

# Baroque Cycle Reading Notes

## IMPORTANT NOTE

- I lost the notes to the first several chapters of the book. I start as follows.

## Royal Society Meetings, Gunfleet House (1673)

- Founder Wilkins of Royal society finally dies due to kidney stone never being removed
- Society is doing autopsy
- Waterhouse gets annoyed over Royal Society members making political remarks instead of focusing on Wilkins
- Waterhouse leaves meeting
- Waterhouse talks with Robert Comstock - who has started to use "insider trading" (before such a concept existed) to profit off of war happenings and the Dutch
- Leibniz is embarrassed by proving old results at meeting due to Oldenberg
- Waterhouse wanders into Oldenberg, Leibniz, and Hooke after
- Leibniz wants to pursue computers, but Hooke views as just tools
- Waterhouse scolded for leaving meeting. Even though the meeting quarreling was between two Catholic groups, they make clear the real issue is any Puritan group like Waterhouse
- Roger Comstock offers to be Waterhouse's patron
- Comstock explains that the war is going poorly for the British and French
- Comstock explains that the powers that be in Britain are both papists (2 party system) with a bunch of dissidents that are neither. Each side leveraged dissidents against the other side to vie for power. If dissidents unite against the idea of an established church, then they turn and crush them
- Comstock tries to get Daniel to realize this and the value in it
- Daniel and Leibniz discuss computers and free will:
  - Free will is asking if an essentially mechanical process is itself thinking or just a showcase of its creator. This is the same as asking if these "engines" have been imbued with "spirit".. or better "thought".
  - Thought interacts with reality by manipulating mental symbols that are then carried out by a passive element, e.g. the body.
  - Is computation the same as thought? Leibniz says yes
  - How does building a computer imbue it with thought? What is the threshold or tipping point?
  - You have freedom of action, but the system/God knows in advance what you'll do
  - Some connection between the laws of thought and how nature can be that way

### **Aboard Minerva, Cape Cod Bay, Massachusetts, November 1713**

- The fight with the pirates continues
- Waterhouse's ship is being trapped by well armed pirates from behind, but more importantly a ploy ahead
- One ship is heavily armed and goes slower. Another lighter one tries to push their ship towards the heavy one.
- Heavy ships go slower due to a larger wake. Note that in Dutch wake is Zog
- Their ship hides their secret of a bigger mast to outrun the others
- Pirates want Waterhouse, but captain refuses given his hatred for pirates. Clearly Root planned this well
- They fight on and unveil the mast

### **The City of London, 1673 (part 1)**

- Waterhouse begins work for Comstock, helping with the pyrotechnics for a play
- London waiting on news from the war with the Dutch
- London and king defaults on debt
- Waterhouse's uncle dies and loses all his fortune due to King's default. His debtors are upset
- Other Waterhouse family plans to take advantage of King's default since trust in the bank notes from the King has now been damaged
- Knowledge that the Dutch have won seeps into London
- The default spreads around town and there is a mild riot over money
- Leibniz is headed to Paris. Says he's now focused on math. Interested in space and infinite series. Says now that he has a solid philosophical handle on computers it's a mechanics job to actually implement one
- Waterhouse mentions Newton starting to discover derivatives

### **The City of London, 1673 (part 2)**

- Waterhouse visits Hooke
- Hooke is inspecting Comstock's ammo bags for cannons from the war to see if they were tampered with to make him look bad
- But it's all really an excuse to blame the loss on someone other than the king or duke
- But it was tampered with - that's what Comstock was doing in the lab was earlier (now Waterhouse's patron). Likely the duke of gunfleet (other major religion family)
- King wants to see Waterhouse about some "freedom for dissenters bill" that Roger Comstock has framed him as being for the King
- They sign it as Wilkins would've wanted
- Waterhouse meets Tess

### **Aboard Minerva, Cape Cod Bay, Massachusetts, 1713**

- Waterhouse realizes pirates are after him
- Waterhouse helps do the math to escape the chasing pirates
- It works
- They escape and make way for the old world
- Book One officially ends here

### **The Mud Below London, 1665**

- The Shaftoes are introduced
- They are in the bad part of London - the east side, actually away from what most know as the city but only by a few miles
- They get by by stealing equipment off of ships at night and reselling it, a kind of mudlark
- Dick Shaftoe and his two brothers and John Cole try to steal anchor to sell. They are successful but dick dies. Life of a mudlark.
- Eventually they all get caught on a related but separate incident. Cole is sentenced to death since he's already a thief. The two shaftoe boys escape on a technicality.
- Cole tells the boys of a secret stash as long as they promise to pull his body away as he's executed so he dies quicker
- One of the boys figure it's a lie - why not ask someone else or the executioner or a friend, but they do it anyway. They get paid to do it for another.
- They realize this can be profitable and start doing it as a business.
- They put on a whole show for soon to hang prisoners advertising their services and go as far to say they should use it in case the prisoner take the lords name in vain in their dying pain. It's profitable.

