

# BUILDING IMAGINARY WORLDS

The Theory and History  
of Subcreation

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## WORLD STRUCTURES AND SYSTEMS OF RELATIONSHIPS

*Avidly, I searched some passages of the books for anything I could relate to my everyday life; always interpreting, always translating, I found no mention of mankind or anything from this world. There was no evocation of sciences, customs and details of our world. What I was unraveling, through my studies, was the history and knowledge of a world to which ours appeared unknown.*

—Charles Ischir Defontenay, *Star (Psi Cassiopeia)*<sup>1</sup>

*I now held in my hands a vast and systematic fragment of the entire history of an unknown planet, with its architectures and its playing cards, the horror of its mythologies and the murmur of its tongues, its emperors and its seas, its minerals and its birds and fishes, its algebra and its fire, its theological and metaphysical controversies—all joined, articulated, coherent, and with no visible doctrinal purpose or hint of parody.*

—Jorge Luis Borges, “*Tlön, Uqbar, Orbis Tertius*”<sup>2</sup>

Secondary worlds are interesting because of the parallels that can be drawn between them and the Primary World; it is through these parallels that we can relate to them and imagine what it would be like to inhabit them. As discussed in Chapter 1, secondary worlds use Primary World defaults for many things, despite all the defaults they may reset. If an author wants an audience to understand and empathize with the characters of a world, Primary World defaults become important for making connections to the audience’s own lived experience and establishing some degree of emotional realism; worlds too removed from the Primary World will be unable to do either. As Tolkien writes:

- Probably every writer making a secondary world ... wishes to be a real maker, hopes that he is drawing on reality: hopes that the peculiar quality

of this secondary world (if not all the details) are derived from Reality, or are flowing into it. If he indeed achieves a quality that can fairly be described by the dictionary definition: “inner consistency of reality”, it is difficult to conceive how this can be, if the work does not in some way partake of Reality.<sup>3</sup>

Besides Primary World defaults which still hold true in a secondary world, similarities with the Primary World can be found in the kinds of infrastructures that provide a framework in which to locate information about a secondary world. These are the structures by which we make sense of a story or a world, whether in fiction or lived experience, and which place individual facts and details into the larger contexts needed for them to be fully understood. It is through the completeness and consistency of these structures that world gestalten are able to occur. Without these structures, worlds would fall apart and become little more than a collection of data and information, and they would cease to be worlds.

## Secondary World Infrastructures

*You can spend your entire life perfecting a new world when you create its every piece.*

—George Lucas, from a 1977 interview in *Ecran*<sup>4</sup>

Early worlds, which grew out of the stories told in them or about them, depended on those stories for their structure; only the elements needed to tell the story appeared. But more developed worlds grew beyond the needs of narrative, and transnarrative worlds have an even greater wealth of detail to organize. What, then, are the frameworks and infrastructures that help both authors and audiences to organize all the pieces of information about a world and give a coherent or even consistent existence to the whole?

Naturally, *narrative* is the most common form of structure, and the one that usually determines which elements in a world are most defined and developed, or at least mentioned. As there is much to say about narrative and its relationship to world-building, narrative will be considered separately in Chapter 4.

The first three structures to be discussed in the following sections arise from the three basic elements needed for a world to exist: a space in which things can exist and events can occur; a duration or span of time in which events can occur; and a character or characters who can be said to be inhabiting the world, since defining “world” in an experiential sense requires someone to be the recipient of experiences. Each of these has its organizational tools, examined in the following sections: *maps* structure space and confect a world’s locations together;

*timelines* organize events into chronological sequences and histories which show how they are temporally related; and *genealogies* show how characters are related to each other (the term can be applied more broadly than merely biological kinship). These three structures are almost always found to some degree in an imaginary world, since the places, events, and characters of an imaginary world are fictional.

The next five structures to be discussed are the various systems which build upon each other and comprise the world itself, from the physical to the philosophical. The first of these is *nature*, which is not only the flora and fauna of a world, but also all of its materiality down to even its laws of physics, which may differ from those of the Primary World. *Culture* is built atop nature by a world's inhabitants, and is partly determined by what nature provides, as well as the culture's own history in the world. *Language* arises from culture and contains a culture's worldview embedded within it, since it regulates what can be expressed and how it can be expressed, and gives communicable form to the way in which the members of a culture collectively conceptualize their world. *Mythology* emerges from a combination of the previous layers and is how a culture understands, explains, and remembers its world. And finally, *philosophy* is the set of worldviews arising from the world itself, which includes not only the ideas and ideologies of the world's inhabitants, but also those which the author is expressing through the world's structure and events.

Of course, depending on their purpose, worlds have these structures to varying degrees, and less developed worlds can lack some of them altogether. Learning the ways in which a secondary world differs from the Primary World, and learning how a world works, is often a large part of the enjoyment of experiencing an imaginary world. Thus, how world information is doled out to the audience is an important part of world-building and design. Subcreators can imply these structures by giving the audience information and letting them assemble it, or describe these structures directly through maps, timelines, glossaries, charts, dictionaries, encyclopedias, and other such materials. Some ancillary materials, like maps or casts of characters, are usually placed at the start of a book, so that they can be used to orient a reader immediately, while other materials, like timelines and glossaries, are usually placed at the end, since they might reveal story information too soon if read before the main narrative. Worlds can even be designed to frustrate the organization of data into world infrastructures; for example, the *Codex Seraphinianus* (1981) gives us an abundance of pieces but leaves us guessing as to how to fit them together into world infrastructures. Most worlds, however, are designed to make sense and the oldest and perhaps most common tool used to introduce a world and orient an audience is the map.

## Maps

*If you're going to have a complicated story you must work to a map; otherwise you'll never make a map of it afterwards.*

—J. R. R. Tolkien

Maps relate a series of locations to each other, visually unifying them into a world. They provide a concrete image of a world, and fill in many of the gaps not covered in the story; gaps between locations, at the world's edges, and places not otherwise mentioned or visited by the characters. As such, they are one of the most basic devices used to provide structure to an imaginary world.

Maps of imaginary worlds appeared as early as the one printed with More's *Utopia* (1516), which was more pictorial than geographical. Woodcut maps were added to works, like the double-paged map of Macaria Island in Caspar Stiblins' "Commentariolus de Eudaemonensium Republica" in *Coropaedia, sive de monibus et vita virginum sacraum* (1555). Sometimes a map was considered important enough to be mentioned in a subtitle; when Le Père Zacharie de Lisieux's *Relation du pays de Jansénie, où il est traité des singularitez qui s'y trouvent, des coutumes, Moeurs et Religion des habitants. Par Louys Fontaines, Sieur de Saint Marcel* (1660) was translated into English in 1668, its title was changed to *A relation of the country of Jansenia, wherein is treated of the singularities founded therein, the customes, manners, and religion of its inhabitants: with a map of the country*. During the 1500s, maps were already appearing in printed Bibles, which may have encouraged the inclusion of more maps of imaginary worlds. Some maps were intimately tied to story events, like the detailed allegorical map entitled "A Plan of the Road from the City of Destruction to the Celestial City" found in John Bunyan's *The Pilgrim's Progress from This World, to That Which is to Come* (1684). Others, like the maps found in *Gulliver's Travels* (1726) and *Treasure Island* (1883) (the story of which originated from a map Stevenson had drawn), had less narrative detail but looked more like the kind of maps found in atlases.

Maps became more important with the development of the fantasy genre, in which travel is often a central part of a story's events, and in which geography plays a large role, especially if simultaneous journeys have to be coordinated. Maps give the reader a sense of scale early on, and may range from the *Star War* galaxy map to maps of archipelagoes, continents, or countries, to smaller scale maps like the map of Yoknapatawpha County that William Faulkner included in the back of *Absalom, Absalom!* (1936). Some maps are of areas as small as neighborhoods or estates; these were commonly found during the 1940s, when over 500 Dell paperback books, known as "mapbacks", featured maps on their back covers which were related to their stories. Maps also give a sense of how locations are related to one another spatially and topographically, giving story locations a context, since places are affected and defined by what lies around them. Remoteness, inaccessibility, and isolation are all expressed in this way, as well as their opposites. Maps can convey the spaces and great distances needed for

journeys, allowing such journeys to be ellipsized in the text, as well as giving them a concreteness they would not otherwise have. Maps can also encourage an author to remain consistent from one book to another. Michael O. Riley describes L. Frank Baum's manipulation of distances, before he codified the map of Oz:

One important way in which Baum modified Oz to accommodate more stories is evident in *The Patchwork Girl*: he restored to Oz the sense of vast size that exists in *The Wizard*, but is somewhat ambiguous in the subsequent books. Dorothy's journeys in that book take days to accomplish, except when she has the assistance of the Winged Monkeys, but in *The Marvelous Land [of Oz]*, Glinda reaches the desert from the Emerald City in an hour, and in *Ozma [of Oz]* the journey from the desert to the capital takes less than a day of leisurely walking. But here, once again, Oz is a land of great distances, and it is "a day's journey from the Emerald City" to Jack Pumpkinhead's house and "a two days' journey from Jack Pumpkinhead's house to the edge of the Quadling Country."

This sense of space was necessary for the modification that Baum made to enable a seeming paradise to include the necessary obstacles and struggles that would generate plots.<sup>6</sup>

Discussing one of Baum's later Oz books, *The Lost Princess of Oz* (1917), Riley states that, "The map of Oz he had drawn, while eliminating the flexibility he had utilized in the earlier books to fit the country to his stories, had the effect of causing him to treat Oz in a more consistent manner. There are no major changes or reinterpretations of that fairyland in *The Lost Princess*, but there are several refinements."<sup>7</sup> Maps are initially designed to fit a story, but later stories must be fit to existing maps. A map, then, can restrict stories as well as generate them.

In the Fantasy genre, the use of maps has become so common that their conventions can be parodied. Diana Wynne Jones' book *The Tough Guide to Fantasyland* (1996), a faux travel guide to the generic fantasyland found in so many novels, begins with a parody of a map. After summarizing some cartographical clichés, she writes, "Find your STARTING POINT. ... You will find it down in one corner on the coast, as far away from anywhere as possible." And right before that, "If you take this Tour, you are going to have to visit every single place on this Map, whether it is marked or not. This is a Rule."<sup>8</sup> Both criticisms, while true of many novels, point out phenomena that have explanations which relate to mapmaking and world-building. When mapping the main character's journey, an author will often want to create a map that shows the entirety of the lands traveled, while also showing as much detail as possible. These goals are balanced by cropping the map around the plot of the journey, assuring that the map can be blown up as much as possible while keeping the whole journey within it. Inevitably, since most journeys do not involve spiral trajectories, the starting point will naturally end up somewhere along the border of the map.

Narratively speaking, having the main character come from a marginal region also naturalizes expository passages, since the main character is learning about the world along with the audience. The object of the second criticism, the journey which visits every place depicted on the map, is sometimes referred to as a "Cook's Tour" (after the extensive tours of English travel agent Thomas Cook). This is the result of an author producing a map, lazily perhaps, with the minimum needed for the story; the author has only mapped the places visited by the characters, rather than creating a robust and detailed map of regions reaching far beyond what is seen in the story. This is one example of why world-building should go beyond the story's needs and suggest a world much broader and more detailed than what the story gives the audience, since areas appearing on a map that do not appear in the story encourage speculation and imagination.

Another common convention involves the content of maps. Whereas regions of the Earth (and perhaps other planets as well) usually have large areas of fairly homogeneous terrain, many fictional maps will contain a wide variety of geological features; mountains, deserts, forests, oceans, archipelagoes, meadowlands, volcanoes, rivers, marshes, and so on, sometimes all within relatively close proximity. In the case of Fantasy, varying terrain makes for more interesting journeys, which, since they are typically on foot or by horse, must place a variety of features within limited area if they are to be reached within a given timeframe (usually days or weeks). On the other hand, science fiction, with its high-speed modes of travel (even faster-than-light travel) will typically put each location on a separate planet of its own, with characters crossing the gulfs of space between them in spaceship or teleportation of some sort. And instead of juxtaposing multiple types of terrain within a small area, entire planets often represent a single type of terrain; for example, in the *Star Wars* galaxy, there is a desert planet (Tatooine), an ice and snow planet (Hoth), a jungle planet (Dagobah), a city planet (Coruscant), and so on. Even when planets have multiple types of terrain, there is usually some geographical or geological feature or combination of features that makes the planet unique and distinct from other planets. Likewise, planets will often be limited to a single dominant culture, which considers the planet its home world and gives the planet its name. Dozens of examples of these can be found in the *Star Wars* and *Star Trek* universes. When Earth is included among these planets, humans are usually grouped together as Earthlings, downplaying racial and cultural differences, implying that these are slight variations when compared to planetary differences. Planets, then, function much the way that countries do in single-planet narratives or worlds.

Each location's uniqueness and distinctiveness not only helps audiences keep from confusing locations, but also aids the stories set within them by giving each place a sense of character and even personality. The design and terrain of a location often corresponds to the events that take place there and to the worldview of its inhabitants; desolate, barren wastelands are usually not happy places, dark places often are dangerous, while sunlit meadows full of birdsongs and blooms typically do not contain villains' lairs. Tolkien's Middle-earth contains numerous examples of such places: the blasted wasteland of Mordor; the bucolic Shire; grim,

austere Orthanc; mysterious and beautiful Lothlórien; the dark, subterranean halls of Moria; and so on. Tolkien also uses design, characters, and events to make his four forests, Mirkwood, The Old Forest, Lothlórien, and Fangorn, all distinct from each other. Elves inhabit both Mirkwood and Lothlórien, but they are quite different from each other; the former are more primitive and build on the ground and underground, while the latter are more cultured and live on platforms high up in the trees. The Old Forest and Fangorn are both treacherous places for foreigners and both contain sentient tree-like beings, but whereas the Old Forest's Old Man Willow is immobile and remains provincial in his interests, the Ents of Fangorn recognize the interdependence of the Free Peoples of Middle-earth and decide to leave the woods and participate in battle. Places can also change along with the prevailing rulers of lands; Narnia is a snowy land under the power of the White Witch, but the enduring winter ends along with her reign.

