

# World Systems To-Do

*Build these documents before drafting begins. Each one should be Weir-level detail — specific enough that every scene writes itself.*

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## Physical Systems

- [x] **Arbour's power grid** — how it works, what fails, what each tier receives, failure cascade behaviour
  - [x] **Water recycling and food production** — the Verdant Branch in detail, what people actually eat by tier
  - [ ] **Atmospheric processing** — what people breathe, how it differs by tier, what chronic exposure to lower-tier air does to a body over a lifetime
  - [ ] **Communications infrastructure** — how information moves through Arbour, how the Council controls it, what gets through and what doesn't
  - [x] **Transport within Arbour** — vertical and horizontal movement between tiers, who has access, what it costs, what it signals about status
  - [~] **\*\*Arbour City Geography\*\***  $\triangle$  *\*Partially complete — see World & Lore → Core Systems → "Arbour City Geography — Skeleton."* Hull shape, internal systems, hull-to-city cross-section, and Spine position are all resolved. Still open: district layout, district names, street-level texture. Prerequisite for the transit tube map and most location documents — now partially unblocked.\*
  - [ ] **Arbour Transit Tube Map**  $\triangle$  *Requires City Geography document to be complete first. To be built as a designed artefact — SVG or illustrated map suitable for inclusion in the novel as a front matter piece.*
  - [ ] **The Badlands ecology** — what grows there, what lives there, why it exists, what **Aetheris** has done to it over centuries
  - [ ] **Cordis weather systems** — the twin suns in practice, what the climate instability actually looks like day to day, seasonal patterns if any exist
  - [ ] **The ocean** — what's in it, why crossing is so dangerous, how the Wayfarers do it, what's been lost trying
  - [ ] **Communities of Cordis** — full ecosystem map of communities inside Arbour, in the Badlands, in shadow settlements, and across the Free Territories beyond the Wayfarers. How they trade, how they understand **Aetheris**, what they know that nobody else does
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# Social Systems

- [ ] **Flux in detail** — how currency works day to day, what things cost by tier, what happens when you run out, how the black market circumvents it
  - [ ] **Tier movement** — can you move up or down, how, what does it cost, how rare is it, what does upward mobility require you to become
  - [ ] **Education system** — what children are taught by tier, what is omitted, how history is curated from the earliest age, what the Violet Branch controls
  - [ ] **Healthcare** — who gets what treatment, how the VANS diagnosis is weaponised, what lower tier medicine actually looks like, black market medicine
  - [ ] **The Branch employment system** — how people enter Branches, can they leave, what happens if they try, how loyalty is enforced
  - [ ] **Law and punishment in detail** — specific crimes, specific consequences by tier, what counts as Taint exposure, what disappearance looks like officially
  - [ ] **Wayfarer social structure** — caravans, elders, decision making, coming of age traditions, how knowledge is passed down, how disputes are resolved
  - [ ] **Bonding and family traditions** — how relationships are structured in Arbour vs the Free Territories, what the Council encourages, what it discourages and why
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# Political Systems

- [x] **The Council's internal structure** (*see Political Systems*) — how decisions actually get made, what the hierarchy within the Council looks like, where the real power sits vs the ceremonial power
  - [ ] **Inter-Branch relationships** — rivalry, cooperation, hierarchy, which Branches have historically clashed, which are quietly allied
  - [ ] **The Chronalum's network** — cells, communication methods, how they avoid detection, what they actually know vs what they think they know, the foundational error
  - [ ] **The black market's structure** — supply chains, who enforces neutrality, safe zones, what happens when deals go wrong, Otis Audagar's specific role
  - [ ] **Arbour's relationship with the Badlands** — official position vs actual use, what the Council extracts from the Badlands, what the Thorns are really doing out there
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# Biological Systems

- [ ] **Aetheris exposure map** — which areas of Cordis, what intensity, how it has shifted over centuries, where the hot zones are and why

- [ ] **The Custodian process in detail** — selection criteria, what actually happens to them physically, the rejection rate, what rejection looks like, what Voss knows that she doesn't say
  - [ ] **Species biology and Aetheris response** — how different species experience each stage differently, which species are most vulnerable, which seem resistant, and why
  - [ ] **Atlas's condition** — specific medical detail, how it interacts with **Aetheris** exposure, the progression timeline, what Wren notices first
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## Historical Systems

- [ ] **The crash in granular detail** — full timeline from Wei's decision to the immediate aftermath, who survived, what state they were in, what the first hours on Cordis looked like
  - [ ] **The founding generations** — how the Council consolidated power, who resisted, what happened to them, how the tier system calcified from emergency hierarchy into a permanent structure
  - [ ] **The suppression of Earth's recovery** — how the lie was maintained across generations, what happened when people got close to the truth, the specific mechanisms of the information blackout
  - [ ] **Wayfarer divergence** — the exact split from the main survivors, who led it, what the ideological break was, how they crossed to the other continent, what they took with them
  - [ ] **SEED's degradation timeline** — when key memories were lost or corrupted, what SEED remembers perfectly that it shouldn't, what it has forgotten that it doesn't know it's forgotten
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## Technical Appendices

*Weir-level mathematical and scientific underpinning. These documents define the hard numbers that every system document references. Build these before drafting any scene that depends on system failure, biological process, or physical movement. The story emerges from the constraints — get the constraints wrong and the story doesn't hold.*

- [ ] **Energy Mathematics** — Absolute megawatt values for total city consumption by tier. Exact generation output of R1, R2, R3, geothermal taps, and atmospheric harvesters at current calibration. The specific load parameters — time of day, seasonal variation from twin sun positioning, industrial draw spikes — that trigger the shed in the Sprawl. The mathematical gap between reported and actual generation that reveals the Council's underreporting. Peak demand scenarios and cascade failure thresholds.

