EarthQuest

The Game

Players Handbook

Beta Edition

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The World is Too Much with Us; Late and Soon

William Wordsworth (1806)

The world is too much
with us; late and soon,

Getting and spending, we
lay waste our powers:

Little we see in Nature
that is ours;

We have given our hearts
away, a sordid boon!

The Sea that bares her
bosom to the moon;

The winds that will be
howling at all hours,

And are up-gathered now
like sleeping flowers;

For this, for everything,
we are out of tune;

It moves us not.

SECTION I - EARTHQUEST AND THE VANGUARDIANS

Introduction

EarthQuest is a fascinating and captivating gateway into a near-future world embedded in our own world's inevitable cultural and ecological legacy. This authentically realistic simulation game provides a glimpse of the intertwined ecological and technological past, present and a creative future world desperately striving to achieve sustainability and climate resilience in order to survive and rebuild. EarthQuest is for three or more mature people. One especially perceptive and creative person serves as the **Game Mentor (GM)** whose role is similar to a facilitator, storyteller and referee. The remaining are players assume the role of their own grandchildren who have become **Vanguardians**. Together, you will become enmeshed in exploring and taking responsibility for the Earth, its climate and the human societies the future generation have inherited.

As a team of Vanguardians, you will enter a fantastic near-future world of intrigue, adventure and danger where nature and technology are finally learning to work together… or sometimes not. As Vanguardians take on a series of **Missions** to

investigate mysteries that inevitably have roots in the unsolved problems and challenges of our own time, you will explore the complexities of critical ecological sustainability issues, climate disruption challenges, the power and limitation of advanced technologies, and the persistent dilemmas and injustices of cultural, political and economic clashes. With a little help from their ancestors and the early **Founders**, Vanguardians succeed only when the earth—and all the inhabitants who depend on it—survive and thrive.

Once inside the world of EarthQuest, it will be up to you and your team to decide what to do. You must work together, take the initiative, assemble evidence, think critically, and make decisions. You will explore and restore new ecosystems, encounter new peoples, cultures and communities, resolve conflicts and maintain peace. As Vanguardians, you will support the newly emerging local watershed democracies, that are the remaining pockets of viable and livable human communities struggling to adapt to a rapidly changing and unpredictable world.

The EarthQuest game includes this ***EarthQuest Players Handbook***, the companion ***EarthQuest Game Mentors Rulebook***, and several pre-designed **gamesheets** to record and keep track of your information during **gameplay sessions**. There are also several ecoregional **Adventures** and an **EarthQuest App** with a digital Story Map for use with mobile devices. The Story Map provides an enhanced multi-media game experience.

Your Vanguardians' first EarthQuest Mission might begin like this:

As a member of the Vanguardian reconnaissance team, you set out on your hovercycles to meet with Jasper Norman, Marshal of the Lower Hudson Ecoregion. Your comm message says you are to investigate reports of civil unrest related to a mysterious rapid deforestation that is impacting the local community. As you arrive at the newly constructed strawbale public security building, you quickly scan the area to get readings on the air, soil and water. Suddenly, your adrenaline pumps as you hear shouting and arguing coming from inside the large public meeting hall. Crowds of locals have gathered to demand action to stop the destruction of their beloved forest and the demise of their small sawmill businesses. Marshals, Rangers and Troopers begin scrambling through the halls in high-tech riot gear in response to the escalating conflict.

Just then, you hear a piercing voice booming out through a bullhorn. 'We've got to save our forest from these invaders, these foreigners. They're bringing their diseases into our woods. Our water is cloudy. Our kids are getting sick. Our wildlife is dying. Let's go show them what we can do.'

You scramble into the hallway to catch a glimpse of a large mob, marching out of the hall. One of the people in the crowd suddenly twitches and swoons, then drops to the floor in a lifeless heap. Someone screams, "He's got the bug." As the mob panics and frantically flees through the open doors to escape into the nearby woods, your scanners begin flashing warning tones. You look out the bioglass windows to see a looming red glow intensify the horizon behind a black silhouette of overlapping treetops. The scent of burning wood and heavy smoke instantly fills your nostrils. The smell has a slight tang of metallic sweetness that is not a good sign. A distant warning siren begins to sound, and a voice on the loudspeaker blurts out, "Evacuate! Another wildfire heading this way!"

Your move, Vanguardian. What do you do?

The Transition World of EarthQuest

EarthQuest is set in a late 21st century world that is undergoing a major transition for human civilization. This is now the **Age of the Anthropocene**. Seven primary transformations dominate the reality of transitioning human communities:

- The collapse of 21st century societies and national governments, and the immediate rise of a network of local ecoregional democracies based on watersheds.
- The fall of the global corporate capitalism economy and consumerism and the rise of local sustainable economies rooted in simple living, natural food production and renewable energy.
- The adaptation, resilience and survival of human communities facing a rapidly changing planet undergoing climate disruption.
- The mix of new high-technology with reclaimed low-technology to help human communities survive and transition to a sustainable and low-energy world.
- The importance of cultures, spirituality and education to help human communities transition to meaningful, sustainable lives.
- The rise of youth and the empowerment of next generation leaders with the support of wise Elders.
- The rise of the Vanguardians.

By the mid- to late-21st century, the earth's capacity to sustain a growing human population under heavy consumption rates had been severely diminished. The planet's once plentiful natural resources—water, arable soil and farmlands, forests, fisheries, minerals and fossil fuels—experienced centuries of mismanagement, over-extraction and environmental degradation and were no longer adequate to meet the needs of humans and other species. Severe disruption of biological diversity and loss of ecosystem services from pollution, synthetic chemical toxins, hazardous wastes, and radioactive nuclear wastes pushed ecosystems and species to the brink of survival. Greenhouse gas emissions only slowed, but continued to grow. Climate disruption and resulting natural disasters finally stretched many ecosystems beyond their ability to adapt and support human life.

> *The essence of the problem is about consumption, recognizing that a society that consumes one-third of the world's resources is unsustainable. This level of consumption requires constant intervention into other people's lands. That's what's going on.*
> *Winona LaDuke*

Years of national and international political inaction, public disinformation campaigns, and citizen indifference ensured the next generation would inherit many crises. Abnormal patterns of frequent and devastating natural disasters—hurricanes, wildfires, blizzards, tornadoes, floods, droughts, crop losses, species extinctions, and insect plagues—overwhelmed every level of government to cope.

The youth of the world were the only ones who seemed to understand all this. With no other alternative, they formed ecovillages throughout the world and worked together to learn how to live simply and sustainably in a new world. These early youth leaders—the **Founders**—birthed the Vanguardians. (To continue, see *Appendix - Post-History and the World of EarthQuest*.)

The Vanguardians

Vanguardians are dedicated teams of highly-trained and skilled earth care peacemakers who traverse the world on short Missions to pass on their knowledge to ensure the survival of the ecoregional democracies. Vanguardians bring high and low technologies, information on sustainable **best practices** and access to influential resource networks. Teams of Vanguardians are sent on these **Missions** (**Adventures**) to ecoregional democracies to investigate legacy environmental problems, respond to climate-related natural disasters, restore ecosystems, help human communities transition to sustainability, reduce greenhouse gases, adapt to climate disruption, protect environmental refugees and climate migrants, mobilize the public to get involved, build local sustainable economies, and promote peace whenever there is conflict. Vanguardians have earned the reputation as healers of people and nature, peacemakers and respected servant leaders working for democracy and justice.

Vanguardians are known for their heightened Consciousness that leads to wisdom. Consciousness is a Vanguardian's deeper awareness of and connection with the mystery of life and the universe, and helps them to remain hopeful, and make moral decisions for the greater good of humanity and the earth. Consciousness is often seen as a Vanguardian's true source of inner strength, compassion, selflessness and wise leadership ability.

The message is going to be the same. It's very simple. We're either going to turn to each other or on each other.
Van Jones

They are renowned for their simple and natural lifestyles, high ethical standards, defense of poor and marginalized people, use of unusual high-tech gadgetry mixed with ancient low-tech ways, use of herbal medicinals and naturopathic traditions for healing, and access to amazing resources to help solve community problems. They use a hand sign to signal one another, flashing the little finger and ring finger out in the shape of a “V.”

Vanguardians are usually affiliated with various **agency** or sector **Alliances** supporting vast networks that can provide the Vanguardian with access to information, technology and other resources. Although Vanguardians have access to tremendous resources and influence, they practice simple living, peacemaking and serving others. Because of this, Vanguardians are usually respected, trusted and welcomed as servant leaders by regular people in every community, and despised and seen as a threat by tyrants anywhere.

All Vanguardians begin as gifted youth sponsored by their Alliance to train at a **Vanguardian**

Academy. At the Vanguardian Academy, young people learn academic subjects (disciplines) that are helpful for solving the world's problems and are trained in simple living and wilderness survival techniques. They learn ecology and ecosystem restoration, herbal healing, defensive Martial Arts, social skills and community networking, conflict resolution and peacemaking, and learn world languages and cultural literacy. They are trained in sustainability **best practices** and learn the use of both high-tech and low-tech. They are also trained in a virtual reality and augmented reality simulator known as the **EarthQuest Simulator**, or simply as the **EQSim**.

In the last years of their training at the Academy, students usually become apprenticed to a Vanguardian mentor. Known as **Tchackers** (tech hackers), Vanguardian protégées spend a year or more supporting a Vanguardian mentor on field Missions. Tchackers provide around the clock support during Missions, including real-time information research on the legacy Internet and accessing resource networks to provide Vanguardians with critical equipment, supplies and information whenever needed.

Vanguardians use a code name assigned to them early on in their training at the Academy to protect their privacy and protect them from identity theft. Tchackers use their own code name and digital avatars when communicating with their

The land ethic simply enlarges the boundaries of the community to include soils, waters. plants, and animals, or collectively: the land.... In short, a land ethic changes the role of Homo Sapiens from conqueror to plain member and citizen of it.
Aldo Leopold

Vanguardian during Missions. Vanguardians also have a mentor and a wise **Elder** or council of Elders, who offer guidance and support. Over time, Vanguardians develop close bonds with other Vanguardians that they have known and worked with since Academy days.

The **legacy Internet** is the Vanguardians' (and local ecoregional communities') main source of information, communication, and dissemination of best practices. Over a short period of time, coordinated strategic cyberattacks had dismantled most of the free legacy Internet, and multi-national corporations created their own commercial replacement web called the **Fly.** The Fly (or sometimes just "Fly") is a private commercial ultra-speed world wide web that requires paid subscriptions to access. Only contracted content providers can add content to the Fly, and all content is screened first and censored by corporate editorial panels. Because maximizing corporate profits is the only goal of the Fly, Vanguardians (and Tchackers) are in the process of finding, restoring and securing **web hubs** that provide local communities access to the free legacy Internet. There are some who work overtime to prevent this.

Vanguardian Staff

The Vanguardian staff is the very symbol of the Vanguardians. Vanguardians are often easily

identified by outsiders because they are rarely seen without their iconic staff. Each Vanguardian carries a personal, customized staff, which is standard issue for all Vanguardians. A Vanguardian staff may be an extremely simple and low-tech wooden pole, or it may be embedded with advanced nanotech materials and high-tech **Gadgets.** Vanguardians are trained early on to use a staff as hiking stick, as a pole for carrying bundles, in exercise routines, in Acrobatics, for defensive Martial Arts, in ceremonies and rituals, for hunting and fishing, and as a wilderness survival tool (e.g., wood shavings from many a staff have been used to start an emergency campfire).

Each staff is custom designed and crafted by its Vanguardian owner. Some Vanguardians use plain wood, and those from some cultural or religious traditions might use sacred woods. It is extremely common for a Vanguardian to engrave a staff with symbols to represent timelines, stories, blessings, and memories. A staff might also be hollowed out to contain small items or **Herbals**. Some Vanguardians may carry more than one staff.

Vanguardian Ethics and the Vanguardian Code

Vanguardians abide by a universal Vanguardian value system and ethical code of honor and right conduct for the common good. They call it the **Vanguardian Code**.

The Vanguardian Code

We blend science and wisdom to weave the **New Story** in our quest to restore right relationships among people and the earth. This is our EarthQuest.

- We maintain right-relationships among all people and all other living and nonliving members of the earth.
- We promote ecological sustainability to protect the wellbeing of current and future generations.
- We offer reverence for all cultures and generations, which carry insights, knowledge and wisdom necessary for thriving and survival.
- We support sustainable simple living to live well and be content.
- We uphold nonviolence, peacemaking and cooperation.
- We promote healing in mind, body, spirit and relationships wherever we are.
- We commit to lifelong learning and the pursuit of knowledge and wisdom.
- We are committed to servant leadership and right use of authority and resources.

The Other Forces, Dark Triads and Empire

The Vanguardians have only one true adversary, the **Other Forces** and their leaders, the **Dark Triads**. Early on, the Founders were concerned with a shadowy force that seemed to constantly thwart their many efforts to mobilize communities for action, and especially organizing the next generation of young people and dismantling the legacy Internet. These shadowy forces always seemed to know what the Founders were doing and were able to siphon off promising young leaders in

Every society needs educated people, but the primary responsibility of educated people is to bring wisdom back into the community and make it available to others so that the lives they are leading make sense.
Vine Deloria Jr.

the community with bribes of high-status career positions with high salaries and special privileges. These vile forces were also often able to twist social media "news stories" to trick the crowds into taking sides to support the Dark Triads and oppose the Founders.

The Founders called these unknown adversaries the "Other Forces," because they moved in the shadows of upper society, were almost impossible to clearly identify, had extensive networks of wealth, power and control, and wielded tremendous manipulative influence over the stories, beliefs, and behaviors of the general public. The Vanguardians were deeply puzzled by the fact that whenever a group of people could be mobilized in a community to begin working together to fight against the effects of climate disruption, solve legacy environmental problems, and build new local economies to supply their own food, energy and other needs, these mysterious Other Forces appeared from nowhere to sway the crowds.

Other Forces seemed to have eyes and ears everywhere. Now that the Internet of Things connected so many electronic devices, business machines, household appliances, surgically implanted digital chips, and drones of every size that filled the airways, it was not difficult for the Other Forces to use The Fly to see and listen wherever people were present. Other Forces were able keep a pulse on every murmur and whispered fear of people everywhere. Other Forces used this to spread false social media rumors and untruths, and stoke paranoid fears and conspiracy theories. They paid bribes to informants and betrayers...it seemed every person had their price.

Dark Triads, in their maniacal pursuit of extreme wealth, power and control, established what the Vanguardians refer to as "Empires," which brought on the great threats of injustice and economic inequality, polarized societies turning violent against the other side, environmental degradation and unsustainability, and climate disruption that together have marked the Age of the Anthropocene. The **Tribulations** were the times when climate disruption, the Peak Oil energy crisis, pandemics, and ecological destruction brought about collapse of ecosystems, economies and governments, and were made worse by natural disasters, megadroughts, heat waves, famines, climate migration, and regional wars over dwindling resources. The Tribulations and the **Unholy Trinity**—climate-caused ecosystem collapse, energy crunch and plague pandemics—were the inevitable results of the work of Dark Triad Empires.

The Other Forces and their Dark Triad leaders continue to threaten the very survival of humans on the earth. The problems of climate disruption, legacy environmental disasters, and social and economic crises arise from the selfish efforts of the Other Forces, and these problems can now only be solved by all people working together in creative cooperation. However, people need stories of hope and courage to give them strength to face opposition and difficult times. They need a New Story to follow.

It is for these reasons that the world's youth leaders, the Founders, and now the Vanguardians have arisen, to awaken the next generation to work together guided by a New Story. The Founders, the

Vanguardians, ecoregional democracies of the **Unum League**, and the **Rose Communities** of the **USMA**, are a movement of collaborative youth leaders working tirelessly to dismantle empires and resist the Other Forces and their Dark Triads by building new communities of hope, resistance, and thriving. Young people have been inspired by the wisdom stories of Elders, especially the **Anthropocene Prophesies**.

The Anthropocene Prophesies

Wise Elders and prophets throughout human history have been the great seers for human societies. With a keen ability to see the hidden strengths and weaknesses of the human heart and the potential dangers when human societies and cultures follow a path that is not life-giving, the Wise Elders always sense the subtle shifts in behaviors before any other people. With tremendous sensitivity, awareness and insight, Wise Elders and prophets see patterns and signs in human society and in the environment, and can offer both blessings—when people and their leaders made good choices that are life-giving—and warnings when they made choices that lead to decay and destruction.

Although the messages they convey have used various metaphors in various languages from various cultures, Wise Elders and prophets have always been very aware of the insidious rise of Dark Triads, the tactics of the Other Forces and the destructive power of empire that whittles away the humanity of the people, replacing what is most noble and good and life-giving in humans, with what is shallow and selfish and most self-destructive. Wise Elders and prophets often use deep stories to teach lessons and help us learn from our ancient past. These deep stories of warning have been passed on from generation to generation as "prophesies."

In the **Age of the Anthropocene**, Wise Elders advised the Founders and other youth leaders networked around the world to turn to the prophesies nestled within the various world cultures for inspiration and insight. These have come to be known as the **Anthropocene Prophesies.** Some of these include the Hindu prophecy of Kalki-Satya; the Celtic prophesy of Columcille and King Arthur's Knights of the Round Table; the Jewish Prophesy of the Noahic Covenant; Native American Anishinaabe Prophecy of the Seven Fires, and the Tibetan Buddhist Prophecy of the Shambhala Warriors. (To continue reading, see the *Appendix - The Five Anthropocene Prophesies*.)

Since the Tribulations, these Anthropocene Prophesies and several other prophesies have become deeply meaningful and inspiring to the next generation of young people throughout the world. The Anthropocene Prophesies are seen as treasured gifts given to them from their distant ancestors and their ancient cultural heritages. Young people have responded to these ancient prophetic calls to rise up and become part of something bigger and more important than just themselves. Responding to the challenge of the Anthropocene Prophesies helps them feel fully human and fully alive. Most become part of the global youth leader movement. Many young people were so inspired, they have become Vanguardians.

SECTION II - GETTING STARTED

EarthQuest is designed to be an intelligent, challenging and complex game and new players will want to start with the basics and add more game elements as they learn how to play and master gameplay. A good strategy may be to read quickly through this *EarthQuest Players Handbook*, skipping over the sections that seem complicated, and learning just the essentials of gameplay. The Game Mentor and the players can work together to decide which game elements to postpone using until players are ready for more challenge. The recommended essentials of gameplay include:

- Designing a Vanguardian using the Vanguardian Folder
- Using gamesheets, especially the Player Tips Gamesheet
- Using SUbadges and Sustainability Scores
- Using Attributes and Abilities (Reputation and Resources)
- Using Skills and Herbals
- Working with Tchackers
- Using Health Points, Injuries and Recovery
- Booting up web hubs
- Using the Briefing and Debriefing
- Conducting a Place Story
- Solving the Environmental Mystery
- Community Problem Solving

Designing a Vanguardian

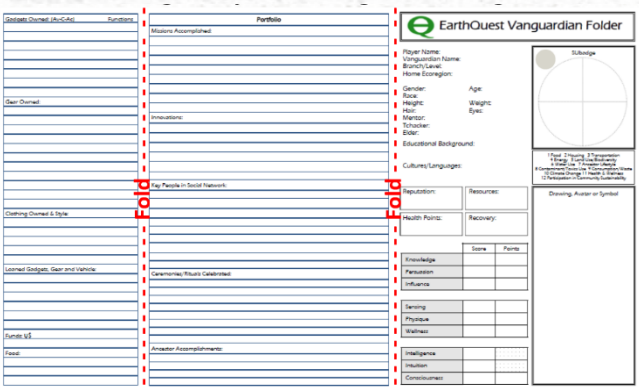
You begin playing EarthQuest by creating a new Vanguardian. Since your Vanguardian's actions are controlled by you through role-playing, you will need to provide enough realistic and credible details to give life to your Vanguardian, and to guide how your Vanguardian will act or respond in any situation. To determine the details of your Vanguardian's **attributes**, background, skills, abilities, and belongings, you will use a **Vanguardian Folder** as your written record. Normally, you will use only one Vanguardian Folder throughout all EarthQuest's Adventures, even though your Vanguardian will change and develop over time. When there is something new, changes can be made on your Vanguardian Folder.

To design your new Vanguardian, you will need a Vanguardian Folder and two 12-sided dice (usually written as "2d12"). You can use a paper version or a fillable electronic version of the Vanguardian Folder. The electronic version can be filled out on a digital device and then printed or used on your digital device. To fill out the paper version by hand, you will also need a regular pencil and one colored pencils (green or aqua blue). A paper version of the Vanguardian Folder is included in the Appendix, or a digital version is available through the EarthQuest App. Your GM will also need to use the *EarthQuest Game Mentors Rulebook* to guide you through the design of a new Vanguardian. Write down the information on the Vanguardian Folder as described in the next section.

Vanguardian Folder

If you use the paper version, print the Vanguardian Folder on a legal size (8.5" x 14") sheet of recycled paper and fold it back twice vertically from top to bottom so that the first fold is along the 3" line, and the second fold is along the 8.5" line. When you look at the front of the Vanguardian Folder, the first fold bends to create a 3" flap that is tucked inside the Vanguardian. You use this flap to insert and hold any supplemental gamesheets inside the Vanguardian Folder. As you fill up Portfolio sections of your Vanguardian Folder over time, you can insert supplemental gamesheets into your Vanguardian Folder as needed. There are

supplemental gamesheets for Herbals, **Ancestor Accomplishments**, the Portfolio and the optional Wisdom Path. You can also fit the Player Tips Gamesheet into the Vanguardian Folder.



Vanguardian Attributes

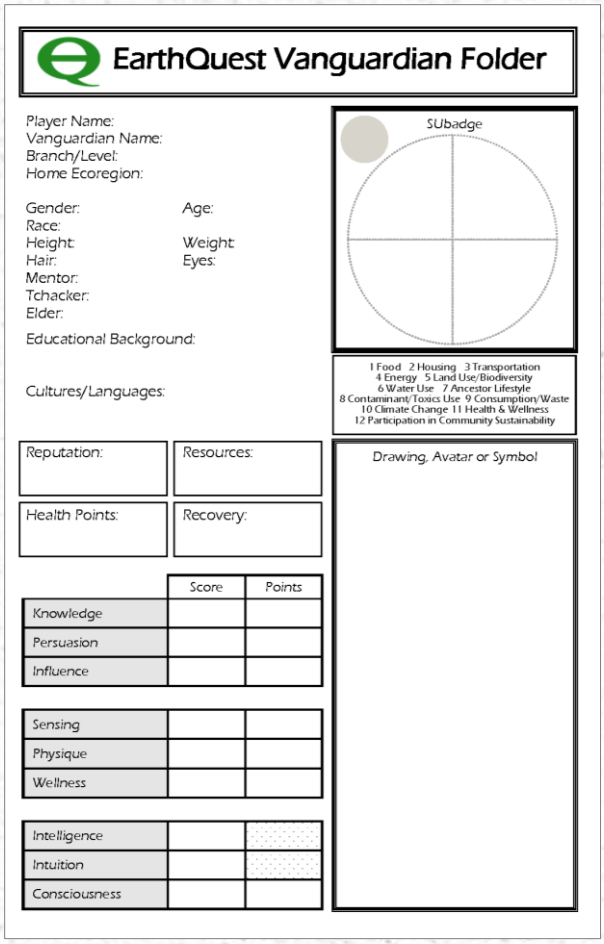
Attributes are used as a measure of your Vanguardian's mental, social and physical abilities. They include Knowledge, Persuasion, Influence, Sensing, Physique, Wellness, Intelligence, Intuition, and Consciousness. Your Vanguardian will begin with a total of 50 points plus 1-8 (2d12 ÷ 3) additional points to be distributed over the nine attributes. Write the score for each attribute next to the attribute name in the "score" column on your Vanguardian Folder. A normal person will have a score of 5, with a maximum of 8 in any attribute. The only exceptions to this limit are a Vanguardian's Knowledge attribute, which, because of breakthroughs in human learning techniques and technology, can rise to 11, and the Consciousness attribute, which, because of continuous access to thousands of years of wisdom traditions throughout the history of human civilizations, can also rise to 11. Attribute Points should be distributed according to your preferences and needs.

Knowledge: This is your Vanguardian's overall amount of general and specific knowledge, and your Vanguardian's ability to recall information already learned and stored in memory. The Knowledge attribute can reach a maximum of 11. Knowledge is very important for several skills.

Persuasion: This is your Vanguardian's ability to persuade or convince others, change minds and hearts, get someone to divulge information, and resolve conflicts using social appeal, charisma, psychological nudging and interpersonal skills. The Persuasion attribute is used in conflict resolution and peaceful communications, in convincing someone with a persuasive argument, in tracing rumors, in interrogations, and in getting someone to share their personal story and adding them to your social network. Persuasion is used with individual people and small groups of people.

Influence: This is your Vanguardian's ability to call upon people in power and authority to make things happen, based on your Vanguardian's social, economic and political connections and networks. It is a measure of the relationships that your Vanguardian has developed and nurtured over time and political skills with powerful people. In essence, Influence is your Vanguardian's social and political power.

Sensing: This is your Vanguardian's ability to use the senses to see, hear, smell, taste and feel in a tactile way. Vanguardians with a high Sensing will be able to see, hear or smell faint or subtle differences in the biophysical world that are not able to be perceived by others. Sensing is very important for several skills.



EarthQuest Vanguardian Folder

Player Name:
Vanguardian Name:
Branch/Level:
Home Ecoregion:

Gender: Age:
Race:
Height: Weight:
Hair: Eyes:
Mentor:
Tchacker:
Elder:

Educational Background:

Cultures/Languages:

SUbadge

1 Food 2 Housing 3 Transportation
4 Energy 5 Land Use/Biodiversity
6 Water Use 7 Ancestor Lifestyle
8 Contaminant/Toxics Use 9 Consumption/Waste
10 Climate Change 11 Health & Wellness
12 Participation in Community Sustainability

Reputation: | Resources:

Health Points: | Recovery:

Drawing, Avatar or Symbol

	Score	Points
Knowledge		
Persuasion		
Influence		
Sensing		
Physique		
Wellness		
Intelligence		
Intuition		
Consciousness		

Physique: This is your Vanguardian's overall physical fitness. It includes your Vanguardian's physical strength and ability to lift, carry, wield, or move heavy objects or otherwise exert physical force. It also includes your Vanguardian's overall dexterity, balance, coordination, response and reflex time, and the ability to withstand ongoing internal or external physical (and psychosomatic) stress, pressure or pain. Physique is very important for some skills.

Wellness: This is your Vanguardian's overall physical health, wellness and nutrition level. It includes the presence of diverse, healthy, symbiotic bacteria in the digestive tract. It is also a measure of the ability to defend against illness, infection, poison, contamination or pollutant exposure, and is the basis for healing wounds, and recovering from physical and psychosomatic injuries.

Intelligence: This is your Vanguardian's overall cognitive capabilities, including the ability to apply logic and reason to critical thinking. Intelligence is used to determine your Vanguardian's ability to understand or analyze complex information, solve puzzles, apply creative thinking and innovation, learn new knowledge, grasp how a particular social system (group of people or organization) or other system works, or determine how a Gadget or piece of technology works. Intelligence is very important for several skills.

Intuition: Intuition is your Vanguardian's ability to use their “sixth sense,” gut feelings or hunches to quickly identify possible patterns, danger, and the big picture of what is happening in the biophysical world of people and ecosystems. Intuition allows a Vanguardian to access information perceived through the subconscious processes of the mind and be aware of something in the outside surroundings that sometimes is not able to be consciously seen or heard. It also helps your

Vanguardian determine if someone is not telling the truth. Intuition is very important for some skills.

Consciousness: This is your Vanguardian's deeper sense, feeling and awareness of connection with the mystery of life and the universe and an ability to grasp the repeating patterns in everything. It results in wisdom, inner calm, deep peace, belonging, compassion, and love. For many, Consciousness is equivalent to spirituality and has deeply religious connotations. For some, this is not tied to any particular religious or spiritual traditions or practices, but rather a sensitivity to and connection with "the bigger picture."

Consciousness brings a more stable, consistent and intense sense of identity, meaning, and purpose in life, and an ability to perceive wisdom, remain hopeful, and make moral decisions for the greater good of humanity and the earth. At the early stages of Consciousness, the focus is on personal self-awareness, personal growth and self-fulfillment. At advanced stages of Consciousness, the focus is always outward beyond the self toward helping others, humanity and the earth. Consciousness is often seen as a Vanguardian's true source of strength, vision, selflessness, dedication and leadership ability, moving a Vanguardian to deeper compassion, empathy, care, forgiveness, simple joy, and love.

Vanguardians who focus their life on deepening their Consciousness are said to be "on the **Wisdom Path**," and growing in Consciousness is essential for growing on the Wisdom Path. Your Vanguardian's Consciousness attribute can reach a maximum of 11, but only when your Vanguardian chooses the Wisdom Path will they be able to increase the Consciousness score beyond the normal range of other attribute scores.

Player Name: This is your own name.

Vanguardian Name: Choose your Vanguardian's code name. This is the name that your Vanguardian earned as they completed the Postulancy years in the Academy. Use a code name that may be descriptive of your Vanguardian's personality and/or background. Examples are Nightwalker, Shifter, Falcon, Mist, or Grayhair. This is the name you will use for your Vanguardian when on Missions.

Branch/Level: Your GM determines whether you will begin your level as a **Postulant** or a Vanguardian. If you begin as a Postulant, your level usually starts at **Season** 0. If you are a Vanguardian, your level usually starts at **Branch** 1. This should be recorded on your Vanguardian Folder as either "Season 0" or "Branch 1." Refer to *Table E: Vanguardian Branches and Experience* to see what benefits you gain based on your Vanguardian Branch and how many Experience Points you will need to earn in order to advance to the next Branch.

Home Ecoregion: Choose your Vanguardian's home ecoregion, the place where your Vanguardian calls "home." The ecoregion name can be selected from the list of actual watersheds. (See U.S. Environmental Protection Agency "How's My Waterway" site at https://mywaterway.epa.gov/.) You may want to use your own home watershed.

Gender: Choose your Vanguardian's gender.

Age: Choose your Vanguardian's age. Postulants are usually age 19-24 and beginning Vanguardians are usually 24 years old or slightly older.

Race: Choose your Vanguardian's race from Blend, American Indian/Native Alaskan, Asian, Black/African American, Middle-Eastern/North African, Native Hawaiian/Pacific Islander, White. The most common in urbanized areas and the Unum League is "Blend" (multiracial), and reflects some 65% of the global human population, especially among younger populations. Some also

prefer to note ethnicity if they are also Hispanic/Latinx. In many cases, race category does not have any noticeable impact on a Vanguardian's actions. However, in some situations, race may be a factor in how people perceive and stereotype a Vanguardian's actions.

Height: Choose a reasonable height.

Weight: Select a weight.

Hair: Select a hair color and style (straight, curly, short, etc.)

Eyes: Select an eye color and note any use of corrective lenses (glasses, contacts, etc.).

Mentor: Your GM will assign your Vanguardian a **mentor**. Write down the name of your Vanguardian's mentor. A mentor will offer your Vanguardian advice and support when needed and will focus on helping your Vanguardian to achieve success.

Tchacker: Your GM will assign your Vanguardian a protégée or assistant called a "Tchacker." Your Vanguardian's Tchacker can help get important information and access resource networks while your Vanguardian is on Missions. Write down the name and level of your Vanguardian's Tchacker as assigned by the GM.

Elder: This is optional for many Vanguardians, but if you choose to have an Elder, your GM will assign your Vanguardian one or more Elders. An Elder is especially important and required if your Vanguardian chooses to enter the Wisdom Path. Write down the name of your Vanguardian's Elder(s). An Elder offers wisdom and insight to help your Vanguardian grow and mature. Elders are often challenging and say the unexpected to disrupt unhealthy habits or ways of thinking, and to increase deeper awareness, sensitivity, creativity, honesty, and transformation. They sometimes make a Vanguardian uncomfortable in the process of maturing. An Elder's insights do not often help a Vanguardian to become more successful in acquiring more material goods, achievement, power and glory, but rather helps your Vanguardian become more centered, peaceful, wise and loving.

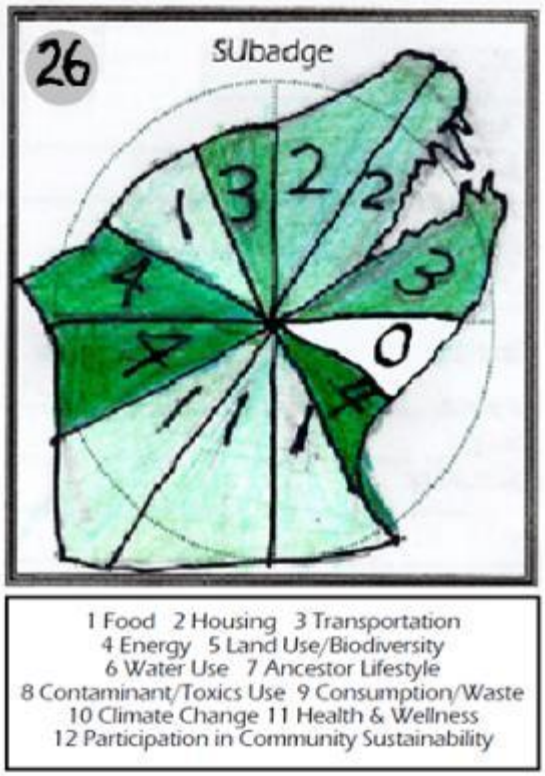
SUbadge and Sustainability Scores: In Unum areas, a **SUbadge** reflects a person's or a household's official sustainability level (sustainability score or "**SUscore**"), and is usually worn in an obvious place on the outside of a person's clothing for everyone to see. Vanguardians work together within their family or household, and with all their neighbors in their community to increase their sustainable living practices and their corresponding SUscores. In Unum League ecoregions and USMA Rose Communities, wearing a SUbadge with a high SUscore is the symbol of social status. SUbadges come in every imaginable shape and are usually an expression of a person's creativity and pride in achieving a high level of sustainability.