Not only do maps unify the locations of a story or of a world, they also allow authors to join multiple worlds together into one. Perhaps the earliest example of this is when L. Frank Baum decided to combine his worlds. As Michael O. Riley describes it:

In *The Road to Oz*, Baum had drawn all his imaginary countries together into the same Other-world, but he had given no information about their geographical relationships. Now he actually shows the reader how they are connected. The fact that their positions on the map do not always agree with the textual descriptions is overridden by the centrality of Oz and the interconnectedness of Baum's entire Other-world.

Besides the reality given to Oz by being set in a detailed map, the country also gains in richness by being set among so many other exotic countries, most of them with their own histories and special ambiences. These other countries also gain from being placed around Oz. In fact, it becomes extremely difficult for a reader who has followed Baum to this point in his career to go back to the first part of the Oz series or to those earlier individual fantasies and divorce any of them from Baum's entire Other-world; all his various creations have become too firmly a part of one great fantasy world. The appearance of these maps is, in fact, the culmination of Baum's proclivity, evident as far back as 1901, to draw his various worlds together.<sup>9</sup>

The tendency to combine worlds is especially great in science fiction, where planets can become part of the same universe very easily, because they are not physically connected, and because there is no limit to the number of planets that can be added. Just as islands lay separated from each other in the ocean, making them the most popular sites for imaginary worlds before the twentieth century, planets abide in space in the same manner, separated from each other, often by vast distances and set in uncharted regions (and traveled to in spaceships). As discussed in Chapter 2, from the 1950s onward, many authors began joining their stories and planets into larger configurations. A number of them also include Earth in their

universes, even if the planet is only mentioned and never visited (as in the Dune universe), and in some cases, Earth is abandoned, almost forgotten, or even destroyed (as in the Foundation universe).

When worlds are set on Earth, however, the relationship of secondary world maps to Primary World maps can become an issue which can intrude on consistency; therefore some worlds go out of their way to suggest why they do not appear on standard maps. In More's *Utopia* (1516), the reason is given within a letter from More's friend Peter Giles, in which he describes how he and More talked to Raphael Hythloday, the adventurer whose tales of Utopia are supposedly the source of the book:

As for More's difficulties about locating the island, Raphael did not try in any way to suppress the information, but he mentioned it only briefly and in passing, as if saving it for another occasion. And then an unlucky accident caused both of us to miss what he said. For while Raphael was speaking of it, one of More's servants came in to whisper something in his ear; and though I was listening, for that very reason, more intently than ever, one of the company, who I suppose had caught cold on shipboard, coughed so loudly that some of Raphael's words escaped me. But I will never rest till I have full information on this point, not just the general position of the island, but its exact latitude—provided only our friend Hythloday is safe and alive.<sup>10</sup>

Some places are deliberately hidden from outsiders, like Francis Bacon's island of Bensalem in *The New Atlantis* (1626) which had laws of secrecy for travelers; or more recently, the island on the television series *Lost* (2004–2010). Other worlds were naturally hidden by geographical barriers, like the monarchy of Satrapia in Simon Tyssot de Patot's *Voyages and Adventures of Jaques Massé* (1710), which was cut off from the outside world by mountain ranges, beginning a tradition of "lost world" novels. Political reasons could also be used for a world's obscurity; everything about the land of Archaos in Christiane Rochefort's *Archaos ou Le jardin étincelant* (1972) is said to have been removed from history books, because the country was such a threat to its neighbors.<sup>11</sup> And a place's absence on standard map can be an occasion for humor; in Garrison Keillor's *Lake Wobegon Days* (1985) Keillor takes a full three pages to explain how Mist County, the location of Lake Wobegon, was "omitted from the map due to the incompetence of surveyors," and describes the political maneuvering that has kept it off the map since.<sup>12</sup> Authors can even chide the audience for wanting to know where their lands are located. In George Barr McCutcheon's *Graustark: A Story of a Love Behind a Throne* (1903) Miss Guggenlocker scolds another character at the end of Chapter 3:

"Mr. Lorry has offended us by not knowing where Graustark is located on the map," cried the young lady, and he could see the flush of resentment in her eyes.

"Why, my dear sir, Graustark is in—" began Uncle Caspar, but she checked him instantly.

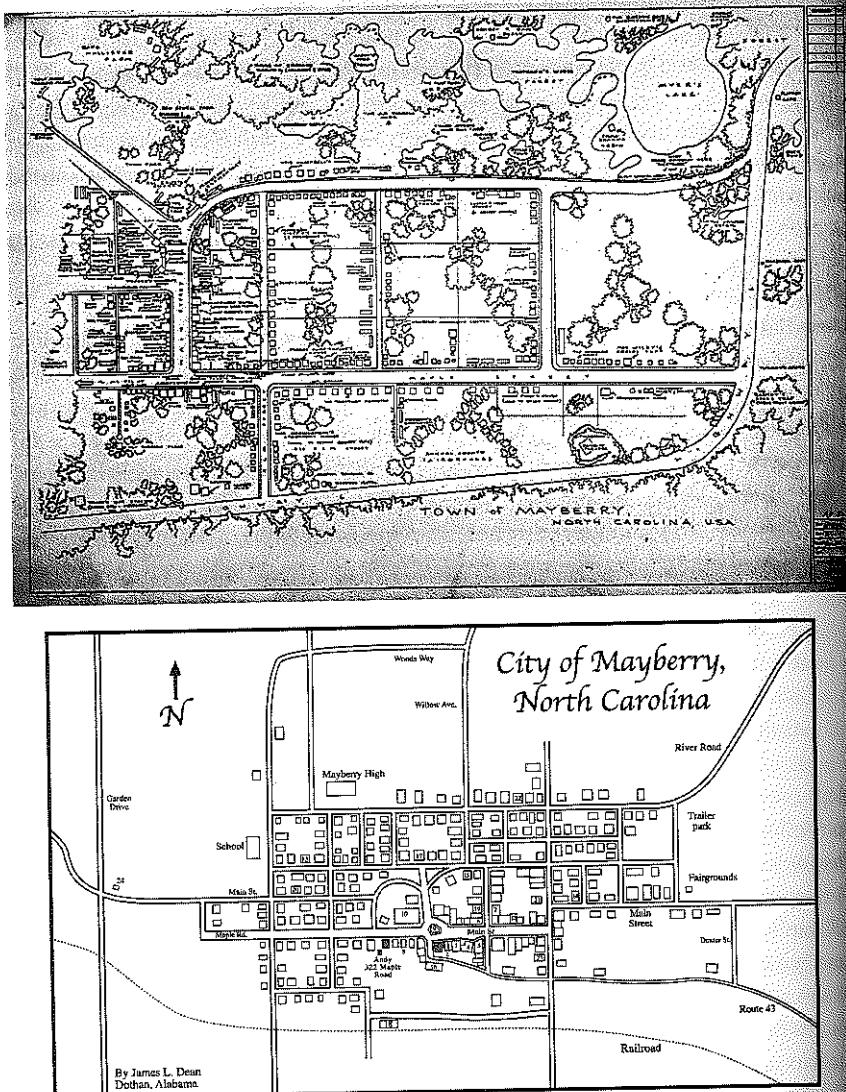
"Uncle Caspar, you are not to tell him. I have recommended that he study geography and discover us for himself. He should be ashamed of his ignorance."<sup>13</sup>

In many cases, authors do not provide any map at all, but if a place is developed enough, an audience can compile information from an author's works and create a map of their own. One of the earliest works to receive such attention was Dante's *Inferno*, which inspired many to map his version of Hell. According to historian Ricardo Padrón:

During the fifteenth century, a Florentine architect by the name of Antonio Manetti decided that one could gather the information presented in these passages and extrapolate from it to map out precisely the size, shape, and location of Dante's Hell. Manetti's work would not make it into print for some time, but his ideas would be popularized in summary form by many others, fueling what John Kleiner (1994, 24) has called the "heyday of infernal cartography," stretching roughly from 1450 to 1600. Italian intellectuals, particularly Florentines, debated, questioned, and refined Manetti's "Dantean cosmography," and even converted his argument to maps that accompanied their own editions of Dante's poem and their commentaries on it. Dantean cosmography became an intellectual fad that attracted the attention of some leading thinkers, including no less than a figure than Galileo Galilei ..."<sup>14</sup>

Maps can be constructed from verbal descriptions, but also from visual information collected from images of the place in question. For his book *TV Sets: Fantasy Blueprints of Classic TV Homes* (1996), Mark Bennett mapped out the homes from 34 television series, the towns of Hooterville and Mayberry (see Figure 3.1), and Gilligan's Island, by watching the shows and establishing the relationships of spaces from what was shown (and in some cases, filling in gaps, like bathrooms, which he says are rarely shown). Some maps are used by authors or companies to ensure consistency during production, and may only appear some time afterwards in ancillary materials; for example, maps were made of the Podrace course in *Star Wars Episode I* and the area of Coruscant in which the speeder chase takes place in *Episode II*, but they were not publicly released until several years later in *Creating the World of Star Wars: 365 Days* (2005).<sup>15</sup>

Tolkien's world in particular has inspired mapmaking by others, and apart from Tolkien's own sketches and official authorized maps produced by his son Christopher in the 1950s and later by Pauline Baynes in the late 1960s, one can find published maps of Middle-earth by an "M. Blackburn", Richard Caldwell, Barbara Strachey, Karen Wynn Fonstad, Shelly Shapiro, James Cook, and



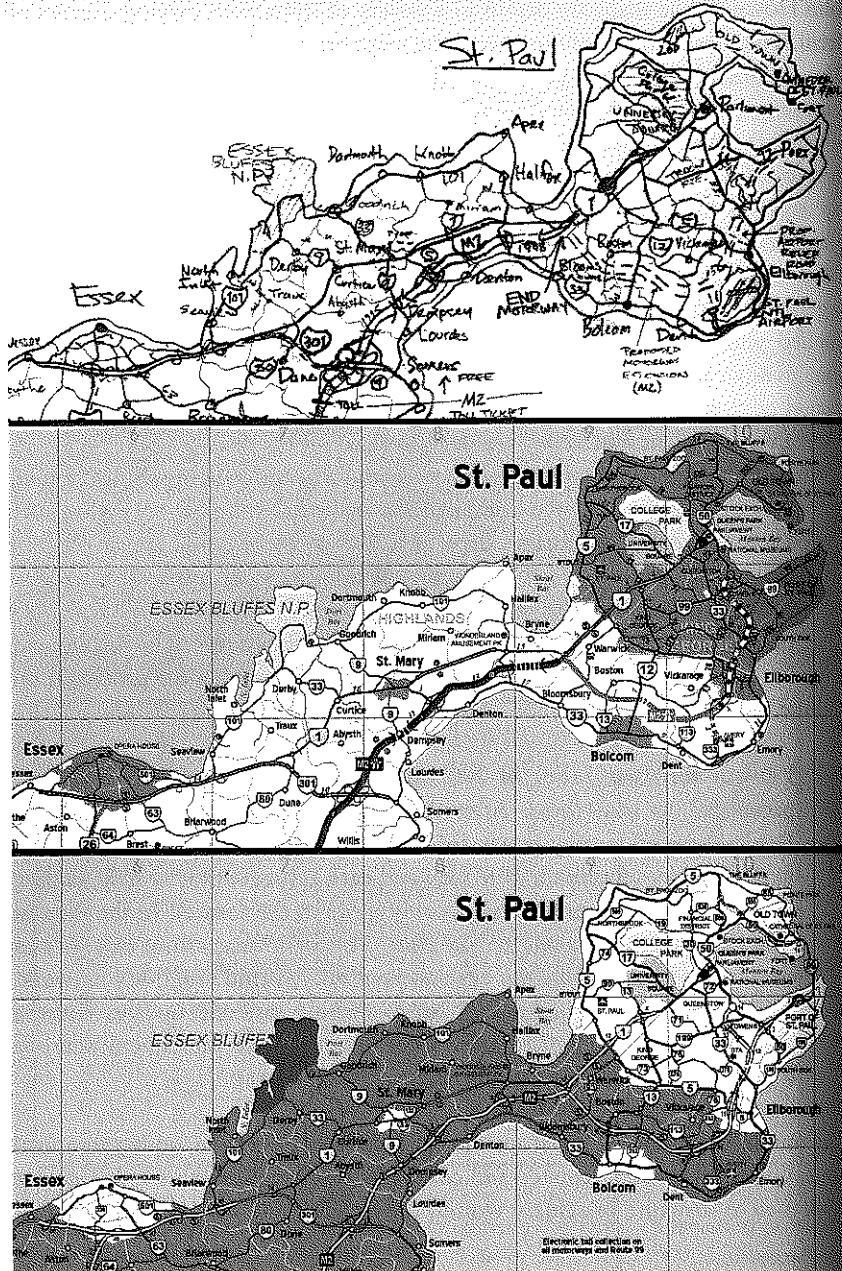
**FIGURE 3.1** Two very different maps of Mayberry, North Carolina, by Mark Bennett (top) and James L. Dean (bottom), extrapolated from the visual information provided on *The Andy Griffith Show*. (Mark Bennett, *Town of Mayberry*, 1997, Lithograph on Rives BFK paper, 24.25 × 36.25 inches, Courtesy of the artist and Mark Moore Gallery) (Map of Mayberry courtesy of James L. Dean).