### **The Continent, 1683**

- Jack Shaftoe gets the odd job to go inspect the home of a rich man who had their home marked as a plague home
- Jack Shaftoe goes and just decides to live there. The rich man hires other people to show up and dispose of him and once again check if it's okay to live. But Jack lets them in on the secret and so on...
- Note he is in Dutch territory
- Jack eventually bails and heads far east towards Vienna
- They run into the King of Lithuania-Poland (John Sobieski) and his cavalry. They are to fight the Turks that have come from the north. The merchant Jack was with sells his barley for a ton to them. He profited a lot by waiting and holding out until a moment like this.
- Jack convinces the merchant to spend some money on him so he can go fight in the war. He then joins an Austrian musket brigade instead of being a peasant worker.
- Old musket regiments worked by traveling in large dense squares to ward of cavalry packs waiting to quickly slice them up. In the middle men would carry

heavy spikes that would be pointed out to push away attackers while they were reloading (once again to defend against cavalry).

- Of course this didn't work well against the Turks longbows that they hadn't considered...
- He arrives at Vienna with the army

### **The Continent, 1683 (continued)**

- The polish cavalry quickly overruns the Turks
- The regular artillery men like Jack are surprised at the luxury of the Turk's possessions when looting
- While looting Jack notices an ostrich the Turks brought in and chases it to eventually sell it's feathers (royalty hats and stuff)
- He eventually catches it, while killing two Turks and meeting a female English slave captive there
- He decides to partner with her, Eliza

### **Erstwhile Camp of Grand Vizier Khan Mustapha, 1683**

- Jack and Eliza escape Vienna
- Eliza shares a bit about her similar time growing up in Qwghlm
- She was supposedly kidnapped by Barbary Pirates but Jack doesn't totally believe her, partly because he thinks she just wants an excuse to stay with him
- They conspire to work together to sell the Ostrich Plumes in Leipzig, but it will take time to get there and they'll need to wait out winter

### **Bohemia, 1683**

- As they ride they discuss the 30 year war
- They subsist on simple bread from the wheat fields
- Jack reminisces when he tried being a pirate (didn't like it - not truly free)
- They finally get some fish by making an improvised bomb and tossing it into an artificially formed pond
- Jack temporarily worked under Churchill through his connection in the prison hanging scheme
- Jack lets the nearby vagabonds living there come and take fish too so he can learn from their stories about the area - so he was fishing for information too

### **Bohemia (Winter 1683-1684)**

- Eventually they find the hot spring they must have learned about from the vagabond camp. It's apparently a Sulfur mine. This will likely serve as a way to integrate the alchemy stuff from Book 1.
- They plan to camp there for the winter
- Jack prefers to live in silence but Eliza wants to talk
- He goes back to his story about "working" at the prisons when Winston

Churchill was the prison master. He says his son John Churchill was much more important. Apparently John Churchill was became a prominent courtier through knowing a mistress of the king

- Churchill was coming back from a successful expedition in Tangiers and got involved in the England+French war against Holland. Churchill was apparently involved in the siege of Maestricht (a Dutch city) led by King Louie XIV of France. It was similar to the siege the Turks had laid on Vienna (before the Pole-Lithuanians and John Sobieski), but more elaborate.
- At the time Jack and (his brother) Bob accompanied Churchill
- During the fight, John Churchill led a very important charge while Bob accompanied him. Jack stayed behind and was ordered to go work with a musketeer brigade with Dartagnan (the real 3 musketeer), but who died in the ensuing battle immediately. Jack wait with his corpse to loot the body. Eliza is mildly appalled. Jack couldn't get the rings off his fingers. Bob returns victorious and see's his brother dilemma and leaves.
- Bob later accompanies John Churchill on other skirmishes.

### **Leipzig (April 1984)**

- Eventually Jack and Eliza make it to Leipzig to sell their wares. Eliza acts / presents herself as the merchant using the wardrobe she has built up for herself while sewing and having nothing better to do during winter
- She sells wares for thalers (a bohemian currency of the time). Note that this is also the root for "dollars"
- The two nearby miners by their camp eventually let their boss know of Jack and Eliza living up there.
- The man works for the mint. He employs the miners to dig up silver, that they then stamp (and at that point it magically becomes money). Jack is fascinated by the concept.
- The man explains his idea for making money. He's actually broke. Jack can't fathom this given that he prints money, but it makes sense. The Spanish can simplify mine, mint, and ship it across the world cheaper than he can do it here due to scale/slave-labor,etc (all despite other nations and pirates interfering). He's been having his men mine brimstone (sulphur) in the mean time in hopes of selling it to make gunpowder, thus bringing down the cost of gunpowder, thus bringing down the cost of war, thus making it easier to sink Spanish ships, thus making his business profitable again. Jack counters that war might hurt the man - but he claims it won't. The pope declared it a free trade zone even during times of war.
- The man is making a trip to the market and lets Eliza and Jack accompany them as friends and added security
- The market is fairly advanced with it's own exchange rate system and local currency and paper money. It even has ownership shares in assets and companies.