To create a SUbadge for your Vanguardian, draw a badge shape (circle, oval, leaf, animal shape or other creative shape). Some SUbadges have one outer shape with another image in the center of the SUbadge (an outline of a home watershed map, cultural icon, coat of arms, or other family symbol). Then divide the SUbadge into twelve relatively equal "wedges" like a pie. Each wedge of the SUbadge represents one indicator of sustainability, and the color intensity of each wedge (either green or aqua blue) depends on the score. Sustainability scores for the twelve indicators range from 0 to 4. Vanguardians will always begin with a 0 (zero) for Ancestor Lifestyle, a 4 for Participation in Community Sustainability, and the remaining indicators at least 1, so roll a 1d12 to determine sustainability scores for each of the remaining eleven indicators for personal or household sustainability:

Roll 1-2 = score of 1 **Roll 3-5 = score of 2**
Roll 6-9 = score of 3 **Roll 10-12 = score of 4**

The twelve indicators in order are:

1 Food
2 Housing
3 Transportation
4 Energy
5 Land Use and Biodiversity
6 Water Use
7 Ancestor Lifestyle (0)
8 Contaminant/Toxics Use
9 Consumption Level and Waste Production
10 Climate Change Action
11 Health and Wellness
12 Participation in Community Sustainability (4)



A 0 (zero) in any indicator means that a person's activities and lifestyle are having an overall negative impact on the natural environment and human communities. A 1 in an indicator means there is a neutral impact, having no overall negative or positive impact. Only when an indicator reaches 2, 3 or 4 are the activities and lifestyle having a regenerative effect on the natural environment and human communities. Regenerative effects make a positive contribution by giving back. Ensuring that your activities and lifestyle have an overall regenerative or positive impact on the natural environment is the goal, since everything in the web of life must have a regenerative impact in order for the earth's ecosystems to perpetually survive and thrive.

Diversity creates harmony, and harmony creates beauty, balance, bounty and peace in nature and society, in agriculture and culture, in science and in politics.
Vandana Shiva

Write each indicator score into a wedge, beginning with the wedge on the farthest left (9:00 position), and proceed sequentially in a clockwise direction. For the seventh wedge, Ancestor Lifestyle, write in 0 (zero) and for the final wedge, Participation in Community Sustainability, write a 4 rather than rolling up a number. Also add up the total SUscore from each of the wedges and write this number in the upper left corner of the SUbadge box.

After entering all twelve indicator scores into your SUbadge wedges, shade in the wedges with either a green colored pencil or an aqua blue (blue-green) colored pencil. Choose the correct color based on the home ecoregion. If you are from a coastal watershed, use aqua blue, and if from any other watershed, use green. The intensity of the color indicates the score, and ranges from white (low or zero) to medium green or aqua blue to dark green or dark aqua blue (high or four). Vanguardians proudly wear their SUbadges at all times.

Drawing, Avatar or Symbol: Draw a picture or avatar of your Vanguardian, and/or draw a symbol to represent your Vanguardian. This may include the symbol(s) found on your Vanguardian staff.

Educational Background: Vanguardians are highly educated in interdisciplinary academics that integrate the humanities, sciences, and social sciences. A Vanguardian usually earns a university level diploma equivalent to an integrated bachelor's degree and master's degree. Formal education provides the Vanguardian with an understanding of how the world works and how societies have understood the human journey and created personal and social meaning through story. A Vanguardian usually chooses to concentrate in a science or technology, a social science, or one of the humanities. This is your Vanguardian's field of academic expertise. Choose one option from the Educational Background list. (See *Appendix - Table J: Educational Backgrounds*.)

Cultures and Languages: These are the cultures and languages with which your Vanguardian is proficient or competent, and can easily integrate into. Cultural competency includes a language competency, which are the languages your Vanguardian can speak and understand fluently. Cultures correspond to Languages chosen. Every Vanguardian includes cultural competency in **Global culture**, which is primarily rooted in the Western Euro-American culture. Every Vanguardian has a corresponding language competency in **New English**, the predominant language of the Global culture.

Vanguardians are drawn from nearly every cultural heritage on the planet and are very diverse as a body. Your Vanguardian should also include a cultural competency in their own cultural heritage, along with a corresponding language competency. Choose initial cultures and languages from the Cultures and Languages list. (See *Appendix - Table G: Cultures and Languages*.) Your Vanguardian may then add other Culture and Language competencies as your Vanguardian progresses, according to *Table E: Vanguardian Branches and Experience*.

Cultures include traditional knowledge, wisdom traditions, old myths, stories, songs, dance, religious or spiritual practices, public cultural celebrations, holidays, festivals, ceremonies, rites of passage and other rituals. Vanguardians accept that all human cultures should work together to share insights, knowledge and wisdom necessary for the entire human and natural community to survive and thrive. Cultures often hold many of the keys to simple, humane living based on restoring a sustainable human-nature relationship with the local ecosystem and applying traditional land management practices to restore and protect the

land. Becoming competent in cultures through cultural immersion and study can help Vanguardians successfully engage people from these cultures, and to find clues to human survival in old myths, stories, and other traditions and practices. Cultures from China, India, the Islamic Middle East, Central Africa, Brazil, Europe and North America are now widespread.

The English language has evolved into **New English** and is a common language for government and commerce. There are notable influences of Spanish and Chinese language in New English, and spelling, grammar and pronunciation have been simplified and streamlined for the overwhelming numbers of immigrants and non-native speakers learning the language. However, this also means there are often many acceptable ways of spelling, pronouncing, and grammatically constructing sentences. Mandarin Chinese, Spanish, and Arabic are the other most predominantly spoken languages. Local languages are still regionally very important, and there is much resistance to the dominance of New English. Many refuse to speak in New English.

Reputation: There are two Vanguardian abilities, Reputation and Resources. These are different from other Vanguardian attributes, because a large part of Reputation and Resources is created by society or segments of society, and as a result, your Vanguardian does not have as much control over them. These two abilities are considered "socially constructed." Reputation is your Vanguardian's public image, fame, and personal reputation with people who do not know them personally. Using Reputation is similar to your Vanguardian's use of the Persuasion attribute, except that Reputation is used with groups of people who do not know your Vanguardian personally. Reputation determines outcomes based on people's favorable perception of your Vanguardian. Reputation is often used to mobilize people to action, to recruit volunteers, and to win over a public audience through a speech or public speaking event. Reputation is based on your

Even through you and I are in different boats, you in your boat and we our canoe, we share the same river of life. What befalls me befalls you. And downstream, downstream in this river of life, our children will pay for our selfishness, for our greed, and for our lack of vision.
Oren Lyons

Vanguardian's Branch, Sustainability score, and Influence. Reputation is also influenced by the Wisdom Path and may be higher or lower when working with particular groups. The GM assigns this Reputation level.

The Reputation ability is like market branding or image crafting and may be out of sync with who your Vanguardian really is. Reputation can fluctuate up or down, so your Vanguardian is always working to improve your Reputation. However, certain inappropriate behaviors, actions or occurrences may harm your Vanguardian's Reputation in society. This can include violating the Vanguardian Code, making a mistake that harms others, committing a crime, and resorting to violence. Your Vanguardian may also be intentionally targeted in an untruthful public slander campaign. If this happens, your Vanguardian will have to work hard with the help of a Tchacker to restore your Reputation again.

Resources: Resources is the second of your Vanguardian's two abilities. Like Reputation, Resources is considered "socially constructed" because much of it is created by a segment of society. Resources is your Vanguardian's ability to call upon a social network of **key people** with financial and material resources (usually technology or equipment) when these are needed

by your Vanguardian while on a Mission. Resources are secured by having your Tchacker intercede on behalf of your Vanguardian to connect with other Vanguardians, Alliances, political parties, alma mater Academy, religious institutions, key people in social networks, and other resource networks. The Resources level is assigned by the GM.

Health Points: Health Points are the number of "life" points a Vanguardian has and depend on the Vanguardian's Wellness and Physique ability scores. The GM will calculate the **Heath Points**. Whenever physical or even psychological damage or injury occurs, Health Points are temporarily reduced. At five Health Points or below, a Vanguardian will fall unconscious. At zero Health Points or below, a Vanguardian is considered physically dead.

Recovery: Whenever your Vanguardian is injured and then rests and attempts to recover, their Health Points are restored (increased) based on your Vanguardian's Recovery rate. The Recovery rate is calculated by the GM. Your Vanguardian applies their Healing skill for their own injury to start the healing process, and then the daily Recovery rate determines how much and how quickly recovery occurs and how many Health Points are restored.

Purpose: Create your Vanguardian's purpose or personal mission statement, the driving forces and rationale for why they are out saving the planet or the world. Include issues or agendas that your Vanguardian is most concerned about and works to address.

Goals: Select a goal for personal growth and development for your Vanguardian. Choose one of the following: an attribute, a skill, a competency (Culture and Language), an ability (Resources or Reputation), Sustainability score, **innovation**, or Wisdom Path (optional). Write in your specific choice if your goal requires identifying a particular attribute, skill, language, etc. Write down the strategy for how to achieve the goal in the Goal Details space.

Affiliations

Academy: Choose and write down a **Vanguardian Academy affiliation**. This is the Academy your Vanguardian has attended. The Academies include Thunderbird Southwestern Vanguardian Academy, Carson Northeastern Vanguardian Academy, Columbia Northwestern Vanguardian Academy, Leopold Great Lakes Vanguardian Academy, and Bullard Southern Vanguardian Academy. The Academy **affiliation** and **Alliance** affiliation are usually consistent, in that the Academy a Vanguardian attended means your Vanguardian will be affiliated with one of the sponsoring Alliances for that Academy. Each Academy offers your Vanguardian certain benefits, depending on the Academy attended. (See *Appendix - Table U: Alliances and Academies*.)

Alliance: Choose and write down an Alliance affiliation. Many sectors and agencies join together to form an Alliance, pooling expertise, funding, political influence, and resources. The Alliances recruit and sponsor young Vanguardian candidates and also help sponsor a Vanguardian Academy. Through Advisory Councils, Alliances have influence on the Vanguardian Academy and indirectly, the Vanguardian Council. Your Vanguardian's Alliance affiliation and Academy affiliation are usually consistent. Almost every Vanguardian has a sponsoring Alliance, and

affiliation with an Alliance brings your Vanguardian access to resources and certain benefits. (See *Appendix - Table U: Alliances and Academies*.)

Spirituality: Choose and write down a formal religion or spiritual affiliation for your Vanguardian or provide a brief description of your Vanguardian's spiritual beliefs and practices. Your

Vanguardian may also choose to have no explicit spirituality, and no spiritual or religious affiliation, but affiliation may increase access to resources. (See *Appendix - Table H: Religions and Spiritualties*.)

Personal: Write down any other personal information (quirks, fears, likes, character flaws, sense of humor, interests, habits, hobbies, etc.) that gives life, personality and depth to your Vanguardian. You may want to choose and write down a political party affiliation for your Vanguardian or provide a brief description of your Vanguardian's political philosophy or beliefs and practices. Your Vanguardian may also choose to have no party affiliation, which is now very common among Vanguardians. There may also be new political parties or ecoregional political parties to choose from. (See *Political Parties*.)

Heroes: Write down the names of any environmental or sustainability heroes your Vanguardian may be inspired by. (See *Appendix - Table K: Environmental, Sustainability and Climate Heroes*.)

Quotes: Write down any favorite or inspirational environmental or sustainability quotes or sayings.

Notes: Use this section for writing down any miscellaneous notes about or important to your Vanguardian or a Mission.

Ancestor Tree: A Vanguardian is actually the player's (your!) own direct descendant. This could be a biological, adopted or informal family descendant. So, what you do, or did, or did not do in the early 21st century has an impact on the life and fate of your own great grandchild in the future. To show this direct family link, you will fill out the names in your genealogical **Ancestor Tree**. Begin by writing your real name in one of the top boxes. Add the name of a partner or spouse (real, fictitious or hopeful!) in the adjacent box at the same level. On the second level going downward, write the name of your future son or daughter (real or fictitious) and their partner or spouse. On the third level down, write the name of your future grandson or granddaughter (real or fictitious) and their partner or spouse. In the final box at the bottom, write the name of your Vanguardian—your future great grandson or great granddaughter. You may want to use your Vanguardian's full given name, rather than their code name. As you role-play your Vanguardian, you are taking on the role of your own direct descendant.

Skills: Skills and skill levels are based on the Branch of your Vanguardian modified by attribute scores. Skill levels range from 1 to 10. Refer to *Table E: Vanguardian Branches and Experience* to determine your base skill level. Enter the skill level plus the **attribute modifiers** in the appropriate space. (See *Table A: Attribute Modifiers*.) The GM will determine which attribute modifiers apply to each skill. For example: the skill level of Navigation is written as **Navigation 3**, since a Branch 1 Vanguardian's base Navigation skill is 1, the

Vanguardian's Knowledge attribute score of 7 adds a +1 modifier and the Sensing attribute score of 6 also adds a +1. Your Vanguardian will be able to improve skill levels over time. Skills include: Wilderness Survival, Herbal Use, Healing, Navigation, Weather Prediction, Plant Identification, Wildlife Identification, Tracking, Animal Husbandry, Agriculture, Aquaculture, Textiles, Woodcraft, Tool Making, Mechanics, Construction, Electronics, Energy Tech, Biotech, Computer Tech, Nanotech, Mercantile, Martial Arts, Acrobatics, Stealth, Disguise, Ground Vehicle, Watercraft, Aircraft, Ecotesting, HazMat Handling, and EcoRestoration.

Table A: Attribute Modifiers

Attribute Score	Modifier
6 - 7	+1
8	+2
9 - 10	+3
11	+4

Staff Description: Use this section for writing down any details about your Vanguardian staff, including the type of wood and other materials, unique design or markings, and Gadgets embedded in the staff. Vanguardians usually attach the staff to their back or backpack using a special strap or holding tab. The GM will work with you to determine what type of staff your Vanguardian begins with. (See also *Vanguardian Staff*.)

Herbals: These are natural biological extracts derived from plants and fungi that are used for healing and general wellness. These are the medicinal **Herbals** your Vanguardian has on hand. Your GM will determine the number of initial Herbals your Vanguardian will have, and your Vanguardian will then select from the list of Herbals. Write down the details of each Herbal, including primary name, **availability** ("C", "R" or "X"), potency (1 - 8), uses and initial doses. (See *Table B: Herbals and Characteristics* and *Using Herbals*.)

Gadgets Owned: Gadgets are high-tech, powered electronic tools and equipment. They can be hand-held, wearable, portable or even implanted, embedded as piercings, or injected as nanoscale Gadgets. Gadgets may be available to the general public, only to specialists, or just to Vanguardians...for the right price.

A few of your Vanguardian's Gadgets are owned personally, and others are co-owned by the Vanguardians as a whole and borrowed temporarily based on the needs of a Mission.

Vanguardians may even custom-engineer Gadgets for embedding into their staff.

Your GM will determine your initial personal Gadgets that your Vanguardian owns. Standard issue Gadgets usually include an ID card, comm, NGC (energy collector), pocket tool, torch, IR field glasses, water collector/purifier (attaches to water bottle), and air purifier. Write down the description and details of each Gadget, including availability ("G" [general use] or "X" [classified]) and complexity (1-8). Initial **accuracy** is always 11. A Gadget is written as: *Comm (G-6-11)*. (See *Appendix - Table N: List of Gadgets*.)

Gear Owned: Gear is a general term, and usually refers to low-tech, non-powered items, equipment, and supplies. Vanguardians own very few possessions, since most of what is needed is co-owned by the Vanguardians as a whole and simply

borrowed on a temporary basis by individual Vanguardians based on the needs of a Mission. List the personal **Gear** that your Vanguardian owns and write down SUscore and any details. Your GM will determine what Gear your Vanguardian acquires. Vanguardians always have and wear a SUbadge. Standard issue Gear includes a backpack, water bottle, mess kit, matches, pouches and vials for Herbals, and a kitty bag. (See *Appendix - Table L: List of Gear*.)

Clothing Owned and Style: Write down any clothing your Vanguardian owns, and include a description of the materials, style, and SUscore. It is common for Vanguardian attire to creatively reflect various cultural and historic styles as a creative and meaningful expression of personal flair. Your GM will determine what clothing your Vanguardian has or can acquire. Standard issue clothing usually includes pants and shirt reflecting cultural heritage, all terrain boots, and gloves. (See *Appendix - Table M: List of Clothing*.)

Portfolio: This section is for keeping track of any successful Missions, innovations, key people in your Vanguardian's social network (usually added while on Missions), ceremonies and rituals performed, and Ancestor Accomplishments. For a new Vanguardian, all of these Portfolio items will initially be blank, and can be filled in as your Vanguardian completes additional Missions. There is a supplemental Portfolio Gamesheet to record additional items when you run out of space, and this can be inserted into your Vanguardian Folder.

SECTION III - PLAYING THE GAME

Starting an Adventure

EarthQuest is played by having a group of players take their Vanguardians on an assigned Mission or Adventure. The players choose one person to serve as the GM, who facilitates the role-playing Adventure. Each Adventure is set in a specific ecoregion struggling with a variety of environmental, social and climate disruption

challenges rooted in early 21st century decisions. The Adventure is made up of several connected scenarios, each with its own set of goals for the team of Vanguardians to accomplish. In general, Vanguardians help communities to transition to sustainability and adapt to climate disruption.

For each Mission (Adventure) your Vanguardian takes on, you will write to write down information about the Mission and keep this in your Vanguardian Folder, including: the name of the Mission, the purpose or expected outcome of the assigned Mission, any Mission goals and any other information that might be relevant to your Vanguardian successfully completing the assigned Mission as described by the GM.

Outfitting Your Vanguardian

Additional Herbals, Gadgets, Gear, clothing, food, and vehicles used by your team of Vanguardians on Missions may be temporarily assigned for use on a particular Mission. Assigned items can be recorded on the Vanguardian Folder. Borrowing co-owned items allows Vanguardians to live simply, travel lightly, and share resources among all Vanguardians. While on a Mission, all Vanguardians are required to carry Gear and Gadgets that will allow them to secure adequate food and water, like fishing or hunting Gear and a water collector; supply energy for personal devices; and to dispose of and compost bodily wastes with a kitty bag. Sometimes additional specialized clothing, Gadgets and Gear will have to be acquired through purchase, barter, loan or special request sent through your Vanguardian's various resource networks. Vanguardians may only keep what Gear and food they can carry on their person and should donate or re-sell their surplus at the end of a Mission.

All products sold at a market include an e-label with a scannable SUcode that includes information on the materials used to make the item (including recycled and renewable materials), pollutant and carcinogen levels, Fair Trade level, the ecoregion of origin, energy cost to manufacture the item, shipping distance and fuel cost, obsolescence period (length of time the item is expected to last), packaging recyclability and carbon (greenhouse gas) emissions. These factors are all included in a summarized product SUscore and are used to generate the **Carbon-Impact tax** (**CITax**).

Food: Vanguardians should ensure that they carry adequate food and water supplies, can acquire food and water from the ecosystem, or purchase it or barter for it in a human settlement. Types of food may include organic, Fair Trade or locally grown. Vanguardians may also procure their own food supply by hunting, fishing, wildcrafting nuts, seeds, root vegetables and berries, or persuading someone to provide room and board while on a Mission. Write down any food your Vanguardian is assigned on your Vanguardian Folder. Food items

purchased through a market have a SUscore, and a CITax is applied.

Vehicle: Write down any vehicle your Vanguardian is assigned on your Vanguardian Folder. The vehicle information includes tech level, energy source or fuel type, maximum speed, range, number of passengers, cargo space, and SUscore. A CITax is applied to vehicle purchases. A Vehicle is is written as: *Hover cycle (Hydrogen)* (See *Appendix - Table Q: List of Vehicles*.)

Funds: Vanguardians receive an expense stipend (budget) per Mission based on your Vanguardian's Branch. Funds are used at the beginning of a Mission to purchase food and Gear, and your Vanguardian should plan to coordinate purchases with your Mission team. Note that vehicles, Gadgets and Herbals are often not *purchased* by Vanguardians, but rather are supplied through a Vanguardian's resource networks.

Playing the Game

You will gather with friends, each playing the role of a Vanguardian, to work as a team to carry out a Mission in EarthQuest over several **gameplay** sessions. Each session can last as long as you want, and you can hold as many sessions or as few sessions as you want in order for your Vanguardian team to complete the Mission.

In general, there are several parts of each Mission that your Vanguardian team will want to accomplish during gameplay sessions. You will always want to conduct a community **place story,** assembling information, data, trends, and stories in order to describe what is happening and understand the roots of interconnected problems. You will always want to meet people and listen to their personal stories of adapting to climate disruption, dealing with environmental pollution legacy impacts, and transitioning to resilient, low-carbon and sustainable lifestyles and communities. If the Mission includes responding to an emergency or climate change-influenced disaster, your Vanguardians will want to conduct triage and respond to the emergency. Since every Mission includes an environmental mystery, you can investigate and gather clues to solve the mystery. You will always want to look for and restore **web hubs**, which may also be storing **AReggs**.

> *When the forest is destroyed, when the river is dammed, when the biodiversity is stolen, when fields are waterlogged or turned saline because of economic activities, it is a question of survival for these people. So, our environmental movements have been justice movements.*
> *Vandana Shiva*

After you complete the place story, solve the environmental mystery and report back to Vanguardian Headquarters, your team of Vanguardians may want to help the community to solve some of its problems by applying best practices or developing an innovative new idea that has never been tried before. You may choose to lead a community planning process to move the community toward sustainability, especially in the face of climate disruption. Whatever you and the community decide to do, you will be helping them to improve their community Sustainability score (**SUscore**). If your Vanguardian is on the Wisdom Path, you will also meet wise Elders and collect stories, wisdom and insights that will increase your Consciousness. No matter what your Vanguardians choose to do on the Mission, you will all share your stories and what was learned in order to earn Experience Points and advance to the next Branch.

Some Things to Do During a Mission

- Work as a team and use their Vanguardian abilities, skills and training to help people and the environment
- Collect information and assemble a place story
- Restore (boot up) old web hubs to provide communities with access to the legacy Internet
- Find AReggs hidden in rebooted web hubs
- Meet with key people in the community and have them share their stories and best practices
- Solve an environmental mystery rooted in legacy environmental problems
- Create a plan for helping the community transition to sustainability by adopting best practices
- Create a climate change strategy to help the community eliminate remaining greenhouse gases and adapt to climate disruption

Vanguardian Mission Brief

Every Adventure begins with a Vanguardian Mission **Brief**, which is background research compiled by your Vanguardians' Tchackers to assist your team while on their Mission. Your GM will provide you with a copy of the Vanguardian Mission Brief. Players should read it and write down any relevant information or details.

Taking Notes

During the session, Vanguardians should keep notes on relevant information and important things that occur during a Mission. You can record notes on the Vanguardian Folder, gamesheets, or scrap paper. You can take notes on the details of Mission goals, key people Vanguardians meet, clues your Vanguardian finds, and information on the ecosystem and social system. Also keep a record of any item your Vanguardian finds, purchases or is given. Notes are especially important when filling out information on the Place Story Gamesheet and assembling clues on the Environmental Mystery Gamesheet. Keeping good notes will help Vanguardians during the regular briefings with Vanguardian Headquarters and debriefings with Tchackers, and good notes can earn Knowledge Points, Consciousness Points and Experience Points.

Outdoors we are confronted everywhere with wonders; we see that the miraculous is not extraordinary, but the common mode of existence. It is our daily bread.
Wendell Berry

Securing Food, Water, Shelter and Energy

While on a Mission, your Vanguardian must always make plans for where you will sleep at night, and where to get food and water. Your Vanguardian can sleep outside in wilderness areas, on a farm, in a park, or even persuade someone in a settlement to house you. For food, your Vanguardian can go fishing or hunting, forage for wild foods (like berries, fruit, nuts, seeds, mushrooms, and root vegetables), or persuade a farmer of someone in the city to feed you. If your Vanguardian is camping outdoors, you will want to collect and filter water for drinking, using local streams or wells, or collect water from a reservoir near a settlement. Securing an adequate source of energy for personal Gadgets and your Vanguardian's staff can be through an NGC, portable solar panel, or via high-tech clothing with a built-in leaf system that may be assigned to your Vanguardians. Securing enough energy for your Vanguardian's vehicle may be more challenging unless the vehicle is solar powered or powered with a hydrogen fuel cell.

We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect.
Aldo Leopold

Mapping

Mapping is an essential part of Vanguardian Missions, since it helps the team to locate geography, key ecological features and conditions, settlements and facilities, where **encounters** take place, clues to the environmental mystery, and other information about the ecoregion. Vanguardians usually access maps using the built-in GPS mapping features found in comms in order to carry out mapping while on Missions.

When your Vanguardian embarks on a new Adventure, your GM can provide players access to a viewable or printable digital map that you can use to explore the ecoregion where your Vanguardian Mission is taking place. On the map, you can mark locations your Vanguardians visit, sites they explore, and places that hold clues to solving the environmental mystery. You can use the map to write down where your Vanguardians have encounters and any other relevant notes. You can also view the Adventure Story Map using the EarthQuest App.

Occasionally, you may want to make a more detailed map of a facility or location, and you can use a piece of graph paper or electronic graph paper to draw these maps.

Using the EarthQuest App with Adventure Story Map

EarthQuest may be played using only the printed materials (the two rulebooks, the Adventure booklet, Vanguardian Folders and gamesheets) along with pencils and dice. However, gameplay is significantly enhanced and much more fun when you use the **EarthQuest App** and the digital multimedia Adventure Story Map on your mobile devices. The EarthQuest App provides you with access to electronic versions of all game materials and the **Adventure Story Map**. The Story Map is a digital map with the locations of all scenarios of the Adventure. The GM controls which scenarios are available to you throughout the Adventure, and you use your own mobile device to access the player view of the Adventure Story Map. Selecting the map marker for a scenario opens up a multimedia experience for that particular scenario. This may include sound clips, video clips, pictures, 3D models, hyperlinks and text.

To use the EarthQuest App for gameplay, your GM can provide you with a hyperlink. You can access the features in the EarthQuest App using your digital device. Once an account is created for the EarthQuest App, you will be able to access the Story Map and electronic versions of EarthQuest materials.

During the **gameplay session**, you use the Adventure Story Map as the primary way to experience and explore each of the scenarios included in the Adventure. As the GM makes each scenario available, you can freely access and explore all of the multimedia for each of the scenarios available.

EarthQuest uses crowdsourcing by players to create new digital media, especially by creating AReggs, and makes this available to all other players as supplements to EarthQuest Adventures. Many of the EarthQuest App's multimedia experiences are created by other EarthQuest players, and you can do this, too. You can create your own images, video clips, graphics, 3D objects and other digital multimedia and share them through the EarthQuest App. These can include photos and video clips of your Ancestor Accomplishments that you can also post to social media using the hashtag **#EarthQuestGame**.

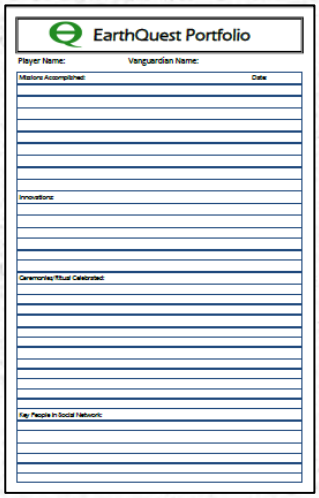
Using Gamesheets

You and your GM may choose to use one or more of the several EarthQuest gamesheets, with an optional gamesheet if the Wisdom Path is used. You use gamesheets to record and view information as you play EarthQuest. You can use paper versions or fillable and printable electronic versions of gamesheets. For paper versions, using a pencil allows you to add notes that can be erased and rewritten. The Vanguardian Folder is the primary gamesheet players use in EarthQuest, and the guidelines for filling it out are included at the beginning of *Section II – Getting Started.*

Copies of all EarthQuest gamesheets are included in the Appendix, and downloadable digital versions of gamesheets are available through the EarthQuest App. Gamesheets can be printed on blank recycled paper or filled out electronically. Some gamesheets can be used collaboratively in real-time to facilitate playing remotely.

Gamesheets are either half-size (5.5" x 8.5") or full-size (letter-size 8.5" x 11"). The half-size supplemental gamesheets fit into your Vanguardian Folder and are used once you fill up that section of the Portfolio on your Vanguardian Folder. You use the full-size gamesheets as standalone gamesheets.

EQ Portfolio Gamesheet

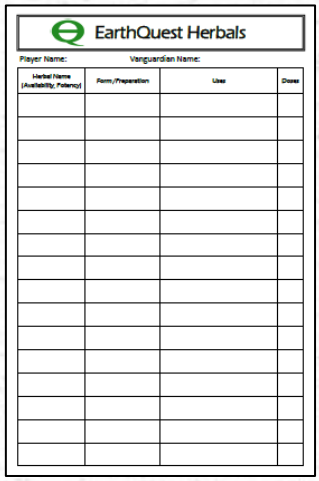

EarthQuest Portfolio

Player Name: Vanguardian Name:

Missions Accomplished:	Date:
Innovations:	
Ceremonies/Ritual Celebrated:	
Key People in Social Network:	

The Portfolio Gamesheet is a supplement to the Vanguardian Folder, and you can use this for keeping track of any successful Missions, innovations, key people in your Vanguardian's social network, ceremonies and rituals performed, and Ancestor Accomplishments.

EQ Herbals Gamesheet

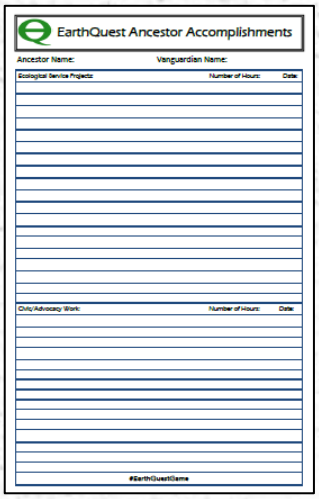

EarthQuest Herbals

Player Name: Vanguardian Name:

Herbal Name (Availability, Potency)	Form/Preparation	Uses	Doses

The Herbals Gamesheet is a supplement to the Vanguardian Folder, and you can use this to write down information about Herbals your Vanguardian has acquired.

EQ Ancestor Accomplishments Gamesheet


EarthQuest Ancestor Accomplishments

Ancestor Name: Vanguardian Name:

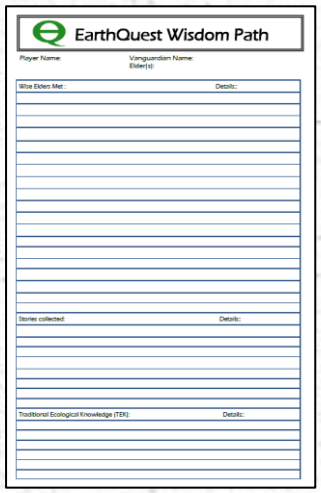
Ecological Service Projects:	Number of Hours:	Date:

Civic/Advocacy Work:	Number of Hours:	Date:

#EarthQuestGame

The Ancestor Accomplishments Gamesheet is a supplement to the Vanguardian Folder, and you can use this to write down all of your own sustainability-related service projects and related activities you accomplish outside EarthQuest gameplay.

EQ Wisdom Path Gamesheet


EarthQuest Wisdom Path

Player Name: Vanguardian Name:
Elder(s):

Wise Elders Met :	Details:

Stories collected:	Details:

Traditional Ecological Knowledge (TEK):	Details:

The optional Wisdom Path Gamesheet is a supplement to the Vanguardian Folder, and you can use this to write down all of your Vanguardian's growth experiences while on the Wisdom Path.

EQ Player Tips Gamesheet

EarthQuest Player Tips

Vanguardian Code

We blend science and wisdom to weave the New Story in our quest to restore right relationships among people and the earth. This is our EarthQuest.

- We maintain right-relationships among all people and all other living and nonliving members of the earth.
- We promote ecological sustainability to protect the wellbeing of current and future generations.
- We offer reverence for all cultures and generations, which carry insights, knowledge and wisdom necessary for thriving and survival.
- We support sustainable simple living to live well and be content.
- We uphold nonviolence, peacemaking and cooperation.
- We promote healing in mind, body, spirit and relationships wherever we are.
- We commit to lifelong learning and the pursuit of knowledge and wisdom.
- We are committed to servant leadership and right use of authority and resources.