John Howe.<sup>16</sup> The maps are drawn in a variety of styles with varying degrees of detail. The most detailed of these were the maps produced by cartographer Karen Wynn Fonstad, who also produced atlases of other authors' worlds from the information provided in their books, including atlases of Anne McCaffrey's Pern, Stephen R. Donaldson's the Land, Krynn (the world of the *DragonLance* novels), the world of TSR's Forgotten Realms, and Tolkien's Middle-earth. As a cartographer, Fonstad was interested in more than just the landforms of these worlds; in *The Atlas of Middle-Earth*, which even came out in a second edition, she included maps with troop movements, the borders of kingdoms, landforms, climate, vegetation, population, and languages, all extrapolated from what is described or implied within Tolkien's writings and the maps that accompany them. That enough of an audience exists for such an atlas to be published (as well as a revised second edition) is testament to the importance that maps have as guides to secondary worlds, even when they are unauthorized.

Finally, some worlds exist only as maps, without accompanying stories or text. In 1999, Artist Wim Delvoye compiled his maps of an imaginary world in a catalog entitled *Atlas*, the images depicting all the roads, cities, and geological features that one finds in atlases of Primary World maps. Another artist, Adrian Leskiw, not only draws maps of his imaginary worlds, but some of them, like those of his Nation of Breda, have been edited or redrawn to represent different times in the country's history (see Figure 3.2). Leskiw describes the process at his website:

I began this map series in 2003 with three pencil drawings and then proceeded to scan these. After digitizing the 2003 map of the Isle of Breda I created a unique map for each year before, until 1979, and after, until 2024, by editing the base map and each subsequent new map, ending up with 46 unique maps (and possibly more in the future)! In the interest of saving space I have selected an assortment of 10 maps from this 46-year span in order to illustrate the development of the island's highway network. After finishing the 2024 map I began making multiple updates without going to the trouble [of] creating a new map for each subsequent year and have tentatively labeled this iteration as the 2035 map.<sup>17</sup>

The multiple versions of the map, showing changes over time, adds a temporal dimension to the world depicted and combines cartography with another device often used to structure imaginary worlds: the timeline.



**FIGURE 3.2** A detail of the Capital Region from Adrian Leskiw's map of the Isle of Breda, as it changed over time. The top image represents the land in 2002, the middle image in 2004, and the bottom image in 2040. The top and middle images were created in 2003, and the bottom one in 2005. (Images courtesy of Adrian Leskiw.)

## Timelines

Timelines and chronologies connect events together temporally, unifying them into a history. They can be used to chart the cause-and-effect relationships between events, explain and clarify their motivations and maintain consistency, and give local events a context within larger movements of historical events. Timelines tie backstory into a story's current events and help an audience to fill in gaps, such as characters' ages or travel times, or their participation in events described in broader scale. Timelines also allow simultaneous strands of actions, narratives, or other causal chains to be compared alongside each other, providing both synchronic and diachronic contexts for events.

Unlike maps, timelines usually appear at the back of a book rather than the front, if they appear at all. Although they are often used by authors for the sake of organization and consistency, they are less likely to appear than maps, and are placed in the back of a book, because they usually contain spoilers and other story information that would ruin narrative surprise and suspense. Timelines may vary from short lists of events in an appendix to book-length chronologies of hundreds of pages (like those written for the *Star Wars* universe, the *Star Trek* universe, and Tolkien's Arda<sup>18</sup>), and can be provided by an author or assembled by third parties who analyze an author's works and compile references and inferences from which temporal structures can be reconstructed.

Timelines also vary considerably in scale. On one end of the spectrum are detailed minute-by-minute chronologies and those covering the events of a single day, like the on-line timelines covering individual seasons of the television show *24* (2001–2010), or the book-length chronology of James Joyce's *Ulysses* (1922) compiled by John H. Raleigh.<sup>19</sup> However, even these need not be limited to the time of the story's action; Raleigh's book, for example not only covers the single day (June 16, 1904) in which the main narrative of *Ulysses* takes place, but also over a century of backstory events which are referred to in the story. Since most stories are built around a main character's life or a portion thereof, most timelines cover a timespan measured in days, weeks, months, or years, or perhaps longer for backstory material. Other narratives built around the history of a people, a civilization, or a multigenerational family may use timelines extending hundreds of years, and in the case of fantasy and science fiction, sometimes thousands of years. Such timelines and narratives have to contend with social, cultural, and technological changes, and often include migrations, the establishment of countries, and the catastrophic events that decimate them. Finally, at the broadest scale are the timelines of books like Olaf Stapledon's *Last and First Men* (1930) with its timeline of millions of years, and Stapledon's *Star Maker* (1937) with its timeline of billions of years covering the entire history of the universe. In these stories, humanity itself becomes the main character, as one type of men evolves into the next, and these versions of humanity interact with vast and ancient empires on a galactic scale.

Timelines may use conventional calendars or ones unique to their worlds, like the Shire calendar used by Tolkien's hobbits, for which translated dates are also given. Timelines and changes in date can also be implied through such things as characters' ages, diurnal cycles, seasonal changes, phases of the moon, constellation positioning, and a wealth of other time-related details, which the audience can use to reconstruct the temporal order of events. For example, in 2008, using story information from Homer's *Odyssey* such as the position of Venus and a total eclipse, scientists Marcelo O. Magnasco and Constantino Baikouzis determined that the most likely date of Odysseus' return home was April 16, 1178 BC.<sup>20</sup> Other world devices can be used to imply the presence of history and an ancient past, like ruins and traces of long-lost civilizations, cultures and societies layered with palimpsests that suggest a deep history, or old sage-like characters who act as purveyors of backstory. All of these can help to create what author John Clute calls a "time abyss":

**TIME ABYSS** Either a phenomenon, or more interestingly, a moment of perception. As a perception it is closely analogous to the Sense of Wonder in science fiction, which may be defined as a shift in perspective so that the reader, having been made suddenly aware of the true scale of an event or venue, responds to the revelation with awe. The analogue in fantasy is the discovery by the reader that there is an immense gap between the time of the tale and the origin of whatever it is that has changed one's perspective on the world.<sup>21</sup>

Whereas timelines usually help an audience fill the gaps in the temporal range covering a world's events, a time abyss instead calls attention to itself as a gap, its enormity raising more questions than it answers, generating speculation, specifically as to how the world moved from the former state to the current one. Whether or not an abyss is used, the creation of historical depth and a sense of origins allow an author to comment on history and society through analogy or allegory and reflect upon how civilizations change and the causes of those changes. In *The Lord of the Rings*, the Human Men are a fallen race, and mortal, while the Elves are an unfallen race and thus immortal; the thousands of years covered in *The Silmarillion* chart the histories of both races and how their natures affect them. Just as traditional novels connect the actions and consequences of their characters to convey a certain worldview, subcreated worlds allow the stories of entire peoples over centuries to be devised according to an author's ideas.

Timelines can be synchronic as well as diachronic, tracing simultaneous strands of action as they interweave and interact. One extreme example of this can be found in Georges Perec's *Life: A User's Manual* (1978), which takes place at the moment of its protagonist's death, shortly before 8 PM on June 23, 1975. Perec moves room to room in the apartment building of the novel, describing each resident's experience of the moment, although there are backstories and other

story information that expand the book's timeline beyond the moment described, and the book even includes an appendix with a timeline beginning in 1833. In most cases, simultaneous events requiring adherence to a timeline are the result of interlace narratives, the events of which include nodal points where multiple storylines converge and diverge. What has come to be known as the "interlace technique" or medieval interlace is similar to the structure used by Tolkien in *The Lord of the Rings*, and Tolkien scholar Richard C. West sums up the technique by comparing it to the "organic unity" type of structure, writing:

Organic unity seeks to reduce the chaotic flux of reality to manageable terms by imposing a clear and fairly simple pattern upon it. It calls for a progressive and uncluttered narrative line in which there is a single major theme to which a limited number of other themes may be related so long as they are kept subordinate. The main theme grows from a clear-cut beginning through a middle which develops naturally ("organically") from the beginning to a resolution which is the product of all that preceded it. It is considered preferable to have a limited number of characters and to have no more than one or two dominate the action. Any single work should be self-sufficient, containing within itself everything that is necessary to it and excluding everything that is not necessary. In other words, the organic work is indivisible in itself but divided from everything else. ... Interlace, by contrast, seeks to mirror the perception of the flux of events in the world around us, where everything is happening at once. Its narrative line is digressive and cluttered, dividing our attention among an indefinite number of events, characters, and themes, any one of which may dominate at any given time, and it is often indifferent to cause and effect relationships. The paths of characters cross, diverge, and recross, and the story passes from one to another but does not follow a single line. In addition, the narrator implies that there are innumerable events that he has not had time to tell us about; moreover, no attempt is made to provide a clear-cut beginning or end to the story. We feel that we have interrupted the chaotic activity of the world at a certain point and followed selection from it for a time, and that after we leave, it continues on its own random path. The author, or someone else, may perhaps take up the threads of the story again later and add to it at beginning, middle, or end.

Yet, the apparently casual form of the interlace is deceptive; it actually has a very subtle kind of cohesion. No part of the narrative can be removed without damage to the whole, for within any given section there are echoes of previous parts and anticipations of later ones.<sup>22</sup>

It is apparent from this description that the interlace structure is best suited for the task of world-building, emphasizing as it does the narrative fabric of a world (discussed in detail in Chapter 4) and the context surrounding the storylines taking place there. And the simultaneity of an interlace structure means that some

form of timeline to coordinate concurrent events is almost a necessity, at least for the author if not for the audience as well.

Timelines also help to manage temporal structures of worlds where time flows differently than in the Primary World, or at varying rates, as in the example from Alan Lightman's *Einstein's Dreams* (1992) given near the end of Chapter 2. One of the earliest examples of a world with a time differential is the country referred to in the title of George MacDonald's *At the Back of the North Wind* (1870):

"Have you been sitting here ever since I went through you, dear North Wind?" asked Diamond, stroking her hand.

"Yes," she answered, looking at him with her old kindness.

"Ain't you very tired?"

"No; I've often had to sit longer. Do you know how long you have been?"

"Oh! Years and years," answered Diamond.

"You have just been seven days," returned North Wind.

"I thought I had been a hundred years!" exclaimed Diamond.

"Yes, I daresay," replied North Wind. "You've been away from here seven days; but how long you may have been in there is quite another thing. Behind my back and before my face things are so different! They don't go at all by the same rule."

"I'm very glad," said Diamond, after thinking a while.

"Why?" asked North Wind.

"Because I've been such a long time there, and such a little while away from mother. Why, she won't be expecting me home from Sandwich yet!"<sup>23</sup>

Not only can the speed at which time passes be different from the Primary World, but also the rate itself may even vary over time. For example, time in Lewis's Narnia seems to move at a variable rate and does not consistently correspond with that of the Primary World. According to Walter Hooper's timeline of the series, the period in England from 1900, when Digory Kirke, as a boy, first visits Narnia, to 1949 when the British railway accident mentioned in *The Last Battle* (1956) occurs, is concurrent with a period in which Narnia undergoes its entire history from its creation to its final dissolution, a period of 2555 years.<sup>24</sup> Hooper's timeline shows, however, that while 1900 in England coincides with Narnia year 1, the year 1930 coincides with Narnia year 300; 1932 with Narnia year 302; 1940 with Narnia year 1000; 1941 with Narnia year 2303; and 1949 with Narnia year 2555, just to list a few points of known correspondence. Lewis deliberately highlights the varying flow of time in his world to underscore its disconnect from the Primary World, since there is no system to relate the passage of time in one world compared to the other. An author can even include varying timeframe

within a single secondary world; for example, residents of Fred Saberhagen's Azlaroc live in their own unique timeframes. As Brian Stableford describes it:

Time worked in strange ways on Azlaroc, both objectively and subjectively. Local time was marked by the continual but irregular fall of "veils" of transformed matter which isolated sets of contemporary phenomena from those which had gone before, so that the apparatus of the past became vague to the eye and insubstantial to the touch by discrete degrees. Once caught by a veilfall, visitors to Azlaroc were marooned forever within their "year-group," assimilated to the local time-scheme.<sup>25</sup>

Taking Einstein's theories into account, characters in science fiction can also alter their own timeframes through the relativistic time dilations involved with high-speed travel and intense gravitational forces. The *Star Trek: The Next Generation Technical Manual* even includes a section entitled "Relativistic Considerations" which describes how *Star Trek* technology and protocol attempts to circumvent timeframe-related problems, while a chapter on "Warp Propulsion Systems" describes how faster-than-light travel is attained.<sup>26</sup> In addition to the pseudo-scientific discourse that makes up the bulk of the book, there is italicized extradiegetic commentary by the authors that addresses the world-building they are doing, which in the Warp Propulsion chapter reveals the need for timeline calculations:

Figuring out how "fast" various warp speeds are was pretty complicated, but not just from a "scientific" viewpoint. First, we had to satisfy the general fan expectation that the new ship was significantly faster than the original. Second, we had to work with Gene's [Roddenberry] recalibration, which put Warp 10 at the absolute top of the scale. These first two constraints are fairly simple, but we quickly discovered that it was easy to make warp speeds TOO fast. Beyond a certain speed, we found that the ship would be able to cross the entire galaxy within a matter of just a few months. (Having the ship too fast would make the galaxy too small a place for the *Star Trek* format.)<sup>27</sup>

Worlds that involve time travel narratives (as *Star Trek* does, from time to time) have even more need to attempt to establish temporal order as events are recontextualized and revisited. In 2009, the makers of *Star Trek* even tried to tie in the rebooting of the franchise by suggesting that the *Star Trek* movie of 2009 actually took place in an alternate timeline diverging from the already-established timeline.<sup>28</sup> With both Zachary Quinto playing a young Spock and Leonard Nimoy playing the old "Spock Prime", the two timelines are joined and the rebooting is given a diegetic explanation that keeps it from being separated from the older material, as reboots are in so many other franchises. As this example shows, along with time and space, it is characters and their relationships which link together narratives as well as worlds, and it is to these that we next turn.