- They meet presumably Leipzig to see if they can buy a share in a silver mine and want to go with him to inspect it first

### **Saxony (Late April 1684) - Part 1**

- They prepare to leave with (presumably) Leibniz
- Leibniz is mulling over (presumably) publishing his calculus after waiting for so long. Jack convinces him to
- Leibniz wanted to establish a system with the rest of the libraries of Europe to trade knowledge - but the kingdom didn't want that
- The three make a plan to drive up the price of silver mine shares by pitching it with Eliza as a "prop" in the crowd
- They begin their journey

### **Saxony (Late April 1684) - Part 2**

- Jack learns that Eliza was (after being taken by Barbary pirates) sold for a nice horse (her past). She wants to eventually find and kill the person that did
- They finally reach the mines
- They visit an abandoned copper mine first
- They see a dinosaur fossil in there
- Jack meets Enoch Root
- Jack sees a witch hanging
- Jack gets lost in the woods

### **The Harz Mountains (Walpurgisnacht 1684)**

- Jack eventually builds a fire
- He notices other poor "locals" strolling through the woods
- He hides a bit away from his fire and some of the locals use his fire to brew a stew of weird stuff
- All of the people walking buy stop and have some
- So Jack does too
- He gets to the top of the mountain where everyone is having so sort of satanic ritual
- Eventually they discover Jack's sword and thinks he's one of the "watchmen"
- They chase him into an old church-like building
- They go to burn it down
- Jack escapes into a mine below it
- He struggles to get out and eventually emerges into the meeting where Enoch, Leibniz, and Eliza were giving the pitch. Him emerging out of the ground with a sword scares everyone off. But no one seems that disappointed the whole thing didn't work.

### **The Place (Summer 1684) - Part 1**

- Eliza and Jack make their way into Amsterdam

- They are impressed by all of the industry spawned around it. It dwarfs Leipzig
- They are surprised to see single-item farmers - a sign of lively economy
- The following is a flashback detailed their time getting from the mines to the outskirts of Amsterdam
- Jack stops by a mine with Enoch
- Jack sees that they are using quicksilver (liquid mercury) to smelt coins (assumed forgeries) because it's cheaper than using real silver and chemically indistinguishable (in such a day and age). That seems to be Leibniz's play

### **The Place (Summer 1684) - Part 2**

- Eliza shares that Leibniz has taught her how to count in binary and use that to encode messages since you have 5 fingers and  $2^5 >$  the numbers in the alphabet.
- Further she shares that she was taught to encode the message by applying some simple operation to the message (such as add by a prime like 17 - trivially)
- She plans on staying in correspondence with him to learn more
- Eliza explains Leibniz's goal of encoding all knowledge into a "philosophical language" (numbers) to not just record all knowledge, but compute new things using logical operations
- They arrive in Amsterdam and see the large number of trade ships and the dams that led to its name
- They seem to wander into what would be an early "info trading place" like one might find on wall street or on a trading forum now.
- Jack visits the "Exchange" and witnesses the port where weigh stations and duty stations are (a new thing in this era)
- Jack learns from Eliza that this info trading place is the windhandel or the type of buying and selling of futures without actual possession of the corresponding goods (note this was what led to Tulip Mania)
- Jack plans to leave Amsterdam for Paris, but Eliza will stay

### **The Dutch Republic (1684) - Part 1**

- Jack recounts his past while riding South-West out of Amsterdam (through Belgium) towards Paris
- After spending sometime serving near/around Jamaica he came back and learned of the kids he had with Mary
- Bob says he could have a spot serving with him and recently promoted John Churchill (Jack didn't go)
- Jack rides along and meets a trader. They consider using Jack's sword and horse to drive up the price of the trader's wares (threat of an incoming army), but decide against it. They continue riding together before eventually parting ways
- Jack delivers Leibniz's letter to his acquaintance

## **The Dutch Republic (1684) - Part 2**

- Jack meets up with an old friend who is working as a rat "catcher"
- The man helps Jack find a temporary place in Paris - in the house of a rich merchant on the floor that houses a family of immigrant Armenians
- Jack meets a man who sells coffee and haggles with him
- Jack explores Paris. At one point he thinks he sees Eliza

## **Paris (Winter of 1684-1685)**

- Jack becomes a loose part of the Armenian family he lives with
- Jack learns the story of the family
- They started by selling coffee to France - which was worth a lot at the time (1644 or so). However, they were paid in silver since there was no French gold. There was no French gold because it was being hoarded due to silver being devalued (ironically) by Spanish silver mines in Mexico. This meant the family was paid in a rapidly-depreciating asset. This, combined with several other minor misfortunes, explained their current state.
- Jack tries to sell his horse and knows he should be able to turn a good profit because the French keep their barracks nearby at Lyons
- Jack does so at The Place Royale - a city within a city designed for everyone to have horses (like a suburb might be to a city but with cars instead of horses)
- Jack plans to sell the horse to an aspiring general - as this part of France was recently built and even has generic statutes with plagues for future victories.
- Jack learns of whom to sell to from fellow vagabonds - who he wins over by verifying his "legendary" identity - such as his sword.
- Jack heads to Lyon along with some delivers to make from Leibniz's friend
- He finds out the English King is now dead upon arrival in Lyons

## **France (Early 1685)**

- Jack on his trip from Paris and Lyons runs into many Huguenots (French Protestants) that are being taken away as galley slaves
- There is a bizarre musical interlude
- Jack upon arrival in Paris gets in a bit of a fight with some nobles and they spar using horses. Jack's horse is doing very well and Jack offers to sell it to them. One man offers to buy it - it turns out to be John Churchill.

