchanging replacement attacks.

2.2 The Mid-game

After about a dozen moves or so the opening flurry will start to dwindle and it is time to organize the remaining troops and set off after the enemy and set about holding the enemy off.

2.2.1 Being dense/Lineup

It takes three soldiers to form one cannon, five soldiers to form two cannons, and seven soldiers to form five cannons. It is a good idea in general to keep your soldiers grouped. A sizable group of soldiers can usually form new cannons in a move or two.

2.2.2 Cannon fire

Cannon fire gives the ability to eliminate a piece without having to lose a piece in return; at least potentially. As a practical matter it is hard to force elimination by cannon fire unless it is the target rich environment of the opening stage of the game. That is because a cannon fire threat attacks a soldier from one direction leaving that soldier at least two other move directions to get out of the way. If the soldier is part of a cannon, adjacent to an enemy piece or being attacked from the side or behind it has even more moves available to avoid a cannon attack. It takes multiple cannons and multiple moves to drive an enemy soldier to an elimination that is not an exchange. What is really effective about cannon fire in the mid to endgame is the threat of cannon fire. That helps move enemy soldiers out of position and breaks up enemy formations.

2.2.3 Cannon maneuver

Having pieces in cannon formation allows your soldiers to move quickly. In a cannon move the rearmost soldier jumps to the front of the line, a distance that would require three independent moves. It also allows soldiers to get into positions that they could not reach on their own. There are some other advantages to cannon moves. 1) A forward cannon move means already having a backup soldier in place if the lead cannon soldier is attacked by another soldier; 2) Sideways cannon moves can get soldiers off the edge of the board and back into the game while the soldier's enemy counterpart is left out of the main area of play; 3) A retreating cannon move can target the soldier that was blocking it from shooting.

2.3 Tactical retreat

Retreats can accomplish many things. It can save a soldier from elimination, reposition a soldier so it can reach parts of the board it could not otherwise have reached on its own, allow an attack on an enemy soldier that was blocking cannon fire, buy time to win a town race or add a defender to a tactical fight going on behind the soldier.

2.3.1 By cannon

Just as a cannon move can rapidly advance a soldier for offensive purposes it can rapidly reposition a soldier for defense. This may be for defense of the moving soldier if it was under attack or it may be for town defense. Tactical retreat by cannon is very useful for a soldier that

has advanced too far and can no longer reach the enemy town. By backing up a soldier it can reposition itself when re-advancing to focus on the town. It can also be good for cannon reformation. Frequently additional cannons or additional cannon directions can be formed when one piece in a group of (say 5 or more) soldiers backs up then repositions as it moves forward.

2.3.2 By contact

This is more likely to be a purely defensive move than a cannon retreat. The range of the move is shorter being a fixed two spaces instead of three and it requires contact with an enemy soldier so the retreating soldier is almost always under threat of elimination. There are a few exceptions. For example, a black soldier can use a contact retreat move if there is a red soldier adjacent to it to the southwest, south, or southeast even though the red soldier is not attacking the black soldier. Like the cannon retreat backing up a piece can save a soldier, increase town defense, and/or reposition a soldier to increase its offensive or defensive contribution. If the end game has become a matter of soldier vs. soldier a retreat can buy critical time to win a town race. This is because two soldiers must be moved up over multiple turns to rethreaten the soldier that retreated.

The soldier retreat maneuver is an often-overlooked maneuver that can surprise your opponent.

3.0 The Endgame

The opening was a flurry of action and the mid-game organizing groups of soldiers amid intrusions by the enemy and playing out their clashes with the enemy. The distinction between mid-game and endgame is not as clear as the distinction between opening and mid-game. As the game goes on the number of soldiers remaining on the board steadily dwindles. At some point the end of the game is starting to come into sight.

3.1 The Eventual Value of Having a Material Advantage

A material advantage is usually not significant to immediately tip the balance of the game. Cannon pieces do not have moves that allow them to travel the length of the board and exert influence in an area they did not occupy last turn. If a player has a material advantage of a soldier or two but they are outside the currently contested area they are likely to stay outside the contested area and offer no current advantage. Giving up material to create a breakthrough or as part of bypassing defenders can create a game winning run on a town. The sooner the tactical advantage gained from a material sacrifice comes into play the better. The longer the game runs the greater the chance the material advantage can be put to use.

3.2 Evaluating Potential Outcomes

3.2.1 Someone Has a Clear Advantage

Cannon is a game with a lot of clarity. It is easy to see a fairly large number of moves ahead and there isn't much room for surprise maneuvers. If one player has a clear advantage the other player should consider resigning rather than drag it out.

3.2.2 It is a Race

Both sides have groups of soldiers that have made progress towards the enemy town. This type of endgame is more likely to occur in a game where the towns are diagonally opposite and

groups of attackers and defenders were distinct. While mid-game tactics may still apply it is time to add in some tactics of advance.