Helpful player strategies for coordinating work as a team

1. To learn EarthQuest, each player can become an "expert" in one component: Attributes, Abilities, Skills, Herbals, Gadgets, etc.
2. Everyone skims through the Vanguardian Brief, but each player agrees to focus on a range of pages to read more in-depth.
3. To accomplish the Mission's tasks, players take on a major task and/or fill out a gamesheet:

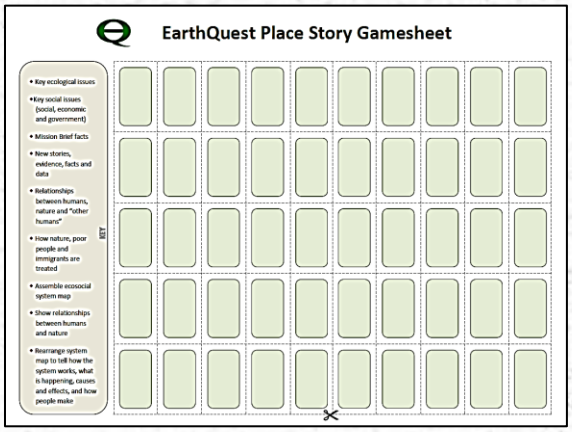
- Take notes
- Lead the mapping
- Assemble the Place Story
- Mobilize and engage the public
- Look up info on the legacy internet
- Assemble environmental mystery clues
- Visit settlements for best practices
- Find web hubs and ARoggi
- Reach out to key people and Elders
- Request resources
- Draft a CARAT plan
- Draft an ecological restoration plan

What Vanguardians can do during a Mission:

- Work as a team and use your Vanguardian attributes, abilities, skills and training to help people and the environment
- Boot up old web hubs to provide communities with access to the legacy internet
- Look for and decipher hidden ARoggi
- Collect information and assemble a Place Story
- Assemble clues to solve an environmental mystery
- Meet with key people in the community: have them share their personal stories of transition, then add them to your Vanguardian's social network of friends and allies
- Travel to and explore ecoregional settlements and identify their best practices
- Find legacy environmental problems and test for environmental contamination
- Research the historical roots of environmental problems with the legacy internet
- Mobilize the community or volunteers to get involved in civic activities
- Persuade a key person to perform an important action
- Present a persuasive argument to change public opinion
- Influence decision making of politicians and other leaders
- Carry out espionage to investigate black market activities that harm the local economy
- Promote justice by apprehending and interrogating criminals and gangsters
- Defend poor and marginalized people and families facing harms and threats
- Heal the wounded and sick
- Help track down needed Gear, Gadgets, Herbals, equipment and supplies in the community
- Use, acquire or make new high tech Gadgets
- Find and train a companion animal
- Neutralize drones and bots under the control of the Other Forces
- Respond to climate change-related disasters
- Mediate disputes and conflicts using peacemaking and conflict resolution skills
- Participate in community celebrations or perform a Vanguardian ceremonial dance or ritual
- Survive in remote wilderness areas and adapt by living off the land
- Help solve simple and complex community problems
- Come up with new innovations to solve problems
- Plan and implement ecological restoration projects
- Create a strategy for helping the community cut carbon emissions or adapt to climate disruption
- Create a plan for transitioning the community to sustainability and improve its SUscore
- Present a final report of findings and recommendations to community leaders and to Vanguardian HQ
- Meet Wise Elders and gain wisdom on the Wisdom Path
- Set and carry out goals for personal growth, including improving SUscores
- Carry out an unlimited number of other creative options

The Player Tips Gamesheet is double-sided, so that when you print it on both sides, you get two copies, with one copy to share. The Player Tips Gamesheet fits inside the Vanguardian Folder, and although there is nothing to write down, it provides a handy reference of the Vanguardian Code—which must be upheld throughout every Mission—and a list of some of the many things you can do during gameplay and your Vanguardian team can do on the Mission.

EQ Place Story Gamesheet


EarthQuest Place Story Gamesheet

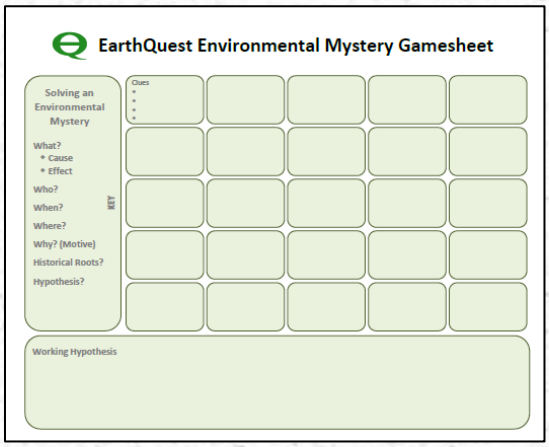
- Key ecological issues
- Key social issues (social, economic and government)
- Mission Brief facts
- New stories, evidence, facts and data
- Relationships between humans, nature and "other humans"
- How nature, poor people and immigrants are treated
- Assemble ecosocial system map
- Show relationships between humans and nature
- Rearrange system map to tell how the system works, what is happening, causes and effects, and how people make

The Place Story Gamesheet is for collecting information and creating a map or diagram of the ecosocial system of the communities your Vanguardian explores while on a Mission. You begin by writing down the relevant facts from the

Vanguardian Mission Brief, and then listen carefully and make observations in order to add to the place story. During the Adventure, the GM will then use a series of scenarios to arrange for Vanguardians to meet with key people and visit places to assemble facts and stories, collect additional evidence, and create a system map to describe the ecosocial system, how it works, and the causes and effects.

Conducting a Place Story: Use the Place Story Gamesheet to write down information that describes the ecosocial system, including what is happening, what are the effects and impacts, and who is involved. When you are finished, you can cut out the pieces of information from the Place Story Gamesheet and create a system map by reassembling the pieces of information into an arrangement that makes more sense to your team. You can draw arrows in between your pieces to show how everything is interconnected, which parts influence one another, and/or some of the cause and effect relationships. This newly rearranged system map diagram becomes your place story. Vanguardians report back to Vanguardian HQ with the findings from the Place Story during the briefing.

EQ Environmental Mystery Gamesheet



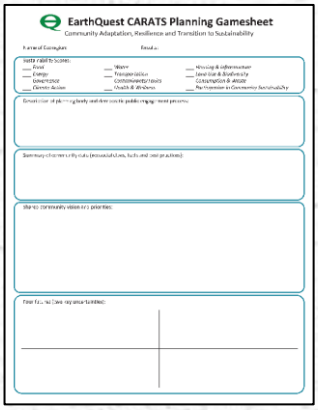
Players can use the Environmental Mystery Gamesheet for carrying out an environmental investigation and recording clues.

Conducting and Environmental Investigation: Investigating environmental mysteries to uncover what is happening and why is always part of your Vanguardian's Mission. Your Vanguardian team will have to investigate rumors and unconfirmed reports of pollution, contamination or ecological degradation and determine the sources of the problem. Your Vanguardians will follow rumors, assemble clues, collect evidence, create a system map to explain causes and effects, and solve the environmental mystery. This information will be essential for completing any ecological restoration strategy. Your Vanguardians report back to Vanguardian HQ

on the status of their investigation during the briefing.

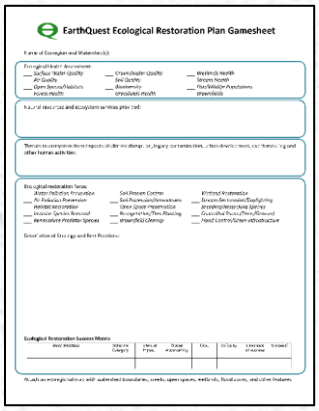
Researching the Historical Roots of Legacy Environmental Problems: Your Vanguardian can do research to understand the historical roots of environmental problems. Usually, Vanguardians have their Tchackers do at least some of this. Your Vanguardian uses this research to solve an environmental mystery or simply to learn about legacy environmental issues, and then shares these findings. If a local web hub has been rebooted, there may be a hidden ARegg stored within that can provide important information about legacy environmental problems and potential solutions.

EQ Community Adaptation, Resilience and Transition (CARATS) Planning Gamesheet


EarthQuest CARATS Planning Gamesheet
Community Adaptation, Resilience and Transition to Sustainability

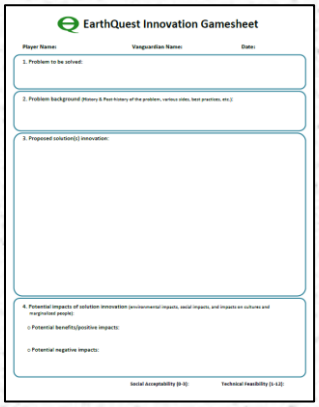
The Community Adaptation, Resilience and Transition Planning Gamesheet—or simply the **CARATS** Planning Gamesheet—is used by your Vanguardian team to help the community solve some of its highest priority sustainability problems, greenhouse gas emissions reductions, sequestering GHG emissions out of the atmosphere, and climate change adaptation and resilience challenges by filling out the information together on the gamesheet. It is presumed that your Vanguardian team is working closely with the local community members and leaders, and by taking action in response to this planning, the community can improve its SUscore.

EQ Ecological Restoration Plan Gamesheet


EarthQuest Ecological Restoration Plan Gamesheet

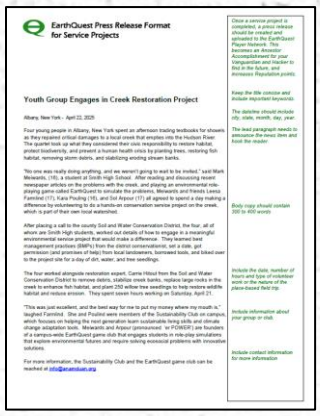
The Ecological Restoration Plan Gamesheet is used by your Vanguardian team to help the community address some of its highest priority environmental conservation problems by restoring wildlife habitats and other parts of the community's watershed ecosystem. This can build ecological resilience and help nature to adapt to impacts of climate disruption. By taking action in response to this planning, the community can improve its SUscore.

EQ Innovation Gamesheet


EarthQuest Innovation Gamesheet

The Innovation Gamesheet can be used to come up with a very creative and innovative solution to some problem. If an innovative new Gadget is being constructed, the GM should require the player to draw a design and describe the details, including functions, expense and input from other technology consultants, using the Innovation Gamesheet. (See Innovations.)

EQ Press Release Gamesheet


EarthQuest Press Release Format
for Service Projects

Once a service project is complete, a press release should be created and uploaded to the EarthQuest Player Network. This becomes an Ancestor Accomplishment for your Vanguardian and Hacker to find in the future, and increases Reputation points.

Youth Group Engages in Creek Restoration Project

Keep the title concise and include important keywords.

Albany, New York - April 22, 2025

The dateline should include city, state, month, day, year.

Four young people in Albany, New York spent an afternoon trading textbooks for shovels as they repaired critical damages to a local creek that empties into the Hudson River. The quartet took up what they considered their civic responsibility to restore habitat, protect biodiversity, and prevent a human health crisis by planting trees, restoring fish habitat, removing storm debris, and stabilizing eroding stream banks.

"No one was really doing anything, and we weren't going to wait to be invited," said Mark Melwards, (18), a student at Smith High School. After reading and discussing recent newspaper articles on the problems with the creek, and playing an environmental role-playing game called EarthQuest to simulate the problems, Melwards and friends Leesa Farmlind (17), Kara Peading (16), and Sol Aspour (17) all agreed to spend a day making a difference by volunteering to do a hands-on conservation service project on the creek, which is part of their own local watershed.

The lead paragraph needs to announce the news item and hook the reader.

After placing a call to the county Soil and Water Conservation District, the four, all of whom are Smith High students, worked out details of how to engage in a meaningful environmental service project that would make a difference. They learned best management practices (BMPs) from the district conservationist, set a date, got permission (and promises of help) from local landowners, borrowed tools, and hiked over to the project site for a day of dirt, water, and tree seedlings.

Body copy should contain 300 to 400 words.

The four worked alongside restoration expert, Gene Hilout from the Soil and Water Conservation District to remove debris, stabilize creek banks, replace large rocks in the creek to enhance fish habitat, and plant 250 willow tree seedlings to help restore wildlife habitat and reduce erosion. They spent seven hours working on Saturday, April 21.

Include the date, number of hours and type of volunteer work or the nature of the place-based field trip.

"This was just excellent, and the best way for me to put my money where my mouth is," laughed Farmlind. She and Poulsel were members of the Sustainability Club on campus which focuses on helping the next generation learn sustainable living skills and climate change adaptation skills. Melwards and Aspour (pronounced: A-POWER) are founders of a campus-wide EarthQuest game club that engages students in role-play simulations that explore environmental futures and require solving ecosocial problems with innovative solutions.

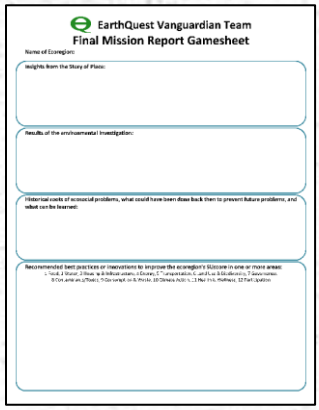
Include information about your group or club.

For more information, the Sustainability Club and the EarthQuest game club can be reached at info@anandsun.org

Include contact information for more information

The Press Release Gamesheet is used as a reference sheet on how you could write up an engaging description and story on the sustainability-related service projects and related activities you accomplish outside EarthQuest gameplay. The Press Release Gamesheet can include any pictures you take during the activity, and once you complete your press release, this can be what you include in your posts to social media using the hashtag **#EarthQuestGame**. Your Vanguardian and your Tchackers can then find this press release information by researching historical social media records on the legacy Internet. Once you share your Press Release with your GM and your EarthQuest friends, your Vanguardian will earn Reputation Points for having an Ancestor (you) whose sustainable living activities and service were publicized to the world.

EQ Vanguardian Team Final Mission Report Gamesheet


EarthQuest Vanguardian Team
Final Mission Report Gamesheet

Name of Ecoregion:

Insights from the Story of Place:

Results of the environmental investigation:

Historical costs of ecosocial problems, what could have been done back then to prevent future problems, and what can be learned:

Recommended best practices or innovations to improve the ecoregion's Biome in one or more areas:
1. Food, 2. Water, 3. Energy, 4. Artificial Intelligence, 5. Energy, 6. Transportation, 7. and Land, 8. Biodiversity, 9. Governance, 10. Conservation and Protection, 11. Oversight and Monitoring, 12. Climate Action, 13. Peace and Harmony, 14. Partnerships

The Vanguardian Team Final Mission Report is required by Vanguardian Headquarters of every team sent on a Mission. Once your team has completed the place story, solved the environmental mystery, and helped the community with planning, you will work with the other players to fill out this information together and deliver this summary report to Vanguardian HQ. Completing this *Vanguardian Team Final Mission Report* will earn your Vanguardians Experience Points, and can also be shared with your EarthQuest peers in the EarthQuest App to let them know about your progress and accomplishments—and possibly some of the best practices you used or new innovations you developed that they can take back to their own Vanguardian teams to use on their next Vanguardian Mission.

Working with Tchackers (Protégées)

All Vanguardians are responsible for developing the next generation of Vanguardian candidates. Tchackers are Vanguardian Postulants (Vanguardians in training) enrolled in training and development through their Vanguardian Academies. Vanguardians are assigned at least one teenaged protégée, informally called a Tchacker. Vanguardians are known for assigning nicknames to their protégées, or just calling them "Tchacker."

Tchackers have several important jobs to do while finishing up their studies and training at the Academy, and the first real responsibilities Tchackers have is to help reassemble the legacy Internet. They do this by searching for and locating rumored and probable locations of dismantled web hubs, helping Vanguardians to seek them out and boot them back up, and then working remotely to get their databases back online in order to provide

free universal access to legacy Internet information. Ever since the legacy Internet was systematically dismantled to shift users to the Fly, the global youth leader movement and now the Vanguardians have been in a constant battle to restore, protect and expand universal free access to the legacy Internet.

Tchackers also work with Vanguardians to run the cloud-based EarthQuest Simulator (EQSim), which connects people in ecoregions throughout the Unum League, in Rose Communities, and even throughout the world via secure channels of the legacy Internet.

There are forces that still actively thwart free access to the legacy Internet and the EarthQuest Simulator, so Tchackers and Vanguardians are always vigilant of attempts to breach their systems. Identity theft has become so commonplace, the Vanguardians must be in constant vigilance to protect their true identities and personal information.

Tchackers also use the legacy Internet to conduct web-based Ancestor Accomplishment research on behalf of their Vanguardian mentor to help improve the Vanguardian's social status (and Influence score). As Vanguardians work to bring new web hubs back online, Tchackers search recovered databases to look for social media posts, newspaper articles, press releases, newsletters, reports, and other sources of information that provide evidence that the Vanguardian's Ancestors (you!) were engaged in sustainable living, environmental protection work, and volunteer projects, or were otherwise part of the Transition to Sustainability and climate change action and resilience movement back in the early 21st century before such activities and lifestyles were later adopted by everyone in every community. Tchackers also search for **AReggs** in recently booted web hubs.

Vanguardians keep in constant contact with their Tchackers while the Vanguardian is in the field on assignment, usually through comms. Teams of Tchackers participate in the regular debriefings with their team of Vanguardian mentors, with the debriefings serving as informal question and

"Scrub 'n Frag"

Another important Tchacker job is to use "Scrub 'n Frag" techniques to protect interception of transmissions with their Vanguardians who are in the field on a Mission, especially when Flybots and Flydrones are present. Tchackers and Vanguardians want to prevent others from discovering their true identities and avoid identity theft. Tchackers must "Scrub" (remove) or "Frag" (fragment) all data transmissions. All transmissions use encrypted cybersecurity protocols, and messages are delivered by creatively designed avatars using only code names. To make this tedious work more fun, Tchackers will often disrupt targeted big data-siphoning transmissions with "Scrub 'n Frag" and insert nonsense data or humorous media, like nursery rhymes with the faces and voices of old Hollywood stars dubbed in. Most Vanguardians enjoy receiving infamously humorous transmissions from their Tchackers.

answer (Q & A) sessions. Tchackers have also proved essential to the success of Vanguardian Missions by finding old maps, legacy environmental information, and other research and information relevant to a Mission. At the request of a Vanguardian, a Tchacker can also access the Vanguardian's resource networks (based on the Resources score) to secure critical technology, equipment, Gear, supplies and Gadgets, or serve as the go between to pull strings with the Vanguardian's superiors, networks or other informal channels to make things happen and get things done (based on the Influence score).

Working with Vanguardian Mentors

Mentors can be a source of advice or insight to your Vanguardian while you are on a Mission and will focus on helping the Vanguardian to achieve success. Make use of them. When your Vanguardian team provides Mission update reports during regular briefings with Vanguardian Headquarters, your team's mentors also participate on the conference calls.

Working with Elders

If your Vanguardians are walking the Wisdom Path, they will find that local Elders can be a source of Traditional Ecological Knowledge (TEK), Herbals, cultural insights, advice or wisdom. Local Elders can also help your Vanguardian to get back on track if your Vanguardian somehow violates the Vanguardian Code or needs to restore Consciousness Points. A Vanguardian advancing to the next level of the Wisdom Path will first need to meet with their Elder and participate in a rite of passage ceremony or ritual. The Elder or circle of Elders participates along with the team of Tchackers in the **post-play debriefing** at the end of each gameplay session. Your Vanguardian can often locate other Elders by using their Consciousness attribute.

If you really want to make a friend, go to someone's house and eat with [them]... the people who give you their food give you their heart.
Cesar Chavez

Booting Up Web Hubs

Vanguardians are always in the process of restoring and securing the free legacy Internet by locating web hub facilities, restoring them, installing renewable energy stations to power them, and then providing security and support for them to ensure they remain functional. **Booting up** or rebooting web hubs is especially important during Missions, since the legacy Internet is the Vanguardians' (and local ecoregional communities') main source of information, communication, and spreading of best practices. Rebooted web hubs may also contain hidden AReggs with important information about legacy environmental issues and clues to solving environmental mysteries. Rebooting web hubs may often be thwarted by adversaries of the Vanguardians who do not want to see legacy web hubs coming back online.

Seeking AReggs

AReggs are augmented reality "Easter eggs" created by sustainability activists—Ancestors and Founders—from the early 21st century and secretly stored somewhere in the legacy Internet. They are like digital media time capsules sent from the Ancestors and Founders to the Vanguardians' generation. Ancestors and Founders who created the AReggs provided clues to environmental mysteries so that future generations would find them and be able to understand and solve legacy

environmental problems. AReggs contain visual nuggets with digital multimedia, have multiple parts, are usually obscure, and often are puzzles that need to be solved. When solved, they provide critical information.

Some Vanguardians are on a quest to collect AReggs everywhere that a new web hub is rebooted. They seek AReggs because they also usually include biographical information of Ancestors and Founders and personal stories about their emotional and political struggles of the time. Vanguardians use AReggs to piece together personal information about their Ancestors and heroes and the learn about the incredible secret work they were doing to save the planet for their children's future. Only Vanguardians know about and pursue AReggs.

Encounters

When your Vanguardian encounters others (humans, **bots**, **drones** or animals), your Vanguardian may either wait and do nothing, try to avoid engagement, or initiate an encounter sequence. An encounter is divided up into a series of exchanges. If there is more than one Vanguardian and more than one **assailant** in an encounter, all Vanguardians should initiate first, and then all of the assailants should respond.

Health Points, Injuries, and Recovery

While Vanguardians focus on eating the right foods, maintaining the proper array of healthy gut bacteria to boost their immune system, and staying physically fit to maximize their natural wellness, your Vanguardian is always being exposed to harm and injury in the field. When your Vanguardian is injured or becomes ill, their Health Points are reduced. Health Points are the number of "life" points your Vanguardian has. At five Health Points or below, your Vanguardian will fall unconscious. At zero Health Points or below, your Vanguardian is considered physically dead.

A Vanguardian first uses their Healing skill to restore some initial Health Points and get the body's natural healing process started. Another Vanguardian may also assist by adding their Healing skill. Once stabilized, your Vanguardian then rests and attempts to recover, and the remaining Health Points are restored over the next several days based on your Vanguardian's Recovery rate. Note that the number of Health Points your Vanguardian recovers may change according to the injury and based on the number of Health Points lost.

Using Attributes

Vanguardians may use their attributes to accomplish tasks. A phenomenon—something unexpected, rare, special or unusual—may happen when a Vanguardian uses an attribute. You use 12-sided dice to do a **success roll** and determine if your attribute use is successful.

Using Knowledge

There are three types of knowledge: **common knowledge**, **uncommon knowledge** and **obscure knowledge**. Success may be modified by the type of knowledge and your Vanguardian's educational expertise, cultural expertise, or skill knowledge.

Using Persuasion

The Persuasion attribute is used in convincing an individual or small group to do something, especially divulging information and rumors; sharing a personal story (and then adding a person to a Vanguardian's social network), conducting focus groups to get information; engaging in peaceful communication and conflict resolution; using a persuasive argument to change the mind and heart of someone; and interrogation. Using Persuasion assumes that the other person or group

is known to the Vanguardian, whether for a few minutes or for quite some time. Success in using Persuasion can be increased by listening to a person's or small group's story; appealing to their values, beliefs, ideas and emotions; and speaking the same language with cultural competence. Using Persuasion with people from a culture or language in which your Vanguardian has no competency is much more difficult.

Sharing a Personal Story: Enticing a significant person to tell their personal story (using a **one-on-one**) is often the key to increased likelihood in subsequent Persuasion attempts. Sharing a personal story is also the way for your Vanguardian to win supporters, allies, and friends, and to build a social network. Each Mission offers opportunities to use Persuasion to add to your Vanguardian's social network and ultimately increase your Vanguardian's Influence attribute, too. Conducting focus groups has the similar effect, but with small groups.

Persuasive Argument*:* A persuasive argument is used when another person or group is not yet supportive of your Vanguardian, and your Vanguardian must persuade them. Your Vanguardian will need to craft a persuasive talk to persuade a person or group to change their minds. After your Vanguardian presents a persuasive argument, a Vanguardian's Persuasion attribute score determines the success rate. Persuading an audience from a culture or language in which your Vanguardian has no competency is much more difficult.

Conflict Resolution*:* If conflict arises, Vanguardians are expected to initiate an immediate conflict resolution process. After your Vanguardian applies the following nine-step conflict resolution process, a Vanguardian's Persuasion attribute score determines the success rate. If the rift is too deep, initiating peaceful communication may be needed first. Resolving conflicts between people from a culture or language in which your Vanguardian has no competency is much more difficult. These are the nine steps to conflict resolution that Vanguardians live by:

Average people and the average community can change the world. You can do it just based on common sense, determination, persistence and patience.
Lois Gibbs

1. Create a positive, effective environment.

- Meet at a time that is best for both parties, when no one is feeling pressured.
- Meet in a neutral location where both parties can feel comfortable.
- Conflict resolution is based on building relationships and includes trust and confidentiality.
- Stay positive and be open and truthful.

2. Clarify how you both perceive the situation and define the conflict.

- Listen carefully.
- Be clear about what values are involved.
- Be clear about how you perceive the other party and clear up any misconceptions you may have.
- What is causing the conflict?

3. Share each party's individual needs, but focus on the needs shared by both parties.

- Recognize the other party's needs and values.

- You are both in this together, and you will need to work together to solve your shared problem.
- Resolving your conflict and solving your problem benefits both of you.
- The parties involved need each other to find the best solution.

4. Look at issues from the past, but focus on possible solutions of the future.

- Try to understand what happened in the past, and do not repeat the same mistakes again.
- Be forgiving when appropriate.

5. Come up with many options for solving the problem.

6. Develop consequences of each option.

7. Develop a plan that is beneficial to both parties.

- Include who will do what and when.

8. Carry out the plan.

9. Evaluate the process and determine the success of the solution(s).

- Celebrate your mutual successes.

Interrogation*:* Interrogation uses psychological techniques to get a person (often a captive) to reveal secret information. If a person is withholding information, Vanguardians are trained to use psychological techniques or **nudges** to get the person to reveal the information and divulge secrets. Vanguardians hold themselves to high ethical standards in using non-violent interrogation techniques in order to maintain personal integrity and to protect the reputation of all Vanguardians in the eyes of the public. Interrogation techniques usually apply when a person has been captured and being physically restrained or detained in a facility by law enforcement authorities. After your Vanguardian applies interrogation techniques, a Vanguardian's Persuasion attribute score determines the success rate. Interrogation of a person from a culture or language in which your Vanguardian has no competency is much more difficult.

For those who have experienced the joy of being alone with nature there is really little need for me to say much more; for those who have not, no words of mine can ever describe the powerful, almost mystical knowledge of beauty and eternity that come, suddenly, and all unexpected.
Jane Goodall

Using Influence

The Influence attribute is used to call upon people in power and authority (individuals and small groups who are key people in the Vanguardian's social network) to make things happen, like sway decisions, stop actions, apply pressure on leaders, or shift economic investments usually as a personal favor.

Using Sensing

The Sensing attribute is used to see, hear, smell, taste and feel (tactilely) elements of the biophysical world of people and ecosystems.

Using Physique

The Physique attribute is used to lift, carry, wield, or move heavy objects; run or dart quickly, dodge, avoid, or balance on an object based on reflexes, dexterity and coordination; and withstand ongoing internal or external physical pain, stress or pressure.

Using Wellness

The Wellness attribute is used to defend against the onset of illness, infection, poison, contamination or pollutant exposure.

Using Intelligence

The Intelligence attribute is used to determine a Vanguardian's ability to understand or analyze complex information, learn new knowledge, understand how a Gadget or piece of technology works, and understand how a particular social system works. The complexity of the Gadget or technology, the Influence attribute score, and the Electronics skill level may influence the success rate of using the Intelligence attribute.

Using Intuition

The Intuition attribute is used to determine your Vanguardian's ability to use their “sixth sense,” gut feelings or hunches to quickly identify possible patterns, danger, and the big picture of what is happening in the biophysical world of people and ecosystems.

Using Consciousness

The Consciousness attribute is used to respond to negative, fearful or crisis situations with maturity, wisdom and love or to sense another person’s deep longings, passions and regrets hidden deep within the heart. Using Consciousness is rooted in your Vanguardian's mindfulness training and practices, including meditation or contemplative prayer. All Vanguardians are trained in mindfulness practices, and have distinct terms and forms based on a Vanguardian's spiritual beliefs and background. It is usually through the use of a Vanguardian's Consciousness attribute that Wise Elders can be found or identified as such. If your Vanguardian is on the Wisdom Path, they may also be able to have a Second Chance wisdom response (a "do over") of an initial knee jerk response that is inappropriate.

Making Things Happen and Getting Whatever is Needed

Your Vanguardian has several ways to make things happen and get whatever is needed to do the job while on a Mission. First, your Vanguardian can make use of their Persuasion to request a favor, change the mind of someone (or assailant in an encounter) or resolve a conflict. This is good when a person or small group of people know your Vanguardian personally, but may or may not support them.

Second, your Vanguardian can make use of their Influence to get people in power to pull strings and deliver a favorable outcome or decision. This is good when your Vanguardian calls upon their social network of powerful people or small groups of decision makers who know your Vanguardian personally and support them.

Third, your Vanguardian can make use of their Reputation to recruit, mobilize and engage the public. This is good with large groups, crowds or communities when the people do not know your Vanguardian personally, but know your Vanguardian’s reputation and public image and want to be part of their efforts.

Fourth, your Vanguardian can make use of their Resources to access networks to get needed funding, technology and equipment. This is good when your Vanguardian calls upon a network of connected people who do not know your Vanguardian personally, but know your

Vanguardian's reputation and public image. and want to support the Vanguardians.

Using Reputation

The Reputation ability is used to determine your Vanguardian's success in recruiting, engaging, and mobilizing large groups, crowds, or entire communities. This assumes that your Vanguardian's reputation is known by at least some people who perceive your Vanguardian in a positive light, and that those people will quickly spread positive rumors through the grapevine until there is a general shared image of the Vanguardian. Reputation may be influenced by the Wisdom Path.

Using Resources

Your Vanguardian's Resources ability is used to determine the success in securing needed financial and material resources (usually technology or equipment) while on a Mission. Your Vanguardian makes a specific resources request to your Vanguardian's Tchacker, who then seeks out willing donors within the network of Vanguardians, Alliances, alma mater Academy, and other resource networks. If your Vanguardian is successful in securing resources, it still may take an hour to a few days to be delivered.

Using Skills

When using skills, the basic success roll equals the skill level plus an attribute modifier linked to the skill. Add the attribute modifier to the skill level and write the skill score on your Vanguardian Folder. The following describes how to use skills.

Using Wilderness Survival skills allow your Vanguardian to survive in all seasons, climates, and ecosystems (desert, polar, ocean, tropical island, forest, jungle, grasslands, mountain, subterranean caverns, and settlements) without the aid of advanced technology. The skill includes the ability to survive in extreme events and disasters, including storms and hurricanes, blizzards, floods, avalanches, wildfires, tornados, earthquakes, and war zones. In these extreme circumstances, a Vanguardian has the ability to locate, collect and purify drinking water; locate, harvest and cook basic wild foods, create primitive clothing from natural materials, and construct a primitive temporary shelter. Survival skills such as fire building also falls into this category. A Vanguardian's Sensing, Physique, Intuition, Intelligence and Knowledge attributes may enhance the Wilderness Survival skill.

Using Herbal Use skill allows your Vanguardian to identify medicinal plants and fungi, and their properties and potential uses for humans and animals. The skill also includes the harvesting, storage, preparation and application of herbal plants and fungi for medicinal or other use in humans and animals. When used for healing, Herbal Use skill enhances the Healing skill. A Vanguardian's Knowledge attribute may enhance the Herbal Use skill. (See the full description under Using Herbals.)

Using Healing is your Vanguardian's skill in restoring health to all living things, including animals, himself or herself, other Vanguardians, and other humans. Healing can be physical, emotional, and psychological. It includes the ability to diagnose physical and mental illness, injuries and disease, and is based on an understanding of system interactions of physiology, biochemistry,

and emotional and mental health. All Vanguardians are trained in basic healing techniques. Healing can be used once per injury period and may be combined with daily Recovery rates and Herbal Use skill to expedite healing. Healing skill success rates may also be enhanced by skills in Herbal Use. A Vanguardian's Knowledge and Intuition attributes may also enhance this skill.

Using Navigation includes using stars, indicators in nature, landmarks, and maps to navigate and travel on land, water, and in the air. This includes reading and making maps. If a compass, digital map or GPS unit is used, this skill is significantly enhanced. A Vanguardian's Sensing and Knowledge attributes may enhance the Navigation skill.

Using Weather Prediction allows a Vanguardian to anticipate extremely local weather conditions for the upcoming three-hour period with high accuracy using only their senses and natural indicators from the local ecosystem and without the aid of satellite information. If a digital communication device is used to connect with weather and climate satellites providing generalized weather information for the ecoregion,

this skill is significantly enhanced. A Vanguardian's Sensing, Intuition and Knowledge attributes may enhance the Weather Prediction skill.