## **The Hague (1685)**

- Eliza runs into a pair of French and English diplomats in a standoff while out skating in the winter. The standoff is apparently to see how long they can last in the cold. Eliza befriends one of the French ones.
- Eliza has joined a church group to fight against slavery and established religion (i.e. papists) with the help of a mysterious "client"

- The French diplomat takes Eliza to visit the palace of William of Orange and she meets the Duke of Monmouth. The Duke explains that the French diplomat is there to drive a wedge between William and Mary in hopes of breaking up Williams power in England (due to Mary's connection to England)
- That "client" turns out to be the Duke of Monmouth.
- The Duke of Monmouth needs money to purchase the means to take the throne of England. He plans to use his future winnings as collateral to secure the money from Amsterdam traders/financiers
- They devise a plan. Announcement/news of the war will send "Dutch money" (VOC) plummeting because they think King James will be vengeful against the Dutch helping Monmouth invade (Englands strong navy would impact Dutch trading by sea). But once it's quickly realized that Monmouth will win with his newly owned guns the price will soar since the Dutch helped him. How can they exploit this? A smart shortseller would take a loan on a bunch of VOC before the depression on debt and immediately sell them. Once the depression has happened, they would buy back for cheaper to give to their original lender - i.e. they made a profit out of originally nothing. So Eliza and the group can use this as a bargaining chip to offer a trader — in return the trader can supply them with the means to actually mount such an invasion. They plan on shorting a Mr. Sluys who they have some dirt on. They'll convince Mr. Sluys that the price will rise and to buy all of the VOC's immediately after the short seller gets them (before they've decreased in price). That way they've financed a war for nothing.

### **Amsterdam (April 1685)**

- It cuts back to Eliza and the Duke of Monmouth - Hindu book references as with Jack
- Eliza and the Duke head to the Opera, where the Prince of Orange may appear in the play
- They go a bit over the trading system in Amsterdam again. The big people trade in shares of VOC. Those that can't afford that trade in shares of Ducat. Those that can't simply do options. Much like today's market. The biggest people traded in large amounts of VOC and could use them to borrow and lend money against. This allowed them to sponsor ventures (note this is what allowed science to start to be naturally selected by human society/?culture). The market is particularly to sensitive to anything to do with the big holders.
- Eliza and the Duke know that everyone will notice them and in that sense are actors themselves (ironically at the Opera)
- The Duke is intentionally dressed in plain war clothes - sending the message of he plans to do something like that soon
- The French ambassador comes up and greets the Duke particularly warmly
- The idea is his military attire, nice-ness to France, and Turkish escort (Eliza) will suggest he plans on venturing into Constantinople instead of marching

back into England. All of the notable shareholders would be in attendance, observe this, and act accordingly.

- Eliza watch Sluys (the guy they plan to short) closely. He's clearly thinking that he should buy up VOC stock because there won't be an English-Dutch catastrophe that would impact shipping lanes and thus VOC due to the strong English navy fighting the Dutch
- At an after party at the Sluy's place Eliza has the Duke passively offer to buy up Sluy's extra lead

### **Paris (Spring 1685) - Part 1**

- John Churchill is dressed in Turkish attire - going to a ball.
- John Churchill is keeping Jack locked in his stables to spare him from the nobles he fought with that want to kill him. He is chained in the stables by his neck but can move about
- Churchill lets John keep his (unknowingly sword) and crutch (but not the horse) and says that he has struck a deal to let him live on as a galley slave for the nobleman he insulted. He then leaves
- Jack manages to escape by starting a fire with Churchill's cigarette. He eventually builds up the fire and adds coal and whatnot to really get it going. A sympathetic house slave helps him. He eventually heats the chain up and smashes it. It frees him and he escapes partially disguised with items from the building and a man he took down - but he still has the chain partially around his neck as he couldn't have struck and broke the chain that close to his neck without hurting himself

### **Paris (Spring 1685) - Part 2**

- Jack steals back Turk from a nearby stable
- Jack tries to ride away, but gets "stopped" outside the grand ballroom
- The people welcome Jack in - which Jack finds very odd given that he is clearly an escaped prisoner
- Several minutes later someone dressed as a prisoner walks in - clearly intended to make fun of vagabonds like Jack
- An awkward silence ensues as everyone realizes what happens and Jack quickly escapes by riding through the house

### **Amsterdam 1685**

- Jack sees Eliza again. Along the way he picked up a Russian vagabond
- Jack tells Eliza he's gotten into business by investing in smuggling African currency (snail shells).
- Eliza explains to him they are no longer worth much as the Dutch found a horde recently
- Jack thought the point was to trade the snail shells for cloth, but realized he had mistaken the term a "piece of India" for cloth when it was actually a slave

- Jack and Eliza argue about Jack still pursuing it and Eliza harpoons him on the ship

### **Amsterdam (June 1685)**

- Eliza's plan is now underway
- Eliza is headed to Paris
- The ship Eliza is on is taken over by agents of and William of Orange himself
- William of Orange expresses his hate for the French
- He explains Eliza's plan will fail because Monmouth is an idiot and John Churchill's brigade will crush his
- Eliza does not like him but has no choice to agree