## Genealogies

Genealogies relate characters to one another, giving them a context within larger frameworks which are familial, ancestral, social, institutional, and historical. They include such things as family tree charts connecting ancestors and descendants, kinship diagrams of lineal and collateral kin, lineages of rulers and their heirs, and hereditary systems which pass on knowledge, experience, titles, and property down from one generation to another. Genealogies can appear in authorized ancillary works such as charts and lineages, or be implied through a series of connections mentioned throughout the works making up a world. They act as world infrastructures, linking a world's stories together and extending characters by placing them in broader contexts and tying them into history. Even sequels written by others can make use of genealogy as a device to link their stories to the works they follow; for example, the main characters of both Dionys Burger's *Sphereland* (1965) and Mark Saxton's *The Islar, Islandia Today: A Narrative of Lang III* (1969) are the grandsons of the main characters of the stories that inspired them (Abbott's *Flatland* (1884) and Wright's *Islandia* (1942), respectively). Appreciation of subtleties in a text can also rely on the audience's knowledge of characters' genealogies. Tom Shippey describes how an insult directed at Elu Thingol in *The Silmarillion* can only be fully understood through detailed knowledge of Elven genealogy.<sup>7</sup>

Genealogies function as extensions of characters, which in turn provide continuity across a world's eras. Many worlds begin as the background to the story of a character's entire life; for example, the six *Star Wars* films at the core of the *Star Wars* universe tell the life story of Anakin Skywalker (Darth Vader) from childhood to death. Yet as a world grows temporally, it often passes beyond the lifespan of individual characters. One way around this is to have long-lived characters whose lives span many eras and thus allow for a greater degree of both character development and world development during their lifetime. Examples of characters with great longevity who play a large role in their worlds include L. Frank Baum's Queen Zixi of Ix (who is 683 years old), George Lucas' Yoda (who lived to be over 800 years old), the Nemsédes in Defontenay's *Star* (1854) who are more than 1,000 years old, and the Dune universe's Duncan Idaho gholas, who are a series of clones carrying on the original's memories that extend the character over several millennia, making him the only character to appear in all six of Frank Herbert's *Dune* novels. Some characters may even be "immortals", like Swift's Struldbriggs of Luggnugg against whom special laws have been enacted limiting their rights after a certain age, Tolkien's Elves who are to remain in Arda until its end, Stephen R. Donaldson's Forestals who protect the forests of the Land, or the robots in many science fiction worlds. The consequences of immortality are also occasionally commented upon; for example, both Swift's Struldbriggs and Tolkien's Elves weary of the world and express their envy of mortals whose mortality gives them rest.<sup>8</sup>

Ancestors and descendants are the most common way of temporally extending a character. Names and characteristics are often passed along from parent to child.

as well as titles, property, and proprietary knowledge. Whole lineages of characters can share the same name, like the Dorns of *Islandia* (1942) and even objects can have their own lines (like the sequence of starships to bear the name *Enterprise* in the *Star Trek* universe), and sometimes objects and their history provide a throughline linking the works of a world together. Over a series of generations, biological descendants can grow to form a people, and their history can become the throughline of world at a larger narrative scale (similar to the way Jacob's descendants become the Israelites in the Old Testament).

Other relationships can function in a manner similar to biological descent; in the *Star Wars* universe, for example, both the Jedi and the Sith have partnerships of mentors and apprentices to pass their training along. Over the course of the six main films we discover that Anakin Skywalker was apprenticed to Ben Kenobi, Kenobi was apprenticed to Qui-gon Jinn, Jinn was apprenticed to Count Dooku, and Dooku was apprenticed to Yoda, linking them together almost like a series of fathers and sons.<sup>30</sup> Memories are sometimes passed along to keep a character's experiences alive even after their deaths; in the *Star Trek* universe Vulcans perform mind-melds, while in the *Dune* universe the Bene Gesserit pass on their memories genetically from mother to daughter.

Genealogies give characters context through structures of kinship and friendship, as characters are understood by the influence of ancestry, upbringing, and companionship. The deeds and failings of ancestors often provide a foreshadowing that colors their descendants' self-images and expectations. Sons carry the weight of their father's reputations, and are often expected to finish their projects or even correct their errors. As heir to the throne, Aragorn both fears failing in the same way that his ancestor Isildur did, and Aragorn's marriage to the Elf-maiden Arwen mirrors the romance of the human Beren and Elf-maiden Lúthien, from whom he is also descended. Ben Kenobi loses Anakin Skywalker to the Dark Side, and tries to make up for it by training Anakin's son Luke; and it is Yoda, much higher up the same chain of mentors, who finally completes Luke's training, allowing Luke to turn his father back to the side of good; when the chain of mentors is understood, one can see additional motivation that Yoda might have for helping Luke. In both cases, the audience does not need to know all the background connections in order to follow the story, but such knowledge does provide nuances enriching the audience's understanding of the situation.

Additional context can be given well beyond what is necessary for a story. For example, extensive family tree charts appear in the appendices of *The Lord of the Rings*, from the lines of Kings to various hobbit families. Whereas traditional novels like Tolstoy's *War and Peace* will sometimes have family trees linking the principal characters, charts made for secondary worlds often feature many names which do not appear in the story, but which nonetheless add to the experience and the verisimilitude of the world, and act as catalysts for speculation which heighten audience engagement and investment in a world.

Finally, genealogies can link stories together as each character's life history becomes another narrative thread in a world's narrative fabric (more on this in

Chapter 4). Even when unrelated characters cross paths briefly, with a main character from one story becoming just an extra in the background of another, such a transmedial appearance can be a powerful way to evoke the world extending beyond the confines of a particular story; and one can imagine that every minor character and extra passing through the background has as complete and detailed a life as the main character does.

Genealogies, timelines, and maps are the main infrastructures used in building a world's illusion of completeness, and the most basic and common areas in which invention occurs as well. The next five infrastructures examined—nature, culture, language, mythology, and philosophy—are often more backgrounded than the structures of space, time, and character that they serve, and may rely heavily on Primary World defaults; but even when invention occurs in them in small amounts, they can subtly and cumulatively create that feelings of differentness that make imaginary worlds so fascinating and attractive.

## Nature

Imaginary worlds almost always have some kind of physical setting to them, or in the case of supernatural worlds, laws and modes of being that operate in an analogous manner to a physically-based world, without which the world would cease to be relatable to an earthly audience. *Nature*, then, deals with the materiality of a world, its physical, chemical, geological, and biological structures and the ecosystems connecting them. Almost inevitably, worlds subcreated to this degree are less likely to be earthbound ones, since so many Primary World defaults have been changed. They also typically become, at some level, thought experiments about subjunctive worlds in which the consequences of changed Primary World defaults are explored and extrapolated.

The most common type of invention regarding an imaginary world's natural realm is that of new flora and fauna. Adding new plants and animals does little to disrupt the other defaults of the natural world, and even in the Primary World new species continue to be discovered and studied. While such inventions appeared early on as sources of humor and satire, as in Lucian of Samosata's *True History* and Rabelais' *Gargantua* and *Pantagruel* series, they were also made in a more serious vein in the traveler's tales that described strange foreign lands and their inhabitants. In most of these worlds, new creatures were merely presented without any attempt to consider how they might fit into ecological systems or affect the structures built upon them (such as culture, language, philosophy, and so forth). Early utopias explored more of the effect they might have on these structures, but typically did not reinvent the natural realms of their worlds to any great degree. Underground worlds tended to connect invented flora and fauna to other structures of the world usually by necessity, to explain how their inhabitants could meet the basic needs of food, water, shelter, and light. Robert Paltock's *The Life and Adventures of Peter Wilkins* (1751) was one of the first worlds to base a culture on its unique plants and

imals, including the glumms and gawreys, the winged natives of Sass Doortp Swangeanti; the crullmott tree whose fruit tastes like fowl; the padsi bush whose fruit tastes like fish; and sweecoes, which are insects that can glow and produce light. When invented flora and fauna are more than merely window-dressing or replacements for Primary World animals that serve a similar function (such as pets or beasts of burden), they are usually used to solve world-building problems: for example, Paltock's sweecoes are housed in wicker lamps to provide light while bioluminescent algae light the underground lake of the D'ni in the *Myst* universe; the babel fish of the *Hitchhiker* universe is inserted into one's ear and used as a universal translator to overcome language barriers; and the sandworms of Arrakis in *Dune* are used as a mode of transportation and a by-product of their life cycle is the spice melange needed for the guild navigators who use it to fold space and achieve faster-than-light travel. Occasionally an invented plant or animal even provides the impetus for a story, as any fantasy quest to defeat a dragon demonstrates.

Worlds that are subcreated to an even deeper level include new kinds of biology, ecosystems, and planets with unusual material compositions. For example, Koester's Planet, from Barrington J. Bayley's "Mutation Planet" (1973), has organisms that can change their genetics and produce radically different offspring. The planet Sequoia, from Neal Barrett Jr.'s *Highwood* (1972) is a land of huge trees, and the planet Karimon, from Mike Resnick's *Purgatory: A Chronicle of a Distant World* (1993) consists of tall trees that are entire ecosystems. Some planets are metal-poor and their inhabitants must use other materials: on Lyra IV, the planet from Cyril M. Kornbluth's "That Share of Glory" (1952), technology is based on ceramics, while on Land and Overland from Bob Shaw's *The Ragged Astronauts* (1986) astronauts launch wooden spaceships to travel between the two planets, which orbit so close that they share an atmosphere. Some elaborate subcreations even have entire books devoted to their invented flora and fauna, for example, David Day's *A Tolkien Bestiary* (1979), Anne Margaret Lewis and R. K. Post's *Star Wars: The Essential Guide to Alien Species* (2001), and Dinah Hazell's *The Plants of Middle-earth: Botany and Sub-creation* (2007). Filmmaker James Cameron even assembled a 350-page *Pandorapedia* for his planet Pandora in *Avatar* (2009) and, according to *Wired* magazine:

Every animal and plant received Na'vi, Latin, and common names. As if that weren't enough, Cameron hired Jodie Holt, chair of UC Riverside's botany and plant sciences department, to write detailed scientific descriptions of dozens of plants he had created. She spent five weeks explaining how the flora of Pandora could glow with bioluminescence and have magnetic properties. When she was done, Cameron helped arrange the entries into a formal taxonomy.<sup>31</sup>

At least one scientist has parodied this kind of scientific work; the German zoologist Gerolf Steiner, writing under the name Harald Stümpke, invented a

fictitious order of mammals known as Rhinogrades or Snouters, which evolved in the imaginary Hi-Iay (or Hi-yi-yi) Islands along with a complete ecosystem, all described in detail in two books in the early 1960s.<sup>32</sup>

Among invented creatures, one often finds humanoid races, who range from those that are only slightly different from humans and treated like new nationalities, to races in which a subcreator has changed biological defaults in order to propose thought experiments designed to make an audience see Primary World biology in a new light. For example, many alternative sexual biologies can be found in imaginary worlds. In Defontenay's *Star (Psi Cassiopeia)* (1854), the natives of Tassul are hermaphrodites able to beget and give birth alone. The Gethen of Ursula LeGuin's *The Left Hand of Darkness* (1969) are neither male or female and have gender identities only once a month. Esthaa, the planet of James Tiptree Jr.'s "Your Haploid Heart" (1969) is inhabited by a race whose generations alternate reproductive methods, changing between asexual and sexual reproduction. Races with three sexes can be found in both Samuel R. Delany's Branning-at-Sea (where they are known as La, Le, and Lo) and in Isaac Asimov's para-Universes (where they are known as the Rationals, Emotionalists, and Parentals). Melissa Scott's *Shadow Man* (1995), set on the planet Hara, has a race with five sexes (fem, herm, man, mem, and woman) and nine modes of sexual preference (bi, demi, a, gay, hemi, omni, straight, tri, and uni). In most cases, the main character's encounter with new sexes and the social norms and behaviors arising from them becomes a crucial part of the stories and worlds in which they appear.

Subcreating nature to an even deeper level, we find worlds in which the laws of physics are different from those of the Primary World; for example, in the world of Greg Egan's *The Clockwork Rocket* (2011), light has no universal speed. Some worlds introduce new colors, such as "jale" and "ulfire" (due to a blue sun) in David Lindsay's *A Voyage to Arcturus* (1920), "rej" in Philip K. Dick's *Galaxy Pot-Healer* (1969), or "octarine", the "color of magic" in Terry Pratchett's Discworld universe. Some colors may not be given a name; as Raymond King Cummings writes in *The Girl in the Golden Atom* (1922), "Her lips were full and of a color for which in English there is no name. It would have been red doubtless by sunlight in the world above, but here in this silver light of phosphorescence, the color red, as we see it, was impossible."<sup>33</sup> Certain conventions of the science fiction genre, such as hyperspace, faster-than-light travel, wormholes, and so forth, already imply new laws of physics; but some worlds introduce new forces, like "noggox" in Brian Aldiss' "Legends of Smith's Burst" (1959), which keeps matter and antimatter from annihilating each other; or the gravitational forces of Linovection and Reticutriation in the Tryslmaistan universe of Jennifer Diane Reitz's *Unicorn Jelly* (2000). In his novel *Diaspora* (1998), Greg Egan invents new theories of physics including Kozuch Theory, which views elementary particles as six-dimensional wormholes; while Orson Scott Card invents "photonets" which are subatomic particles that allow for faster-than-light communication. Some video game worlds even let players experience alternative physical laws.

like the negative gravity in some of the “universes” in *Gravitar* (1982), the non-Euclidean wraparound space of *Asteroids* (1979), or the user-generated spatial connections of *Portal* (2007).