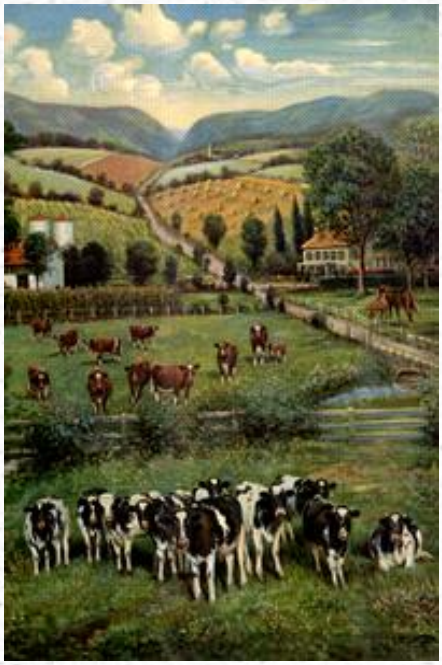
Using Plant Identification includes identifying and locating native and non-native terrestrial and aquatic plants, fungi and trees, especially for use as food, medicine, or other uses. A Vanguardian's Knowledge and Sensing attributes may enhance this skill.

Using Wildlife Identification includes identifying and locating terrestrial and aquatic wildlife species by sight, sound, behavior, scat, tracks, and habitat. A Vanguardian's Sensing, Knowledge, and Intuition attributes may enhance this skill.

Using Tracking includes identifying, finding and following the footprints, tracks, scat, fur or other evidence of single animals or herds and individual humans or groups in order to follow along and locate a target traveling on land. A Vanguardian's Sensing, Knowledge and Intuition attributes may enhance the Tracking skill.

Using Animal Husbandry includes identifying, raising, breeding and training domesticated livestock, poultry, horses, dogs, and other animals for food or for work. This includes sustainable silvopasture, and basic veterinary skills. Vanguardians have also been known to find stray or injured animals or wildlife, including dogs, cats, coyotes, wolves, falcons, and every kind of domesticated animal, and rehabilitate them and

then train them with specific skills like hunting, tracking, rescue, and other skills. A trained **companion animal** will then serve the Vanguardian faithfully, until its death or the death of the Vanguardian. A Vanguardian's Knowledge, Intuition and Consciousness attributes may enhance this skill.



Using Agriculture includes the ability to identify, plan, plant, grow and harvest food crops, trees, fungi and other plants on land. This includes skills in agroecology, agroforestry and urban gardening using sustainable, organic methods like permaculture and biodynamics. Soil remediation, fertilizer use, pest and disease control, watering and irrigation are part of this skill. A Vanguardian's Knowledge and Sensing attributes may enhance this skill.

Using Aquaculture includes the ability to identify, plan, stock, breed, and harvest fish, shellfish and aquatic vegetation using sustainable land-based ponds and tanks, and open-water operations in freshwater and marine waters. A Vanguardian's Knowledge and Sensing attributes may enhance this skill.

Using Textiles includes identifying, designing, making, fastening, sewing and repairing natural fiber textiles, cloth-based items and leather items, including clothing, footwear, sails, tents, bedding, rope, and similar items. If the Vanguardian has Energy Tech or Nanotech skills, these can be used to create or repair high-tech textiles. A Vanguardian's Knowledge and Sensing attributes may enhance this skill.

Using Woodcraft includes identifying, designing, making, and repairing of low-tech wooden items including staffs, utensils, wooden tools, bows and arrows, boxes, barrels, musical instruments, boats, carts, and similar items. Rustic items require the use of only basic tools, low-tech items require hand tools, and precision wooden items may require powered tools. If the Vanguardian has the appropriate Computer tech, Electronics, Biotech, Energy Tech, and/or Nanotech skills, they will be able to repair or create and embed high-tech Gadgets into a Vanguardian staff. A Vanguardian's Knowledge and Sensing attributes may enhance this skill.

Using Tool Making includes identifying, designing, making, and repairing low-tech tools, and includes metalsmithing skills and picking low-tech (non-electronic) locks. If the Vanguardian also has Computer Tech skills, they will also be able to

create tools and parts using a 3D digital printer. If the Vanguardian has the appropriate Computer Tech, Electronics, Biotech, and Nanotech, they will be able to repair or make high-tech Gadgets. A Vanguardian's Knowledge and Sensing attributes may enhance this skill.

Using Mechanics includes identifying, designing, engineering, analyzing, repairing, and constructing medium tech and high-tech mechanical constructs and machines, including equipment, motors, engines, pumps, presses, and other various powered and mechanical devices. A Vanguardian's Knowledge and Intelligence attributes may enhance this skill.

Using Construction includes identifying, designing, analyzing, repairing, rehabbing, and building houses, buildings and other structures and facilities, including installation and repair of the plumbing, heating, ventilation, and electrical systems. This includes identifying building materials, reading blueprints, demolishing and repurposing buildings, and rehabbing buildings for green conversion and sustainability. A Vanguardian's Knowledge and Intelligence attributes may enhance this skill.

Using Electronics skill allows your Vanguardian to identify, design, analyze, engineer, repair, and construct electronic devices, including alarm systems, satellites, computer hardware, comms, bots, and electronic Gadgets. A Vanguardian with Mechanical, Computer Tech and Aircraft skills in addition to Electronics skill will be able to work with drones. A Vanguardian's Knowledge and Intelligence attributes may enhance this skill.

Using Energy Tech skill allows your Vanguardian to identify, design, analyze, engineer, repair, and construct energy generation, transmission and storage devices, including electric, steam, hydraulic, solar, wind, biofuel, hydro, marine hydrokinetic, hydrogen fuel cell, and geothermal energy systems. This also includes decommissioning legacy energy systems like coal, oil, natural gas, and nuclear generators. This includes battery storage systems, biofuel production, and energy transmission systems via cables and pipelines. Computer Tech and Electronics, and Mechanical skills may enhance this skill, as may a Vanguardian's Knowledge and Intelligence attributes.

Using Biotech includes identifying, designing, analyzing, engineering, repairing, constructing and installing biotechnology materials and devices. A Vanguardian's Knowledge and Intelligence attributes may enhance this skill.

Using Computer Tech includes identifying, designing, analyzing, programming, debugging and hacking computer programs and systems. This often includes security systems, automated systems, web hubs and bot programming. A Vanguardian's Knowledge and Intelligence attributes may enhance this skill.

Using Nanotech includes locating, identifying, designing, analyzing, engineering, repairing, constructing and installing nanotechnology materials and devices. This will almost always require specialized high-tech electronic Gadgets, including a high-powered microscope, and the use of a high-tech nano lab. A Vanguardian's Knowledge and Intelligence attributes may enhance this skill.

Using Mercantile skill includes basic business management, entrepreneurship, marketing, trade and economic development skills. This includes the ability to identify, plan, analyze, develop, negotiate, implement, and reinvigorate a business, industry, trade relationship or sustainable local economy. This especially includes establishing local currencies, credit unions, cooperatives, and commons agreements for using or sustainably harvesting natural resources. Trade and market research, product development, and innovation are also part of this skill. A Vanguardian's Knowledge, Intelligence, Intuition, Persuasion, and Influence attributes may enhance this skill.

Using Martial Arts skill is a mixed method defensive Martial Arts skill used by a Vanguardian to defend himself or herself, teammates, or others against an assailant or group of assailants by avoiding, dodging or blocking an attack; disarming; taking down and disabling, restraining, immobilizing or binding (usually with the help of rope or pinning with large objects so the assailant cannot move); stunning (using pressure points to cause the assailant to pass out or become unconscious), or otherwise capturing the assailant(s). Vanguardians are peacemakers and use conflict resolution skills most of the time. Through persuasive verbal communication and application of conflict resolution procedures, most conflict or potential violence can be avoided. In the rare event that harmful conflict or life-threatening attack cannot be avoided, a Vanguardian may need to use defensive Martial Arts. Defensive Martial Arts can be used in close bodily contact range or at a distance involving use of projectiles. Vanguardians are especially effective when using their Vanguardian staff as an integral part of defensive Martial Arts, but if a staff is not available any other "stick" (walking stick, tree branch, tubing, pipe, ski pole, etc.) can be used. The Vanguardian staff or nearly any other handheld object can be used as a projectile (stone, brick, ball, icicle, shoe, etc.).

Vanguardians are trained in the use of defensive Martial Arts against up to four assailants effectively, but become less effective against larger numbers unless working with other Vanguardians. Vanguardians can increase their effectiveness in the use of defensive Martial Arts by leaping down or swinging toward the assailant and using surprise or coming from behind to catch the assailant off guard.

Note that Vanguardians are peacemakers and are held in high esteem by the public because of their nonviolent values, so they never use firearms unless for hunting. Even then, almost all Vanguardians avoid using firearms even for hunting in order to avoid even the appearance of misusing firearms or abusing power. Similarly, Vanguardians may use bows and knives for hunting and other utility purposes, but do not use them as weapons in conflicts with other people in order to avoid potential loss of the public trust. Some Vanguardians do carry a slingshot, bolo or boomerang for hunting or utility use, and then use them for projectiles during defensive conflict emergencies. Again, in most conflict situations that

require defensive Martial Arts, almost all Vanguardians simply rely on their staff and a makeshift projectile from the location as needed. When absolutely necessary, police, **marshals**, rangers or Troopers are called in to handle firearm conflicts or any heavier weaponry. A Vanguardian's Physique, Knowledge, Sensing and Intuition attributes may enhance the use of defensive Martial Arts skill. Acrobatics and Stealth skills may offer additional advantages when using the Martial Arts skill.

Using Acrobatics includes the ability of a Vanguardian to apply complicated, coordinated and risky maneuvers including climb, repel, jump, leap, pole vault, balance, dodge, tumble, dive, parachute, fall and land. The use of a Vanguardian's personal staff and rope may significantly enhance the Acrobatics skill. Other specialized Gear—like a parachute—may also be essential or helpful. A Vanguardian's Physique and Sensing may also enhance this skill.

Using Stealth includes the ability move silently, hide in shadows or behind cover, and remain still in order to remain undetected and unnoticed while escaping, infiltrating or taking advantage of the element of surprise. Stealth often includes the use of camouflage clothing and/or use of natural surroundings to offer camouflage. A Vanguardian's Physique and Intuition may also enhance this skill.

Using Disguise is the ability to use clothing, make up, wigs, accessories, physical stature change, voice imitations and accents to change a

The most alarming of all man's assaults upon the environment is the contamination of air, earth, rivers, and sea with dangerous and even lethal materials. This pollution is for the most part irrecoverable; the chain of evil it initiates not only in the world that must support life but in living tissues is for the most part irreversible. In this now universal contamination of the environment, chemicals are the sinister and little-recognized partners of radiation in changing the very nature of the world-the very nature of its life.
Rachel Carson

Vanguardian's personal appearance. A Vanguardian's Intelligence, Knowledge, Persuasion, and Intuition may also enhance this skill.

Using Ground Vehicle includes operating, piloting, maintaining and repairing various high-tech and low-tech vehicles that move along the ground. This includes piloting landrones. A Vanguardian's Knowledge, Sensing and Physique attributes may enhance this skill.

Using Watercraft includes operating, piloting, maintaining and repairing various boats, ships, rafts, and other high-tech and low-tech watercraft and marine vessels that move along the surface or below the surface of oceans, seas, rivers, lakes, and swamps. This includes piloting submarine and aquadrones. A Vanguardian's Knowledge, Sensing and Physique attributes may enhance this skill.

Using Aircraft includes operating, piloting, maintaining and repairing various high-tech and low-tech craft that fly or glide through the air. This includes piloting skydrones. A Vanguardian's Knowledge, Sensing and Physique attributes may enhance this skill.

Using Ecotesting includes identifying the type and concentration level of pollutants and hazardous and toxic substances in hazardous and toxic substances in water, air, soil, plant and animal biomass, buildings, and dumpsites. This usually requires the use of an ecoscanner or lab testing of samples collected in the field. A Vanguardian's Knowledge attribute may enhance this skill.

Using HazMat Handling includes identifying the presence of hazardous and toxic substances in water, air, soil, biomass, buildings, and dumpsites, and then extracting, neutralizing and storing the hazardous and toxic materials. A Vanguardian's Knowledge attribute may enhance this skill.

Using EcoRestoration includes applying conservation techniques and ecological restoration practices in order to improve and restore the ecological features, functions, processes, biodiversity and ecosystem services of a landscape or niche habitat area. This includes assessing, analyzing, designing, planning, and implementing applied techniques, like planting trees and other vegetation, reconstructing wetlands, restoring creeks, preventing pollutants, creating habitats, preventing soil erosion, restocking fish, birds and other wildlife, and removing synthetic debris and litter.

Using Herbals

Herbals are natural biological extracts or mixtures of extracts, usually derived from plant material and fungi that produce phytochemicals that have biochemical reactions in humans, animals or the environment. Most Herbals are used in herbal medicines for human or animal healing, treating diseases, or building up the body's natural immune system and digestive system to promote general wellness. Herbals may also be used to generate adverse bodily reactions, attract or repel insects, and produce other effects. Vanguardians make use of Herbals almost exclusively for their healing and beneficial effects.

Over time, herbal healers began to use the term “Herbals” instead of “herbs,” because they also make use of other natural extracts and substances like honey, bee pollen and beeswax, which are not actually "herbs." The more inclusive and comprehensive term, “Herbals,” stuck and has become the preferred term.

The alternative to Herbals, manufactured pharmaceuticals, takes a different approach to healing than naturopathic healing with Herbals. Both approaches are completely science based and

use research to guide their application. However, manufactured pharmaceuticals are almost always too costly and are rarely made available to people in the working class. Sales and marketing of synthetic pharmaceuticals by privately owned manufacturers targets mostly people with the significant economic resources to afford them.

Natural Herbals, however, are grown universally in every community and are widely distributed and traded among the working class, immigrant and ethnic refugee communities. Many communities even form cooperatives to grow the rarer Herbals and preserve those that are becoming extinct as a result of overharvesting, ecological contamination in soils, or climate disruption impacts that harm their normal habitat range. Growing Herbals also has many other ecological, economic and social benefits. For these reasons, Vanguardian training and practice makes use of natural Herbals almost exclusively, rather than relying on manufactured, synthetic pharmaceuticals.

Herbals are almost never bought and sold openly in shops. There is a tradition of giving herbals as gifts or providing them as needed without cost to people in need when available. There is not yet any formal system for government regulation or taxation of Herbals, so they are only part of the informal or gray market for the foreseeable future. The black market sets its own prices.

The standard Herbal medkit (AKA naturopathic medkit) issued to Vanguardians is designed to make use of Herbal medicines and remedies. The kit includes: mortar & pestle, glass vials with tops, funnel, herb pouches (tea bags), bulb syringe, eyedropper, spray vaporizer, bandages, cloths/bandanas, gauze strips, tape, cotton balls, cotton swabs, finger splints, spoon, tweezers, scissors, scalpel, needle & thread, Bunsen burner, steel boil cup, thermometer, beeswax, cocoa butter, glycerin, alcohol, hydrogen peroxide, and oils (pine oil, olive oil, almond oil, sesame oil, neem oil, and peppermint oil). The Herbal medkit will also hold a variety of Herbals. Other high-tech elements, like a microgrinder or essential oil microextractor, may also be included in a more advanced Herbal medkit. An Herbal medkit would need to be restocked regularly.

Herbals are derived from a variety of plant parts (flowers, leaves, stem, cloves, root, etc.), and are prepared in a variety of ways for internal and external applications. Herbals may be applied as liniments, lotions, creams, ointments, salves, eye drops, ear drops, nasal sprays, lozenges, gargles, inhalants (vapors), baths, cold tonics, hot teas, powders, plasters, pastes, compresses or poultices (herbals in a cloth soaked in hot water and applied to the skin while still hot). Every Herbal listing (see *Table B: Herbals and Characteristics* and *Table D: Uses of Herbals*) includes the primary name, availability, potency, form(s), preparation notes, uses, and other names.

Herbal Name: This is the most common name of the Herbal.

Availability: Herbal availability is classified as “common” (C), "rare" (R) or “extirpated" (X). Common Herbals could potentially be found almost anywhere in nature. Most common Herbals are also

available in nearly every urban and rural community from households with Herbal gardens. Herbals are grown extensively by local farmers, urban neighborhood communities, ethnic communities, immigrant communities, tribes, ecovillage communities, and **Freebie** communities. This makes many of the most frequently used Herbals commonly available simply by reaching out to local herbalists and herbal healers and asking for them or bartering for them. Many other common Herbals could potentially be found in special regions and places in nature, within their new growing ranges and seasons based on climate changes. Rare herbals are not normally found in nature, unless they are sought out based on existing Herbal locator maps. Most rare Herbals are only available through ethnic communities and Elders. Extirpated or nearly extinct (endangered and threatened) Herbals species are only available through government agencies, research universities and Academies, and almost never found except through use of a Vanguardian's Resource connections. Many Herbals are also available on the black market for the right price.

Potency: This is the amount of the Herbal that needs to be used for the desired impact or effect, and also determines the number of doses of an Herbal that can be used. Some Herbals are highly potent and require only a simple dab and are able to almost instantly generate desired effects. Using a dab at a time, of course, means the Herbal will have many doses. An Herbal with a lower potency must use a greater amount of the Herbal for each application to be effective, and so there are less doses. Potency ranges from 1-8, with a high potency of 1 and a low potency of 8. (See *Table C: Herbals Potency and Dose* below.) It is also important to keep track of the number of initial and remaining doses an Herbal has.

Form(s): This describes which part or parts of the Herbal are used, whether it is the roots, leaves, stalk, flowers, seeds, fruit, or juice/oil.

Preparation Notes: This describes how to prepare, store and administer the Herbal.

Uses: This includes a description of exact health impacts, side effects and other effects. Herbals are grouped into three general categories of uses: **Healing Uses, Adverse Uses and Side Effects, and Other Uses.** Each category includes several specific uses. Some Herbals fall under more than one category of uses, since using different parts of a plant, different combinations, different applications, or different doses can result in a variety of effects. This is particularly true when a small dose of an Herbal produces a healing effect, while a large dose of the same Herbal can produce illness. The uses of Herbals are summarized in *Table D: Uses of Herbals* below.

Other names: The Herbal may be known regionally or locally by other names. Scientific names in Latin are available and are used by medical professionals and scientists within the USMA, but are now almost never used among common people within local communities nor within Unum areas.

Table B: Herbals and Characteristics

Herbal Name	Availability & Potency	Form	Preparation	Summary of Healing Uses	Adverse Uses	Other Uses	Other Names
Aloe Vera	C3	gel inside the leaves	topical: raw gel	treating burns, treating blisters, treating insect bites/stings, soothing skin, treating rashes		Cause diarrhea	
Anise	C3	seeds	internal: raw, Tea, tincture	treating upper respiratory infections, treating chest congestion, suppressing coughs, treating indigestion/nausea			pimpinella anisum
Arnica	X2	flowers	Topical (ONLY) as an ointment, oil	reducing swelling, soothing muscle aches, soothing joint aches			wolfsbane, Leopard's Bane, mountain tobacco, mountain daisy, Fallkraut, Arnica montana
Astragalus	C2	roots and rhizomes	Internal: tincture, tonic	enhancing immune system (for fighting common illnesses), treating upper respiratory infections, treating fatigue, restoring energy			huang qi, Astragalus propinquus
Calendula	C2	flower	internal and topical; oil; infusion; tincture	treating wounds, soothing skin, treating burns, treating insect bites/stings, slowing bleeding			Marigold
Cayenne	C2	fruit (pepper)	Internal and Topical: powder, cream, liniment, tincture, tonic, plaster	relieving pain, reducing swelling, soothing muscle aches, soothing joint aches, treating wounds, restoring energy, treating headaches, enhancing immune system (for fighting common illnesses), relieving cramps, killing parasites			Capsicum annuum, paprika
Chamomile	C2	flowers	internal and topical; tea; infusion, tincture, inhalant/vapor	reducing stress/tension/anxiety; inducing sedation/sleep; relieving pain; soothing muscle aches; Treating indigestion/nausea; treating wounds			Matricaria recutita and Anthemis nobilis
Chili	C1	Fruit (peppers)	Internal and topical: raw fruit, dried fruit, ointment, powder, tincture	treating hemorrhages, slowing (stopping) bleeding, relieving pain, reducing inflammation, aiding digestion			capsaicine, Capsicum frutescens, chili pepper
Cinnamon	C2	inner bark of tree	sticks of rolled bark, powder; liniment, oil	Treating indigestion/nausea; treating diarrhea; relieving pain, soothing muscle aches; treating infections; treating fungal infections; eliminating lice			dalchini, cinnamomum zeylanicum

Clove	*C1*	*flower bud on bush*	*Internal and topical: buds picked and dried; powder, essential oil*	*treating indigestion/nausea; aiding digestion; suppressing coughs, relieving toothaches; soothing joint aches*	*too much oil on skin can cause rashes or burns*		*Syzygium aromaticum*
Coffee Senna	*R3*	*roots, leaves, seeds*	*ground roots, seeds ground as coffee substitute for asthma; crushed leaves made into tincture;*	*enhancing immune system (for fighting common illnesses), killing parasites; treating wounds, reducing inflammation, treating infections; treating fungal infections, relieve asthma*			*antbush, stinkingweed, Cassia occidentalis*
Comfrey	*C4*	*root, leaves*	*topical; apply leaves directly or as poultice; infusion as compress*	*treating wounds, treating bone fractures, Reducing inflammation*	*internal use can be toxic*		*blackwort, common comfrey, slippery root, Symphytum officinale*
Dandelion	*C5*	*flower, leaves, roots*	*internal and topical; raw, crush leaves and roots; may dry roots*	*reducing swelling; treating infections, aiding digestion*	*excessive quantities may cause skin rash or diarrhea*		*Irish Daisy, Wild Endive, Blowball, Canker Wort, Lion's Tooth, Puffball, Taraxacum officinale*
Echinacea	*X2*	*Root, whole herb*	*topical and internal: infusion, tincture, tonic*	*treating infections, treating wounds, reducing inflammation; treating insect bites; enhancing immune system (for fighting common illnesses); treating colds, treating flu*			*Purple coneflower, Missouri snakeroot, rudbeckia*
Elderberry	*C4*	*flowers, berries and leaves*	*topical and internal: flowers; berries must be cooked into syrup*	*relieving pain, reducing inflammation; treating infections, treating flu, treating cold, treating fever (flowers)*	*raw berries toxic in high concentrations*		*Elder flowers, Sambucus nigra*
Eucalyptus	*C3*	*leaves, oil*	*oil extracted from leaves*	*treating infections, enhancing immune system, treating colds; treating chest congestion; suppressing coughs, relieve asthma, treating upper respiratory infections, treating headaches, relieving pain, soothing joint aches, reducing inflammation; repelling insects*			*Eucalyptus globulus*
Feverfew	*C4*	*leaves, flower, stem*	*Internal: chew raw leaves, tincture, infusion and tonic*	*treating fever, treating headaches, treating migraines, reducing inflammation, soothing joint aches, relieving dizziness; repelling insects; repelling fleas on animals*			*bachelors buttons, bride's button, altamisa, featherfew, flirtworttenacetum Parthenium*
Garlic	*C2*	*cloves*	*bulb used raw; tea, syrup, or oil*	*enhancing immune system (for fighting common illnesses); treating upper respiratory infections;*			*allium sativum*

				relieving earaches; killing parasites			
Ginger	c2	root	topical and internal: raw pulp and juice; tea, compress, tincture, liniment	treating colds; treating fevers; treating indigestion/nausea, treating chest congestion, treating motion sickness, reducing swelling, soothing muscle aches			zingiber officinale
Ginkgo	R1	leaf and seeds	internal: teas,	improving thinking/cognition/memory, treating fatigue, restoring energy, treating depression, treating headaches			Ginkgo biloba, maidenhair
Ginseng	X1	root	internal: dry and powder the root to make tincture	treating infections, aiding digestion, enhancing immune system (for fighting common illnesses), restoring energy, treating fatigue			five fingers, tartar root, red berry, man's health, Panax quinquefolius
Golden Seal	X1	Root	Internal and topical: powdered root, tincture, infusion, lotion, tonic	enhancing immune system, treating colds, treating flu, treating fever, treating chest congestion, treating infections, treating fungal infections, treating diarrhea, treating hemorrhages, treating wounds	Poisonous in large amounts		Yellow Root, Orange root, Yellow Puccoon, wild curcums, turmeric root, Indian dye, Eye Root, Indian Paint, Hydrastis canadensis
Lemon Balm	C3	Leaves, stems, flowers	Internal and topical: Cream, Tea, infusion, tincture, oil	treating depression, reducing stress/tension/anxiety, inducing sedation/sleep, treating upper respiratory infections, treating fever			melissa officinalis
Licorice root	C2		internal and topical: infusion, tincture; syrup, tea, lozenge	relieving sore throat; suppressing coughs, treating indigestion/nausea, treating upper respiratory infections, soothing skin			glycyrrhiza glabra
Mullein	C2	oil from leaves and flowers	extract oil	relieving sore throat; relieving earaches; reducing inflammation			verbascum thapsus
Nettle	C3	leaves	raw, tea, infusion, tincture	treating hemorrhages; relieves allergic reactions; treating diarrhea			urtica dioica
Red clover	C3		internal and topical	treating infections(blood); suppressing coughs; soothing skin; treating rashes			trifolium pratense
St. John's Wort	C2	leaves and flowers	internal and topical; tonic; poultice, tincture, oil, ointment	treating depression; reducing stress/tension/anxiety; inducing sedation/sleep; relieving earaches; treating upper respiratory infections, treating wounds, reducing inflammation; repelling fleas on animals	fatigue, dizziness, confusion	Cause confusion	Tipton's weed, Klamath weed, Hypericum perforatum
Skullcap	C4	leaves	Internal: dried; Powder; Tincture; tea	relaxing muscles; reducing stress/tension/anxiety	overdose causes giddiness, stupor,		scutellaria laterifolia

					confusion and twitching		
Slippery Elm	*X2*	*bark*	*internal and topical; lozenges; syrup; oil*	*suppressing coughs; treating rashes; soothing skin*			*ulmus fulva*
Thyme	*C3*		*oil*	*treating wounds; treating infections (respiratory); treating diarrhea; killing parasites, eliminating lice; repelling fleas on animals*			*thymus vulgaris*
Valerian	*C3*		*internal and topical; tincture*	*relieving cramps, relieving toothaches, reducing stress/tension/anxiety*			*valeriana officinalis*
Honey	*C1*		*raw*	*treating wounds; treating infections; reducing inflammation; suppressing coughs*			
Activated charcoal	*C1*	*Powder*	*Internal; pulverize charcoal into powder*	*Treating indigestion/ nausea; treating migraines; serving as anti-dote to poison*			
Green clay	*C2*		*topical: powder for poultice*	*treating insect bites/stings; drawing out stings/abscesses; treating infections; removing toxins*			
Ipecac	*C1*		*syrup*	*inducing vomiting (accidental poisonings)*			
Tiger Balm	*C1*		*topical: balm, salve*	*soothing muscle aches; soothing joint aches; treating chest congestion; suppressing coughs*	*burns eyes and mucous membranes*	*creates heat when applied to the skin;*	

Table C: Herbals Potency and Dose

	Lower							**Higher**
Potency	8	7	6	5	4	3	2	1
Initial doses	1	2	3	4	5	6	7	8

Table D: Uses of Herbals

Uses of Herbals	Aloe Vera	Anise	Arnica	Astragalus	Calendula	Cayenne	Chamomile	Chili	Cinnamon	Clove	Coffee Senna	Comfrey	Dandelion	Echinacea	Elderberry	Eucalyptus	Feverfew	Garlic	Ginger	Ginkgo	Ginseng	Golden Seal	Lemon Balm	Licorice root	Mullein	Nettle	Red clover	St. John's Wort	Skullcap	Slippery Elm	Thyme	Valerian	Honey	Activated	Green clay	Ipecac	Tiger Balm
treating wounds					X	X	X				X	X		X								X						X			X		X				
relieving pain						X	X	X	X						X	X																					
treating bone fractures												X																									
reducing swelling			X			X							X						X																		
treating hemorrhages								X														X				X											
slowing bleeding					X			X																													
soothing muscle aches			X			X	X		X	X									X																		X
soothing joint aches			X			X										X	X																				
relieving cramps						X																										X					
relieving allergic reactions																										X											
reducing inflammation								X			X	X		X	X	X	X								X			X					X				
soothing skin	X				X																			X			X			X							
treating blisters	X																																				
treating rashes	X																										X			X							
treating burns	X				X																																
treating insect bites/stings	X				X									X																					X		
enhancing immune system				X		X								X		X		X			X	X															
treating colds														X	X	X			X			X															
treating flu														X	X							X															
relieving sore throat																								X	X												
suppressing coughs		X									X					X								X			X			X							X
treating fever															X		X		X			X	X														
treating upper respiratory infections		X		X												X		X					X	X				X									
treating chest congestion		X														X			X			X															X
relieve asthma												X				X																					
relieving earaches																		X							X			X									
relieving toothaches											X																										
treating infections										X		X	X	X	X	X					X	X					X				X	X	X		X		
treating fungal infections										X		X										X															
killing parasites						X						X						X													X						

eliminating lice									X																				X							
aiding digestion							X			X		X								X																
treating indigestion/nausea		X				X		X		X								X					X									X				
treating motion sickness																		X																		
inducing vomiting																																			X	
treating diarrhea								X													X				X				X							
treating headaches					X										X	X			X																	
treating migraines																X																X				
reducing stress/ tension/anxiety						X																X				X				X						
relaxing muscles																											X									
inducing sedation/sleep						X																X				X	X									
treating depression																			X			X				X										
treating fatigue			X																X	X																
restoring energy			X		X														X	X																
improving thinking/cognition / memory																			X																	
relieving dizziness																X																				
serving as anti-dote to poison																																X				
removing toxins																																	X			
drawing out stings/abscesses																																	X			
repelling insects															X	X						X														
repelling fleas on animals																X										X			X							
other																										X	X									X

Bots, Drones and Animals

Vanguardians may often encounter assailants, especially bots, drones and animals.

Credit: NASA-JPL

Bots

Bots—short for robots—are common in Unum League areas and are found almost everywhere in USMA areas. The most independent bots are A.I. bots, which use internal programming and artificial intelligence to accomplish their assigned tasks. Tethered bots are primarily controlled by a human (or an A.I. bot) via a remote-control device. Bots are usually identified by their function or purpose, which is called their type. The most common include farm bots, manufacturing bots, monitoring bots, security bots, pilot bots, service bots, companion bots, military bots, rescue bots, and disaster response bots.

Bots come in various sizes, from nanobots that are small enough to be surgically implanted into the human body. Microbots range from the size of a tiny insect to the size of a marble, and minibots range from the size of a golf ball to the size of a basketball. A standard-sized is anything larger than a minibot.

Drones

Although there is sometimes a fuzzy line between whether a bot is also a drone, or whether a drone is also a bot, drones' primary purpose is travelling, transportation or delivery to remote areas, and typically do not have capabilities, tools and functions that are as diverse as bots. Drones may be landrones, aquadrones, skydrones. Digger drones are landrones that can burrow underground. Submarine drones can go under water, and amphibious drones can travel on land and water. Space drones are very high-altitude drones that can travel above the stratosphere.

Drones are found almost everywhere in both Unum League areas and in USMA areas. The most independent drones are A.I. drones, which use internal programming and artificial intelligence to accomplish their assigned tasks without a human controller. Tethered drones, which make up the overwhelming majority of drones, are controlled by a human or an A.I. bot via a remote-control device. Drones, like bots, are usually identified by their function or purpose, which is called their type. The most common drones include delivery drones, drone cabs, reconnaissance drones, monitoring drones, farm drones, security drones, companion drones, military drones, rescue drones, wildlife relocation drones and spy drones.

Drones come in various sizes, from microdrones that range from insect size to the size of a marble, to minidrones that are the size of a golf ball to the size of a basketball, to a standard-sized drone, which is anything larger than a minidrone.

Vanguardians value useful technology, and if they encounter a hostile drone or bot, they are expected to neutralize it, disable it, repair it and reprogram it to be repurposed and reused. Destroying a high-tech bot or drone would waste resources.

Flybots and Flydrones

A particularly menacing category of bots and drones are called "Flybots" and "Flydrones." There are forces that still actively thwart free access to the legacy Internet and the EarthQuest Simulator, so Tchackers and Vanguardians are always vigilant of attempts to breach their systems for identity theft, siphoning big data through hacked transmissions and taking down rebooted web hubs. Flybots and Flydrones are assumed to be serving the owners of The Fly and their subsidiary corporations, and the Vanguardians must be in constant vigilance to protect their true identities and personal information from constant attempts by these Flybots and Flydrones.

When Flybots and Flydrones are present, Vanguardians must notify their Tchackers to

Credit: NASA_Dominic Hart

"Scrub" (remove) or "Frag" (fragment) any data transmissions. To make this tedious work more fun, Tchackers will often disrupt targeted big data siphoning transmissions originating from illicit Flybots, Flydrones and their viruses by using "Scrub 'n Frag" techniques to insert nonsense data or humorous data and media, like nursery rhymes with the faces and voices of old Hollywood stars dubbed in. Tchackers also use "Scrub 'n Frag" to protect transmissions with their Vanguardians in the field.

Animals

Animals may be wild or domesticated, feral, or escapees from a zoo. Many animals are wandering into human settlements because they are migrating to new habitats in response to climate change impacts on their former habitats. When many zoos lost their funding, zoo animals escaped or were released, and are now successfully reclaiming new habitats and reproducing, including top predators.