### **Coast of Europe and North Africa (1685)**

- Jack is greater for his harpoon wound
- As they make their way out down North Africa a group of raiding ships approach them with the intent of enslaving them, as their cargo is worthless
- They thought they were Barbary Pirates, but are actually Janissaries
- Jack tried to get the boat to fight so they'll be taken as warrior slaves instead of galley slaves
- They fail miserably and we taken slaves
- Book 2 ends

### **Whitehall Palace (February 1685) - Part 1**

- Back to Waterhouse who has since gotten his doctorate
- Since last time much of the work Wilkins had done to unite Catholics and Protestants had been undone as Charles II got into dept, walked things back, and eventually fell under the effective control of Louis XIV. That led to the undoing of much of the power that Protestants and their likes had gained. Many still hated Puritans
- After a while the King has eased a bit, let Daniel out of prison (where many Puritans had been moved), and let him be a kind of ambassador for all puritans
- The King is dying now and the useless doctors of the time have only accelerated the process
- Waterhouse and Roger Comstock discuss
  - Waterhouse recalls how often the specific ruler doesn't matter - they still play the same role (it doesn't matter who the "catholic king" is - just that they are a "catholic king" and play that role. In that sense many people are "replaceable". However, some clearly aren't, such as Newton. And if they weren't "here" it would really change things)
  - Waterhouse relates it to how Leibniz had originally argued to him that any object has an absolute form and we have subjective interpretations of it. However, Leibniz has lately been thinking that there is no absolute form at all, but a kind of "sum" or superposition of the perceptions of all of its

- observing constituents
  - Further Leibniz argues that this type of “uniqueness” a person may have is not a function of how they stand out but in that person’s ability to perceive the rest of the universe with unusual clarity
  - It ends
- Roger Comstock has Waterhouse head to the Duke of York (King James II - the next king)

### **Whitehall Palace (February 1685) - Part 2**

- The future King James II is a catholic who has very bad syphilis and spent most of his life bouncing around European kingdoms, almost lucky to end up in this spot (as if by chance)
- The implications of him as king are bad and Waterhouse wonders if he should kill or something
- Nonetheless he goes ahead and informs James II of Charles II soon to be passing
- Waterhouse bluntly informs James II (still Duke of York as of now) of the situation
- James II respects his bluntness and asks for Waterhouse to be an advisor

### **Versailles (Summer 1685) - Part 1**

- Eliza writes back to the French ambassador (d’Avaux) that she did finally make her way to Versailles and has “infiltrated” the royal palace by marrying a rich man who soon died. During the time Eliza met some nobleman and eventually got introduced to a duchess who took her on to help raise her children. The duchess happen to be within the “royal circle”
- Eliza writes to Leibniz in the code he taught her. She says that Versailles is majestic, but that the French cipher has been broken but no one will admit it. However, the one he gave her should work.
- While on a trip with the children she tends to she ran into Louis XIV and somewhat met him she tells Leibniz
- She tells d’Avaux that she could help all of the people here with their “money” issues - but would need more resources and need to travel to Amsterdam more
- Eliza begins to tell Leibniz of an encounter with her duchess employer

### **Versailles (Summer 1685) - Part 2**

- Eliza gets another job with a higher noble teaching
- Eliza thinks it’s possible (or that at least others think) the king (l xiv) has an interest in her
- Eliza learns from that he needed a surgeon for a variety of health reasons (some very bad). He has her cover it up and in that way they know each other. He tells her it’s ok to tell d’Avaux though

- The king continues to suffer health issues and arguably worse treatment. The nobles closest to him partially use his bad mood to get him to find a campaign to wipe out the Protestants in Savoy
- Eliza tells this to Leibniz

### **Versailles (Summer 1685) - Part 3**

- Eliza is writing in a separate cipher between d'Avaux and Leibniz, knowing that d'Avaux's letters can be read whereas Leibniz's can't
- The letters to Leibniz are exceptionally long because the encoding is 5-1, so she has to write 5 plaintext letters for everyone 1 encoded letter
- Eliza is hopeful to return to Amsterdam
- She hopes to do this while the noble family she lives with is traveling (first to Dunkirk), but she suspects things will come up along the way

### **London (Spring 1685) - Part 1**

- Roger Comstock and Daniel Waterhouse discuss Isaac Newton
- Daniel learns that much of the Royal Society has been up to collecting astronomical data
- They discuss the discovery of the orbits and how retrograde motion is an illusion caused by living on one of the planets in orbit about the sun (not about the earth)
- Daniel explains that Leibniz and Newton are having a philosophical feud
- Daniel learns that Leibniz has finally published his calculus
- Daniel discusses the nature of infinitesimals

### **London (Spring 1685) - Part 2**

- In Ipswich Daniel continues to promote the policy of relaxing laws against Puritans/Protestants
- Daniel knows of Monmouth's plot to try and overthrow King James II and they discuss it there
- Daniel thinks about contingent truths and luck versus absolute ones
- Daniel peaks into Newton's manuscript and is surprised to see him studying tides and the moon - as if they are connected
- Daniel thinks about the astronomical debate about comets going on right now - they can't determine if two recent sightings were one comet or the same comet
- Daniel also sees that Newton is studying the relations of other planets. While it is common knowledge (at this time) that the Sun exerts some "magical" attracting force on the heavenly bodies - Daniel draws the conclusion that with this latest document Newton seems to be suggesting that any object (Saturn, Titan, even the Moon) could exert this force. In fact, it seems to suggest that everything does and the way they all interacted was by vector addition (adding super positions) or by simply summing up their direction and

magnitude so that the stronger ones won out.