3.2.3 Down but not Out

One side is at a disadvantage. Their attack may have broken up while the enemy's continues to advance. They may have a defending group that can match an incoming attack group in numbers but the attacking group is better organized with more cannons and mobility. They might be in a race situation but behind by a move or two. While mid-game tactics may still apply it is time to think about some delay tactics and regaining the momentum.

3.3 The Tactics of Delay and Advance

3.3.1 Of Delay

Trade a soldier that is not a part of a cannon for one that is. Both sides lose a soldier but the enemy loses a cannon. Take the turns it takes to bring in a piece to rebuild that cannon to restart an offense or move in more defenders.

Move a soldier adjacent to an enemy soldier on the side opposite the town. It is best if there is a second friendly soldier adjacent to the moving one to counter attack. If the enemy takes the friendly soldier then both sides have lost a soldier while the enemy has moved away from the town, perhaps out of the town's zone or out of position to be a part of a cannon. If the enemy soldier remains adjacent the friendly soldier may be able to retreat two spaces and set up a blocking defense.

Retreat a soldier back towards the hometown. It can take multiple moves for the opponent to move up soldiers to threaten that soldier again. Those extra turns can be used to advance on the opponent's town. This can be the difference in a town race end game.

3.3.2 Of Advance

Use the mobility of a cannon to threaten to outrun or outflank some of the defenders. Avoid an exchange that would reduce the number of soldiers available below three. Sacrifice a soldier to enlarge or create a gap to move through.

4.0 Miscellaneous Tactics to Consider

My thoughts on these tactics are not fully developed but represent my current practices till I learn otherwise.

4.1 Don't get in a situation where a Cannon is needed for defense

Having to use a Cannon, usually horizontal, to prevent an enemy soldier from advancing along an open line to the hometown is usually a very weak defense. Three soldiers are being used to stop one enemy soldier creating a virtual material disadvantage. Such a defensive cannon is very easy to disrupt with a kamikaze attack.

4.2 Don't initiate that even exchange between soldiers

A typical even exchange of soldier attacks has one soldier moving forward to take another and then a second enemy soldier moving forward to counter attack. Both sides lose a soldier but the

counter attacker keeps their forward movement gain. For example, imagine four soldiers in a vertical line. Black has soldiers on c4 and c5 while Red has soldiers on c6 and c7. If Black takes Red c6 with c5 and then Red takes c6 with c7 the final position is Black on c4 and Red on c6. The space (sort of a front line) between the two soldiers is c5. If Red initiated the exchange the final positions are Black on c5 and Red on c7. The space between the two soldiers is now c6. Black's forward position is one advanced over where it would be if Black initiated the exchange.

4.3 Two vs Three moves away – pinning

If red and black soldiers are vertically two moves apart, say Black c5 and Red c7 then each blocks the other's forward advance barring interference or help from other soldiers. Alternatively, if the soldiers were Black c5 and Red d7 then the two soldiers cannot prevent the other from moving past it.

If the two soldiers are vertically three moves apart, say Black c5 and Red c8 then the moving player can either move directly forward and block the other soldier or move diagonally forward and create a passing situation. It may be giving an opponent an initiative advantage to move a soldier three moves directly vertically from an enemy soldier. This consideration would probably only happen in the end game with thinned down forces since the positions of other soldiers can disrupt the pin.

4.4 One soldier holding up two enemy soldiers

It is possible for one friendly soldier to hold up two enemy soldiers though it is rare. If Red has soldiers two columns apart, say d7 and g7 and Black has one soldier between them two rows below, either e5 or f5 then neither red soldier can advance straight forward or diagonally towards the black soldier without becoming adjacent and being eliminated. If either red soldier moves diagonally forward away from the black soldier the black soldier can shoot the gap. This consideration would probably only happen in the end game with thinned down forces since the positions of other soldiers can disrupt the hold.

4.5 Doing more forward cannon moves than the opponent

If the endgame becomes a town race the more advanced side generally has the advantage if other things, like material, are equal. Getting more soldiers further forward seems like a good idea keeping in mind that it is possible to over advance and let an enemy soldier slip in behind.

4.6 Have the front line of the conflict on the opponent's side of the board.

Since soldiers can move and attack in their front three spaces they could be considered to have a zone of control in those spaces. A series of these spaces defines a sort of front line. Establishing a front line closer to the enemy town when attrition causes defenses to fail is generally a good way to win a race endgame. Combining this idea with 4.5 and 4.2 above can create a very strong, and game winning, forward force.

5.0 Conclusion

The turn-to-turn tactics of cannon formation and maneuver are enjoyable. There is thrusting and parrying on a group level spread out over many turns. It is the many turns aspect that defines good play in Cannon. Cannon is a strategic game that rewards seeing the shape of things to come

and planning ahead. The placement of the towns affects the play of the rest of the game. Choosing what pieces are lost in the opening stage of the game shapes the structure of the game a dozen turns later. The relatively low piece mobility makes it possible to plan far ahead. All of this combines to create a strong strategic aspect to the game that rewards taking the long view.