Some worlds have characters who have the power to subcreate worlds, like the Thoans in the World of Tiers universe or the D’ni in the *Myst* franchise, and they can make worlds in which the laws of physics are different. For example, in *Myst: The Book of Atrus* (1995), Catherine’s Age is a giant torus with a column of water that passes through the center, as a waterfall on one side and an enormous waterspout on the other. With most of the world’s mass placed along the outer edge of the torus the water is pulled through the central hole and around the torus, to fall back as rain again on the other side. In many cases, “magic”, as found in the genre of fantasy, often works according to a set of conventions or rules, and these could also be seen as implying new laws of physics, albeit indirectly. Virtual worlds set in computer-generated spaces also have their own rules, programmed by their makers, like the world inside the computer in *Tron* (1982), cyberspace in *Neuromancer* (1984), or the machine-created world of *The Matrix* (1999), in which the laws of physics can be bent or even broken.

While worlds have been built in many shapes, such as rings, discs, tiers, concentric shells, or even the negative curvature of a hypersphere (in Christopher Priest’s *Inverted World* (1974)), the most extreme examples of changing the defaults of the natural world are those imaginary worlds with a dimensionality different from that of the Primary World. The first of these appears in Edwin Abbott Abbott’s *Flatland: A Romance of Many Dimensions* (1884), which introduced not only the two-dimensional world of Flatland, but also the one-dimensional world of Lineland. One of the book’s goals, besides satirizing the Victorian society of its day, was the introduction of four-dimensional mathematics to its general readership. The book begins with a detailed account of Flatland that builds the world and explains how it works over several chapters, and then the two-dimensional protagonist, A. Square, visits Lineland where he attempts to describe what the second dimension is like. Later, A. Square is visited by the Sphere, who attempts to describe to him what a third dimension is like, and through their discussion, a fourth dimension, and what four-dimensional entities might be like, are extrapolated from observations about the first three dimensions. Flatland was an exceptional work of subcreation for its time, and would go on to remain in print and to inspire an entire subgenre of worlds that experiment with dimensionality, as other authors’ sequels took up where Abbott left off.

The first sequel to *Flatland* was C. H. Hinton’s *An Episode of Flatland: Or, How a Plane Folk Discovered the Third Dimension* (1907), which recognized one of the faults of Abbott’s original Flatland. The descriptions of Abbott’s Flatland, along with his illustrations, give the impression of watching an overhead view of shapes moving around in Flatland, entering houses which are shown like floor plans, with the insides laid out like a diagram. Since Abbott’s characters move around like figures over a background, there are really two layers to the world;

the background and what lies upon it, making it less than completely flat. Hinton indirectly acknowledges the need for a revisioning of Flatland in his Introduction:

Placing some coins on the table one day, I amused myself by pushing them about, and it struck me that one might represent a planetary system of a certain sort by their means. ... And in this case considering the planets as inhabited worlds, confined in all their movements around their sun, to a slipping over the surface of the table, I saw that we must think of the beings that inhabit these worlds as standing out from the rims of them, not walking over the flat surface of them. Just as the attraction in the case of our earth acts towards the centre, and the centre is inaccessible by reason of the solidity on which we stand, so the inhabitants of my coin worlds would have an attraction proceeding out in every direction along the surface of the table from the centre of the coin, and "up" would be to them out from the centre beyond the rim, while "down" would be towards the centre inwards from the rim. And beings thus situated would be rightly described as standing on the rim.<sup>34</sup>

Hinton realized that a two-dimensional being could be more complicated than lines or triangles, and still be two-dimensional; though he does not go into detail as to what exactly their anatomy might be. After a brief review of the history of his world, which he calls Astria, most of his book is about the personal details of the character's lives, dinner parties, conversations, romance, and so forth, while Hugh Farmer, one of the principle characters, leads a crusade to convince the Unæans of Astria that the third dimension exists, a question which becomes a metaphysical controversy that shakes the foundations of their society. However, as far as world-building goes, most of the novel reads as though it were taking place in the Primary World, with relatively little examination of the consequences of making a world two-dimensional and only a few detailed descriptions of how their world operates differently than ours.

Dionys Burger's *Sphereland: A Fantasy about Curved Spaces and an Expanding Universe* (1965) is a book more along the lines of Abbott's work, and is a sequel, continuing the story of A. Square through his grandson, A. Hexagon. Burger's version of Flatland updates Abbott's with a relativistic worldview (as the book's subtitle reveals) that gives his two-dimensional universe a finite but unbounded space, in the shape of the surface of a sphere. Upon that surface, Flatland itself is a disc-shaped planet, much like Hinton's Astria, but the towns, homes, and forests are still laid out in overhead view, and they do not react to the gravity that pulls everything else toward the center of the world-disc. In a passage revealing the author's world-building difficulties, Burger seems aware of the awkwardness of combining the two approaches, writing:

Of course the question immediately arises why everything is not falling down. Solid objects such as houses and buildings, and plants such as single trees and the trees in forests, all stay put and do not show any inclination to sink. The answer is not so easy, and it might be best to just write it off to natural laws. This does not alter the fact, however, that scientific theories have been worked out to explain the phenomenon. I will be glad to touch on the matter in a few words, but this particular theory is so complicated that you need not worry if you do not understand it. Consider for a moment that all these solid objects are resting on a space parallel to our world—in other words, they are attached to a flat plane, directly beside the plane of our space. I admit that this hypothesis—it is no more than a mere supposition—is extremely difficult for a layman to grasp, even though it is not as difficult for a three-dimensional being as it is for us. Let us therefore simply note as fact that trees and houses *do* stay put, there being no question that they do.<sup>35</sup>

If the inhabitants of a two-dimensional disc-shaped world are to live on the surface of that world, they would have to be confined to the space above a curving line, resulting in only four directions; back and forth, and up and down. Hinton realized this but the consequences of it only occasionally figured into his story, whereas Burger keeps the two-dimensionality of his world always in mind; but, as the preceding passage shows, Burger had trouble keeping his design consistent. An amazing number of these problems were solved, however, in A. K. Dewdney's *Planiverse: Computer Contact with a Two-Dimensional World* (1984).

In an amazing feat of subcreation, A. K. Dewdney describes Arde, a two-dimensional disc-shaped world with its own physics, chemistry, biology, planetary science, astronomy, creatures, cultures, and technologies, all of which are designed to work in a world of two dimensions. As a computer scientist and mathematician (and with the help of colleagues in other disciplines, credited in the acknowledgments), Dewdney considers how atoms, electromagnetic forces, light and sound waves, turbulence, and other physical phenomena would operate in two dimensions, and the implications these would have on the existence of Arde's inhabitants, the Nsana. He gives solutions and working designs for such things as doors, electrical wiring, hinges, gears, and other simple technologies that work differently in two dimensions, and provides descriptions and illustrations of more complex two-dimensional machines like clocks, printing presses, ground and air vehicles, and steam engines (see Figure 3.3). He also describes and illustrates two-dimensional biological mechanisms including propulsion, digestion, cell division, and more. From all of these things arise the culture of the Nsana, with its own traditions and customs, for example, who passes over whom when two travelers meet who are traveling in opposite directions, or the order in which passengers board and disembark vehicles.

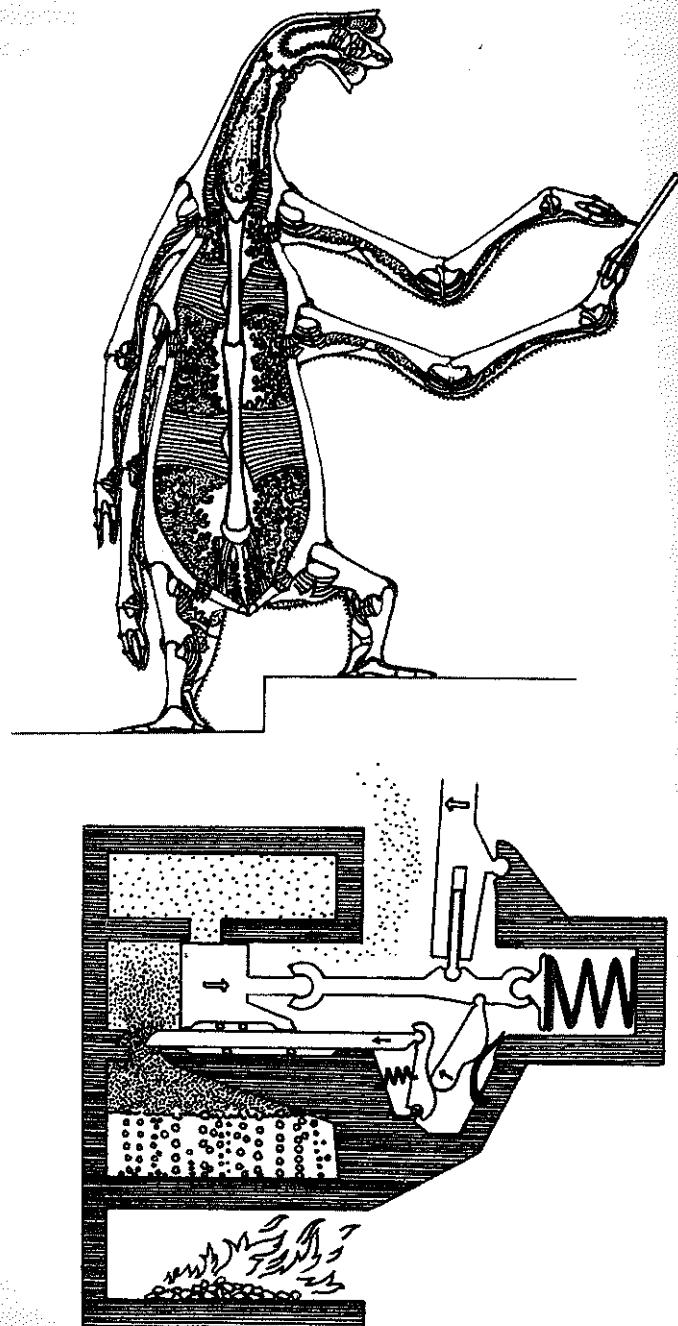


FIGURE 3.3 A Nsana (top) and a steam engine (bottom) from Arde, the two-dimensional world of A. K. Dewdney's *The Planiverse*. (Images courtesy of A. K. Dewdney.)

The book's story involves human computer science experimenters on Earth who, through their computer system, make contact with a Nsana named Yendred. The story is little more than a device to link together all the explanations of how things in the world works, but as is the case with so many subcreated worlds, narrative is only a single aspect of the world, and *The Planiverse* is worth reading as a brilliant piece of subcreation. So successful was Dewdney's subcreation, that some people actually believed the world was real. As Dewdney states in the "Preface to the Millennium Edition":

When *The Planiverse* first appeared 16 years ago, it caught more than a few readers off guard. The line between willing suspension of disbelief and innocent acceptance, if it exists at all, is a thin one. There were those who wanted to believe, despite the tongue-in-cheek subtext, that we had made contact with a two-dimensional world. ... It surprised and worried the author that so many people believed the tale was factual. Subtext that should have implied a fantasy (albeit a highly detailed one) was missed by many.<sup>36</sup>

That some readers actually believed the world existed demonstrates the power of good subcreation, even when a secondary world is so far removed from our own.

Most secondary worlds, however, subcreate nature to a very limited degree, if they do so at all. Many will instead wish to ground their realism with Primary World defaults so far as nature is concerned. In the series bible for the rebooted *Battlestar Galactica* (2004–2009), there seems to be a sense of pride in the description of the show's science and how it does not partake of some of the usual conventions of science fiction:

*Science.* Our spaceships don't make noise because there is no noise in space. Sound will be provided from sources inside the ships—the whine of an engine audible to the pilot for instance. Our fighters are not airplanes and they will not be shackled by the conventions of WWII dogfights. The speed of light is a law and there will be no moving violations.<sup>37</sup>

To whatever degree they use Primary World defaults or reset them, the natural realm provides the raw materials for civilizations and the production of the more commonly subcreated area of *culture*.

## Culture

Culture links nature to history and is usually central to the unique situation that provides a story's conflict; and an invented culture can be more specifically tailored to the author's needs and does not come with the baggage of an

existing culture. By providing a worldview that shapes the natural world's resources into such things as agriculture, architecture, clothing, vehicles, and artifacts, which in turn inform customs, traditions, language, and mythologies, culture grounds and connects the various productions of a people into a (hopefully) coherent structure through which characters see the secondary world.

As mentioned in Chapter 2, imaginary-world stories typically have the main character experiencing and learning about a new and foreign culture along with the audience; such was the basic structure of travelers' tales. The main character is often either someone from the Primary World who is a foreigner to the secondary world, or someone from a marginal area of the secondary world who journeys into an unfamiliar part of it. As early as More's *Utopia* (1516), culture became an important part of the story and world, with its proposal for a new way of living and inherent critique of existing culture; this became typical of utopias in general, since a cultural critique was usually one of the main reasons behind the writing of a utopia. Other works such as *Gulliver's Travels* (1726) even showed how its human protagonist appeared from the points of view of those in the foreign cultures encountered, attempting to make strange the author's own culture, by contrast.