- This suggested that the “sun was not an absolute monarch” and that nothing had any particular special power – it was already forged into the “universal currency” of force
- Daniel goes to visit Isaac and sees his work in his garden. Curves marked with tangent lines – connected into triangles connecting with other triangles – building up and integrating the curve
- While meeting with Isaac, Isaac explains that he has proven you can treat the gravity from a spherical object as coming from a central point source. This served as a bridge for math to “real objects” since spherical objects exist in real life whereas points do not. It seems to Daniel that Isaac has found a “System of the World”.
- Newton and Daniel debate the philosophical implications of this. Newton argues that while this system is independent of God, it doesn’t mean God isn’t present. Newton argues God is present in choosing to make the inverse-square law true by making that observationally true from astronomical data (i.e. why is gravity inverse-square instead of inverse-cube). Daniel argues this just means Newton hasn’t searched hard enough – that the same system he derived could be found to prove why it is fixed/derivable that the inverse-square law is the way it is.

### **Beach North of Scheveningen (October 1685)**

- Eliza meets up with William of Orange in Holland
- William of Orange explains that all letters are being sent are read by the Postmaster and sent to the cabinet noir to be read. This means they basically would read all of the mail and inform Louis XIV of anything important. Likewise just about all Kingdoms were doing this at the time.
- William of Orange believes that most French business failures (African-cost expeditions) is precisely because Louis XIV is scared of any true economic threat to his power.
- Eliza heads to The Hague
- Eliza runs into Bob Shaftoe

### **Dorset (June 1685) - Part 1**

- Bob relays some of the recent events to Eliza
- He notes that upon John Churchill hearing that Monmouth was to use his “land” to stage is rebellion – Churchill had but not choice to act as it would put his name in a bad place under the new King
- Bob upon learning of this told Churchill this and enlisted in Monmouth’s army as a spy and used that to keep John Churchill informed and crush the rebellion
- Of course in “real history” it was mostly led by Feversham and Monmouth cowardly retreated. Afterwards the Protestants that supported Monmouth were significantly repressed. Likewise the Lord Jeffrys created their own

specific court to prosecute and find such people and send them off to death or as slaves

- One of those people sold as slaves (to the Earl of Upnor) was a girl that Bob loved

### **Dorset (June 1685) - Part 2**

- Eliza agrees to help Bob - but not because Bob wants to satisfy some noble urge (that he likely doesn't truly believe in) - but because of her general stance against slavery and how she can use this situation to her advantage
- Eliza and Bob arrive in The Hague and go to Leibniz's house where after some things they see Huygens there.
- Huygen's explains how all watches drift and need to be adjusted. This can be done by precisely measuring noon using the sun's position. Further, it suffices to only need to do this periodically.

### **The Exchange [Between Threadneedle and Cornhill] (September 1686)**

- The chapter is narrated as an act in a play
- Waterhouse is in conversation with Aphthorp (former bank owner) at the stock exchange
- A Spanish Jew who trades at the Amsterdam exchange comes by looking for directions. They assist him and the Jew is disappointed in the size of the English Exchange compared to the one in Amsterdam (12 commodities versus 600).
- Roger Comstock shows up and informs that Waterhouse had set up a meeting with him here instead of the usual place - thus explaining why Waterhouse is at The Exchange
- Daniel gets the latest chapter from Leibniz's journal - which details integrals
- Daniel also gets the first two sections of Newton's Principia
- They learn the Spanish Jew was trying to buy commodities low here and then sell high at the other exchange (Amsterdam) - specifically durable fabrics - not sail cloth but the kind that could be used for tents.
- The banker upon learning this infers the Dutch are building up an army and he leaves to go buy war-related things
- Daniel explains to Roger Comstock that Newton and Leibniz are feuding over scientific philosophy
- The King's Executioner and Baliff and there entourage come by. As is in line with the "play" setting - a mock execution of a book is performed (literally). They burn a book that claims Louis the XIV killed a bunch of Protestants in Savoy - which they claim is a lie (but really isn't)
- It is explained the Waterhouse set the meeting here because he choose to hold the event here in hopes of letting the "smarter people" of society (the traders) see the danger of an unchecked political group (the current kingdom)
- Daniel explains further that Newton and Leibniz are debating why the inverse

square law exists. Leibniz says that is it caused by particles and Newton says it is God. Daniel mentions Leibniz's Monad theory.

- Daniel explains Leibniz is now studying genealogy. He explains to Roger the cause is likely related to the syphilitic King James II and the implications it often has on offspring's viability - which Leibniz will somehow use to his advantage.
- The banker returns and explains that while he made good money buying low from stupid people and selling high to smarter people - he also acquired knowledge
- Daniel and the banker have learned that the Spanish Jew wasn't buying low here and selling high in Amsterdam... He was buying here because he the shipping was cheap - because the tents were to be used here - presumably to massacre Protestants and puritans. They hope they can redirect the king to use those resources elsewhere (some foreign enemy presumably).