Animals encountered in rural areas or in settlements may feel threatened, hungry or protective of their young. They may also be wounded or ill (including rabid). In each of these cases, animals may become aggressive. Vanguardians are expected to first attempt to calm an animal using Animal Husbandry skills, and then if it is a threat to itself or others, neutralize the animal by binding or capturing it, and possibly sedating it into unconsciousness. A rabid animal will need to be killed. An animal that has been captured can be relocated to a more appropriate habitat or ecosystem by a wildlife relocation drone. Some animals make good companion animals, and your Vanguardian can attempt to coax an animal to become a companion animal.

Using Gadgets

Gadgets are powered, advanced technology tools and equipment, available to the general public, specialists, and Vanguardians. They are always tech level 5 unless otherwise noted. Gadgets are usually hand-held, wearable, or at least small enough to be portable. Some Gadgets are micro-Gadgets and can be implanted or embedded in the body as piercings, or even injected as nanoscale Gadgets. Some Vanguardians custom-engineer Gadgets to embed into their staff. Some specialized Gadgets acquired by Vanguardians for temporary use on Missions are very high-tech (tech level 6), often experimental, and not available elsewhere on the market.

Each Gadget is rated based on its availability, complexity, and accuracy, and every Gadget's description should include its power source and its Sustainability score. All Gadgets are XM band-compliant unless otherwise noted.

Any Vanguardian can attempt to use any Gadget. With an unfamiliar Gadget, a Vanguardian must first attempt to figure out how the Gadget works, based on the Intelligence attribute enhanced by the Electronics skill (see *Using Intelligence*). Once a Vanguardian successfully understands how a particular Gadget works, they are then able to use the Gadget and they do not need to learn how to use it again. If a Vanguardian is not able to learn how to use the Gadget, they can learn from another person who does know how to use the Gadget.

Availability: Gadget availability is classified as "G" (General use), or "X" (experimental or classified). General use Gadgets could potentially be found

anywhere in society, limited only by its cost and its relevance or purpose within a particular community or region. Most general use Gadgets are available through technology shops, dealers, or refurb shops, whereas many experimental or classified technologies are usually only available through government agencies, multinational corporations or Resource connections. Some Gadgets are so extraordinarily expensive, they are available only to those with vast amounts of disposable income. Experimental technology means only one or a few of this Gadget model have been produced, and this model may also have flaws. Many Gadgets can also be found on the black market for the right price.

Complexity: Gadget complexity ranges from 1-8, with 1 being the lowest level of high-technology, and 8 being the highest level of complexity.

Accuracy: Accuracy ranges from a low of 1 to a high of 11. Most new Gadgets are highly accurate and have an accuracy of 11, but Gadgets acquired other ways could be damaged and may have limited accuracy, based on age, condition and manufacture. Most Gadgets will indicate error or malfunction, but not always. A Vanguardian with an Electronics skill may be able to repair a broken Gadget in an electronics workshop, or in the field with an electronics tool kit, based on the complexity and type of the technology (see *Using Electronics*).

Power Source: The Gadget may be powered by electric solar, electric battery, hydrogen cell, biofuel or other source.

Sustainability Score: This is the sustainability level of the materials, energy source and manufacturing process for the entire lifecycle of the Gadget, ranging from a low of 0 to a high of 4.

Celebrating Ceremonies and Rituals

Vanguardians are renowned for their public celebrations of elaborate and inspiring ceremonial dances and rituals. Most rituals and ceremonies involve creatively choreographed group dance steps and expressive arm and hand motions, and the Vanguardian staff is used creatively throughout almost all Vanguardian ceremonies and rituals.

Rituals and ceremonies are mostly performed or celebrated within a community, but they may also be celebrated only by the team of Vanguardians in front of a community audience. These rituals and ceremonies are drawn from traditional ethnic, spiritual and religious traditions with deep meaning that connects individuals and communities with the natural cycles, seasons, agricultural cycles, and life cycle events. They have the effect of connecting people with nature, binding families, groups or communities together in mutual support, identity and purpose, and bringing peace and healing in conflict ridden groups or communities.

Young people training to become Vanguardians begin with participating in Vision Quests and

maturity rituals called rites of passage, which are celebrated or performed by a large gathering of Vanguardians and Vanguardian Elders. Vanguardians may perform a ceremony or ritual for times of peacemaking, forgiveness, thanksgiving, joy and celebration, loss and mourning, new life, death and the completion of the cycle of life, planting new crops, harvesting crops, birthing or hatching of wildlife and farm animals, change of seasons, overcoming fear, sorrow and regret for harming the Earth, healing of the Earth, and several others as appropriate. Vanguardians have been known to learn rituals and ceremonies from many cultures and adapt them for use by Vanguardians within communities as needed. Small teams and large gatherings of Vanguardians can draw huge audiences who come to watch the increasingly famous and popular Vanguardian staff communal dances, ceremonies and rituals.

Expanding Social Networks

Vanguardians use the Persuasion attribute to add to their social network and ultimately increase the Influence attribute. Persuading a significant person to tell their personal story (using a "one-on-one") is the way to add the person to the Vanguardian's social network, and staying in touch with the key people in a social network develops them into supporters, allies, and friends of your Vanguardian.

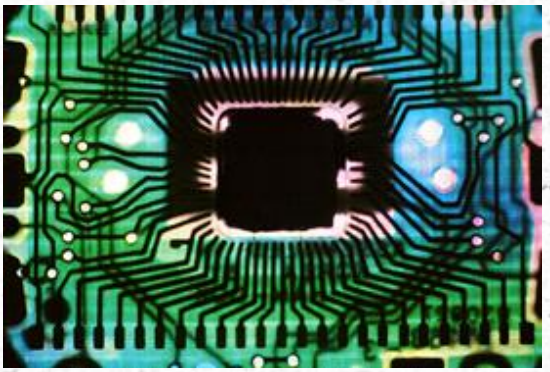
Using Technology

Similar to use of Gadgets, Vanguardians make use of other advanced technology tools and equipment, which is usually encountered while Vanguardians are on a Mission in an ecoregional community or settlement. Technology usually refers to high-tech items, which have a technology level of 4 to 6, rather that low-tech tools, Gear and equipment that are tech level 1 to 3. Vanguardians may be able to acquire a needed piece of technology through the Vanguardian's resource network. Almost all technology items are also available on the black market for the right price.

Most advanced technology tools and equipment are much larger than small handheld devices, and some technology is much larger, and can take up an entire room or most of a research facility. Technology has a tech level and SUscore, and has various levels of **availability, complexity** and **accuracy**. A technology item will be listed as: Technology (Availability, Complexity, Accuracy). For example: *Particle Accelerator (X-8-11).*

Any Vanguardian can attempt to use any technology item. With an unfamiliar technology item, must first attempt to figure out how the technology item works, based on the Intelligence attribute enhanced by the Electronics skill (see *Using Intelligence*). Once a Vanguardian successfully learns how a technology item works and what it does, they are then able to use the technology item and they do not need to learn how to use it again. If a Vanguardian cannot figure out how to use the technology item, they can learn from another person who already knows how to operate it.

Availability: Technology availability is classified as "G" (general use) or "X" (classified). General use technology, often used in small manufacturing, energy generation and the medical industry, could potentially be found anywhere in society, limited



only by its cost and its relevance or purpose within a particular community or region. A Vanguardian will usually try to use their Resources ability and the assistance of a Tchacker to acquire or access a needed technology item.

Complexity: Technology complexity ranges from 1-8, with 1 being the lowest level of complexity, and 8 being the highest level of complexity.

Accuracy: High-technology items are complex, and therefore, may have limited accuracy, based on age, condition and quality of manufacture. Accuracy ranges from a low of 1 to a high accuracy of 11. Technology items with low accuracy may have been improperly operated or maintained, could be damaged, or be of poor quality. A damaged technology item always has reduced accuracy and may even malfunction. Most technology items will indicate an error or malfunction on an indicator screen or with an indicator light.

Repairing a Technology Item: Repairs usually improve the technology item's accuracy. A Vanguardian with an Electronics skill may be able to repair a broken technology item in an electronics workshop, or in the field with an electronics tool kit, based on the technology item's complexity level. Depending on the nature of the technology used in the manufacture of the item, other skills may also be needed to repair the technology(see *Using Electronics*).

Community Problem Solving

Much of what takes place during Missions centers around Vanguardians working together and with the community to solve community problems related to sustainability and resilience. During an Adventure, Vanguardians will first be engaged in conducting a place story to understand the community, solving immediate crises, and then solving the mystery. Once these are done, they usually advance to the next stage of community problem solving. The processes for community problem solving are always democratic processes. There are two categories of community problems: simple and wicked.

A thing is right when it tends to preserve the integrity, stability and beauty of the biotic community. It is wrong when it tends otherwise.
Aldo Leopold

Community Problem Solving for Simple Problems

Vanguardians apply the simple, linear problem-solving process according to the following steps:

1. Identify the problem: What is the problem you are trying to solve?

2. Identify the problem forces based on science: What is causing the problem? Use the latest science and social science to understand cause and effect relationships. The problem forces are the several underlying factors that contribute to causing the problem or making it worse. These are often a system of forces, so draw connections between forces to show how some forces might even interact to complicate the problem, or how they become cumulative and worsen the impact over time.

3. Identify the root problems: What happened—or did not happen—in the distant past to cause problems today? These are the several legacy forces or problems from the past (early 21st century) that caused or contributed to causing the current problem or making it worse. To get insights into possible solutions and to prevent making the same mistakes now as in the early 21st century, ask "What could have been done in the past to reduce or eliminate the problem today?"

4. Identify possible solutions: What can you do to solve the problem? Identify existing best practices (best management practices or BMPs) or best available technologies (BATs) that others have already used to solve similar problems. Or come up with new solutions and innovations that will solve the problems even better.

5. Choose the best solution: Which of the possible solutions is best for solving the problem? First, think about the criteria that need to be considered for the selecting the best solution, such as cost, acceptability by the community, helping one group while harming another group, environmental impacts, impacts on future generations, time limits, and access to technology or energy. Second, consider that some problems may not have a complete solution. In that case, improving the situation somewhat might be the best that can be done. Third, consider that any solution might have several parts, or might be a combination of possible solutions. Creative solutions can also be chosen to solve other problems, too, such as eliminating pollution while increasing the food supply at the same time.

6. Implement the best solution and monitor your progress: Take your best solution, and then make it happen. Assign people to carry out the solutions, and make sure they have everything they need (funding, equipment, meeting space, technology, transformation, supplies, etc.) to do the job. Then monitor the progress and make sure the solution is working well. Is the problem being solved or improved just like you hoped? If not, modify what you are doing and see if that improves the situation.

Community Problem Solving for Wicked Problems

Some problems are so complex, they don't have any one best solution. For "wicked problems," there is not enough information or scientific data, the future of the problem is unpredictable and uncertain, and people in the community disagree about the problem and the solution.

From the depth of need and despair, people can work together, can organize themselves to solve their own problems and fill their own needs with dignity and strength.
Cesar Chavez

1. The GM assigns each Vanguardian from the team to a community stakeholder group. The Vanguardian serves as an advocate and liaison representing that group.

2. The Vanguardian meets with the community stakeholder group to gather their views, perspectives and ideas. The GM provides a Stakeholder Handout summarizing these views.

3. The Vanguardians return and form a temporary, informal (ad hoc) council to hash out the problem and solutions, with each Vanguardian representing the perspective of their stakeholder group, based on the information in the Stakeholder Handout. This dialogue includes:

- Agreeing on the science and facts of the problem
- Agreeing on a description of the problem
- Agreeing on the limits of the solutions (affordable, adequate technology and capability to carry out the solution, and politically acceptable to all or most stakeholder groups)
- Identifying choices or alternatives for solutions
- Weighing the alternatives and deciding on the best solution(s)

- All ad hoc council members should agree to the best solution by consensus, but if that is not possible, they must vote and win by supermajority (two-thirds must vote in favor of the solution)

Innovations

Vanguardians can create an imaginative and innovative solution to an existing problem or to address a particular need through a new:

- A major systemic solution to an existing complex problem
- A technological invention
- A model new law (legislation) innovation
- A policy innovation (social, economic, environmental)
- A new scientific experiment, theory or model that can be tested
- A new ritual or ceremony that has deep meaning for the human psyche or soul
- A new story to inspire and guide new human behaviors
- A creative artwork, media project, or performing art that explores an issue in a new and innovative way
- Some other innovation

You use the Innovation Gamesheet to guide the process of creating an innovation.

Planning Ecological Restoration Projects

An important part of many Vanguardian Missions is to help the community to develop an ecological restoration strategy and implement ecological restoration projects to address legacy environmental contamination issues, the impacts of natural disasters, and adaptation to climate disruption or other human-caused (anthropogenic) disasters. Vanguardians will need to first solve the environmental mystery and complete a place story, then identify best practices appropriate for the type of ecological restoration project(s) they will focus on, and finally draft the ecological restoration strategy. You use the Ecological Restoration Plan Gamesheet to draft the community's ecological restoration strategy.

Planning for Community Adaptation, Resilience and Transition to Sustainability

Toward the end of a Mission, Vanguardians may also have an opportunity to help the ecoregional community to improve its SUscore by building resilience and adapting to the effects of climate disruption, eliminating carbon emissions or sequestering GHGs out of the atmosphere, and otherwise moving toward increased sustainability. Improving the community SUscore is the final and primary goal of every Vanguardian Mission. Vanguardians do this by gathering information and stories to understand the community, its problems and its people; exploring what sustainability best practices are already being used successfully in the community and elsewhere; and helping to mobilize

community members to take action. Adopting the right sustainability best practices will help the community to survive and thrive in a rapidly changing world.

According to the very early Founders, every community needs several elements in order to be healthy, sustainable and regenerative with nature, and to ensure that the community will survive and thrive. These elements for healthy communities should be considered as part of a community planning process:

- Healthy ecosystem, where people can rely on their biodiversity and resilient ecosystem to provide the goods and services they need.
- Food and water, where all members have access to adequate amounts of clean, healthy food and water, and the means to sustainably produce their own food and water.
- Access to wellness and health care, where community members have access to Herbal medicinals to maintain and restore wellness and can access quality health care when needed.
- Housing, where all members can maintain safe, affordable and sustainable homes in appropriate places and that are environmentally regenerative.
- Waste processing, where any wastes produced in the community are low enough or insignificant enough to able to be processed by the local ecosystem and be reused by nature in a regenerative way.

I am only one, but still I am one. I cannot do everything, but still I can do something; and because I cannot do everything, I will not refuse to do something that I can do.
Helen Keller

- Energy, where all members have adequate levels of sustainable energy to support low-energy lifestyles, businesses and community life.
- Transportation, where members can freely move themselves, goods and services in a sustainable way that does no harm to the environment.
- Lifelong learning and education opportunities.
- Communications, where members are able to freely communicate with one another, sharing beneficial information widely.
- Good governance, where democratic government runs well, carries out the will of the people, provides opportunities for people to fully participate in government decisions, and treats all members of the public fairly and equitably.
- Local goods and services, where all members have access to sustainably acquiring the essential goods and services needed for a high quality, regenerative lifestyle.
- Recreation, where people can exercise and move their bodies in healthy ways, especially through active games and community sports.

- Peace and safety, where people work and live in peace and do not live with constant fear or violence.
- Meaningful work that come from a job or running a small business.
- Access to adequate financial resources to build a local regenerative economy.
- Access to government and community resources.
- Relationships, where people can build and maintain healthy, supportive relationships with other members in the community.
- Equity and fairness, where the costs and benefits are shared by all within the community.
- Sense of community, where people know who they are, feel a sense of belonging, and celebrate their community identity.
- Spiritual development, where people freely live out, grow in and celebrate their spirituality.
- Creativity and arts, where community members can express their creativity and participate in artistic and cultural experiences to help them celebrate the deeper meanings in life.

These elements can help the community to consider the best ways to improve the SUscore through CARATS planning.

The EcoTown Hall Planning Process

Vanguardians are often invited to participate in or lead community EcoTown Hall planning processes as a neutral, unbiased and trusted party. Vanguardians are known for gathering the relevant science and information, bringing people together, and uniting the community toward a common future. Players use the Community Adaptation, Resilience and Transition to Sustainability (CARATS) Gamesheet to guide the community through this planning process.

The EcoTown Hall process is carried out by the ecoregional community at the very end of a Vanguardian Mission. The Vanguardian team's final Experience Points are awarded based on whether or not the ecoregional community improves its SUscore. The EcoTown Hall planning process requires an ecoregional community to work together to meet their needs, solve problems, survive and thrive in the face of natural disasters and other crises and emergencies, adapt to climate disruption, eliminate carbon emissions or sequester GHGs out of the atmosphere, move toward sustainability, and become a healthy, safe and desirable place to live for all members of the community.

Community planning is always a democratic process with participation by all members of the community, which also means it is often messy and full of disagreement and conflict over values. Vanguardians should be ready to make use of conflict resolution, Persuasion, and possibly even

defensive Martial Arts if protestors turn to disruption and violence and threaten innocent lives or if a Dark Triad tyrant arises and attempts to take control and make it "easy" for people with an alpha hierarchy. The GM will help players walk their Vanguardians through the EcoTown Hall process, as detailed in the *EarthQuest Game Mentors Rulebook.* The EcoTown Hall planning process involves the following steps.

1. Mobilize and engage the ecoregional community for the EcoTown Hall.

2. Deliver Final Mission Report, create future scenarios, conduct community visioning and set priorities.

3. Complete a Community Adaptation, Resilience and Transition to Sustainability Plan.

4. Mobilize and engage the community for implementing the best practices.

5. Determine the success and results of the plan.

Beta Collaboratives and Democratic Commons

Homo sapiens sapiens evolved to have both an individualistic, self-centered, competitive side and an altruistic, other-centered, collaborative side. The first side is rooted in an older, more primitive gene set, common among many species, that is called the alpha hierarchy gene set. This alpha gene set limited early humans to living only in competitive, domineering social hierarchies under a strong alpha leader. This social arrangement was beneficial in times of limited food, constant danger and frequent emergencies and allowed the "most fit" early humans to survive in small hunter-gatherer groups.

Some generations later, homo sapiens sapiens evolved the second side, common among the few social species. This prosocial and much more powerful side of humans is rooted in the more recently-evolved beta collaborative gene set. This beta collaborative gene set is responsible for empowering humans to develop the social tools and people skills needed to work cooperatively in larger groups to build peaceful and successful villages, towns, cities and societies all throughout history. It is the beta collaborative gene set that allows humans to form tight-knit social groups that compete more successfully as large groups in order to survive and even thrive in a challenging natural world. Beta collaboratives are always more successful than alpha hierarchies for helping humans survive. Beta collaborative genes have enabled humans to work together altruistically for the common good to develop beautiful, intricate cultures, amazing technological advances, and useful urban infrastructures that all benefit the entire community. Both gene sets still reside in all humans today, and either the alpha genes or the beta genes can be activated by the community's shared stories and social arrangements.

The beta collaborative gene set allows humans to build and maintain more egalitarian and cooperative democratic communities or commons instead of living under the alternative oppressive hierarchies run by oppressive alpha leaders. However, democratic commons are more

challenging to build and maintain because they require community members and leaders to have excellent people skills, like peaceful communication, conflict resolution, compromising, and consensus building. Nevertheless, humans with their beta collaborative gene set already have the natural, innate capabilities to build and maintain collaborative communities extremely well, and this is what has allowed humans to survive, thrive and succeed as the supreme adaptors all over the planet earth. When people form democratic commons, the beta collaborative gene set is activated, and the community's prosocial stories, rituals and celebrations along with their egalitarian social arrangements draw out the peoples' altruistic, other-centered, collaborative lifestyles.

In the past and throughout history, in times of uncertainty, insecurity, disorder and fear, powerful and charismatic alpha leaders have arisen and used manipulative but convincing stories that promise the people peace and security in exchange for the people's obedience, servitude and wealth. Occasionally, the alpha leader is a wise and benevolent servant leader, bound by moral checks and balances, who empowers the people and actually brings about peace, justice and prosperity for all. More often in history, the alpha leader is a manipulative and oppressive Dark Triad tyrant or dictator who oppresses the people and establishes hierarchical control through manipulative social stories and use of force. The Dark Triads set up an oppressive hierarchy run by greedy, power-hungry and status-seeking officials and they build a powerful military and police force to siphon the people's wealth and maintain control through violence. In these times, the alpha hierarchical gene set is activated among the people, and the Dark Triads' ominous stories and oppressive social arrangements plunge the people into individualistic, self-centered, competitive lifestyles in desperation to outcompete their neighbors for limited resources.

Competitive, domineering alpha hierarchies under the leadership of Dark Triads, including many multinational corporate CEOs, have been responsible for perpetuating poverty, oppression, ecological destruction, wars and climate disruption, and have thwarted the transition to democracy and sustainability. The Founders and now the Vanguardians had been able to reactivate their own beta collaborative gene sets by forming small ecovillage commons communities within the larger alpha society through to the times of the Tribulations, and now work to reactivate the beta collaborative gene sets latent in all people and restore democratic commons in every ecoregion. Vanguardians have found that reactivating people's beta collaborative gene sets and restoring democratic commons is the most effective way of mobilizing people to transition as communities to sustainability and survive and thrive in the face of climate disruption.

The Unum League is founded on the idea of building democratic commons as the best way to fulfill the vision and promise of the American Democracy Experiment first proposed in the U.S. Constitution in 1789, but never fully realized even by the time of the Tribulations. The Founders and the Vanguardians have been the primary advocates for democratic commons governance and sharing the collaborate adaptive leadership and citizenship models needed to maintain them. Most people from ecoregional commons communities agree that democratic commons are much harder to build and maintain than simply complying obediently with alpha elites running their competitive hierarchies. However, people from commons communities feel a deeper sense of freedom, belonging, connection with nature, and common purpose and agree that democratic commons are worth the effort. When their beta collaborative gene set is activated, people feel more hopeful, deeply human and fully alive!

According to one of the other very early Founders, Lin Ostrom, for any democratic commons

community to be able to work well and maintain a sustainable and vibrant local economy using its own environmental resources, the community must have eight things going for it:

1. The community and its ecoregion must have clear boundaries (like a watershed), and everyone knows and accepts those boundaries.

2. The community has the right and authority to make their own rules, live according to their own rules, and to govern themselves (since rules or laws imposed by controllers from outside the community will never be accepted and will never fit the needs of the community).

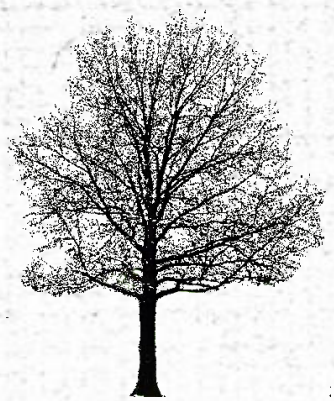
3. Community members makes rules that fit their own community and everyone agrees to them and abides by them.

4. Community members monitor who is benefitting, who is doing their share of the work, and who is free loading.

5. Community members agree on a level of fairness of benefits, where people with more wealth and status must earn those fairly.

6. Community members establish a penalty system that fits and where rulebreakers who harm the community in little ways for the first time get a warning, but get increasingly harsh punishments for repeated rule breaking.

7. A community conflict resolution system that quickly settles disputes and is perceived by all community members as fair and just.



8. Local community governments are networked and internally interdependent, decisions are made at the lowest level possible, and all levels of government work interdependently.

Vanguardian Personal Growth and Development

Vanguardians are constantly growing and improving their attributes, skills, abilities, competencies and sustainable lifestyles as they set goals, increase knowledge, practice, and gain experience. This may be accomplished in several ways:

- Constantly learning new knowledge, earning Knowledge Points and improving the Knowledge attribute
- Constantly earning a reputation, being awarded Reputation Points and improving the Reputation ability
- Constantly accomplishing tasks and goals, earning Experience Points and advancing experience levels
- Setting a personal goal to improve other attribute scores, skills, competencies, abilities, or a Sustainability score
- Developing an innovation

For the Vanguardian who has chosen to follow the Wisdom Path (optional), constantly growing in wisdom, being awarded Consciousness Points and advancing through the Wisdom Path rather than setting other personal goals.

Earning Knowledge Points, Reputation Points, and Experience Points does not require the Vanguardian to first set a personal goal; all three of these occur simultaneously while the Vanguardian is pursuing another chosen specific personal goal. Note that advancing in any of these ways means increasing other aspects of the Vanguardian's

capabilities, since everything is linked: attributes, abilities, competencies, and skills.

Knowledge Points

Your Vanguardian is constantly learning important facts and information while on Missions, and so will earn Knowledge Points. Players should take notes on facts, information, lessons and insights that arise during gameplay, and record these on the Vanguardian Folder or elsewhere. Vanguardians then share that knowledge with the Vanguardian Headquarters and mentors. Based on the quality of the notes and sharing, the Vanguardian earns Knowledge Points, which are recorded in the Knowledge attribute points box on the Vanguardian Folder. After 10 Knowledge Points are accumulated, your Vanguardian's Knowledge attribute score is increased by one. After your Vanguardian's Knowledge attribute score is raised to its maximum score of 11, your Vanguardian will be able to convert Knowledge Points into Experience Points.

Improving Reputation and Reputation Points

Your Vanguardian improves Reputation by earning Reputation Points, which are recorded on the Vanguardian Folder in the Reputation box. After your Vanguardian has earned a cumulative total of 10 Reputation Points, your Vanguardian's reputation ability score is increased by one. The Reputation score can reach a maximum of 11.

The Reputation ability is unique, because it can fluctuate up or down, and because your Vanguardian can always earn Reputation Points through discovery of new Ancestor Accomplishment items, even if your Vanguardian has not selected Reputation as your personal goal. However, if your Vanguardian's personal goal is increasing Reputation, then when your Vanguardian creates an innovation or accomplishes something great and public to move the community toward sustainability and resilience, your Vanguardian also earns Reputation Points in addition to Experience Points. Earning Reputation Points requires your Vanguardian to request your Vanguardian's Tchacker to actively make the news of your Vanguardian's accomplishments go viral via online social media.

Preservation of one's own culture does not require contempt or disrespect for other cultures.
Cesar Chavez

Vanguardians earn Reputation Points for all new Ancestor Accomplishment items discovered and publicized by the Tchacker via online social media. Note that Ancestor Accomplishment information is just about the only "public information" available on a Vanguardian, since private records are secured and scrambled. Ancestor Accomplishment items include when you (the player) complete a service project in real life, when you make sustainable lifestyle changes in your real life, when you conduct relevant research in real life outside the gameplay session, or when you create an ARegg.

If your Vanguardian makes Reputation their personal goal, your Vanguardian also earns Reputation Points for completing or accomplishing the following Mission tasks or goals:

- Restore (boot up) old web hubs to provide communities with access to the legacy Internet
- Release the contents of an ARegg
- Solve an environmental mystery
- Plan and implement ecological restoration projects
- Create a plan for helping the community increase resilience to climate disruption and transition to sustainability

- Come up with new innovations
- Successfully complete an entire Mission

Your Vanguardian's Reputation ability score may be reduced for the following:

- Your Vanguardian breaks the Vanguardian Code
- Your Vanguardian makes a big mistake that results in harm to a person, community or the ecosystem
- Your Vanguardian becomes the innocent victim of an intentional public slander campaign
- Your Vanguardian resorts to violence or commits a crime

Earning Experience Points

Your Vanguardian earns Experience Points based on performance of any of several activities while on a Mission. Experience Points can be earned and applied toward increasing a Vanguardian's Branch. Vanguardians earn Experience Points by:

1. Successfully using attributes, skills and abilities

2. Performing tasks and accomplishing goals of a Mission

3. Completing a Mission

4. Celebrating a ritual or ceremony

5. Sharing knowledge during the briefing, and discussing Q & A during the debriefing

6. Developing an innovation or doing research outside gameplay sessions

7. Adding an item to a Vanguardian's Ancestor Accomplishments Gamesheet by the player's real-life involvement in environmental service, civic participation, creating an ARegg, or changes toward a more sustainable lifestyle

8. Converting a Vanguardian's earned Knowledge Points, Reputation Points, and Consciousness Points into Experience Points

In an Adventure, Experience Points are earned by your Vanguardian based on the accomplishment of each task or goal, and the quality of your Vanguardian's performance—fair, good, or exceptional teamwork. Experience Points are divided up between each Vanguardian who successfully participated in accomplishing the task, based on performance.

Setting a Personal Goal

While earning Knowledge Points, Reputation Points, and Experience Points are somewhat automatic for Vanguardians, all other growth and development occurs as a result of setting a personal goal and actively pursuing it. Your Vanguardians may improve attributes, skills, abilities, competencies and sustainable lifestyles by first setting an explicit personal goal, outlining a strategy to achieve the goal, and then actively learning, training, practicing and getting experience. Note that only one goal can be set per Mission. However, improving any one of these can have several ripple effects on other aspects of your Vanguardian's performance and capabilities. If your Vanguardian is on the Wisdom Path, they must make the Wisdom Path the Personal Goal, and may not set any other personal goals. Only Vanguardians who choose to follow the Wisdom Path may gain Consciousness Points to improve the Consciousness attribute score.

A good person leaves an inheritance to their children's children.
Proverbs

Improving Other Attribute Scores

Vanguardians may earn attribute points toward most of their other attributes—Persuasion, Influence, Sensing, Physique or Wellness —by your Vanguardian's performance while on Missions. Note that the Intelligence attribute score and Intuition attribute score do not normally improve or otherwise change. Before a Mission begins, your Vanguardian must first set a personal goal to intentionally improve one specific attribute score (e.g., Physique or Wellness) and then actively pursue the goal during the Mission. If your Vanguardian consciously adjusts their diet, drinks herbal teas and practices Tai Chi and Yoga, your Vanguardian earns Wellness Points. If your Vanguardian consciously engages in exercise, fitness training, and strength training, they can earn Physique Points. If your Vanguardian consciously improves or expands their social network of key influential people, connections, your Vanguardian earns Influence Points. After your Vanguardian has earned 10 attribute points, their attribute score may be increased by 1. All attributes may reach a maximum of 8, with the exception of Knowledge and Consciousness, which can reach 11, and the Consciousness attribute, which Vanguardians on the Wisdom Path can increase to 11.

Improving Skills

Vanguardians may improve an existing skill by setting an explicit skill goal before a Mission, and then improving through training, practice and gaining experience while on the Mission. Some skills cannot be set as goals, because of the limitations of a particular Mission. For example, a Mission that takes place in a desert wilderness area may not provide your Vanguardian with the nanotech lab they need to use to improve their nanotech skill. Your Vanguardian must report on progress at the end of each session during the post-play debriefing. At the end of a Mission, the skill level is increased by one.

Adding Competency in a Culture and Language

Vanguardians may add a competency in a new culture and a corresponding new language by setting this as an explicit goal and selecting the specific Culture and Language to be learned. To develop a competency in a new language and culture, your Vanguardian must find a fluent speaker and practice every day and immerse themselves in a cultural community while on a Mission. At the completion of a Mission, your Vanguardian will have the new competency. (See *Appendix – Table G: Cultures and Languages*.)

Improving Sustainability Score

Your Vanguardian may increase their Sustainability score by setting this as an explicit goal and selecting the specific indicator to be improved. Personal (or household) Sustainability scores for the twelve indicators range from 1 to 4 (Vanguardians will never have a zero, like others can have, except for "Ancestor Lifestyle," which for new Vanguardians is always "0") and "Participation in Community" will always be 4. Any indicator that is already at 4 cannot be improved. To improve the SUscore in one indicator area other than Ancestor Lifestyle, your Vanguardian must find and work with a willing person within the local ecoregional community who already has a score of 4 in that indicator and learn (and take notes on) any important information about the Sustainability indicator, and its best management practices. Your Vanguardian must also spend a few hours every day with the tutor to observe and practice the lifestyle changes while the Vanguardian is on the Mission. Refer to the list of best practices in *Table R: List of Sustainability Best Practices*.

To improve the SUscore in indicator area 7, Ancestor Lifestyle, your Vanguardian will have to

expend considerable effort to find evidence on the legacy Internet that your Ancestors (you) had adopted a sustainable lifestyle. This can only be done, of course, once you, the player, have engaged in these Ancestor activities outside gameplay, and have captured and shared them via social media at **#EarthQuestGame**. Once these activities are uploaded, they can be found on the legacy Internet in the future by your Vanguardian and your team of Tchackers.

Improving Resources

Resources may be increased by first having your Vanguardian set it as a personal goal and then actively pursue it during a Mission by frequently contacting key people from your Vanguardian's social network just to stay in touch and build additional trust and good will. Your Vanguardian will report back on progress during the debriefing. When your Vanguardian completes a Mission successfully, their Resources score is increased by 1.

Ancestor Accomplishments

You are your Vanguardian's Ancestor, and Ancestor Accomplishments are your own real-life deeds accomplished in the early 21st century. Ancestor Accomplishment items are a special source for earning Experience Points, since your Vanguardian directly benefits from having an Ancestor (you) engaged in making the world a better place through real-life activities. Because you are the Ancestor of your Vanguardian, when knowledge of an early 21st century Ancestor's activities is discovered on the legacy Internet, including through an ARegg you create, and is made public through social media, the descendant Vanguardian experiences increased social status through an improved Reputation score.

During the activities, make sure to take pictures and post them to social media using the hashtag **#EarthQuestGame**. You can write up a description using the Press Release Gamesheet format, record the activity in the Portfolio section of your Vanguardian Folder or the Ancestor Accomplishments Gamesheet and share your experience with your GM and your EarthQuest team. As your Vanguardian and Tchackers find this social media record on the legacy Internet and make it known publicly, your Vanguardian will earn Reputation Points for having an Ancestor (you) committed to sustainable living.