Occasionally foreign cultures are presented directly in the form of documents from the cultures in question; for example, in Defontenay's *Star (Psi Cassiopeia): The Marvelous History of One of the Worlds of Outer Space* (1854), the chest that the narrator finds in the crashed meteor is full of Starian books, which make up the text of the novel. There is a description of the stars and planets of the Starian system, a book of ancient history, a poem related to the history, individual histories of each planet and their exploration, two plays, writings on philosophy, morality, and law, and the book-within-a-book entitled *The Voyage of a Tassulian to Tasbar* to which Defontenay adds, "I have preserved in the Tassulian's account two literary pieces which were found inserted, convinced that the reader will not be displeased to discover several samples of Tasbarite literature."<sup>38</sup> Though the range of texts is a disparate one, they are arranged in roughly chronological order and together present a coherent history of the Starian system and its peoples and cultures.

The development of fictional cultures, both in their depth as well as the quality and plausibility of the cultures generated, depends greatly on the ability and background of the author. The most complete and consistent imaginary world and culture of the first half of the twentieth century would have to be that of Austin Tappan Wright's *Islandia* (1942), written before the author's death in 1931. In it, main character and narrator John Lang leaves the United States to become consul to Islandia, which we discover and learn about along with him. The nation of Islandia, long closed off to foreigners and foreign trade, for the most part, is facing a time of internal debate as to whether the country should be opened up to the outside world. Lawyer that he was, Wright argues both sides of the issue, both explicitly in the speeches made by Lord Mora and Lord Don-

around the midpoint of the book, and implicitly throughout the entire book, and particularly at the end, where John Lang must decide where his destiny lies between the two cultures of Islandia and America.

The culture of Islandia is fleshed out to a great degree, and a variety of different scenes, settings, and discussions bring out its richness of detail. Many of the cultural concepts introduced are central to an understanding of the story, and though we do not get to see much of the Islandian language, these concepts are given Islandian terms since no exact equivalent exists in English. One such notion is that of *tanrydoon*, literally *soil-place-custom*, which means there is a room always reserved for you in a friend's home where you are welcome. The concept is first described to Lang by Perier, the French consul to Islandia:

"Did you know that even the Islandian city man does not feel that the city is his home?"

"In a way." I knew from Bodwin that city men usually had some relative in the country at whose place they were welcome.

"More than that," he said. "Every city man has such a place. It is the same place for his grandfather that it is for his grandson; not only is he welcome but he has a right—a legal right—to go there and stay as long as he likes, though if he stays over a month he is expected to do some work. He may go and take all of his children. Good taste controls the actual working out."

Perier was silent for a moment.

"When you marry," he continued, "a month or so before your child is to be born you will put yourself and your wife on a boat bound for Doring, and you two will go to the house of Lord Dorn, and there you will find them expecting you and glad to see you. There your wife will stay until the child is weaned, and longer maybe, and you as long as and whenever you can. If the child becomes sickly or bored in The City here, back you will all go to Lord Dorn's. That, and a great deal more, is *tanrydoon*."<sup>39</sup>

While *tanrydoon* serves an important purpose in the story, even more important to the story are the four Islandian words for "love": *alia* (love of a place, specifically an ancestral home and land), *amia* (love of friends), *ania* (the desire for marriage and commitment), and *apia* (sexual attraction). These kinds of love, and the differences and relationships between them, are central to the book's romances and relationships and how they shape the narrative. The Islandian culture is carefully thought out and laid out in great detail, more so than any other fictional culture to appear before it. Through an interesting combination of elements, Wright achieves a new culture which is neither Eastern nor Western in outlook, and original enough that it does not feel like a thinly-veiled imitation of an actual existing earthly culture (as so often happens with fictional cultures), nor is it so primitive as to seem crude or undeveloped.

With the growth of archaeology and anthropology during the twentieth century, more fictional cultures, and more developed fictional cultures, began to appear as audiences became increasingly sophisticated in their expectations. In America, the growth of mass media, along with new possibilities for travel and tourism, and waves of immigrants arriving in the country, meant that most Americans had more contact with (or at least knowledge of) cultures outside of their own, and thus had more firsthand cross-cultural experience. Also, imaginary worlds that appeared in audiovisual media could not rely on mere verbal description as novels did; cultural design, in such areas as costume, architecture, vehicles, and so forth, had to be considered concretely, in the form of sounds and images, and had to be considered as an integrated whole, rather than as a collection of unrelated designs.

Whether on-screen or on the page, the fictional cultures of imaginary worlds often have one or more simple defining features to quickly establish and position them against other cultures (for example, in the *Star Trek* universe, the image of Klingons as warriors, Vulcans as logical, Ferengi as businessmen, and so forth). Just as entire planets often contain a single type of terrain, much like a single earthly location, quite often locations in secondary worlds are home to a single culture, regardless of whether those locations are cities, countries, or entire planets. In multi-planet worlds, planets that are the main home base of more than two or three cultures are relatively rare, since each culture can be given its own planet (unless the story requires otherwise). As mentioned earlier, in multi-planet worlds that include Earth, all of humanity is often grouped together under the same cultural umbrella (as “Earthlings” or “Humans”), with the implicit assumption that differences between human cultures on Earth are small compared to interplanetary cultural differences. Whatever the case, the lines dividing cultures are usually clearly drawn ones, and cultural differences are emphasized.

Cultures, then, provide important structural frameworks for the worlds into which they are integrated. Even with guides and mentors who are members of a culture and who provide explanations to main characters and the audience, new sets of cultural defaults, which may include different languages, artifacts, foods, customs, and so forth, often produce a great expository burden to be overcome. Besides maps, timelines, genealogical charts, and glossaries which convey structural information in a very direct way (but usually appear outside the narrative), some aspects of cultures can be conveyed through more indirect means. Elements may be introduced without explanation if there are Primary World analogs to which they can be compared, and if the meanings of the new elements can be obtained through the context in which they appear. In image-based media, elements of culture may appear visually but without explanation, leaving the audience to figure things out from context. For example, in video games like *Riven* (1997) or *Rhem* (2003), the player encounters machines the purpose of which are unexplained, and it is only after the player interacts with them and watches the consequences that their functions become apparent. Shaun Tan’s

graphical story of an immigrant family, *The Arrival* (2007), is a book-length example of learning a culture through context.

Cultural aspects that can be easily summarized or explained can be given in appendices as well. *Dune*, for example, includes appendices on the ecology of Dune, the religion of Dune, the Bene Gesserit and their motives and purposes, short biographies of characters, and a glossary in which we find that a baliset is “a nine-stringed musical instrument, lineal descendant of the zithra, tuned to the Chusuk scale and played by strumming. A favorite instrument of Imperial troubadours.”<sup>40</sup> Since fictional cultures often are constructed or cobbled together from various aspects or aesthetics of existing real world cultures, it is not unusual to find a residue of connotations attached to them, which can be used by an author to aid explanations or create expectations (for example, *Dune*’s desert culture is patterned after Arab and Middle-Eastern cultures to some degree).

Like characters, fictional cultures often have stories of origins (involving the world’s history), character arcs over the course of a story (cultural shifts and changes), and are often depicted during the turning points, power struggles, and decisive moments that determine their future paths. Quite often, this involves a world which is under the sway or at least the threat of evil powers; the main character learns about the evil power, joins the fight against it, and then plays a crucial role in fighting and defeating it (for example, Dorothy fighting the Wicked Witch in Oz, Frodo helping destroy the Ring and defeat Sauron, Luke Skywalker helping defeat the Empire, Tron helping to bring down the Master Control Program, or Neo helping to defend Zion against the machines). Usually, the decisive moment in the culture’s history is an invasion or war, a debate as to whether or not to accept certain technologies or foreign influences, or its first encounter with another culture. Quite typically, cultural clashes are central to the stories being told, sometimes with a cross-cultural love story thrown in to personalize the conflict and add the friction so necessary to fictional romances. And, just as the end of a story will indicate the future direction taken by the main character, we are usually given enough information to assume the future direction in which the culture will be heading, which is usually a more peaceful and stable one.

Culture, as a means of structuring a world, not only helps to unite other structuring systems (like geography, history, nature, and so forth), but gives them a context that relates directly to the experience of its characters, and gives them meaning. Culture can be one of the most compelling ways that a world can exceed a story and spark the kind of speculation and conjecture that brings a secondary world alive in the imagination. And among all the various aspects of culture, *language* is one that immediately gives a sense of a culture’s aesthetics and worldview.

## Language

While there are numerous attempts to invent languages for international use or to try to avoid the supposed flaws of natural languages (Arika Okrent’s book

*In the Land of Invented Languages* lists hundreds of them<sup>41</sup>), many imaginary worlds use constructed languages (or “conlangs”) along with their invented cultures and peoples, usually without the desire that the language be used in the Primary World (although some of the more developed ones, like Quenya and Klingon, have a fan base that attempts fluency in them). Unlike “natural” languages, a constructed language is deliberately invented and designed, and typically only sketched out to the degree needed by the imaginary world in which it appears. Constructed languages are often divided into two groups, *a posteriori* languages that borrow or are based on elements of existing natural languages, and *a priori* languages that are not based on any real languages (although it is difficult to completely avoid the influence of real languages).

Invented languages serve several purposes in imaginary worlds. They can introduce new concepts, objects, or beings that otherwise have no words for them, or rename existing things so that the audience will consider them anew. The design of the sound of the language and its appearance in print, which can include invented alphabets, scripts, or pictograms, gives a culture or world an aesthetic flavor and emotional feeling. This, of course, depends a great deal on the original natural language in which the work appears, since it relies on connotations from that language, and even its aesthetics, to produce its own effect. Such connotations however, may not have the same effect when a work is translated into other languages. For example, there is a tendency in English-language fantasy and science fiction to use letters that appear less frequently (like Q, X, and Z) when coining names that are intended to sound exotic.<sup>42</sup> Likewise, if invented words are too close to real words they may pick up other connotations inadvertently, so they are usually avoided, despite the fact that it is not unusual for independent languages to use the same words with different meanings (linguists refer to such words as “false friends”, since they can be misleading).<sup>43</sup>

An invented language can also be used to generate names in a consistent manner that gives names meaning. For example, in Tolkien’s Sindarin, “mor” means “black” or “dark”, and is found in a number of names, such as Moria (“black chasm”), Morgoth (“dark enemy”), Morwen (“dark maiden”), and Mordor (“black land”). Even if no glossary of root words is provided, readers may be able to sense similarities and possibly even form expectations when encountering later names, based on the meanings inherent in the ones they have seen. Which concepts are given words and which ones are omitted, as well as the conceptual divisions that become codified in a vocabulary, will determine what can be expressed in a given language. For example, in Eunoia, the language devised by poet Christian Bök for the television program *Earth: Final Conflict* (1997), there is no past tense, and concepts and their polar opposites are embodied together (like “war” and “peace”).<sup>44</sup>

Finally, besides organizing and connecting concepts and cultures in imaginary worlds, languages and words are also often a source of knowledge and power within their worlds. For example, George Orwell’s *Nineteen Eighty-Four* includes

an Appendix on the principles of Newspeak, the official language of Oceania which aims to limit thought by limiting vocabulary. The appendix even explains how word formation occurs, the rules of which limit coinages and new ideas, and impose certain attitudes on the speaker. The eleventh edition of the Newspeak dictionary is being edited at the time of the story, and Syme, a character who is working on it, describes it:

"The Eleventh Edition is the definitive edition," he said. "We're getting the language into its final shape—the shape it's going to have when nobody speaks anything else. When we've finished with it, people like you will have to learn it all over again. You think, I dare say, that our chief job is inventing new words. But not a bit of it! We're destroying words—scores of them, hundreds of them, every day. We're cutting the language down to the bone. The Eleventh Edition won't contain a single word that will become obsolete before the year 2050. ... "Don't you see that the whole aim of Newspeak is to narrow the range of thought? In the end we shall make thoughtcrime literally impossible, because there will be no words in which to express it."<sup>45</sup>

Besides their use for expressing concepts and formulating ideas (or limiting them), words can also have even more direct power. Like the Biblical "Fiat Lux" that begins Creation, certain words produce immediate effects in their respective worlds, like the "true names" of Earthsea, the written language of the D'ni culture (from the *Myst* franchise), and the magical spells, incantations, and passwords found in fantasy literature (see Chapter 5). As a result, knowledge of their use is often secret and guarded, and passed on only through the proper training and only to qualified individuals.

In early imaginary worlds, where main characters were mainly only observers of the secondary worlds they visited, there was less need for invented languages. Probably the first imaginary world to have its own language and alphabet was More's *Utopia*. The 1517 edition of More's book included a page of ancillary materials (attributed to either More or his friend, Peter Giles<sup>46</sup>) with the Utopian Alphabet and "A Quatrain in the Utopian Language", which was printed using the Utopian script as well as a transliteration using the Roman alphabet (see Figure 3.4). The language, however, is not used within the story itself, and some editions of the text do not even include Giles' page. A few years later, books in Rabelais' *The Histories of Gargantua and Pantagruel* series (1532–1551) used invented languages within them, but only in a few statements made for comic effect.