### **Versailles (1987)**

- Eliza writes to d'Avaux
- As manager of several noble mans funds, Eliza explains her work. She has done well investing during the time of Monmouth's rebellion because she was an insider. She still kind of is now given that William of Orange is the focus - but she doesn't have as strong of a grasp as she did before.
- Eliza talks with the King at a costume ball and suggests to the king that the Dutch care far more about their market than land, pride, or politics. The King finds that ridiculous.
- After a bit more explaining the King understands and it seems the two conspire to have a rumor spread about the falling of Batavia/Jakarta - which would severely damage the Dutch empire. Further Eliza can use that knowledge to make a profit in the market.
- More French nobles approach her for advice - but she warns against giving out too much. For if suddenly everyone in France started short selling VOC the Dutch market would recognize from the price changes and their plan would be foiled.
- Eliza then writes Leibniz about how the French continue to pretend of a "Fall of Batavia".
- Eliza needs a pretext to establish herself as "royalty" in France to "move ahead"
- Eliza asks about Enoch Root
- She plans to head to Holland

### **Bank of Het KANAAL, Between Scheveningen and The Hague (December 1987)**

- Waterhouse ponders going to Massachusetts
- Waterhouse vistas with William Penn

- They debate the coming conflict with England
- Eliza talks with William of Orange and reveals the Batavia hoax was just to earn French trust and test their network
- William of Orange is threatened by Waterhouse and what he's doing in England. He thinks he can use Eliza to win him over to his side

### **Bank of Het KANAAL, Between Scheveningen and The Hague (December 1987) - Part 2**

- They all sit down at a dinner party
- Fatio controls the conversation, which frustrates Waterhouse
- They mention that Enoch Root was seen around Brussels
- Huygens joins
- They discuss the latest contributions and how Leibniz doesn't believe in action at a distance
- Fatio suggests a theory akin to General relativity to explain gravity (or at least space time)
- They discuss Leibniz's attempt to avoid another catholic/Lutheran war
- Fatio discusses how easy it would be for the French to assassinate William of Orange by knowing his sand sailing patterns. Further he knows of a man that may plan to do this.
- Fatio explains he knows all of Eliza's plans. He's inferred them from the consequences of her actions.
- Enoch Root shows up and then quickly leaves
- They go look out the telescope for a while and then see a ship on the horizon

### **Bank of Het KANAAL, Between Scheveningen and The Hague (December 1687) - Part 3**

- Eliza awakes the next morning with a plan
- Eliza quickly escapes with a horse, somewhat assisted by Fatio. She rides off with it, with Fatio and two of the sellers in pursuit - surprised by her haste
- Eliza realizes the ship on the horizon is likely the French
- She catches up just in time to see William of Orange being kidnapped
- Eliza and Fatio chase after them — armed
- Eliza and Fatio manage to help William of Orange escape
- This inspires William of Orange to attack Britain
- William of Orange wants Eliza to spy to learn of the French intentions so he can decide how to position his army
- Eliza thinks this is a bad idea since d'Avaux organized all of this in the first place and thus probably knows that she knows now

### **Versailles (Early 1688)**

- Eliza writes Leibniz that she has risen in power in Versailles and that even the king thinks she is noble born due to a rumor that has been spread on her

behalf

- It was a good rumor and makes sense. If Louis XIV predicts a hostile British King (which may happen with William of Orange), then he would want to make good relations with her homeland, which is an outer state like Ireland.. which is technically true.

### **The Star Chamber, Westminster Palace (April 1688)**

- Waterhouse is taken hostage and imprisoned by Jeffry's who try him for spreading words of revolution. They say even Newton implicated him
- They torture and then release him
- Eliza had come to London earlier and met with Daniel through Royal Society meetings using her new title
- The Queen is also likely to have a child soon and a potential heir to King James II

### **Versailles (July 1688)**

- D'Avaux has Eliza switch to a new cipher
- Eliza is making money off of England's currency that is being devalued due to quality and counterfeiters
- King James II did have a son
- The queen had their baby - although there are some peculiarities around it
- Madame has taken an interest in Eliza now
- She arranges a horse riding test to see if Eliza really is the girl she claims to be

### **Tower Of London (Summer and Autumn 1688) - Part 1**

- Daniel is now being kept in the Tower of London
- Daniel ponders his life and thinks that internal changes matter far more than external ones
- Eventually a new guard takes over - the King's own black guard
- Hooke visits and they discuss philosophy. He once again discusses how many people can be "effectively" (or in capability) equal, yet aren't all equal in that people like Hooke (and Newton) can make discoveries/progress in ways those others can't. Waterhouse further argues that Hooke and Newton are no different - even though Newton lives in his magical "math realm" whereas Hooke dabbles in reality more like the common man.
- Hooke agrees and promises to repay Daniel with a favor in his future in exchange for the good philosophical discourse.