- [ ] **Biological Closed Loop — Water and Food** — Precise volumetric flow rates for the water recycling system at each purification tier. System loss calculations — what percentage of water is lost to evaporation, contamination, and infrastructure failure at each tier level. Exact caloric and nutritional breakdown of the standardised Sprawl allocation. Metabolic requirements of the Sprawl's working population by species category and labour type. The quantified deficit between allocation and requirement that produces the documented chronic health outcomes. Timescale of deficit effects on adult health and child development.
- [ ] **Transit Physics** — Mass Transit Rail: track gauge, carriage mass, velocity parameters by line tier, structural load limits, exact acceleration and deceleration forces on passengers. Spine elevators: shaft dimensions, lift capacity, transit time between tiers, the mechanical tolerances that make lower tier infrastructure more failure-prone. The specific physics of the carriage detachment system — how it works, what fails when it doesn't, what a detachment failure looks like from inside the carriage.
- [ ] **Kugelblitz Jettison Mathematics** — The complete mathematical chain of ARBOUR|05's final approach and crash. Requires calculating: the mass of the Kugelblitz black hole at time of jettison (determines Hawking radiation output), the Hawking radiation burst energy and its damage profile across ARBOUR|05's hull (explains why R4 and R5 were destroyed while R1-R3 survived), the trajectory of the jettisoned drive assembly away from Cordis and whether any remnant effect persists at that point in space, the uncontrolled descent profile of the damaged ship after jettison, the impact energy at the Heart and how it interacted with the existing reality tear there, and how the jettison worsened the Penumbran Reach's existing instability. Secondary calculations: the relativistic journey time from Earth to KOI-8565 at Kugelblitz-assisted speeds, experienced time aboard the ship vs elapsed time on Earth, and the fuel/mass budget for the antimatter-catalysis secondary reactors that became Arbour's power grid. This appendix underpins the crash history document, the power grid document, and the Heart location document.
- [ ] **Interstellar Navigation and Fuel Mathematics** — The Penumbran Reach's location relative to Earth in real astronomical terms — distance in light years, which direction of known space, what stellar neighbourhood it sits in. ARBOUR|05's propulsion system — what drive technology a near-future humanity capable of building five ark ships would realistically use, its fuel source, consumption rate, and the specific fuel load that determined the maximum range of the mission. Journey duration in real time and in experienced time if any relativistic effects apply. Fuel remaining at crash — how much was consumed reaching the Penumbran Reach, how much was lost in the crash, whether any reserve fuel plays a role in Arbour's current power or propulsion infrastructure. Why the Penumbran Reach specifically — was it the intended destination, the closest viable system within fuel range, or did Wei's interference alter the course from an original target? The mathematics of why the five arks went in different directions and what that tells us about the range of human settlement that may now exist somewhere in the galaxy.
- [ ] **Aetheris Anomalous Mechanics** — The exact atomic bonding rules the Convergence alters and why — which bonds are compromised first, and the thermodynamic logic of why those bonds specifically. The polymer chains and metallic crystal structures are most vulnerable to **Aetheris** interference, explaining why certain materials fail in the ways

documented. The specific biological chemistry that triggers Stage One scratch symptoms — which receptors, which inflammatory cascade, and why the immune system responds to **Aetheris**-altered compounds as foreign bodies. The relationship between species biochemistry and **Aetheris** response at each stage, with specific reference to Atlas's condition and the respiratory chemistry that makes his biology particularly vulnerable.

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## Major Projects

*These are undertakings too large for a single document session. Each will require multiple working sessions and will likely produce several interconnected documents and artefacts.*

- [~] **\*\*Arbour City Geography\*\*** — The full spatial layout of Arbour as a continental megacity. ✓ Resolved: overall hull shape and scale, the hull-to-city cross-section (Luminary/Meridian/Sprawl), the Spine's position and structure (single central pentagonal complex beside the Luminary), the relationship between the crash debris field and the current city footprint. Still open: district names and character, street-level texture, the city's full relationship to the surrounding Badlands. This document partially unlocks the transit line map (see Tier 6 of the Master To-Do) and location documents requiring spatial accuracy at the hull-core/tier level; district-level work is still needed for street-level accuracy.
  - [ ] **The Transit Line Map** — A tube-style map of all rail lines across Arbour's tiers. Cannot be built until the Arbour City Geography is complete. Final form: a designed artefact suitable for inclusion as a front-matter map in the finished novel, rendered as SVG or an illustrated document.
  - [ ] **Full Cordis Map** — Geographic map of the entire planet, including both continents, the ocean between them, major Wayfarer routes, Badlands extent, **Aetheris** hotspot locations, and key locations, including the Heart, the Shifting Mire, and the Whispering Tunnels. A companion piece to the Transit Line Map for the novel's front matter.
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## Characters

*Dedicated deep-dive documents for characters carrying enough complexity to need their own space, separate from the character bible's summary entries.*

- [x] **\*\*Cassan Vale — Full Origin and Psychology\*\*** — ✓ resolved. New document (Characters → Antagonists) covers his childhood in a settlement built around reliquary-type Installations, the quasi-religious upbringing and its calculated erosion, the engineered self-offering that secured his adoption, and his current relationship to Installation knowledge as Twelve member. The ambiguous deaths and estranged sibling remain in the original "Origin and Psychology" document, which this new document is a

companion/prequel to rather than a replacement for. Both are now cross-referenced with Political Systems and with the Penumbrans, who are named throughout.

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# Completed

*Documents finished and added to BookStack:*

- [x] **Arbour's power grid** — how it works, what fails, what each tier receives, failure cascade behaviour
  - [x] **Water recycling and food production** — the Verdant Branch in detail, what people actually eat by tier
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*Total: 29 documents*

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