As worlds developed and there was more interaction between their natives and the travelers who visited them, the problem of a language barrier complicating communication began to be acknowledged and addressed. Although in some instances, the language barrier provided a source of misunderstanding that could fuel a story's conflict, more often it was seen as an inconvenience to be quickly

# THE UTOPIAN ALPHABET

## A QUATRAIN IN THE UTOPIAN LANGUAGE

Vtōpos	ha	Boccas	peula	chama.
ይዕስጥሬጭ	ዕለወቃል	ገዢያዥ	ወጋድ	ወጋድ
polta		chamaan		
ጥረሱ	ወጋድ	ሰብ		
Bargol	he	maglomi	baccatt	
ዕዲግል	ጋ	ልዕንዳል	ዕዲወበ	
soma		gymnosphaon		
ብላድ	ዕዘል	የዘል	ብላድ	
Agrama		gymnosophon	labarem	
ቢዕሳል	ዕዘል	የዘል	ቢዕሳል	
bacha		bodamilomin		
ጥዕቅ	ዕለወቃል	ገዢያዥ		
Voluala		barchin	heman	la
ይሉዕስ	ዕዲወበ	ጋል	ዘ	
lauoluola		dramme	pagloni.	
ዘዕዋዕስ	ዕለወቃል	ገዢያዥ	ገዢያዥ	

**FIGURE 3.4** The Utopian alphabet and a quatrain in the Utopian language, from Thomas More's *Utopia*.

overcome so that the story could move along. In Margaret Cavendish's *The Description of a New World, Called the Blazing-World* (1666), the main character travels to the Blazing World sees the various animal men speaking in their own tongue (the world has a single language), and we are told that she "took courage, and endeavored to learn their language; which after she had obtained so far, that partly by some words and signs she was able to apprehend their meaning", after which she felt not only "safe, but very happy in their company".<sup>47</sup> The language learning appears to take place almost instantly, with no description of how it occurs; but the language barrier is at least acknowledged. Another solution was to allow time for the language to be learned, and then simply set it during an ellipsis; in Thomas Northmore's *Memoirs of Planetes, or a Sketch of the Laws and Manners of Makar* (1795), the main character traveling to Makar mentions (in first-person narration) how he lived with a family of natives for a month during which time he learned their language; but that is all we hear of the experience.

Another solution is to invent a device which can eliminate the language barrier instantly. Probably the earliest such device can be found in Crowder and Woodgate's *A Voyage to the World in the Centre of the Earth Giving an Account of the*

*Manners, Customs, Laws, Government, and Religion of the Inhabitants, Their Persons and Habits Described with Several Other Particulars* (1755), where the main character visiting the underground world is given a salve which allows him understand the native language. An even more powerful device appears in Benjamin Disraeli's *The Voyage of Captain Popanilla* (1828). In a sea chest washed up on shore, Popanilla finds a book, *The Universal Linguist, by Mr. Hamilton, or the Art of Dreaming in Languages*, which puts him to sleep as he reads it, and afterwards, upon waking, he is able to understand other languages. Later, when he encounters various peoples of Fantaisie and Vraibleusia, he is able to understand them as well, thanks to the Universal Linguist. The idea of a "universal translator" would eventually become a convention in science fiction; for example, the "universal translators" found in the *Star Trek* universe, or the Babel Fish in Douglas Adams' *Hitchhiker's Galaxy*, which lives in the user's ear and translates what it hears.

A variety of other methods attempted to speed up the learning of language. In Defontenay's *Star* (1854), the narrator learns the language of the Starian system by studying the Starian books found in a chest inside a crashed meteorite, despite the lack of any context in which to make a translation. L. Frank Baum's John Dough, from *John Dough and the Cherub* (1906) understands the animal's languages due to drinking an Elixir of Life; and in James Blish's "And Some were Savages" (1960), a technical process allows the user to learn a language "in about eight hours."<sup>48</sup> In cases where there are no characters from outside of the secondary world, a "common tongue" can be used (like Westron, in the case of Tolkien's Middle-earth) which most characters speak in addition to their own local languages. This common tongue is then translated into the natural language in which the story appears, so that readers can understand it as well, while still allowing the local languages to appear as foreign as the author wishes. In *The Lord of the Rings*, for example, Frodo's name in Westron is Maura Labingi and Sam's is Banazir Galbasi, but these names are never used within the text of the story.

In some stories, the language barrier is addressed and learning of a language is not ellipsized so severely, for example, in Wright's *Islandia*, where the language barrier is considered thoughtfully and dealt with more realistically. In some cases, the overcoming of the language barrier can be the main conflict of a story; for example, the astronaut scientists of Stanisław Lem's *Solaris* (1961) struggle to communicate with the planet's sentient ocean, trying to bridge the gap between alien forms of understanding. However, since many stories set in new worlds start their action with the arrival of the main character, with neither the time nor the inclination to deal with the language barrier problem, many rely on established conventions to find a quick solution to allow communication and get on with the rest of their action.

With enough usage of an invented language in a story, difficulties can even arise for the reader, who is called upon to remember new words as they are used, resulting in the addition of a glossary. Probably the first imaginary-world story to include a glossary was Robert Paltock's *The Life and Adventures of Peter Wilkins*,

*A Cornish Man* (1751), which featured a two-page “Explanation of Names and Things mentioned in this Work” listing 103 terms.<sup>49</sup> Some definitions reference other terms (for example, a “filus” is defined as “a rib of the graundee”), enhancing the reader’s immersion in the world through the interconnectedness of the world’s terminology. Comparing terms in the glossary also reveals the consistency of the root structure of the language. We would expect to find the same root appearing in words with similar meanings, and we do: “Colamb” means “governor” and “Colambat” means “government”; while “Lask” means “a slave” and “Laskmett” means “slavery”. Beyond such similarities, though, there is no overarching structure or logic to Paltock’s language.

Some authors added to their invented language in a piecemeal way as their worlds grew (in *Thuvia, Maid of Mars* (1920), Edgar Rice Burroughs included a glossary for all the Barsoomian words that had accumulated over his four Mars novels), but this method makes it unlikely that the resulting language will be able to remain consistent. Other subcreators, like Cordwainer Smith (and later, George Lucas), were content to take words from languages other than English and use them as names, or like Samuel Butler, use anagrams or reversals of words.<sup>50</sup> However, language construction would reach a new level of sophistication when the author constructing the language had a background in how languages worked and developed.

During the twentieth century, linguists would sometimes be hired to develop languages for worlds (usually in cinema and television, where a budget existed for such things), and some literary authors were linguists as well. The most famous of these was of course J. R. R. Tolkien, for whom invented languages were the seeds from which his imaginary world grew. Tolkien’s own personal history of inventing languages is the subject of his essay “A Secret Vice”, where he describes early experiences with invented languages, including his friend’s “Nevbosh” of which he was a speaker, and his own “Naffarin”.<sup>51</sup> Tolkien created over a dozen invented languages of Middle-earth, of varying size and complexity. His Elven tongue, Quenya, is perhaps the most detailed (and some would say, the most beautiful) among them, and is influenced by Finnish and Latin. Based on a series of root words, Quenya is complete and detailed enough that linguist David Suder was able to extrapolate it for the translations of characters’ lines in Peter Jackson’s films of *The Lord of the Rings* (2001–2003).

Other linguists developing secondary world languages include Suzette Haden Elgin (who devised Láadan, a “woman’s language” for her *Native Tongue* trilogy of novels, with words like *widazhad* (to be pregnant late in term and eager for the end) and *áshdána* (to menstruate joyfully)), Victoria Fromkin (who developed Paku for *The Land of the Lost* television series and the vampire language for *Bram* (1998)), Alan Garner (who developed languages for *The Dark Crystal* (1982)), Tom Shippey (who developed Marbak for Harry Harrison’s *West of Eden* (1984)), Paul Frommer (who developed the Na’vi language for *Avatar* (2009)), and Marc Okrand (who designed Atlantean for *Atlantis: The Lost Empire* (2001) and Klingon

for the *Star Trek* universe). Okrand's Klingon was developed beyond the films and television series, appearing in *The Klingon Dictionary* (1985), and it is supported by the Klingon Language Institute which features newsletters and other material in Klingon, including a translation of *Hamlet* (2000). With greater fan participation and communication due to the Internet, by the early twenty-first century, a community of constructed language inventors coalesced, as well as language construction tools like Mark Rosenfelder's *The Language Construction Kit*, which began on-line and was eventually published as a book in 2010; and in 2007, the Language Creation Society was formed, which sponsors an annual Language Creation Conference.

Invented languages, then, can range from hundreds of words, like Klingon, to a sampling of a language that may only be a few words (although some languages have very few words to begin with, like the language of Pierre Barton's subterranean Ogs, which has only two words, "og" and "glog").<sup>52</sup> Invented languages may be central to a story or world, or merely used to add flavor to the background. However, even when only well-constructed glimpses of them appear in a story, these languages add to the narratives and mythologies that they help to support.

## Mythology

Mythologies structure secondary worlds by giving them a history and context for events, through legends and stories of origins that provide backstories for the current events and settings of a world. They often reveal how characters and ongoing problems came to be, so that story events seem more meaningful and perhaps even the completion of a long character arc or the resolution of an age-old conflict. Mythologies, then, provide historical depth, explanations, and purpose to the events of a world.

Inspired by Greek, Roman, or Norse mythology, authors like Dunsany, Lovecraft, and Tolkien produced hierarchical pantheons of godlike beings that oversee their subcreated worlds. Lord Dunsany's first book, *The Gods of Pegāna* (1905), contained a creation myth and a hierarchical pantheon of gods, which later provided a background when Dunsany wrote legends of the lands where they were worshipped. *The Gods of Pegāna* is a short book, with short chapters, and a form and style patterned after the Book of Genesis:

When MANA-YOOD-SUSHAI had made the gods there were only the gods, and They sat in the middle of Time, for there was as much Time before them as behind them, which having no end had neither a beginning.

And Pegāna was without heat or light or sound, save for the drumming of Skarl; moreover Pegāna was The Middle of All, for there was below Pegāna what there was above it, and there lay before it that which lay beyond.

Then said the gods, making the signs of the gods and speaking with Their hands lest the silence of Pegāna should blush; then said the gods to one another, speaking with Their hands; "Let Us make worlds to amuse Ourselves while MANA rests. Let Us make worlds and Life and Death and colours in the sky; only let Us not break the silence upon Pegana."

Then raising Their hands, each god according to his sign, They made the worlds and the suns, and put a light in the houses of the sky.<sup>53</sup>

Dunsany followed up the book with *Time and the Gods* (1906), which begins with the preface "These tales are of the things that befell gods and men in Yameth, Averon, and Zarkandhu, and in the other countries of my dreams." The stories include his pantheon of gods, this time interacting with men in the world.

Dunsany's work inspired H. P. Lovecraft, who developed his own mythology, which he called his "pseudomythology", which would later be known as his "Cthulu Mythos" after one of the central figures of his pantheon. Unlike Dunsany's mythology, Lovecraft's was dark and disturbing, his "gods" (actually extraterrestrials who are worshipped) malevolent and demonic, and his stories part of the horror genre. These powerful beings are harmful and indifferent to humanity, and their incarnate forms are similar to frogs, reptiles, gelatinous blobs and clouds of shadow. They often are grotesque, with tentacles, horns, and detached eyes; but as interdimensional cosmic beings, their composition is different from that of physical matter. Lovecraft encouraged other writers who were friends of his to use his mythos in their stories, so as to increase the verisimilitude of his creation through intertextual references, which implied that the mythos was based on something real that was being alluded to by multiple authors.

Dunsany's pantheon was also an inspiration to J. R. R. Tolkien, who assembled an elaborate and carefully integrated legendarium of his own (most notably represented in *The Silmarillion* (1977) and *Unfinished Tales of Númenor and Middle-earth* (1980) among his works published posthumously). As a Roman Catholic however, Tolkien did not want his mythology to contradict Christian theology, and so he attempted to devise his legendarium so as to fit into it, calling it "monotheistic but "subcreational" mythology".<sup>54</sup> At the top of his hierarchy is God (Eru, which means "the One"), who creates the Valar, angelic-like created beings who take the place of "gods" but who are not deities, and serving under them are the Maiar. In his creation story, *Ainulindale*, "The Music of the Ainur" one of the Valar, Melkor, sows discord and after a fall becomes the evil adversary that opposes the plans of the Valar. A number of mythological and supernatural issues, including the nature of evil, the definition of "magic", and the conception of death, changed over the decades as Tolkien worked on his legendarium and considered the theological implications of its design.

Tolkien could be a purist when it came to the construction of an invented mythology. His letters reveal his thoughts regarding his own mythology, including a critique of his ongoing work.<sup>55</sup> Although he liked *Out of the Silent Planet*

(1938), the first book of C. S. Lewis' Space Trilogy, Tolkien referred to the trilogy's mythology as "incipient and never fully realized"<sup>56</sup> and wrote, "I actively disliked his Arthurian-Byzantine mythology; and still think that it spoiled the trilogy of C. S. L. (a very impressionable, too impressionable man) in the last part."<sup>57</sup> Tolkien thought a mythology should be self-contained and disliked how Lewis's Narnia stories combined elements of various mythologies (including dwarves, dragons, and giants of Northern mythology; Bacchus, Silenus, fauns, and centaurs from Greek and Roman mythology; talking beavers; and Father Christmas), writing, "It is sad that 'Narnia' and all that part of C. S. L.'s work should remain outside the range of my sympathy, as much of my work was outside his."<sup>58</sup>

Not all authors go so far as to build their own legendarium, of course; but many use mythological elements for the historical depth and transcendental power that they bring to a text. As such, the Bible has been a strong influence and even an Ur-text for many world-builders developing their own mythologies, not just in literary style (as the Dunsany passage in the preceding text demonstrates), but also in structure, theme, and content. As Stephen Prickett states in his book on Victorian fantasy:

It has often been noticed that Plato and the Bible are the two greatest philosophical influences on English Literature; it has less often been observed how great their influence has been specifically in the direction of fantasy. Nevertheless, their pull is obvious. Both suggest the existence of "other worlds" impinging on this, but of a greater reality, as part of a greater metaphysical and moral whole that is ultimately beyond man's understanding.<sup>59</sup>

The Bible contains a creation story, covers the rise of a people as they grow into a nation over thousands of years, follows the long struggle between good and evil on both natural and supernatural planes, and depicts an oppressed people looking for a prophesized savior (who is an outsider in some way); it then details the savior's growing conflict with the authorities which ends up in his self-sacrifice for the people, and through his help, the gaining of freedom or ascendancy as a new era is ushered in by the book's end. This pattern, or parts of it, can be found in a great many world-based stories (particularly that of a savior figure; for example, Peter Wilkins in *Sass Doorpt Swangeanti*, Dorothy in Oz, Aragorn in Middle-earth, Paul Atreides in Arrakis, Neo in the Matrix, Anakin Skywalker in the *Star Wars* galaxy, and so on).<sup>60</sup> Bibles also came to contain maps, timelines, and genealogies, first as descriptions within the text and later as ancillary materials that summed up its data in charts. The Bible is also a collection of multiple narratives woven together, with later books referencing earlier ones intertextually, as the stories of many large franchises do.