### **Chateau Juvisy - (November 1688)**

- A member of Louis XIV's Cabinet Noir has been reading Eliza's letter and are surprised with her level of talking with Leibniz
- They wonder if her fluff talk may be cover for another cipher that the French have yet to understand

- They say that d'Avaux has wondered this as well given the happenings with William of Orange
- They have even keyed in upon the relationship between Eliza and Madame
- The Cabinet Noir goes through one of Eliza's letters to d'Avaux
- Eliza recounts her time in St. Cloud with the family and Madame. It is much like Versailles and she can understand why Madame may not like the whole thing (the whole weird French social order stuff of the time).
- She explains how Madame, being educated and foreign and whatnot, doesn't play the whole fashion "game" that is used to keep women at bay in France - but has found loopholes to evade it
- She shares a story about how the king wants to put off her dogs onto Madame because she may like them and how they have grown to unruly at Versailles due to the King indulging their every whim and they'd be better suited in a farm like area like St Cloud now

### **Rossignol to Louis XIV Continued (November 1688)**

- The Cabinet Noir infers that as a metaphor for wandering where Louis XIV will attack next.
- They further reveal they found out that Eliza was pregnant - but avoided it

### **French Embassy, The Hague (17 September 1688)**

- They also caught a letter from d'Avaux to Monsieur (wife of Madame)
- They further mention how Eliza has apparently escaped from St Cloud to The Hague and that she must be a spy for William of Orange

### **Rossignol to Louis XIV Continued - (November 1688) - Part 1**

- The Rossignol travels to The Hague to investigate Eliza absconding there
- By this point the Dutch fleet had sailed for England with William of Orange
- He believes that Madame helped Eliza escape up the Seine - where the French were preparing their army - a good place to spy on
- His sources say she later met with William of Orange and relayed a great deal of information - despite only possessing a small sewing kit/project the whole journey
- He believes she encoded her secrets that she shared with William of Orange in her sewing - it is not easy to notice, can be worked on in public, and is waterproof
- He believes Eliza used a cypher invented by Leibniz using binary to encode messages in her sewing. Despite that, he could find no message despite the seeming of an encoded message.
- He later found some people from Eliza's homeland and learned that her original language had just 16 letters - perfect for binary. Further it's a language-rune based language (like Chinese kind of) and great for encoding large concepts. Plus it requires a local to understand it all. On top of that

common phrases are replaced with code words naturally underneath the encoding.

- The text of that sewing is replicated for the reader in summary:
  - Eliza recounts her journey and is constantly looking for clues of French military activity along the way
  - She recognizes some hints at first, but isn't totally sure

### **Rossignol to Louis XIV Continued - (November 1688) - Part 2**

- Eliza pieced together that the French must be trying to invade the Palatinate
- She teams up with a fellow sympathizer and continues to spy
- They learn more about another French battalion near the Dutch flank and they go into the French ranks under disguise to explore further

### **Rossignol to Louis XIV Continued - (November 1688) - Part 3**

- Eliza and them stumble in a French encampment. To get out of it Eliza tries to tell the truth.
- She gets a meeting with d'Arachon
- She learns more of the French military plans
- She makes off and attempts to warn William of Orange
- On her trip she meets some Palatinate princesses on the boat
- The king is informed Eliza is likely pregnant with a child of D'Arcachon

### **Sheerness, England - (December 1688) - Part 1**

- The King of England (James II) has wandered out of England upset
- Daniel finds him dressed incognito at a tavern and watches over him from a distance
- Daniel eventually notifies the royal police and they go get him and Daniel departs
- He goes to catch a ferry and passes the Castle of Upnor
- As it becomes clear that London will fall as the King is fleeing and the Dutch and William are closing in, Daniel realizes this is the beginning of the Glorious Revolution and embraces many of the ideas that Daniel has (Protestant/puritan anti-authoritarianism, etc)
- He considers leaving Europe for a place like the colonies ,but first heads to The Tower

### **Sheerness, England - (December 1688) - Part 2**

- Daniel falls off the boat (or something of the sort) and is picked up by Bob Shaftoe who has returned with John Churchill and the Black Torrent Guards after aiding William of Orange - who has now overthrown King James II
- Daniel talks with John Churchill and they make a deal to help each other
- Daniel heads to the house of the Earl of Upnor with Bob
- Along the way Daniel stops off to confront people at the former head house of

## Charles II's alchemists

### **Sheerness, England - (December 1688) - Part 3**

- Waterhouse runs into John Locke, who has come back from Exile (and brought his liberal ideas with him)
- Waterhouse informs the Earl of Upnor of the King's situation. He sees Newton going through some of the alchemy books and is angry with Waterhouse for his disdain for them
- Waterhouse runs into Enoch and they debate the value of each other's philosophies
- Waterhouse proceeds to find Jeffreys who Root tells him is waiting for a boat
- They locate him and kill him in a tavern

### **Venice - (July 1689)**

- Leibniz writes to Eliza and tells about the larger changes going on in the world
- Leibniz tells of France selling treasures from Versailles to finance their military conquests and that more interestingly London (now under William) is using the concept of a national debt (all of England as collateral) and using a tax to pay back the interest instead. As a result Jewish traders from Amsterdam have started to move towards London.
- James II is now in Ireland
- Leibniz complains of Newton's action at a distance

### **Bishopsgate - (October 1689)**

- Waterhouse plans on heading to the Boston colony, but is likely to die from his impending kidney stone (a common affliction of early scientists and alchemists that drank mercury that damaged their kidneys). He doesn't want to have any surgery.
- There is a going away party for Waterhouse. He gets drunk though and when he awakes Hooke is about to perform the surgery anyway.