Never doubt that a small group of thoughtful committed citizens can change the world. Indeed it's the only thing that ever has.
Margaret Mead

An example of an Ancestor Accomplishment is when you (the player) engage in environmental or civic service projects or activities in real life outside of gameplay sessions, and then you share your social media posts with the GM and other players at the next gameplay session during the debriefing in order to earn Experience Points for your Vanguardian. Another Ancestor Accomplishment item is when you do independent research at home in real life outside of a gameplay session, especially for use in creating a new ARegg and share this. A third example is when you make a significant change in your lifestyle at home that increases your household sustainability, reduces your carbon emissions, or increases your household's adaptive capacity and resilience to climate disruption.

Participating in Outside Service Projects

Players can work with the GM to volunteer for environmental service projects and other civic service projects outside of EarthQuest gameplay. These are the experiences that will eventually

become Ancestor Accomplishments for your Vanguardian. You and the other players can volunteer together at one of the many existing service project programs already available in your community, including citizen science monitoring programs, tree plantings, community gardening, hiking trail maintenance, habitat restorations, creek restorations, and invasive species removal projects. There are also other civic service opportunities like tutoring students, building affordable housing, civil rights demonstrations, speaking at town hall meetings, and volunteering at a food bank or soup kitchen.

Service projects are hosted by a state or local natural resources conservation department, environmental protection department, or by community-based non-profit human services agencies. The host agency almost always has service project instructions or guidelines posted online, where you can find the dates and locations of these opportunities.

Remember to take pictures and videos of the service experience and share them via social media using the hashtag **#EarthQuestGame**. You can also share your media with other EarthQuest players in the EarthQuest App. These photos and video clips are included as Ancestor Accomplishments and can earn points for your Vanguardian. After a significant number of completed Ancestor Accomplishments, a player can be designated as a Founder.

Advancing Branches

Once your Vanguardian earns enough cumulative Experience Points, they may advance to the next Branch. The Vanguardian will have to return to Vanguardian HQ after the completion of the Mission before moving up to the next Branch.

Briefing and Debriefing

Each gameplay session begins with a briefing and ends with a debriefing. The briefing is the periodic status report your team of Vanguardians makes (using your Comms) to the Vanguardian Headquarters. The Vanguardians' mentors also participate in these briefing conference calls. The debriefing is the conference call the team of Vanguardians makes with their Tchackers as a way of sharing field experiences so that Tchackers can learn from their Vanguardian mentors. If any Vanguardians are on the Wisdom Path, their Elders are usually on these debriefing calls, too. During the debriefing, Tchackers (and Elders) ask questions as part of a Q & A (question and answer) process. Vanguardians share updates on their personal goals, and any results of Ancestor Accomplishment work, outside research or innovations. Vanguardians on the Wisdom Path also share their Consciousness experiences.

Playing as Postulants

As one way of adapting EarthQuest for younger players, the GM may decide to allow younger players to role-play Postulants—apprentices in pre-training to become Vanguardians—rather than Vanguardians. Postulants are much less complicated to role-play, since they do not have all the skills and abilities of a Vanguardian. If the GM decides to begin with Postulants instead of Vanguardians, your Postulants will focus on earning Knowledge Points until they become actual Vanguardians. Postulants earn Knowledge Points to move up Postulant levels or "Seasons." Once your Postulant becomes a Vanguardian, they will begin to earn Experience Points.

Advancing Postulant Seasons

Training, gaining experience and advancing levels are different for Postulants and Vanguardians. Postulant levels are called "Seasons" and

Vanguardian levels are called "Branches." Your GM will decide whether you will begin as a Postulant or a Vanguardian. Vanguardians usually begin at Branch one or begin as a Postulant in the Initiate Year ("year zero").

Gifted youth around 10 to 12 years of age are usually recruited by an Alliance or a Vanguardian as a promising and potential Vanguardian recruit. The recruit then applies to the Vanguardian Academy, and if accepted becomes a student. After six years, Academy students graduate (completing an accelerated and integrated high school diploma and college level associate degree equivalent), and then may go on, if accepted, into the Vanguardian Postulancy program.

Postulants undergo formal academic training in addition to applied skills training in vocational fields, and personal development (including character development, moral development, interpersonal skills, and leadership skills) under the mentoring and tutorage of one or more Vanguardians. Much of the training of Vanguardian Postulants takes place through applied internships within the Vanguardian organization, including participation in easier Missions and virtual simulations. Upper-level Postulants often become Tchackers assigned to their mentor Vanguardian.

Postulants have no stipend or resources, and any Gadgets are on loan. Their Reputation is zero. They have no skills or abilities perfected, so focus mostly on using their attributes. They do not set any other goals or earn Experience Points, but rather focus on earning Knowledge Points.

Season 0 ("Initiate Year" or "Wilderness Year") This is a trial period over one year to demonstrate the potential and commitment level of a young Postulant. The focus of training is spending time in wilderness, wilderness survival, doing a Vision Quest, practicing defensive Martial Arts, sustainable living, ceremony and ritual, and receiving intense mentoring.

In order to be accepted into full Postulancy:

- Must act according to the Vanguardian Code
- Must complete a Vision Quest, and be nominated by a mentor or Elder
- Must make a temporary pledge, oath or vow to complete the next three years of Postulancy

Season 1 The focus of training is Martial Arts, study of languages and cultures, applied vocational skills and an academic subject. Weekends, summers, and breaks are spent restoring the legacy Internet, helping on simpler Missions, and practicing on simulated Missions.

In order to progress to the next Season:

- Must act in accord with the Vanguardian Code
- Must gain at least five Knowledge Points
- Must successfully resolve a conflict with a peaceful resolution
- Must succeed in one simulated Mission

Season 2 The focus of training is Martial Arts, study of languages and cultures, applied vocational skills, Herbals and healing, and an academic subject. Weekends, summers, and breaks are spent restoring the legacy Internet, helping on simpler Missions, and practicing on simulated Missions.

In order to progress to the next Season:

- Must act in accord with the Vanguardian Code
- Must gain at least five Knowledge Points
- Must present a successful persuasion
- Must succeed in one simulated Mission

Season 3 The focus of training is Martial Arts, staff skills, study of languages and cultures, applied vocational skills, technology skills, and an academic subject. Weekends, summers, and breaks are spent restoring the legacy Internet, helping on simpler

Missions, and practicing on simulated Missions and/or apprenticing as a Tchacker.

In order to progress to the next Season:

- Must act in accord with the Vanguardian Code
- Must gain at least 10 Knowledge Points
- Must present a successful innovation
- Must develop personal vision statement
- Must succeed in one simulated Mission
- Must live sustainably enough to earn 3 in all sustainability indicator scores
- Must assume a new Vanguardian name

Advancing to Vanguardian Branches

Once a Postulant becomes a Vanguardian, Experience Points can be accumulated normally and applied toward increasing the Vanguardian's Branch. Use *Table E: Vanguardian Branches and Experience* to determine the number of Experience Points needed for each advancement in Vanguardian Branch, and the corresponding benefits of advancing to the next Branch.

Table E: Vanguardian Branches and Experience

	Season 1	*Season 2*	*Season 3*	*Branch 1*	*Branch 2*	*Branch 3*	*Branch 4*	*Branch 5*	*Branch 6*	*Branch 7*	*Branch 8*	*Branch 9*	*Branch 10*
Experience Points Needed	0	(5 KP)	(10 KP)	(10 KP) or 0	500	1,000	1,500	2,500	3,500	5,000	6,500	8,000	10,000
Wilderness Survival				+1	+1	+1	+1	0	+1	0	+1	0	+1
Herbal Use				+1	+1	+1	+1	0	+1	0	+1	0	+1
Healing				+3	+1	+1	+1	+1	0	+1	0	+1	0
Navigation				+1	+1	+1	0	+1	0	+1	0	+1	0
Weather Prediction				+1	+1	+1	0	+1	0	+1	0	0	+1
Plant Identification				+1	+1	+1	0	+1	0	+1	0	+1	+1
Wildlife Identification				+1	+1	+1	0	+1	0	+1	0	0	+1
Tracking				+1	+1	+1	+1	0	+1	0	+1	0	+1
Animal Husbandry				+1	+1	+1	+1	0	+1	0	+1	0	+1
Agriculture				+1	+1	+1	+1	+1	0	+1	0	+1	+1
Aquaculture				+1	+1	+1	0	+1	0	+1	0	+1	+1
Textiles				+1	+1	0	+1	0	+1	0	+1	0	+1
Woodcraft				+1	+1	0	+1	0	+1	0	+1	0	+1
Tool Making				+1	+1	+1	0	+1	0	+1	0	+1	0
Mechanics				+1	+1	+1	0	+1	0	+1	0	+1	0
Construction				+1	+1	+1	+1	0	+1	0	+1	0	+1
Electronics				+1	+1	+1	0	0	+1	0	0	+1	+1
Energy Tech				+1	+1	0	+1	0	+1	0	+1	0	+1
Biotech				+1	+1	0	+1	0	+1	+1	0	0	+1
Computer Tech				+1	+1	+1	0	+1	0	+1	0	+1	0
Nanotech				+1	+1	0	+1	0	+1	0	+1	0	+1
Mercantile				+1	+1	+1	+1	0	+1	0	+1	0	+1
Martial Arts				+1	+1	+1	+1	+1	+1	0	0	0	+1
Acrobatics				+1	+1	+1	+1	0	+1	0	+1	0	+1
Stealth				+1	+1	+1	+1	0	+1	0	+1	0	+1
Disguise				+1	+1	+1	+1	0	+1	0	+1	0	+1
Ground Vehicle				+1	+1	+1	0	+1	0	+1	0	+1	0
Watercraft				+1	+1	+1	0	+1	0	+1	0	+1	0
Aircraft				+1	+1	+1	+1	0	+1	0	+1	0	+1
Ecotesting				+1	+1	+1	+1	+1	+1	+1	+1	+1	+1
Hazmat Handling				+1	+1	+1	+1	+1	+1	0	+1	0	+1
EcoRestoration				+1	+1	+1	+1	+1	+1	+1	+1	+1	+1
Cultures/Languages				+3	+1	+1	+1	+1	+1	+1	+1	+1	+1
Reputation				+1	0	0	0	+1	0	0	0	0	+1
Resources				+1	0	+1	0	+1	+ 1 w/p	-1; +1 w/p	-1; +1 w/p	-1; +1 w/p	-1; +1 w/p
Recovery				+5%	+3%	0	+3%	0	+3%	0	0	0	0
Expense Stipend (U$)				100	200	300	400	500	750	1,000	1,250	1,500	2,000
Gadget				+1	+1	0	0	+1	0	0	+1	0	+1

The Wisdom Path (Optional)

In the EarthQuest game, there is an optional component called the Wisdom Path. If the GM and players agree, players may have their Vanguardians follow the Wisdom Path. Participating in the Wisdom Path allows a Vanguardian to reach the highest Branches of the Vanguardians (Branch 11 and 12) and upper leadership and become an Elder. There are many benefits to walking the Wisdom Path, and a few limitations, too.

The Wisdom Path is often described as a person's inner journey of increased awareness consciousness, connectedness, maturity and stewardship, which helps a person become fully human and fully alive, and deeply affects their relationship with other people and nature. The Wisdom Path is a journey into selfless and unconditional love of all other people (including opponents and those who seem to least deserve it), nature and oneself. The Wisdom Path leads a Vanguardian through the human life cycle of growth and development following a universal pattern of stages for adolescence, adulthood, and older adulthood.

Some type of Wisdom Path has been part of every human culture and society since the dawn of history, until the Age of Enlightenment when some modern societies lost sight of the Wisdom Path while elevating a simpler path based on each individual's pursuit of human reason, material comfort and pleasure. The pursuit of reason elevated the roles of intellectual knowledge, logic, and scientific methods to understand the world in order to change it and master it for one's own pleasure and benefit. This effort was very successful, and as a result, scientific knowledge and technological advancements grew tremendously, but many people in modern societies felt disconnected, lacked meaning and purpose beyond individual pleasure and benefit, and had mostly forgotten or ignored the Wisdom Path.

Some insightful leaders, however, insisted that reintegrating reason, emotion, consciousness, love and all the other human capacities into a Wisdom Path would be essential if humans were to regain the fullness of their capabilities and meaning once again. Many Elders from reclaimed and remnant Native American, First Nation, Eastern, Southern and Westernized indigenous traditions developed ways to integrate the great capacities of human reason, consciousness and love into the Wisdom Path. Fortunately, each new generation seemed to produce the occasional child gifted with an innate sensitivity and consciousness to the life patterns identified with the Wisdom Path. Under the right circumstances, these sensitive young people were able to connect with Elders who could help them navigate the Wisdom Path. Many of these young people became the Founders and the early Vanguardians.

The Wisdom Path is especially important for guiding a young person's journey from adolescence into mature adulthood within a community. Important knowledge, insights and wisdom were no longer easily accessible to young people in early 21st century modernized societies, and as a result, most young people in modernized societies were struggling to journey through adolescence to become happy, healthy, balanced, confident, knowledgeable, mature and wise adults with depth, meaning, connectedness and a clear sense of

purpose. Most did not “feel comfortable in their own skin.”

Society had become filled with immature, shallow and selfish adults—often dubbed "middle-aged kids"—obsessed with individualistic pleasure seeking, remaining young forever, keeping up with the Joneses by continually “status buying” the latest styles, fads and flashy “purposeless technology,” glorifying wealth and blindly pursuing material possessions, "success" and control. Most of it was for competitive status seeking. Many of these adults had problems with self-esteem, social skills, depression, and relationships. Many were insecure, confused about who they were, focused only on themselves, and were emotionally stunted. They had only a shallow understanding of themselves, other people, nature, the cosmos, and the Mysteries of life.

Communities were overwhelmed with unhappy, lonely and unfulfilled people—poor, middle class, and wealthy—who had little to give back to society and the important people in their lives. Many people filled their emptiness by turning to compulsive shopping, workaholism, drug and alcohol abuse, domestic violence, crime, gangs, depression, and suicide. Sons and daughters grew up not really knowing or connecting with their own fathers and mothers, sisters and brothers, and never feeling a sense of belonging to their community or nature around them.

The Founders and early Vanguardians—most of whom were young people—sought out the advice of some remaining Elders. Drawing upon ancient cultural, spiritual, and religious aspects of Native American, First Nation, Eastern, Southern and Westernized indigenous traditions to restore the "missing pieces" allowed youth, and especially young Vanguardians, to grow in maturity and wisdom. The Founders' novel approach integrated the insights and developments of reason and science, grounded in new understandings of the physical universe, biology, neuroscience, anthropology and technology, with the ancient wisdom traditions. This new integration is what is now called the "Wisdom Path." There are many different variations and adaptations of the Wisdom Path rooted in different cultural, spiritual, or religious traditions, but the same basic elements are common to all of them.

According to the Wisdom Path, humans are "Homo Habitatus," or humans who belong to and constantly adapt to their ecosystems in order to build their habitats as a community. Humans are integrated matter, energy, mind and spirit, and like everything else on earth, are "made from the dust of stars." Humans are innately social, cooperative, innovative, creative, symbol-based, and adaptive to the ecosystem. Especially because of their symbolic thinking ability, Homo Habitatus have an emergent power for storytelling and learning and growing by the power of deep stories. Together, they build a home that is safe, nurturing, meaningful and gives back to the earth as the earth gives to them.

Wisdom Path stories provide people with an identity, meaning and purpose deeply rooted in the earth's bio-geological cycles and seasons, the ever-changing ecological systems, and the cosmic patterns of the evolving universe. Wisdom Path stories empower mature, selfless people to humbly use their power for serving, healing, restoring, and protecting for the common good of the community, rather than wasting the personal power on selfish and immature pursuits of ego, body image, wealth, control, power and glory. Because of the power of story to bind communities together for a common noble cause, to change and compel human behavior, and to motivate individual humans seemingly beyond their normal human limitations, Homo Habitatus are the supreme adaptors; they are able to relocate to, survive and thrive in any and every ecosystem and social system.

Vanguardian Elders train young people to be fully human and fully alive "Homo Habitatus," which is now essential if they are to lead communities to become resilient, sustainable, thriving, and meaningful. Everyone will need to become fully human just to survive in the rapidly changing world.

Some Vanguardian Elders who have lived according to the Wisdom Path describe it as a story this way:

We are the Storytellers and the Timekeepers for all new generations. We discover The Story, we carry The Story, we become The Story, we tell The Story. Evermore we sing and dance our unique verse and invite the little ones to join. We live in communion with the past, the present and the future; with the dead, the living, and the yet born. We keep The Time and announce The Time for each generation's verse of The Story. At dusk and dawn, we arise from the edges of the world, to tell The Story to guide the little ones beyond the seventh generation. We are all the Story and The Time is Now.

As a result of participating in the Wisdom Path, young people receive guidance from a team of

> *The young generation can influence their elders and can make them understand the environmental problems that are faced by us today. The youth can make them see that our environment is deteriorating day by day.*
> *Oren Lyons*

Elders who have the time and dedication to bond deeply with young people, nurturing their sense of identity, meaning and purpose. Young people emerge from the Wisdom Path with a strong sense of who they are, what their special gifts are and how to use them to benefit others. They know in their bones that they are good and lovable, even when they are not perfect. They are confident in their abilities and accept their imperfections with humility. They know their place in the world, their place in the universe, and know deeply that they belong. Material goods are simply a means to an end, and they willingly and generously share their wealth with those who are most in need. They grow in their own skills, abilities and power, which is the power to lead, serve, heal, grow, restore and protect. It is said that Wisdom is the coming together of knowledge and love.

The Wisdom Path instills in all Vanguardians a commitment to peacemaking and non-violence, and is the source of effective conflict resolution and mediation. A Vanguardian's training in defensive Martial Arts is not only for self-defense and protection of those who are powerless, but also is a source of physical fitness, heightened body awareness, and meditation through movement. The Wisdom Path is also the source of the Vanguardians' formal code of ethics that promotes their lifestyle of humility, peace, compassion, public service, connection with nature and protection of

the earth, simple and sustainable living, constant learning and personal transformation, defending justice, and protecting human dignity for the common good. The Wisdom Path guides a Vanguardian to maturity, service, wisdom and love.

All young people in Vanguardian Academies and in training to become Vanguardians are provided experiences of the Wisdom Path. Every Postulant's Wilderness Year provides them with a wilderness experience, a Vision Quest, rites of passage maturity rituals, and Elders who provide guidance. The Wilderness Year is a culminating experience of time for young people to slow down, retreat from the busyness of the world, reconnect with nature, consider their own identity, meaning, and purpose, and learn the ways of healthy human development, maturity, and the right use of power. The Wilderness Year experience lays the foundation for each Vanguardian to enter the Wisdom Path, hence every Vanguardian is eligible to enter the Wisdom Path, if and when the Vanguardian chooses, and is deemed ready.

Once your Postulant enters the young adult phase of the Wisdom Path, your Postulant may choose the anima way guided by a small circle of older anima Elders with some involvement by one older animus mentor. All Elders serve as spiritual advisors, guides and wise visionaries. There are there are many variations of the Wisdom Path, based on the variety of life experiences that are often unique to growing up in the world following the anima path.

Young Postulants who follow the anima way of the Wisdom Path grow into a level of maturity that moves beyond petty jealousies and envy, beyond the constant comparisons and competitiveness, resentfulness, bitterness, self-righteousness, and self-centeredness, beyond being shaken by what others think of them and others not liking them. Young Postulants who struggle with some darkness, face life-and-death circumstances, and hold deep brokenness, are guided by their anima Elder 's circle into transformative life experiences by facing fears, overcoming barriers or experiences of failure, transforming loss, pain or brokenness, and letting go of old wounds. The Wisdom Path draws out their strength to accept life as is has been given to them—it is what it is—and develops in them an unshakable resilience in the face of change.

This anima journey through the Wisdom Path leads young Postulants to transformation through strong friendships, service and caregiving, experiences of nature, meditation, sacred movement, becoming a "wounded healer," and/or giving birth to a child and becoming a mother, literally or figuratively. Young Postulants who have been transformed through the anima way of the Wisdom Path experience humility, joy, balance, selflessness, a confident sense of self and deep identity, true vocation and purpose, rootedness and belonging.

Your Postulant may also choose the animus way, which offers a very similar but distinct journey, sometimes called the hero's journey. This hero's journey begins in childhood and involves work with parents, older siblings, teachers, mentors, and other adults who provide children with opportunities for experiencing their own goodness, strengths, gifts, power and potential. The young Postulant is provided opportunities to connect with nature and with the community and is helped to establish a sense of belonging and a positive role within the ecological and social fabric. These adults also provide opportunities for the Postulants to do

self-reflection to at least expose them to a deeper sense of themselves, the emerging True Self.

Along the animus way, there is structure, guidance, morals, rules, and parameters, along with opportunities for creative self-expression and some unstructured time of freedom and exploration of True Self, relationships and nature. Challenges, recognition for achievement, and rewards are provided to the Postulant.

Without positive experiences and healthy adult role-models, young postulants on the animus way never experience their own giftedness, worth, or identity. They may act out with inappropriate behavior that is self-destructive, violent or with abusive use of power against smaller children or creatures. They may turn excessively inward as a way of hiding, or resort to macho behaviors of shallow, toxic stereotypes to get attention.

The animus way Postulant may not have a healthy, mature father figure, and if so, will usually develop a life-long "father wound" that will have to be addressed if the Postulant is to ever mature into a healthy adult who knows how to wield power well and develop healthy intimate relationships with others. However, once Postulants on the animus way enter adolescence and walk the Wisdom Path, they are guided by a healthy, wise animus Elder, with periodic involvement by a small circle of Elders.

Young Postulants on both the anima way or the animus way of the Wisdom Path must undergo initiation, participating in rituals and rites of passage, to learn humility, the right use of power, and the presence of the good and bad in all humans, including themselves. They are forced to let go of those elements in their lives that are familiar, comfortable, and within their control. They enter the deeper Mystery of life, facing the unknown, their fears and insecurity. This requires an openness to the Mystery that is the source of transformation—however it is culturally defined or experienced. This requires a dying to the old self—the shallow, fake self—so that the deeper True Self may emerge and give the fullness of life. The young person uncovers or receives a symbolic sacred wound that is permanent.

Through this entire experience, the initiated young person finds a deeper sense of self, the True Self, and the unique set of gifts to offer to the world. The young person may be required to take on a special mission or quest as a pilgrimage. Upon completion of this period of initiation, the young Postulant makes or reaffirms a permanent pledge, oath or vow and earns a new name during the rite of passage, which is celebrated within the community and with the Elders during a public outdoor ritual, ceremony, or prayer service.

While it is most natural for a young person to enter the Wisdom Path during adolescence when this guidance is first needed, Vanguardian Postulants may delay choosing the Wisdom Path until they are more ready later on in life. This will require the Vanguardian to participate in initiation, and almost always requires the completion of a special mission or quest as a pilgrimage.

A Vanguardian on the Wisdom Path may have special dreams, visions, or moments of powerful insight. These can happen at night while asleep, during times of meditation or prayer, during times of crisis, or in the midst of a ritual or ceremony. They may even occur at seemingly random times when the insight, awareness, or vision arrives "out of nowhere." Many cultural traditions recognize the power of these dreams or visions for conveying self-knowledge or discernment knowledge, and see stories, dreams and ritual as a means of tapping into the deep psyche and collective unconscious to find patterns of human behavior or determine “the right timing" for a particular event or action. Elders

often help young people to develop the ability to decipher visions or nurture the ability to exercise some influence over dreams to bring wisdom and insight.

How the Wisdom Path Works

Vanguardians on the Wisdom Path must accumulate experiences, increase their Consciousness score, and do the appropriate rites of passage to progress to each successive Branch. Each Vanguardian Mission includes opportunities for a Vanguardian to meet and build relationships with Elders and from people at the margins of society, from whom the Vanguardian will collect experiences, including stories, insights, and other sources of wisdom. Following the Wisdom Path allows a Vanguardian to:

◈ Use the Consciousness attribute to increase any attribute temporarily by practicing mindfulness (meditation, contemplation, centering prayer, etc.).

◈ Use the Consciousness attribute to empower and enhance relationships with poor, marginalized and powerless people and create a following

◈ Use the Consciousness attribute to almost always find needed Herbals, especially through indigenous and traditional people

◈ Use the Consciousness attribute in times of powerlessness to experience visions or dreams that may provide important wisdom or insights

◈ Increase the Consciousness attribute score (only those Vanguardians who are on the Wisdom Path can increase the Consciousness attribute score)

◈ Progress more rapidly in several skills, including Healing

◈ Progress automatically in some attributes and abilities

◈ Have a significantly higher Recovery rate

◈ Significantly increase Influence, Persuasion, Reputation and Sensing

◈ Earn Experience Points for additional Ancestor Accomplishment items specific to the Wisdom Path

◈ Reach the highest levels of Vanguardian rank (Branch 11 and 12) and become an Elder

However, journeying on the Wisdom Path tends to slow down a Vanguardian's other development and progress on any other goals. While on the Wisdom path:

◈ No other personal goals may be pursued, and no other attributes may be increased by gaining attribute points, other than Knowledge Points for increasing the Knowledge attribute and Consciousness Points for increasing the Consciousness attribute.

◈ Reputation Points may also be earned for increasing the Reputation ability score. However, the Vanguardian on the Wisdom Path earns only half the number of Reputation Points that other Vanguardians would earn, and these are only when

working with poor, marginalized and powerless people. While Reputation Points are gained toward working with poor, marginalized and powerless people, a Vanguardian slowly loses Reputation Points when working with leaders and elites.

◈ A Vanguardian must speak out in the face of injustice, else regress along the Wisdom Path and lose Consciousness score points. If a Vanguardian reduces their Consciousness score, it may be possible to redeem or restore Consciousness by meeting with an Elder and taking on a quest or pilgrimage.

◈ A Vanguardian will experience reduced financial resources and may receive opposition from "the establishment" and those in position of power and authority. This is a result of "speaking truth to power," since people in positions of authority and power do not like to be reminded by a Vanguardian that they are out of line, acting unjustly or abusing power. This may result in a Vanguardian being politically blacklisted and losing access to some financial and political resources.

◈ A slower pace in developing higher technology-based skills and some other skills

To have a Vanguardian follow the Wisdom Path, the player should:

◈ Select the Wisdom Path as the personal goal on the Vanguardian Folder

◈ Keep the supplemental Wisdom Path Gamesheet inside the Vanguardian Folder and fill it out as needed

◈ Have the Vanguardian meet with or talk with Elders regularly (especially during Mission debriefings)

◈ Have the Vanguardian earn Knowledge Points and Experience Points while on a Mission in the same way every other Vanguardian earns them

◈ Divide the Reputation score into two scores on the Vanguardian Folder (EX: 7 / 7) in order to distinguish between Reputation when working with poor, marginalized and powerless people, and Reputation when working with elites and leaders

◈ Have the Vanguardian earn Consciousness Points while on a Mission by meeting Elders and visiting marginalized communities to harvest "consciousness experiences" and wisdom; write down wise insights on the Wisdom Path Gamesheet; and share these during the post-play debriefing (and eventually trade Consciousness Points for an increase in the Consciousness attribute score)

◈ Have the Vanguardian's Ancestor (the player) participate in Wisdom Path-based Ancestor Accomplishment activities in real life (see below), which become a source of "intergenerational wisdom" passed down from the Vanguardian's Ancestor to the Vanguardian, and earn extra Experience Points for the Vanguardian

On each Mission, there is an optional Wisdom Track that provides opportunities for Vanguardians on the Wisdom Path to grow in Consciousness by:

◈ Encountering key "wise people" (visionaries) and Elders. Many wise Elders are descendants of the famous thinker-doers (EX: Liz McKibben is the granddaughter of Bill McKibben). These wise people and Elders:

- Offer ideas or insights
- Offer wise sayings or quotes
- Recommend books and articles from their famous Ancestors
- Offer Herbal remedies
- Offer recipes for healthy foods
- Share blessings, songs or rituals (these connect people with nature, bind families or

communities, and may bring peace and healing if learned and then shared at appropriate times)

◇ Collecting other experiences, stories, insights, and other forms of wisdom by meeting with people from poor, marginalized and disempowered or powerless communities

A Vanguardian on the Wisdom Path should take advantage of these Wisdom Track opportunities by collecting (and writing down) experiences, stories, insights, relationships with Elders, and other forms of wisdom.

Using Consciousness While on the Wisdom Path

The Consciousness attribute may be used by all Vanguardians, but it has some special uses available only to those Vanguardians on the Wisdom Path. In addition to the *Second Chance Wisdom Response* and *Reading Human Longings* that all Vanguardians can use the Consciousness attribute to do, Vanguardians on the Wisdom Path can use Consciousness to do the following:

Mindfulness Practice: A Vanguardian on the Wisdom Path may increase any other attribute temporarily by practicing mindfulness (meditation, contemplation, centering prayer, etc.) just before using the attribute.

Empowerment: A Vanguardian on the Wisdom Path may enhance relationships with poor, marginalized and disempowered or powerless people by simply performing some kind of simple service, whether providing food and water, applying first aid, donating clothing, washing, performing a ritual or ceremony, telling an inspiring story, or some other simply act of human dignity. This is especially effective when crowds of marginalized people are rioting or otherwise engaged in violence or other self-destructive behaviors. The simple act, if carried out publicly with compassion and authenticity, instantly earns the trust and devotion of all the assembled marginalized people who witness the act, and they are able to instantly recognize the Vanguardian's goodness without any doubt or suspicion. The people will feel emboldened and empowered to do good and will follow the Vanguardian's instructions to their best ability for as long as the Vanguardian stays with them, encourages them, and leads them (unless the Vanguardian lets them down).

Locate Herbals: A Vanguardian on the Wisdom Path may almost always find needed Herbals, especially by connecting with indigenous and traditional people, or through other communities of poor or marginalized people. The Vanguardian must practice mindfulness (meditation, contemplation, centering prayer, etc.), and will become aware of the location of needed Herbals or clues (images, a felt sense, or awareness of people with access to the Herbals) of the direction and approximate distance to the location of the Herbals.

Vision: A Vanguardian on the Wisdom Path may have special dreams, visions, or moments of profound insight while spending time alone in nature; while asleep and dreaming; during times of meditation or prayer; in the midst of a ritual or

ceremony; during sickness, recovering or healing; while performing service or care of others; during times of captivity or crisis; or any other time when the Vanguardian has a loss of control or experiences powerlessness. When one of these conditions is occurring, the Vanguardian may choose to do a Consciousness success roll to determine if they experience a vision. If this is successful, the Vanguardian may experience a figure, animal or object conveying a message of self-knowledge, of discernment help with a choice that has to be made, of hints to determine "the right timing" for a particular event or action, or of clues to something or someone that should be found. Note that the meaning of the vision might not be immediately clear to the Vanguardian, but when the information becomes relevant in time, the Vanguardian may experience a déjà vu moment and remember the vision along with a new clear understanding of its meaning. A Vanguardian should write down any visions.

Experience Points and Branch Advancement While on the Wisdom Path

Vanguardians on the Wisdom Path earn Knowledge Points, Reputation Points, and Experience Points in the same way that other Vanguardians do, but may not set personal goals and pursue personal growth and development in the same way as other Vanguardians do. Rather, they must choose the Wisdom Path as their goal, and pursue Consciousness Points. Note that Vanguardians following the Wisdom Path will also have a different experience in “growing” their Reputation. As Vanguardians earn and accumulate Experience Points, they may use them to move up one Branch at a time in the same way that other Vanguardians move to the next Branch. Vanguardians on the Wisdom Path use a different experience table, however. (See *Table F: Wisdom Path Experience*.)

Only Vanguardians on the Wisdom Path many reach the highest levels of Vanguardian rank to become Branch 11 and Branch 12. After a special leadership induction ceremony to become an official Elder, Branch 11 Vanguardian Elders are placed in appropriate positions of leadership over a Vanguardian institution, especially the Academies, EarthQuest Simulators, and operating units at Vanguardian Headquarters, although they may still lead special Missions. Branch 11 Vanguardians also serve as Elders to younger Vanguardians. After a special Elder ritual and ceremony, Branch 12 Vanguardians retain their leadership positions and Elder status, but also become eligible to serve as members of the Vanguardian Council. Branch 12 Vanguardian Elders continue to serve as Elders to younger Vanguardians. As Branch 12 Vanguardians age, they also may request to be released to live in intentional communities in solidarity with poor people, or live as contemplative hermits in solitude in wilderness areas. Some may still continue to serve as Elders to younger Vanguardians.

Additional Ancestor Accomplishment Items While on the Wisdom Path

Extra Experience Points are earned when a player engages in the additional Wisdom Path Ancestor Accomplishment activities in real life and provides a report back to the GM and other players during the post-play debriefing. When completed, all Ancestor Accomplishment activities should be recorded on the Vanguardian Folder, or when filled, on the Ancestor Accomplishments Gamesheet.

◈ Participates in a traditional cultural event that is rooted in nature (agriculture, etc.)