Along with gods and other supernatural beings, legendary figures from ancient times also abound in subcreated mythologies, their deeds shaping their worlds and their histories. War figures prominently in many stories, and is often

a continuation of conflicts begun long before the main characters were born. *The Lord of the Rings*, for example, is really the culmination of the long struggle against Morgoth described in *The Silmarillion*, which is continued by his servant Sauron, whose spirit rules Mordor and the Nazgul even after his body is gone and whose power only ends when the One Ring is destroyed. Lines of kings and royal families also extend genealogical lines of characters, along with the conflicts they represent, from the past into the present. Other kinds of lines, like the mentor-apprentice pairings of the Sith and the Jedi in the *Star Wars* galaxy, can also carry on an opposition from one era to another, bringing about fresh revenge from long-simmering ancient disputes.

Mythology helps to create a sense of historical depth, connecting present characters and events with ancient ones, and the juxtaposition of the two eras may reveal differences which imply changes that have taken place in a world. The hierarchy of supernatural or mythical beings, as well as the models provided by ancient figures and the value placed on traditions of the past (or the lack of them) can also tell us something about the worldviews inherent in a secondary world, as mythology becomes an embodiment of philosophy.

## Philosophy

A philosophical outlook can be embodied within a narrative in a number of ways: through an author's direct commentary on events; through characters' points of view; through statements made explicitly in dialogue or implicitly in characters' behavior and choices; through the way actions and consequences are connected, revealing a worldview concerning cause-and-effect relationships (for example, whether bad characters are punished for their crimes or get away with them); and through the author's overall attitude as to what is considered normal or unusual (which can be expressed by the norms within the diegetic world of the story itself). Depending on an author's skill and intent, philosophical messages and ideas can be overtly or covertly embedded to various degrees within a story, and inadvertent or conflicting messages or worldviews are also possible. Finally, the author's style and expectations of his or her audience can reveal something of a worldview (compare the lengthy meandering sentences of William Faulkner to the clipped staccato sentences of James Ellroy, or the lush, descriptive prose of E. R. Eddison to the telegraphic prose of Ernest Hemingway, and the demands each makes on the reader).

Secondary worlds often differ markedly from the Primary World, and it is precisely in these differences that philosophical ideas and points of view can be expressed in an even subtler manner. The subcreated world gives the author all the same opportunities to embed a worldview as traditional narrative, as well as new opportunities that occur during the process of world-building, in which a worldview's assumptions and implications are concretized and naturalized by the design of the world itself. Certain things can no longer be taken for granted, and

history, geography, culture, language, and even ontology can all be designed to reflect ideas, systems, and beliefs about which the author wishes to make a point; a subcreator can change the laws of physics and metaphysics, alter the way actions result in consequences, propose new concepts that question or reconfigure traditional concepts that undermine our assumptions, or even change probabilities that suggest different boundaries of plausibility. If the author can present a world as a coherent whole with enough completeness and inner consistency so as to gain the Secondary Belief of the audience, the audience may be more receptive to the ideas being presented than they would be if the same ideas were stated directly in a more heavy-handed way. Once the conceit of the world is accepted, some ideas may even pass unnoticed as a part of the background and default assumptions. Sometimes even the mere presence of the world itself already makes a statement; if it is not intended as parody or satire, a utopia that is shown to be functional makes an inherent argument for its feasibility.

The many default assumptions that are reset can be used to introduce new ways of thinking, just as encountering a new culture can force one to see the world in a new way. Sometimes inventions and changed defaults are manifest even in a film's opening shot (as in *Star Wars* (1977) or *Blade Runner* (1982)), or a book's opening sentence: "In a hole in the ground there lived a Hobbit." (J. R. R. Tolkien, *The Hobbit* (1937)); "It was a bright cold day in April and the clocks were striking thirteen." (George Orwell, *Nineteen Eighty-Four* (1949)); "Composite image, optically encoded by escort-craft of the trans-Channel airship *Lord Brunel*; aerial view of suburban Cherbourg, October 14, 1905." (William Gibson and Bruce Sterling, *The Difference Engine* (1990)). Differences can provide an intriguing hook that pulls us into a world, but they must become naturalized to some degree for Secondary Belief to occur; at the same time, new terminology gives form to new ideas, like that of *tanrydoon* or *ania* described earlier. The interweaving of Primary World and secondary world material, and the way in which the new material is accepted and becomes part of the background assumptions, makes a subcreated world an effective vehicle for the delivery of philosophical ideas.

When a main character comes to a secondary world from the Primary World, there will inevitably be a comparison of worldviews between the secondary world and Primary World, or more specifically, the culture from which the main character (and usually also the author) comes. Not surprisingly, the author's own worldview usually comes through his or her secondary world, directly or indirectly; for example, the Roman Catholicism of Thomas More or J. R. R. Tolkien; the nihilism and cosmicism of H. P. Lovecraft; the atheism of Philip Pullman; or the Jungian and Taoist outlook of Ursula K. LeGuin. An author might not even be entirely aware of their influences until the revision stage. As Tolkien wrote of his own work:

*The Lord of the Rings* is of course a fundamentally religious and Catholic work; unconsciously so at first, but consciously in the revision. That is why

I have not put in, or have cut out, practically all references to anything like “religion”, to cults or practices, in the imaginary world. For the religious element is absorbed into the story and the symbolism.<sup>61</sup>

Likewise, a world’s villains and evils are likely to represent a philosophy in direct opposition to the author’s own worldview, and one which is equally “absorbed into the story and the symbolism”, though it can appear overtly or even be given a name (like Nabakov’s “Ekwilism” philosophy in *Bend Sinister* (1947)).

Sometimes competing philosophies can be played out through two characters who have similar origins but who take different paths through their choices and actions; in *The Lord of the Rings*, for example, Gandalf and Saruman both begin as Istari, the former remains good while the latter turns to evil through his lust for knowledge and power and unwillingness to serve; brothers Boromir and Faramir receive different treatment from their father and react differently when tempted with possession of the Ring; leaders Aragorn and Denethor approach their reign of Gondor very differently; and hobbits Bilbo and Gollum both possess the Ring for years but take different attitudes toward it, resulting in Bilbo’s being able to let the Ring go and Gollum’s obsession with reacquiring it.

Secondary worlds, then can embed and support philosophical ideas to an even greater extent than stories set in the Primary World, and can make use of all the structures holding a secondary world together to do so. Whether a philosophy comes naturally out of a subcreator’s work or is the framework on which the subcreator builds a world, it can be seen as a structuring device that affects and determines much of the work, and in many cases, helps to pull various infrastructures together.

## Tying Different Infrastructures Together

While each individual infrastructure needs to be complete and consistent within itself, all of the different infrastructures must also fit together consistently if world gestalten are to occur. Story events already act as points at which characters, places, and specific moments in time are tied together, automatically connecting maps, timelines, and genealogies. These three structures, which work the closest with narrative structures (the topic of the next chapter), also connect to the structures of nature, culture, language, mythology, and philosophy discussed in the preceding text, and fitting them all together often results in the need for adjustments and revisions as well.

Maps must be created with Nature and natural processes in mind, as Lin Carter points out in *Imaginary Worlds: The Art of Fantasy*:

Geography does not just *happen*—natural features are where they are due to certain causes. It behooves the would-be author of imaginary-world fantasy to think a little before sketching out his map.

You cannot really have a lush rainforest smack up against a parched desert of burning sands, you know; it pays to do a bit of reading into climatology so as to understand the interplay of forces that create deserts and rainforests, jungles and grasslands, and so on. Nor can you stick mountains on your map in a helter-skelter fashion; mountains have a good reason for being where they are, and a fantasy writer should know something about them.<sup>62</sup>

Even Tolkien, careful as he was, admitted that he did not pay enough attention to geology when designing Middle-earth, writing in one of his letters:

As for the shape of the world of the Third Age, I am afraid that was devised "dramatically" rather than geologically, or paleontologically. I do sometimes wish that I had made some sort of agreement between the imaginations or theories of the geologists and my map a little more possible. But that would only have made more trouble with human history.<sup>63</sup>

Likewise, nature provides the raw materials from which culture arises, and thus determines much of what cultural artifacts and their societies will be like, which will in turn limit technologies and influence social structures. Subcreators must imagine how access to food, clothing, and shelter is obtained, and how they are found or made, considering the natural environment. In *The Tough Guide to Fantasyland*, Diana Wynne Jones satirically notes the lack of animals in fantasy genre fiction, and writes about animal skins:

**Animal Skins** are much in use and are of four kinds:

1. Trappers' furs. These are occasionally brought south in bundles. As there appear to be no animals to be trapped, it is likely that these skins are either cunning manmade imitations or imported from another world.
2. Furs worn by NORTHERN BARBARIANS. It is possible that these are also false or imported. Another possibility is that the animals providing these furs are now extinct (see ECOLOGY) and that the famous fur loincloths are handed down father to son.
3. Leather for BOOTS, VESTS, etc. is again of mysterious origin. (See DOMESTIC ANIMALS.) There are not enough cows to go round, but the leather has to come from somewhere.
4. Skins of which the TENTS of the DESERT NOMADS are made. Here the source is obvious. Nomads breed HORSES: the Tents have to be made of horsehide. In fact, it is entirely probable that Horses provide all four kinds of Animal Skin.<sup>64</sup>

The discussion from Chapter 1, regarding food and water on Tatooine, is another example of how questions can arise when nature does not appear to completely support the cultures that live in it.

Language relies on both culture and nature, as words are needed for the objects encountered by the members of a culture in the place where they live. In linguistics, the Sapir-Whorf Hypotheses suggested that language shapes thought and culture through the way it allows certain concepts to be expressed, articulated, or even noticed, due to the available vocabulary and grammar of the language. Though the strong version of the Sapir-Whorf Hypothesis has been discredited, the discussion it engendered brought more attention to the ways in which language influences culture.

The invented languages of secondary worlds are often a large part of their cultures, and it is not unusual for the audience to receive only those words which present foreign concepts, since dialog and other uses of the language will likely be translated into the Primary World language understood by the audience. While there is a great deal of latitude in the connections made between language and culture, the two are often developed concurrently and together provide a specific flavor to the subcreated worlds in which they appear.

Language and mythology are also connected, since they help each other to continue and propagate, and they often share an aesthetic basis as well. For Tolkien, language was the starting point of his mythology; as he described the process:

It was just as the 1914 War burst on me that I made the discovery that “legends” depend on the language to which they belong; but a living language depends equally on the “legends” which it conveys by tradition. (For example, that the Greek mythology depends far more on the marvellous aesthetic of its language and so of its nomenclature of persons and places and less on its content than people realize, though of course it depends on both. And vice versa. Volapük, Esperanto, Ido, Novial, are dead, far deader than ancient unused languages, because their authors never invented any Esperanto legends.) So though being a philologist by nature and trade (yet one always primarily interested in the aesthetic rather than the functional aspects of language) I began with language, I found myself involved in inventing “legends” of the same “taste”.<sup>65</sup>

Mythology is often closely tied to nature, either through stories of origins and ancient beings associated with the nature elements (as in creation stories), or the *genius loci* connected with particular places. As mythology is also used to evoke a time abyss (as described earlier), it is frequently an important part of a world timeline.

Although the careful integrating of secondary world infrastructures is necessary for the illusion of a complete and consistent world, deliberately not

doing so can also be a way in which an author embeds a philosophical idea with a subcreated world. In an essay entitled "How to Build a Universe That Doesn't Fall Apart Two Days Later", author Philip K. Dick writes:

So I ask, in my writing, What is real? Because unceasingly we are bombarded with pseudo-realities manufactured by very sophisticated people using very sophisticated electronic mechanisms. I do not distrust their motives; I distrust their power. They have a lot of it. And it is an astonishing power: that of creating whole universes, universes of the mind. I ought to know. I do the same thing. It is my job to create universes, as the basis of one novel after another. And I have to build them in such a way that they do not fall apart two days later. Or at least that is what my editors hope. However, I will reveal a secret to you: I like to build universes which *do* fall apart. I like to see them come unglued, and I like to see how the characters in the novels cope with this problem. I have a secret love of chaos. There should be more of it. Do not believe—and I am dead serious when I say this—do not assume that order and stability are always good, in a society or in a universe. The old, the ossified, must always give way to new life and the birth of new things. Before the new things can be born the old must perish. This is a dangerous realization, because it tells us that we must eventually part with much of what is familiar to us. And that hurts. But that is part of the script of life. Unless we can psychologically accommodate change, we ourselves begin to die, inwardly. What I am saying is that objects, customs, habits, and ways of life must perish so that the authentic human being can live. And it is the authentic human being who matters most, the viable, elastic organism which can bounce back, absorb, and deal with the new.<sup>66</sup>

However they may be used, and to whatever degree they occur, secondary world infrastructures help to suggest a larger world beyond the incomplete material available to an audience, by organizing it into shapes that can be extended by the imagination. Infrastructures provide the scaffolding by which a world logic can take shape, as well as a platform on which further extensions of a world can be devised and built. By far the most common infrastructure used to hold an imaginary world together, and the one to which most worlds can credit their existence, is that of *narrative*, the topic of the next chapter.