◈ Reads a "wisdom" book and posts a book review online or implements an idea from a "wisdom" book

◈ Makes some food from a recipe that they learned in an EarthQuest Adventure

◈ Grows herbs or makes up an herbal remedy learned from an Elder in an EarthQuest Adventure

◈ Makes a recipe using sustainable organic and/or homegrown ingredients

◈ Develops an innovation by creating a new ritual or ceremony, celebrates a ceremony or performs a ritual, or offers a spontaneous blessing

◈ Gets the player's family to improve in sustainable behaviors

Consciousness Points

Only Vanguardians who choose to follow the Wisdom Path may gain points in their Consciousness attribute score by gathering and reflecting on wisdom experiences while on Missions. Vanguardians on the Wisdom Path are no longer focused on individual, personal development, except to the degree that some personal growth helps them mature, become more aware of their false self and human tendency toward fakeness, and then refocus on serving others, connecting, belonging and healing in the universe or Creation. Players should take notes on Elders encountered, stories, insights and visions that may arise during Missions. At the end of each gameplay session, during the post-play debriefing, a Vanguardian on the Wisdom Path shares with their Tchacker and Elder any key notes on new wise Elders encountered, new wisdom, stories, insights, visions or other experiences. The Vanguardian earns Consciousness Points, based on the quality and amount of sharing. After ten Consciousness Points are accumulated over time, and after the Vanguardian meets with an Elder and participates in a special ritual or ceremony, the Vanguardian's Consciousness attribute score increases by one. After the Consciousness attribute score is raised to its maximum score of 11, the Consciousness attribute score cannot be increased any further. Any Consciousness Points earned after that may then be converted into Experience Points.

Table F: Wisdom Path Experience

	Branch 1	Branch 2	Branch 3	Branch 4	Branch 5	Branch 6	Branch 7	Branch 8	Branch 9	Branch 10	Branch 11	Branch 12
XP NEEDED	0	500	1,000	1,500	2,250	3,000	3,750	4,500	5,750	7,000	8,500	10,000
Wilderness Survival	+2	+1	+1	+1	+1	+1	+1	+1	+1	+1	-	-
Herbal Use	+2	+1	+1	+1	+1	+1	+1	+1	+1	+1	-	-
Healing	+4	+1	+1	+1	+1	+1	+1	+1	-	-	-	-
Navigation	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	-
Weather Prediction	+2	+1	+1	+1	+1	+1	+1	+1	+1	+1	-	-
Plant Identification	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	-
Wildlife Identification	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	-
Tracking	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	-
Animal Husbandry	+2	+1	+1	+1	+1	+1	+1	+1	+1	+1	-	-
Agriculture	+2	+1	+1	+1	+1	+1	+1	+1	+1	+1	-	-
Aquaculture	+2	+1	+1	+1	+1	+1	+1	+1	+1	+1	-	-
Textiles	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	-
Woodcraft	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	-
Tool Making	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	-
Mechanics	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	-
Construction	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	-
Electronics	+1	-	-	-	-	-	+1	-	+1	-	-	-
Energy Tech	+1	-	-	-	-	-	+1	-	+1	+1	-	-
Biotech	+1	-	-	-	-	-	+1	-	+1	+1	-	-
Computer Tech	+1	-	-	-	-	-	+1	-	+1	+1	-	-
Nanotech	+1	-	-	-	-	-	+1	-	+1	+1	-	-
Mercantile	+1	-	-	-	-	-	+1	-	+1	+1	+1	+1
Martial Arts	+2	+2	+1	+1	+1	+1	+1	+1	+1	-	-	-
Acrobatics	+1	-	-	-	+1	-	+1	-	-	-	-	-
Stealth	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	-
Disguise	+1	-	-	-	-	+1	-	+1	-	+1	-	-
Ground Vehicle	+1	-	-	-	+1	-	+1	-	+1	+1	-	-
Watercraft	+1	-	-	-	-	+1	-	+1	-	+1	-	-
Aircraft	+1	-	-	-	-	-	+1	-	+1	+1	-	-
Ecotesting	+1	-	-	-	+1	-	+1	-	+1	+1	+1	+1
Hazmat Handling	+1	-	-	-	+1	-	+1	-	+1	+1	+1	+1
EcoRestoration	+2	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1
Cultures/Languages	+3	+2	+2	+1	+1	+1	+1-	+1	+1	+1	+1	+1
Reputation[◊]	+1	-	+1	-	+1	+1 w/p	+1 w/p	+1 w/p	+1 w/p	+1 w/p	-	-
Resources[◊◊]	+1	+1	+1	+1	+1	+1 w/p	-1; +1 w/p	-1; +1 w/p	-1; +1 w/p	-1; +1 w/p	-	-
Recovery	+10%	+5%	+5%	+5%	+2%	+2%	+2%	+2%	+2%	+2%	+2%	+2%
Sustainability score	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1
Influence	+1	+1	+1	-	-	+1	-	+1	-	+1	-	-
Persuasion[◊◊◊]	+1	+1	-	-	-	-	+1	-	+1	-	+1	+1
Sensing	+1	+1	-	+1	-	+1	-	+1	-	+1	-	-
Expense Stipend (Ụ$)	50	75	75	100	100	75	75	50	50	-	-	-
Gadget	+1	+1	-	-	+1	-	-	-	-	-	-	-

[◊] Reputation modifiers between Branch 6 and Branch 10 are mainly a Vanguardian's reputation among poor, marginalized and disempowered or powerless people or communities, and those who care about them. Among those who are in positions of power, wealth, and prestige, the Vanguardian has no increase in Reputation from Branch 6 through 10.

[◊◊] Whenever a Vanguardian works with poor, marginalized and disempowered or powerless people or communities, Resources are +1 (rather than a 0 or -1) from Branch 6 through 10. This is primarily for subsistence goods like unprocessed food, Herbals, wood, clay, textiles, animals, and low-tech goods.

[◊◊◊] When attempting to use Persuasion, if a Vanguardian on the Wisdom Path is having a one-on-one conversation with an elite or very wealthy person and no one else is part of the conversation, the Vanguardian can attempt to persuade the person to modify their behavior on behalf of poor, marginalized and disempowered or powerless people. In this case, the Persuasion attempt is +1 for each level from Branch 5 through 10.

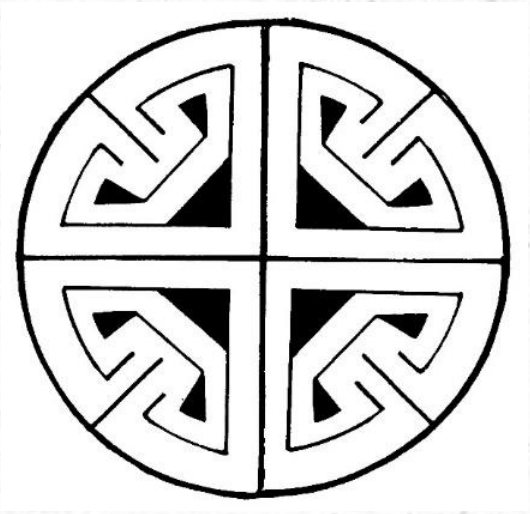
Wisdom Path Experience Level Modifiers

There are some modifiers to the *Table F: Wisdom Path Experience* for a Vanguardian on the Wisdom Path.

Whenever a Vanguardian works with poor, marginalized or powerless people or communities, Resources are +1 (rather than a -1) for each level from Branch 5 through 10. This is primarily for subsistence goods like unprocessed food, Herbals, wood, clay, textiles, animals, and low-tech goods.

Whenever a Vanguardian is alone with an elite or very wealthy person, Persuasion is +1 for each level from Branch 5 through 10 when the Vanguardian attempts to get the person to modify behavior on behalf of poor, marginalized or powerless people.

Reputation modifiers between Branch 5 and Branch 10 are mainly a Vanguardian's reputation among poor, marginalized or powerless people, and those who care about them. Among those who are positions of power, wealth, and prestige, the Vanguardian has no increase in Reputation from Branch 5 through 10.



Glossary of Key Terms

Academy (Vanguardian Academy) Academic institutions for training new Vanguardians focusing on learning that is helpful for solving the world's sustainability problems, skills in simple living and wilderness survival techniques.

Accuracy Refers to the ability of a high-tech Gadget or technology to work properly without malfunction or error. This is based on age, condition and quality of manufacture. Most Gadgets or technology items will indicate error or malfunction on an indicator screen or with an indicator light.

Adaptation (Climate change adaptation, Resilience) The actions or efforts of a person, household, community, ecoregion or society to adapt to climate disruption. Resilience is similar and refers to the condition of being well-adapted to climate disruption impacts. Adaptation and resilience are often used interchangeably.

Adventure (Mission) This is the scenario and simulation experience that EarthQuest players participate in under the facilitation of the GM. When the GM and players experience it, it is called an Adventure, and when Vanguardians experience it, it is called a Mission.

Adventure Story Map (Story Map) An interactive a digital map with the locations of all scenarios of an EarthQuest Adventure. The Story Map is for player use and is accessed by a mobile device through the EarthQuest App. Selecting map markers for scenarios opens up a multimedia experience that may include sound clips, video clips, pictures, 3D models, animated avatars, hyperlinks and/or text.

Affiliations Any formal association or membership a Vanguardian has with an Alliance, Academy, or spiritual group.

Age of the Anthropocene The geological age or epoch beginning in the mid-20th century characterized by unprecedented levels of human impact on the Earth. Indicators for the Age of the Anthropocene include human-caused climate change, nuclear contamination, mineral extraction, species collapse, pollution and waste accumulation, deforestation, loss of topsoil, and biodiversity loss.

Agency Entities or organizations from various sectors that come together collaboratively to form Alliances to financial support the work of Vanguardian Academies and provide resources to Vanguardians.

Alliances Groups of agencies and organizations that come together in formal collaborations to financially support Vanguardian Academies and provide resources to Vanguardians. Alliances are part of the advisory committees to advise a Vanguardian Academy.

Ancestor(s) In general, these are the generation of people who came before the time of EarthQuest. Usually, the term is used to refer to the players of EarthQuest, who are the Ancestors of their Vanguardians.

Ancestor Accomplishments Because players are their Vanguardians' Ancestors, Ancestor Accomplishments are when players engage in real-life activities to make the world a better place that are carried on outside EarthQuest gameplay sessions. Usually, players post pictures or videos of the activities on social media with the hashtag **#EarthQuestGame**, and when knowledge of these early 21st century Ancestor's activities is discovered in the future, the Vanguardian increases their social status through an improved Reputation score and Experience Points. Ancestor Accomplishments include environmental or civic service projects; outside research; creating a new ARegg; and a significant lifestyle change that increases sustainability.

Ancestor Tree A genealogical diagram displaying three generations that shows how a Vanguardian is a direct descendant of the player.

Anthropocene Prophesies Several prophetic, mythological and deep stories of warning about the future of the Age of the Anthropocene. These prophetic stories have been nestled within the various world cultures and have been passed on from generation to generation. They are now being used by Wise Elders to teach lessons to current generations and provide inspiration and insight to help people learn from our ancient human past and use this as guidance for decisions about the future.

ARegg An augmented reality "Easter egg" (ARegg) created by Founders or Ancestors in the early 21st century that holds information about local environmental problems, clues to solving environmental dilemmas, and personal notes about their struggles of their times. AReggs are secretly hidden in the memory of a deactivated web hub that can be recovered once the web hub is rebooted. Vanguardians need to solve riddles and puzzles in order to crack the cybersecurity protecting the AReggs. In real life, players (Ancestors) can create their own actual ARegg that can be found and used in the future by their Vanguardian descendant.

Assailant During an encounter, an assailant is the Vanguardian's opponent, whether a human, bot, drone or animal.

Attribute(s) Vanguardian attributes are used as a measure of a Vanguardian's mental, social and physical abilities. Includes Knowledge, Intelligence, Intuition, Sensing, Persuasion, Influence, Wellness, Physique and Consciousness.

Attribute Modifier A bonus number added to d12 success rolls based on higher attribute scores.

Availability A characteristic of an Herbal, Gadget or technology object that tells how easy or difficult it will be for Vanguardians to obtain.

Best Practices Community practices that help solve the most critical problems in sustainability, ecological degradation, high carbon emissions, adaptation and resilience to climate disruption, and democratic governance. Best practices are scientifically tested and have strong evidence showing that they work to solve problems. Vanguardians are trained in best practices, and also actively seek out new best practices in settlement where they are in use.

Booting up The act of restarting a deactivated legacy Internet web hub.

Bot A mechanical and computer-controlled robot that may have artificial intelligence and the capability for independent action.

Branch The level of a Vanguardian.

Brief (Mission Brief, Vanguardian Mission Brief) A written or digital report created for every Mission with background research about the ecoregion. The brief is compiled by Tchackers to assist the Vanguardian team while on a Mission.

Briefing (pre-play briefing) Each gameplay session begins with a briefing. For the Vanguardian team, it is a periodic conference call status report they make to Vanguardian Headquarters, with mentors also participating. For the players, this is a time for them to share (from their notes) any knowledge they learned during the previous gameplay session, and the GM awards Knowledge Points. (A briefing is not to be confused with a Vanguardian Mission Brief, which is a digital document.)

CARATS A planning gamesheet abbreviation which stands for Community Adaptation, Resilience and Transition to Sustainability. It also used to describe a type of planning.

CITax (Carbon-Impact tax) A carbon tax applied to all manufactured products, facilities and operations that calculates greenhouse gas emissions in the manufacturing or construction,

shipping, use and disposal. The CITax is calculated based on the item's sustainability score and is charged when the item is purchased.

Climate disruption The disruptive impacts from climate change. The cumulative disruption of the Earth's natural, stable climate system over time, mostly from corporate industry exploitation and burning of fossil fuels (coal, oil and fossil gas) and release of other chemical pollutants (called greenhouse gases) into the earth's atmosphere is known as climate disruption. This trapped excessive heat on earth, and transformed the water cycle, solar energy cycle, weather patterns, food webs, and most other natural cycles. The impacts of climate disruption include sea level rise, flooding, mega droughts, heat waves, wildfires, coastal hurricanes, extinction of millions of species, pandemics, and massive human famine and migration. Although initially preventable, climate disruption was ignored and allowed to continue by multi-national corporations and most governments with the tacit acceptance by older generations of the public who passed on the costs and responsibility to solve to their children and grandchildren.

Comm A personal digital communication device used by nearly everyone. They have a number of integrated utilities and features and usually are in the form of smartwatches or smartbands.

Commons Land that is owned by a community with shared rights and responsibilities to use the land and water and its other resources. All Commons have rules established by the commoners living there.

Companion Animal Stray or injured animals or wildlife rehabilitated and trained by Vanguardians to learn skills like hunting, tracking, and rescue. A companion animal will serve the Vanguardian until its death or the death of the Vanguardian.

d12 12-sided die or dice.

Dark Triads Leaders of the Other Forces, Dark Triads are known for their maniacal pursuit of extreme wealth, power and control and building empires of oppression. They have three especially dark personality traits: narcissism, psychopathy, and Machiavellianism (manipulation of others through deceit and tricks to achieve goals).

Debriefing (post-play debriefing) Each gameplay session ends with a debriefing. For the Vanguardian team, it is a periodic conference call a Vanguardian teams makes with their Tchackers as a way of sharing field experiences, and Elders are usually on these calls. Tchackers (and Elders) hold a Q & A (question and answer) session with Vanguardians, who share updates on their personal goals, Consciousness experiences, and results of Ancestor Accomplishments, including players' social media posts to **#EarthQuestGame**. The GM awards Experience Points at the debriefing.

Drones Remote, semi-autonomous or autonomous devices that fly in the air, move across the ground, move through the water, or tunnel into dirt to deliver items, provide camera surveillance, or perform specific acts or functions in distant locations from the drone operator. Drones are extremely commonplace everywhere in the world of EarthQuest.

Earthlaw A series of laws adopted by all Unum League ecoregional governments that recognized the intrinsic rights of Nature and conferred legal "personhood" to Nature; recognized the inalienable human right to a clean, healthy, biologically diverse and resilient ecosystem and planet; established a right to environmental justice for all people; and established intergenerational equity for all future generations to enjoy the rights of sustainable use of natural resources and ecosystem services. Ecoregional governments also adopted "little Earthlaws" to protect and restore local watershed ecosystems, establish sustainable local fair-market economies, and increase ecosystem resilience to climate disruption.

EarthQuest An educational scenario and simulation role-playing game created by the Founders to teach their children and the next generations of youth about ecological restoration, sustainability, climate disruption and civic leadership. This eventually became the EQSim.

EarthQuest App (EQ App) A mobile device app used by EarthQuest players that provides access to electronic versions of all game materials and the Adventure Story Map with multimedia content. The EQ App can be used to access all game materials; collaboratively fill out gamesheets in real-time; see points awarded by the GM; communicate in the Player Forum; and schedule EarthQuest events.

EarthQuest Simulator (EQSim) An alternate reality and virtual reality experience created by the Vanguardians using artificial intelligence-generated simulations based on possible future scenarios. Similar to a "video game" using MMORPG serious game scenarios, the EQSim engages thousands of people to collaboratively solve wicked problems and develop innovative solutions.

Elders (wise Elders) The older generation who grow in experience and traditional wisdom and offer prophetic advice and guidance to Vanguardians and others, especially for the transition to sustainability, personal growth in Consciousness and while on the Wisdom Path, and in promoting peace.

Encounters When Vanguardians face a potential assailant, including adversarial humans, bots, drones or animals, and may choose to do nothing, avoid engagement, or initiate an encounter sequence (direct engagement or conflict), which is divided up into a series of exchanges.

Experience Points Points awarded by the GM to players' Vanguardians for taking various actions during gameplay. After accumulating a number of Experience Points, Vanguardians progress up to the next Branch of experience.

Fly (The Fly): The modern, ultra-speed World Wide Web (internet) that most people use, controlled by the multinational corporation, FlyCorp, and requires a paid subscription to access. Its legal name is ComNet, and The Fly is the branding name.

Founders The youth leaders of the world who rose up as a movement beginning in the early 21st century and formed global and local networks to work together to live simply and sustainably. Inspired wise Elders and the Anthropocene Prophesies, they built ecovillages and experimental democratic watershed communities of sustainability, hope, resistance, and thriving, and eventually birthed the Vanguardians. Note that EarthQuest players can eventually become designated as Founders.

Freebies (Free riders) Non-citizens who do not pay taxes or get involved in civic responsibilities in the ecoregional democratic government. (Also called "free riders.")

Gadgets High-tech, powered electronic tools and equipment that are usually hand-held, wearable, or small enough to be portable, including micro-Gadgets that can be implanted or embedded in the body as piercings, or injected as nanoscale Gadgets. Vanguardians are known for embedding Gadgets into their staffs.

Game Mentor (GM) The person who serves as the facilitator, storyteller and referee and leads the gameplay sessions for a group of players in EarthQuest.

Game Mentors Rulebook (*EarthQuest Game Mentors Rulebook*, GM Rulebook, GMRB) One of two rulebooks used in the game of EarthQuest, with the *Game Mentors Rulebook* focused on information and detailed rules needed by the GM to facilitate gameplay sessions for the players.

Gameplay Players actively playing a focused game of EarthQuest under the facilitation of the GM.

Gameplay session A discrete time period that players and the GM gather in person and/or remotely to play EarthQuest. Playing an EarthQuest Adventure is usually spread over several gameplay sessions over several days or more.

Gamesheets Forms used by players and the GM in EarthQuest to record and track information, tally points, and draft plans or strategies by their Vanguardians to meet the goals of a Mission. Gamesheets may be printed and written on using pencil, or they may be filled out electronically using a digital device.

Gear Low-tech, non-powered items, equipment, and supplies that Vanguardians use (and borrow) for Missions.

Global Culture The most common culture around the world in the time of EarthQuest. It is rooted primarily in the Western Euro-American culture. Transition Culture is an alternative to Global Culture.

Graphoenix A refined form of the nanomaterial, graphene, Graphoenix is a low-cost, sustainable material with many unique properties and with vast uses in ecofriendly and climate-friendly products. Unlike graphene, Graphoenix can be formulated as a biologically inert nanomaterial to eliminate human and ecological toxicity. Graphoenix is light, 100 times stronger than steel, flexible, transparent or opaque, highly conductive of electricity and heat, magnetic, and self-repairable. Graphoenix is used in electronics, quantum nanocomputers, batteries, solar voltaic cells, bioscanners, biomedical applications, air and water filters, clothing, tools, equipment, bioglass, and most Gadgets. Developed by the Vanguardians, Graphoenix largely replaced toxic fossil fuel-derived plastics, and was invaluable to the transition to sustainable, nontoxic products and sustainable local economies.

Health Points The number of "life" points a Vanguardian has. Whenever injury occurs, Health Points are reduced until they reach zero and the Vanguardian is physically dead.

Herbals Includes primarily natural biological extracts derived from medicinal plants and fungi that are used by Vanguardians and most people around the world for healing and general wellness.

Innovations Creative new ideas or inventions including new technology (Gadget or tech inventions), models, tools, approaches or procedures in law, policy, procedures, or organizations that bring about transformative change.

Key People (Key Person) Significant people in a community that a Vanguardian should encounter while on a Mission. If they get to know one another, the key person can be added to the Vanguardians social network and become a source of resources and influence.

Legacy Internet (World Wide Web, WWW) This is the free global digital network first created in the late 20th century to share multimedia information and conduct real-time transactions. It was targeted for shutdown in order to force users to the private, commercial, subscription-based and ultra-speed **Fly.** Vanguardians are actively restoring the legacy Internet, which is their (and local ecoregional communities') main source of information, communication, and dissemination of best practices.

Marshals Ecoregional police force members in Unum League areas.

Mentor A Vanguardian's professional advisor who helps them rise up the Branches to become a more successful Vanguardian.

Mission (Adventure) This is the strategic operation that a team of Vanguardians is sent on to achieve specific goals and help ecoregional communities solve urgent problems, solve

environmental mysteries, and help them transition to sustainability and climate adaptation.

Mission Statement Personal statement about a Vanguardian's purpose or mission in life.

Mud Games The most common community athletic sporting event in Unum League areas, where two teams of twelve players compete and collaborate to move through muddy waters and powerful waves of flood water to get a dry game ball into a chute on the opposite end of a recessed game field.

Museum of Waste (CMoW) Established by local youth, these mostly informal community museums exist throughout Unum communities and carry displays of previous generations' conspicuous consumption, retail product packaging, frivolous technology, and waste. CMoWs were designed by youth leaders as cheeky, sarcastically funny, and satirical educational exhibits meant to provoke feelings of shock, anger, sadness and shame.

New English (Common or "C") The English language has evolved into New English and is a common language for government and commerce. There are notable influences of Spanish and Chinese language into New English, and spelling, grammar and pronunciation have been simplified and streamlined. There are often many acceptable ways of spelling, pronouncing, and grammatically constructing sentences in New English.

New Story A new way of seeing, thinking, and being, shared in story form. The New Story re-weaves the web of life wherever humans have broken it and brings back the balance among humans, nature and those humans considered as "others." It restores the original human identity as earth stewards and restores the fullness of humanity in all its diversity. It includes the science Story of the Universe and sees humans as co-writers of the still unfolding New Story. It is a corrective to broken stories of the past and brings on the Age of the Earthlaw and the rise of Homo Habitatus, humans finally at home. The Elders gave this New Story to the Vanguardians, who have made it their own.

Nudges Subtle psychological techniques a Vanguardian uses during an interrogation to get a person to reveal withheld information and divulge secrets. Nudges are used only with high ethical standards of humane, non-violent treatment. A Vanguardian's Persuasion attribute score determines the success rate.

One-On-One A Vanguardian interviewing technique used to persuade a person to tell their personal story. The term is also used to refer to an interview technique that persuades a small group to talk about their values and group story.

Other Forces The mysterious adversaries of the Vanguardians who move in the shadows of upper society, establishing "Empires" of extensive networks of wealth, power and control, and heavily influence and manipulate the beliefs and behaviors of the general public with disinformation. Their empires foster injustice and economic inequality, polarized and violent societies, environmental degradation and unsustainability, and climate disruption. Their leaders are the Dark Triads.

Phenomenon Roll Rolling a "1" on a d12 success roll which results in an unusual phenomenon event.

Place Story A Vanguardian team's description of a settlement and its ecosystem including relevant information, data, trends, and stories that describe what is happening and provide an understanding of the roots of interconnected problems.

Player Someone from the early 21st century who plays EarthQuest.

Players Handbook (EarthQuest *Players Handbook*) One of two rulebooks used in the game of EarthQuest, with the *Players Handbook* focused on information needed by the players.

Post-History Refers to the events taking place between the early 21st century and the time that EarthQuest takes place. For players, the Post-History time period is a fictional but plausible near-future, and for Vanguardians, Post-History is the past, and includes the time of the Tribulations.

Postulant A young person in the Vanguardian Academy who is training to become a Vanguardian.

Rangers Peacekeeping and defense forces for an ecoregion in Unum League areas. These may be called up temporarily by the Unum League to serve as Troopers.

Resilience See *Adaptation*.

Rose Communities Pocket communities of resistance within the USMA, considered by some to be oases of sustainable and resilient local governance. They are networked informally and secretly with one another, the Unum League and the Vanguardians. Rose Communities are materially very poor and have almost no access to financial capital, but have become sources of alternative thinking, experimental living, and radical forms of community and direct democracy. They are mockingly called "Blood Cities" by many in the USMA.

Scrub and Frag The process used by Vanguardians and Tchackers to remove sections of data transmissions and fragment data transmissions for cybersecurity and privacy reasons.

Seasons The levels of a Postulant (pre-training to become Vanguardians).

SUbadge In Unum League areas, a SUbadge reflects a person's or a household's official sustainability level (sustainability score or "SUscore") and is usually worn in an obvious place on the outside of a person's clothing for everyone to see. Wearing a SUbadge with a high SUscore is the symbol of social status. SUbadges come in every imaginable shape and are usually an expression of a person's creativity and pride in achieving a high level of sustainability.

Success roll (Attribute success roll) A roll on a d12 to determine if an action or using an attribute is successful. If the number of the attribute (or action level) or lower is rolled, the action or use of the attribute is successful. With success rolls, the lower the number, the better

SUscore (Sustainability score) A SUscore is a ranking of household or family sustainability levels. Vanguardians work together within their family or household, and with all their neighbors in their community, to increase their sustainable living practices and their corresponding SUscores. A high SUscore is a way to high social status. SUscores are displayed on SUbadges.

Tchacker(s) (from "tech hacker") Advanced Postulants in training at a Vanguardian Academy to become a Vanguardian and apprenticed to Vanguardian mentors. These Vanguardian protégées use temporary code names and provide support to their Vanguardian during Missions, including finding information and securing resources. Tchackers usually bond very closely with their Vanguardian mentor.

Tribulations (The Tribulations) The times in the mid-21st century where climate disruption, the energy crisis of Peak Oil, global pandemics, and ecological destruction brought about collapse of ecosystems, economies and national governments; unprecedented number of natural disasters; harsh droughts, heat waves and famines; mass migrations of climate migrants and refugees; and regional wars over remaining resources. The pandemics—plague caused by the Yersinia pestis bacteria and a particularly contagious and drug resistant mutated avian influenza virus—swept the global human population in the post-history of the earth. Ecosystem damage from clearing of forests and wetlands diminished air and water quality, and loss of biodiversity, extinction of species and reduced

soil health diminished food production. Global fresh water supplies were depleted and contaminated by sea level rise and pollution.

Troopers Unum League's peacekeepers and national defense units assembled from reservists and ecoregional Ranger units or Marshal units.

Uberculture (Uberstory) The Uberculture is the overly individualistic, materialistic, and consumerist culture promoted by multinational corporations of early 21st century America and other places throughout the world. It is the unplanned, decentralized and cumulative result of powerful and manipulative corporate marketing strategies to create an Uberstory or "Middle Class Dream" promoting an unachievable fantasy that turned people into hyper-consumers aggressively competing for luxury, convenience, and social status through consumption and accumulation of material goods. Many believe it caused the wide socio-economic divide between wealthy elites and all other people, and forced the struggling middle class into the working class. The Uberculture is the societal norm in the USMA. Because they are dehumanizing, unsustainable, ecologically destructive and caused climate disruption, the Uberculture and Uberstory are the sources of cultural tensions between people in the USMA and people in Unum areas.

Unholy Trinity The simultaneous global disasters of climate disruption with ecological decline, the energy crunch from Peak Oil and the carbon bubble, and the high casualties from the influenza and plague pandemics that together caused the greatest devastation during the Tribulations of the mid-21st century.

Unis (YOO' neez or OOH' neez) (Singular Uni). Currency in the Unum League. The symbol is Ụ$.

Unum League The association of ecoregional democracies along the eastern and western coastal areas of the United States that arose during the Tribulations as the federal government and most state governments dissolved. The Unum League pools resources and efforts to respond to ecological crises, natural disasters, defense issues, and regional trade and sustainable economic development.

USMA (United States of Middle America) The union of "Heartland States" stretching contiguously from Louisiana in the south to Idaho and Montana in the northwest, with the capital in Kansas City, Missouri. The USMA formed when the U.S. federal government dissolved during the Tribulations. Governance is based on corporate free-market capitalism economic principles of weak state governments and powerful corporate "persons." USMA states focus on restoring the corporate capitalism economy, maximizing the use of natural resources and fossil fuels for rapid economic growth and wealth creation, empowering private corporations to lead the deregulated economy, and minimizing the role and reach of government in order to promote personal economic freedom and eventual financial wealth for all employees.

Vanguardians Dedicated teams of highly trained earth care peacemakers who carry out Missions to bring sustainable best practices to ecoregional democracies to ensure their survival. They help them investigate legacy environmental problems, restore ecosystems, transition to sustainability, reduce greenhouse gases, adapt to climate disruption, protect vulnerable people, and promote peace.

Vanguardian Code The moral value system and ethical code of honor and right conduct for the common good that the Vanguardians abide by.

Vanguardian Folder The gamesheet used by a player to record information about their Vanguardian and their activities during gameplay.

Vanguardian Name The code name used by each Vanguardian in order to protect their identity and prevent identity theft.

Vanguardian Staff The very symbol of the Vanguardians, the Vanguardian staff is a personal, customized 2-2.5-meter hardwood pole that all Vanguardians carry. It has many uses, including for exercise routines, in Acrobatics, for defensive Martial Arts, and in Vanguardian dances, ceremonies and rituals. It may be engraved with meaningful symbols and embedded with high-tech Gadgets.

Web Hubs Previously known as data centers and server farms, web hubs provide local communities access to the free legacy Internet. A major function of the Vanguardians is to bring deactivated and decommissioned web hubs back online, to provide access to the wealth of information, especially free environmental information, data maps and science and health research, stored within.

Wellness This is a Vanguardian's overall physical fitness and health. It is also a measure of the ability to heal wounds, defend against illness or infection, and recover from physical injuries.

Wisdom Path The Wisdom Path is an optional element of EarthQuest. The Wisdom Path is a Vanguardian's inner journey of increased awareness, consciousness and maturity, and a journey into selfless and unconditional love of all other people, nature and themselves. A Vanguardian who chooses to be on the Wisdom Path takes on special tasks and responsibilities and works very closely with wise Elders, seeking them out on every Mission to collect experiences, including stories, insights, and other sources of wisdom. A Vanguardian on the Wisdom Path also gains some special gifts and capabilities.

XM band Energy waves that take advantage of Quantum mechanics properties and allow a powered technology item to be energized or recharged at a distance or remotely and to simultaneously receive digitized data transmissions. XM band is the next generation "radio frequency wireless charging technology" going from 5G)5th Generation) to Xth Generation, which is a constantly self-advancing AI-driven process with artificial intelligence tech evolutions happening every Xth minute.

APPENDIX

Resources

Table G: Cultures and Languages

Language/Culture	Language Family	Sub-Family
Egyptian Arabic	Afroasiatic	Semitic
Hausa	Afroasiatic	Chadic
Sudanese Arabic	Afroasiatic	Semitic
Algerian Arabic	Afroasiatic	Semitic
Moroccan Arabic	Afroasiatic	Semitic
North Levantine Arabic	Afroasiatic	Semitic
Sa'idi Arabic	Afroasiatic	Semitic
Amharic	Afroasiatic	Semitic
Somali	Afroasiatic	Cushitic
Mesopotamian Arabic	Afroasiatic	Semitic
Hejazi Arabic	Afroasiatic	Semitic
South Levantine Arabic	Afroasiatic	Semitic
Tunisian Arabic	Afroasiatic	Semitic
Sanaani Spoken Arabic	Afroasiatic	Semitic
Ta'izzi-Adeni Arabic	Afroasiatic	Semitic
Vietnamese	Austroasiatic	Vietic
Khmer	Austroasiatic	Khmer
Javanese	Austronesian	Malayo-Polynesian
Indonesian (Indonesian Malay)	Austronesian	Malayo-Polynesian
Sunda	Austronesian	Malayo-Polynesian
Tagalog	Austronesian	Malayo-Polynesian
Malay (Malaysian Malay)	Austronesian	Malayo-Polynesian
Cebuano	Austronesian	Malayo-Polynesian
Hawaiian	Austronesian	Polynesian
Telugu	Dravidian	South-Central
Tamil	Dravidian	South
Kannada	Dravidian	South
Malayalam	Dravidian	South
Aleut	Eskimo–Aleut	
Inuit	Eskimo–Aleut	
Yupik	Eskimo–Aleut	
Blackfoot (Siksika)	Indigenous North American	
Cayuga	Indigenous North American	
Cherokee	Indigenous North American	
Choctaw	Indigenous North American	
Hopi	Indigenous North American	
Kiowa	Indigenous North American	
Mikasuki	Indigenous North American	
Mohawk	Indigenous North American	
Muscogee	Indigenous North American	
Navajo	Indigenous North American	
Ojibwe	Indigenous North American	
Oneida	Indigenous North American	
Onondaga	Indigenous North American	
Seneca	Indigenous North American	
Tuscarora	Indigenous North American	
Zuni	Indigenous North American	
Spanish	Indo-European	Romance
English	Indo-European	Germanic
Hindi (Sanskritised Hindustani)	Indo-European	
Bengali	Indo-European	
Portuguese	Indo-European	Romance
Russian	Indo-European	Balto-Slavic
Western Punjabi	Indo-European	Indo-Aryan
Marathi	Indo-European	Indo-Aryan
French	Indo-European	Romance
German	Indo-European	Germanic
Urdu (Persianised Hindustani)	Indo-European	Indo-Aryan
Italian	Indo-European	Romance
Gujarati	Indo-European	Indo-Aryan
Iranian Persian	Indo-European	Iranian
Bhojpuri	Indo-European	Indo-Aryan
Polish	Indo-European	Balto-Slavic
Odia	Indo-European	Indo-Aryan

Language/Culture	Language Family	Sub-Family
Maithili	Indo-European	Indo-Aryan
Eastern Punjabi	Indo-European	Indo-Aryan
Ukrainian	Indo-European	Balto-Slavic
Sindhi	Indo-European	Indo-Aryan
Romanian	Indo-European	Romance
Dutch	Indo-European	Germanic
Northern Pashto	Indo-European	Iranian
Magahi	Indo-European	Indo-Aryan
Saraiki	Indo-European	Indo-Aryan
Chhattisgarhi	Indo-European	Indo-Aryan
Nepali	Indo-European	Indo-Aryan
Assamese	Indo-European	Indo-Aryan
Sinhalese	Indo-European	Indo-Aryan
Northern Kurdish	Indo-European	Iranian
Bavarian	Indo-European	Germanic
Greek	Indo-European	Hellenic
Chittagonian	Indo-European	Indo-Aryan
Deccan	Indo-European	Indo-Aryan
Southern Pashto	Indo-European	Iranian
Czech	Indo-European	Balto-Slavic
Sylheti	Indo-European	Indo-Aryan
Irish	Indo-European	Celtic
Scottish	Indo-European	Celtic
Welsh	Indo-European	Celtic
Breton	Indo-European	Celtic
Cornish	Indo-European	Celtic
Manx	Indo-European	Celtic
Latin	Indo-European	
Yiddish	Indo-European	Germanic-Jewish
Japanese	Japonic	
Hebrew	Jewish	
Korean	Koreanic	language isolate
Thai	Kra–Dai	Tai
Yoruba	Niger–Congo	Volta–Niger
Igbo	Niger–Congo	Volta–Niger
Nigerian Fulfulde	Niger–Congo	Senegambian
Kinyarwanda	Niger–Congo	Bantu
Zulu	Niger–Congo	Bantu

Language/Culture	Language Family	Sub-Family
Rundi	Niger–Congo	Bantu
American Sign Language	Sign Language	
Mandarin Chinese	Sino-Tibetan	Sinitic
Wu Chinese	Sino-Tibetan	Sinitic
Yue Chinese	Sino-Tibetan	Sinitic
Min Nan Chinese	Sino-Tibetan	Sinitic
Hakka Chinese	Sino-Tibetan	Sinitic
Jin Chinese	Sino-Tibetan	Sinitic
Xiang Chinese	Sino-Tibetan	Sinitic
Burmese	Sino-Tibetan	Lolo-Burmese
Gan Chinese	Sino-Tibetan	Sinitic
Min Bei Chinese	Sino-Tibetan	Sinitic
Min Dong Chinese	Sino-Tibetan	Sinitic
Turkish	Turkic	Oghuz
Northern Uzbek	Turkic	Karluk
South Azerbaijani	Turkic	Oghuz
Kazakh	Turkic	Kipchak
Uyghur	Turkic	Karluk
Hungarian	Uralic	Ugric
Ainu (Japan)		
Basque		
Burushaski (Pakistan)		

Table H: Religions and Spiritualties

Some Religious and Spiritual Traditions of the World
Australian Aboriginal religion
Austronesian religion
Bahá'í Faith
Buddhism
Christianity
Confucianism
Hinduism
Humanism
Islam
Jainism
Judaism
Mormonism
Native American religion
New Thought
Paganism
Shinto
Sikhism
Sufism
Taoism
Traditional African religion
Unitarian Universalism

Table J: Educational Backgrounds

Academic Degree Concentrations
Administration
Agriculture
Arts (Visual Arts, Music, Theatrical Arts, Dance)
Biological Science (Biology, Wildlife Biology, Ecology, Biochemistry, Physiology, Veterinary Science)
Business and Entrepreneurship
Counseling
Engineering (Civil, Environmental, Mechanical, Chemical, Electrical, Biomedical, Energy, Nanotechnology)
Humanities (Philosophy, Religion/Theology, Literature, Languages, Culture Studies)
Information Science
Law
Medicine
Physical Science (Chemistry, Physics, Geology, Earth Science, Hydrology, Oceanography, Atmospheric Science, Climatology)
Social Science (Anthropology, Sociology, Psychology, Economics, Political Science, History, Communications)
Social work and Education

Table K: Environmental, Sustainability and Climate Heroes

Person
Aldo Leopold
Anne H. Ehrlich
Annie Leonard
Berta Cáceres
Bill McKibben
Chief Oren Lyons
David Brower
David Suzuki
Edward O. Wilson
Elinor “Lin” Ostrom
Francis Bernardone of Assisi
Mohandas K. Gandhi
Gifford Pinchot
Greta Thunberg
Henry David Thoreau
James Hansen
Jane Goodall
John Muir
Ken Saro-Wiwa
Kumi Naidoo
Lois Gibbs
Majora Carter
Maxima Acuña
Nnimmo Bassey
Paul Ehrlich
Pope Francis
Rachel Carson
Sr. Dorothy Stang
Stuart Udall
Theodore Roosevelt
Thomas Berry
Wangari Muta Maathai
Wendell Berry
Wynona LaDuke

Table L: List of Gear

Item	Cost Ц$	SUscore
Air filter mask, simple, cotton/Graphoenix	140	3
Anchor, steel	350	2
Arrows, Graphoenix (10)	4	4
Arrows, wood (10)	3	4
Axe, steel and wood	30	2
Axe, folding	45	2
Backpack, large Graphoenix (SI)	50	3
Backpack, small Graphoenix	35	3
Barrel, wood	50	4
Basket, reeds woven	5	4
Bedroll, wool/cotton	80	4
Beeswax, block (0.5 kg/1 lb)	10	4
Bicycle trailer with hitch	100	2
Bicycle, mountain Graphoenix	225	3
Bilge pump, aluminum and Graphoenix, with 2.5 m /8.25' collapsible hose	85	2
Binoculars (field glasses)	90	2
Biofuel canisters, Graphoenix (250 ml/8.5 oz)	3	3
Biofuel oil (for lantern) (250 ml/8.5 oz)	5	4
Bit and bridle, leather (for horse)	50	4
Blanket, winter, wool	50	4
Block and tackle, steel	60	2
Body harness, leather straps with Graphoenix buckles	100	3
Body spray (odor neutralizer)	5	4
Boomerang, wood	5	4
Boot knife, steel with sheath (16 cm/6.3")	25	2
Bow, long, compound Graphoenix	150	3
Bow, long, recurve wood	125	4
Bow, short wood	80	4
Bowl, steel (for pets)	5	3
Box, steel with lock (23 x 35.5 x 10 cm/ 9"x14"x4")	60	2
Bucket, wood (8 liter/2.1 g)	10	4
Burglar tools/lock picks	90	1
Cable, steel (30 m/98')	70	2
Cage, large steel (1.5 x 1 x 1 m/5' x 3' x3')	300	2
Cage, medium steel (1 x 1 x 1 m/3' x 3' x3')	170	2
Cage, small steel (0.5 x 0.5 x 0.5 m/20" x 20" x20")	70	2
Camp chair, folding canvas and Graphoenix	40	3
Candle holder, brass	4	3
Candle lantern, brass	4	3
Candle, beeswax (7)	5	4
Canister, food, thermal, graphite/steel (0.5 liters/17 oz)	20	3
Canoe, Graphoenix with paddles (4 person)	300	3
Canoe, wood with paddles (4 person)	275	4
Chain, heavy, steel/Graphoenix (3 m/10')	50	2
Chain, light, steel (3 m/10')	30	2
Chest, wood with steel hardware (1 x 1 x 1 m/3' x 3' x3')	100	2

Item	Cost Ц$	SUscore
Climbing gear (rock/tree)	100	2
Cloth, animal hair (9 m/10 yds)	15	4
Cloth, burlap (9 m/10 yds)	6	4
Cloth, canvas (9 m/10 yds)	8	4
Cloth, cotton fine (9 m/10 yds)	10	4
Cloth, cotton heavyweight (9 m/10 yds)	15	4
Cloth, hemp (9 m/10 yds)	9	4
Cloth, linen (9 m/10 yds)	18	4
Cloth, silk (4.6 m / 5 yds)	40	4
Cloth, wool heavyweight (9 m/10 yds)	25	4
Cloth, wool lightweight (9 m/10 yds)	20	4
Coffin, wood (2.1 x 1 m /7' x 3')	100	4
Come-along (hand winch)	90	2
Compass, stainless steel	20	2
Cook burner, traveling (biofuel)	40	2
Cook stove, traveling (biofuel)	70	2
Cooler chest, insulated (30 x 91 x 46 cm/1'x3'x1.5')	40	2
Crampons, steel and Graphoenix	35	2
Crampons, spiked steel/Graphoenix	50	2
Crate, wood (1.2 x 1.8 x 1.2 m/4'x6'x4')	30	4
Crowbar, steel	40	2
Crutches, wood	40	4
Disguise kit: make up, pastes, Graphoenix molding gel, wigs, hair, clothing, pads and accessories	200	1
Earplugs, Graphoenix foam (10)	2	3
Falconer's glove, leather	40	4
Field bag with strap (30 x 30 cm/1' x 1'), canvas	18	4
Field bag with strap (30 x 30 cm/1' x 1'), Hemp	20	4
Field bag with strap (30 x 30 cm/1' x 1'), leather	60	4
Field bag with strap (30 x 30 cm/1' x 1'), wool	30	4
Field chemistry kit	250	1
Field journal, leather, Waterproof (13 x 18 cm/5" x 7")	12	3
Field knife, steel with sheath (25 cm/10")	40	2
Filament, bioplastic (for 3D printer)	40	3
Filament, metallic Graphoenix for 3D printer	60	3
Fire extinguisher, portable	24	1
Fire starters (pine & sap) (box of 40)	10	4
Fishing net (8 sq m/25 sq ft)	150	4
Fishing rod, hooks, line, Graphoenix	30	3
Flashlight, solar battery	16	2
Flask, stainless steel (180 ml/6 oz)	16	3
Fleece (sheepskin), (0.5 x 1.5 m/20" x 60")	45	4
Glass cutter (13 cm/5"), steel	12	2
Glue, superior, Graphoenix in tube (60 ml/2 oz.)	8	3

Item	Cost Ụ$	SUscore
Grappling hook, steel	44	2
Grill, campfire, steel (30 x 60 cm/1'x2')	20	2
Hammer, steel and wood	15	2
Hammock, hemp	30	4
Hand cuffs, steel with keys	75	2
Hard hat with lamp, solar battery	40	2
Hatchet, steel and wood	20	2
Headlamp, solar battery	20	2
Heater, traveling (biofuel)	55	1
Hoe, steel and wood	20	2
Hydraulic cement, powder (475 ml/16 oz)	14	1
Incense, common	2	2
Insect netting, bed-size	10	3
Insect netting, head-size	4	3
Jug (3.8 Liters/1 gal), clay	8	4
Kayak, Graphoenix with paddles (1 person)	150	3
Kayak, Graphoenix with paddles (3 person)	250	3
Kayak, wood with paddles (1 person)	130	4
Kayak, wood with paddles (3 person)	200	4
Kitty Bag (SI)	5	1
Ladder (3 m/10'), Graphoenix	75	3
Ladder (3 m/10'), wood	70	4
Lamp, solar battery, Graphoenix	29	3
Lantern, biofuel, Graphoenix	23	3
Lantern, solar battery, Graphoenix	22	3
Leash, leather (for animals)	9	4
Leather hide (60 x 122 cm/ 2'x4')	39	4
Lifejacket, floatable Graphoenix	35	3
Machete, steel	20	2
Magnet (15 x 2.5 cm/6"x1"), cylinder	1	2
Magnifying glass, steel and Graphoenix	2	2
Matches, box (50) (SI)	1	2
Measuring tape (30 m/98')	5	2
Mess kit (plate/dish, bowl/pot, cup, fork, knife, spoon) (SI)	20	2
Mirror small, steel	4	2
Mug/tankard, clay	5	4
Net, seining	23	4
Pail (4 liter/1 gal), stainless steel	18	3
Pan, iron	22	3
Paper (100 sheets)	5	3
Paper, linen (100 sheets)	10	4
Parachute, Graphoenix	90	3
Parachute cord, Graphoenix 50'	22	3
Parchment (100 sheets)	8	4
Pencils, wood (5)	2	4
Pens, field with ink, Graphoenix (5)	10	3
Pick mattock, steel and wood	35	2
Pick, folding	45	2
Pitcher (4 liter/1 gal), clay	10	4
Piton, steel	2	2
Pole (3 m/10'), hardwood	23	4
Portable table, folding Graphoenix (1 x 1.5 m/3'x5' or 1 x 0.75 m/ 3'x2.5' when folded)	45	3

Item	Cost Ụ$	SUscore
Pot, iron	26	3
Pouch, small (10 x 15 cm/4"x6"), canvas (SI)	1	4
Pouch, small (10 x 15 cm/4"x6"), hemp	2	4
Pouch, small (10 x 15 cm/4"x6"), leather	4	4
Pouch, small (10 x 15 cm/4"x6"), wool	3	4
Pulaski/cutter mattock	45	2
Quiver, canvas (holds 20 arrows)	8	4
Quiver, leather (holds 20 arrows)	22	4
Raft, inflatable Graphoenix with oar-paddles (4 person) (4 person)	130	3
Rake, steel and wood	22	2
Rope, hemp (15 m/50')	10	4
Rowboat, aluminum with oars (4 person)	330	1
Rowboat, wood with oars (4 person)	400	4
Rucksack, canvas	30	4
Sack, large (170 liter/6 cu ft), canvas	10	4
Sack, small (85 liter/3 cu ft), canvas	5	4
Saddle bags, leather	170	4
Saddle blanket, wool	70	4
Saddle, leather (for horse)	300	4
Safety helmet, riding/climbing, Graphoenix	89	3
Sailboat, wood with canvas sails (3 person)	500	3
Saw, (76 cm/30"), steel	19	2
Saw, bow (60 cm/24"), steel	13	2
Saw, folding (30 cm/12" or 15 cm/6" folded), steel and wood	8	2
Saw, folding (30 cm/12" or 15 cm/6" folded), Graphoenix	9	3
Scale, merchant's	40	2
Scuba gear (full)	550	1
Sewing needles, steel (10)	3	2
Sheath, canvas for staff/bow/fishing pole	6	4
Sheath, leather for staff/bow/fishing pole	28	4
Signal whistle, steel	5	2
Skis, Graphoenix with boots & bindings (cross country and downhill)	190	3
Skis, Wood with boots & bindings (cross country and downhill)	170	4
Sled/toboggan, Graphoenix (3 person)	100	3
Sled/toboggan, wood (3 person)	90	4
Sledgehammer	25	2
Sleeping bag, cotton insulated	650	3
Slingshot, Graphoenix and leather	20	3
Snowshoes, wood and leather	70	4
Soap (0.5 kg/1 lb)	2	4
Solar cooker, steel and Graphoenix	29	3
Spade/Shovel, folding, steel and Graphoenix	33	3
Specimen bottles, clear, Graphoenix (250 ml/8.5 oz) (5)	16	3
Spyglass (15 cm/6") with case, brass	30	2

Item	Cost Ụ$	SUscore
Staff (2 m x 5 cm/6.5’ x 2” diameter), hardwood (SI)	50	4
Star chart, Graphoenix	12	3
Stretcher, canvas with wood poles (2.1 x 1 m/7’ x 3’)	49	4
SUbadge (8 cm x 8 cm/3” x 3”), various natural materials (SI)	40+	4
Sunglasses, Graphoenix	29	3
Sungoggles, Graphoenix	33	3
Tack and Harness, leather (for horse)	100	4
Tape, utility (7.5 m/25’ roll), Graphoenix	3	3
Tarp, waterproof (3 x 3 m/10’x10’), Graphoenix	19	3
Tea kettle, traveling (1 liter/34 oz), stainless steel	17	2
Telescope with case (40 cm/16”), steel and Graphoenix	79	2
Tent, Graphoenix (3 person)	90	3
Tent, large heavy canvas (8 person)	225	4
Thread, heavy, on wooden spool (76 m/250’), cotton	2	4
Tinder box with flint & steel, stainless steel	21	2
Toiletries bag, canvas traveling (soap, toothbrush, floss, tweezers, comb, razor, toothpaste, nail clippers, cotton cloths/pads, mirror)	19	4
Towel, cotton	11	4
Travel mug (600 ml/20 oz), stainless steel and Graphoenix	14	3
Vellum (100 sheets)	22	4
Vials, (90 ml/3 oz) tempered glass (4) (SI)	4	4
Waders, waterproof Graphoenix	49	3
Walking stick, adjustable/folding Graphoenix (1.5m/5’)	29	3
Water bag, collapsible (4 liters/1 gal), Graphoenix	19	3
Water bottle (600 ml/20 oz), stainless steel (SI)	16	2
Water hose, Graphoenix rubber (15 m/50’)	45	3
Water pure tablets	14	3
Waterproofing, tube (250 ml/8.5 oz)	13	2
Wheelchair, steel, canvas and Graphoenix	249	2
Whetstone	9	4
Wildfire shelter, Graphoenix	19	1
Wire saw, steel	13	2
Wire, 20-gauge coil (15 m/50’), copper	32	3
Wire, 10-gauge coil (30m/100’), steel	25	3
Medkits		

Item	Cost Ụ$	SUscore
Medkit, herbal (naturopathic): mortar & pestle, glass vials with tops, funnel, herb pouches (tea bags), bulb syringe, eyedropper, spray vaporizer, bandages, cloths/bandanas, gauze strips, tape, cotton balls, cotton swabs, finger splints, spoon, tweezers, scissors, scalpel, needle & thread, Bunsen burner, steel boil cup, thermometer, beeswax, cocoa butter, glycerin, alcohol, hydrogen peroxide, and oils (pine oil, olive oil, almond oil, sesame oil, neem oil, and peppermint oil), a variety of 30 Herbals, microgrinder, and essential oil microextractor.	500	4
Medkit, pharma: scalpel, scissors, syringes, tweezers, bandages, gauze strips, tape, cotton balls, cotton swabs, finger splints, tweezers, scissors, scalpel, needle & thread, Bunsen burner, steel boil cup, thermometer, various pharmaceuticals (ointments, creams, powders, pills, liquids), vaccines	3,000	1
Musical Instruments		
Bagpipes	400	4
Banjo	300	3
Concertina	200	3
Drum, hand	60	4
Dulcimer, lap	150	4
Fiddle	250	4
Flute, brass	220	3
Flute, wood	70	4
Guitar	160	4
Harmonica	20	3
Harp, lap	140	4
Lute	170	4
Lyre	200	4
Mandolin	164	3
Pan flute	80	4
Recorder, wood	20	4
Tin whistle	15	4

SI = standard issue

Table M: List of Clothing

Item	Cost Ụ$	SUscore
Áo giao lĩnh, cotton	20	4
Belt, leather	25	4
Blazer (sport coat), wool	70	4
Bodysuit, Graphoenix	80	3
Boots, all terrain, high, leather (S)	90	4
Boots, all terrain, low, leather	70	4
Cape with hood, wool	80	4
Cloak with hood, wool	70	4
Coat, leather outback	100	4
Coat, wool long	100	4
Coat, wool medium	85	4
Coveralls, cotton	30	4
Dashiki/Kitenge, cotton	20	4
Dhoti, cotton	22	4
Djellaba, cotton	24	4
Fez, wool	18	4
Galabiya, cotton	29	4
Gloves, leather driving	30	4
Gloves, leather work (SI)	20	4
Gloves, winter, Graphoenix	25	3
Gomesi/busuuti, cotton	19	4
Hanbok, cotton	23	4
Hat, felt cowboy	32	4
Hat, felt fedora	31	4
Hat, wool winter	24	4
Hijab, cotton	19	4
Hijab, silk	49	4
Jacket, cotton	55	4
Jacket, leather	85	4
Jelabiya, cotton	25	4
Kaftan/Boubou, cotton	26	4

Item	Cost Ụ$	SUscore
Kanga, cotton	23	4
Kanzu/Thawb, cotton	21	4
Kilt, wool	88	4
Kimono/Yukata, cotton	40	4
Kippah/Yarmulke, suede leather	14	4
Kippah/Yarmulke, wool/velvet	18	4
Moccasins, leather	29	4
Overcoat, leather	146	4
Overcoat, wool	90	4
Pants, cotton (SI)	26	4
Poncho (rain gear), wool, Graphoenix	28	3
Rain jacket, cotton	60	3
Robe with hood, wool	99	4
Ruqun, silk and cotton	67	4
Salwar kameez, cotton	31	4
Sari, cotton	41	4
Sari, silk	72	4
Sarong, cotton	38	4
Shirt, cotton (SI)	29	4
Shoes, athletic Graphoenix	57	3
Shoes, leather	89	4
Shorts, cotton	18	4
Socks, cotton	4	4
Socks, wool	6	4
Takiyah, cotton	32	4
Tunic, cotton	31	4
Vest, cotton	34	4
Vest, field utility with 30 pockets, canvas/ Graphoenix	40	3
Vest, leather	59	4
Vest, wool	39	4
Zhiduo, silk and cotton	29	4

Table N: List of Gadgets

Item	Description	Availability	Complexity	Cost Ụ$	SUscore
Air filter mask, Graphoenix	*Full-faced and more advanced than an air purifier, uses bionanotechnology to completely filter all airborne contaminants in the air, including heavy smoke and poison gases, to allow normal breathing.*	*G*	*6*	*220*	*1*
Air purifier	*Worn around nose and mouth to clean polluted air as it is breathed in.*	*G*	*7*	*125*	*2*
Aquadrone, mini or micro	*Mini or microdrone for surface water operations.*	*G*	*6*	*1,800*	*2*
Aquagills	*Attaches over nose and mouth and uses bionanotechnology to filter oxygen from water to allow underwater breathing (Tech level 6)*	*X*	*8*	*10,000*	*2*
Astrocharter	*Allows complete navigation by stars from dusk to dawn, even when stars cannot yet be seen by the naked eye. Especially useful when there is no GPS signal available.*	*X*	*6*	*4,000*	*2*
B flare	*A digitally-enhanced bionanotech light bomb that can light up a field to near-daylight level for 30-90 seconds. Must be used with a flare launcher.*	*G*	*2*	*100*	*1*
Battery pack	*For use in Gadgets or to transfer a charge to or recharge Gadget batteries.*	*G*	*7*	*150*	*3*
Bioscanner	*Biological tissue analyzer (5 cm/2" range), detects blood pressure, temperature, heartbeat, organ/tissue health, infections, viruses, diseases, and parasites in humans/animals*	*X*	*8*	*30,000*	*2*
Bug	*Small remote listening device that can be hidden from view.*	*G*	*5*	*150*	*2*

Item	Description	Availability	Complexity	Cost Ц$	SUscore
Comm (SI)	Smartwatch/smartband with minicomputer, browser, camera, watch, GPS, video telecommunicator, and AV player/recorder. Some with 3D imagery projection.	G	6	100	2
Comm Pad	Handheld computer	G	6	220	2
Compass/altimeter	Provides digital direction and elevation	G	4	200	2
Distance meter	Laser distance reader	G	3	120	2
Doorjam	Prevents doors from opening	G	4	150	2
Earpluggers, Graphoenix	Filters out loud noises and background noises while allowing no sound or only specific sounds to enters. Pairs with comms for custom control.	G	7	500	2
Ecoscanner	Eco analyzer (25 cm/10" range), detects biodiversity, health, disease, contaminants, moisture in soil, water, air, trees/plants.	X	8	30,000	2
Electric stunner	Electrical stunning device for use with humans or animals, usually in the form of an 18-21 cm (7-8") cylinder. Has two charges and can stun for 5-14 minutes (1d12+4) before needing a recharge.	X	6	13,000	1
Electronic Lockpick	Uses electronics, lasers and nanotech self-assembly to pick keyed and unkeyed locks.	X	8	12,000	2
Electroscanner	Detects electronics, and wi-fi, Bluetooth, XM Band, AM/FM, microwave transmissions.	G	6	1100	2
Emergency beacon	1 million candlepower light beam with white, yellow, blue, green, orange, red and purple colors. Can issue a revolving light, or a fixed spotlight beam.	G	1	400	1
EMP (Electromagnetic pulse) emitter / scrambler	(AKA "puzz" from sound) scrambles/disrupts electronics, electricity transmission, radio waves, XM band, and transmissions for 20 seconds (6m/20' radius) causing electronic devices to overload and shutdown; scrambles transmissions; and disrupts power disruption; high power use once/day; 1 in 12 chance of also disabling Vanguardian staff.	X	8	37,000	1
Field microscope	Handheld digital microscope using comm for screen.	G	3	900	2
Firestarter	Electronic lighter used to generate a flame.	G	2	200	1
Flare launcher	A small canon that shoots a B flare.	G	3	150	2
Fog net	Foldable net expands to vertical 3 x 3 meters (10'x10') screen for atmospheric water collection, pulling evaporated water out of the air near the ground's surface.	G	6	250	2
Geoscanner	Geo analyzer (25 cm/10" range), detects soil, sediment and rock type and type of minerals/elements present. Calculates slope and erosion rates, age, hardness, and inorganic chemicals/contaminants present.	X	8	30,000	2
Goggles, AR/VR	Folding augmented reality/virtual reality goggles with surround sound and powered by a comm.	G	7	9,000	2
Goggles, infra-red	Goggles that allow night vision in the infrared spectrum.	G	5	190	2
Goggles, magnifying	Goggles that can digitally magnify distant objects.	G	5	180	2
Grapnel & cannon	Silent, mini cannon that projects an expanding nanotech grapnel that can cling to surfaces and carry a thin cord. Often used for climbing walls. Range is 100 meters (300') straight up.	G	5	490	1
HazMat sensor	Senses hazardous substances or materials, including biological, chemical and nuclear.	X	7	12,500	2
ID Card (SI)	citizenship/membership smartcard with personal, health medical, and genealogical info; dynamic updates with GPS location.	G	2	30	2
ID Chip	Microchip implants for under the skin (replaces ID card)	G	6	250	3
Implant, cochlear	Bionanotech implant in the ear that enhances hearing.	X	8	10,000	1
Implant, corneal	Bionanotech implant in the eye that enhances seeing.	X	8	20,000	1
Implant, cranial	Bionanotech implant in the brain or skull that enhances memory or other cognitive functions.	X	8	25,000	1
Implant, nasal	Bionanotech implant in the nose that enhances olfactory (smelling) sense.	X	8	10,000	1
Implant, skeletal-muscular	Bionanotech implant that attached to the bones and skeletal muscles to enhance physical strength.	X	8	35,000	1
IR Field Glasses (SI)	Binocular, Infra-red night vision	G	3	390	2
Landrone, mini or micro	Mini or micro drone for surface land operations.	G	6	1,600	2
Magnet Climbers	Uses magnetic grips on gloves and shoes for climbing metal surfaces.	G	4	1,600	2

Item	Description	Availability	Complexity	Cost Ц$	SUscore
Mediscanner	Scans for medical conditions and injuries, including bone fractures, organ functions, internal bleeding and clots, soft tissue damage, and tumors.	X	8	50,000	2
Metal detector	Detects metal (type, quantity and distance) in the ground.	G	3	220	2
Mini winch	Shoots spike and a nanocord up to 4 meters (12 '), and can then pull up to 250 kg/550 lbs	X	4	4,500	1
Motion sensor	Senses motions and can send an alert or sound an alarm.	G	4	225	2
Nanotracers	Sends micro-GPS signal; ingested or injected into non-metal object (wood or seeds) and placed in water streams or airstreams to track flow and monitor conditions; may use XM band to transmit signals through rock for subterranean and canyon use	X	6	1,000	2
NGC (SI)	A handheld energy collector that uses bionanotechnology to capture and store solar, kinetic, electromagnetic, XM band and biogenetic energy in small quantities to power or recharge other handheld Gadgets, including Comms, in outback or wilderness areas. (Tech level 6.)	X	8	10,000	1
Nutrient Analyzer	Analyzes the nutrient content and nutrition value of plants or foods for humans and/or animals. Can determine if food has gone bad or what contaminants it has in it.	X	7	2,500	2
Peashooter	Long distance/ high velocity air-propelled mini-launcher for pellet, steel ball, dart, stone, nanotracer, GPS tracker, medicinal nanocapsule, etc.); manual pump; adjustable barrel width; controller for velocity/distance	X	8	3,000	1
Pheromones sprays	Spray with propellant that attracts or repels wildlife (various species)	G	1	325	3
Pocket tool (SI)	Carbon steel multitool with knife, scissors, file, screwdrivers, and pliers.	G	2	40	3
PolyPlas	1 liter/34 oz tube of pourable, moldable, shapeable nanotech Graphoenix clay that can take impressions or be sculpted and into any shape and slowly or quickly hardened by XM band waves into steel-like substance.	X	5	5,000	2
Radiation sensor	Sensor that detects all levels on radiation.	G	6	350	2
Rain collector / harvester	2 liter/68 oz foldable concave Graphoenix saucer that can be placed on the ground overnight to harvest rain and or condensation at sunrise.	G	6	40	4
Rock Climbers	Two hand-held grips that use Graphoenix microdrills to quickly drill into stone or other hard surfaces and then retract for easy climbing.	X	6	20,000	2
Scanner Chip: Animal	Microchip for insertion into a bioscanner for use with animals. Multi-combination chipsets allow various sets of analyses (mercury, PCBs, lead, etc.)	X	7	500	2
Scanner Chip: Human	Microchip for insertion into a bioscanner for use with humans. Multi-combination chipsets allow various sets of analyses (radiation, viruses, endocrine disruptors, etc.)	X	7	500	2
Scanner Chip: Mineral	Microchip for insertion into a Geoscanner for use with humans. Multi-combination chipsets allow various sets of analyses (fossil fuels, minerals, rare earth metals, etc.)	X	7	500	2
Scanner Chip: Vegetation	Microchip for insertion into an ecoscanner for use with environmental assessment. Multi-combination chipsets allow various sets of analyses (biodiversity, disease, invasive species, etc.)	X	7	500	2
Security System Tap	Microcomputer attachment that creates an automatic assessment and attempted override or shutdown of a centralized facility security system within 5-60 seconds.	X	8	50,000	2
Siren	Portable warning siren that can blast high-volume siren sounds for up to 5 miles, or much quieter sounds within a small room. Can be deafening if activated close to people or animals.	G	2	250	2
Skin Cleanser	Cleans and neutralizes most toxins, chemicals, poisons, venom and embedded nanochips off the surface and just below the surface of the skin.	X	7	23,000	1
Skydrone, mini or micro	Flying mini or microdrone for aerial operations.	G	6	1,500	2
Smoke nanofilter	Small nose plug permits emergency breathing through the nose when a person is in smoky area.	G	5	400	2
Soil sensor	Used for gardening and farming, indicates the general health of soil and determines how good it is for growing food.	G	6	300	3

Item	Description	Availability	Complexity	Cost Ţ$	SUscore
Sound amplifier	*Amplifies sound, especially generated through a comm.*	*G*	*5*	*250*	*2*
Sound synthesizer	*Creates an almost unlimited number of highly accurate mimicked sounds. Can record accurate sounds and voices and store for later use.*	*G*	*2*	*650*	*2*
Stickyglue	*Tube of bionanotech glue (120 ml/4 oz) that has variable levels of adhesion, from lightly tacky to epoxy-steel bond, based on exposure to XM band energy.*	*G*	*1*	*20*	*1*
Subsonic Attractor	*Emits an inaudible (to humans) sound that attracts various types of insects or rodents.*	*G*	*4*	*350*	*2*
Subsonic Repeller	*Emits an inaudible (to humans) sound that repels various types of insects or rodents.*	*G*	*4*	*350*	*2*
Tick	*Tiny electronic tracking device with GPS capabilities that clings to most surfaces with magnets and adhesives.*	*G*	*6*	*200*	*2*
Torch (SI)	*Combination flashlight and micro laser cutter, able to cut through the equivalent of a hardened steel chain link.*	*G*	*3*	*100*	*2*
Water collector/ purifier (SI)	*Uses multiple bionanotechnologies and attaches to a water bottle to clean polluted water for drinking. Removes sediment, chemicals, petroleum products, radiation, bacteria, and viruses.*	*G*	*5*	*79*	*2*
Water depth tester	*Determines the depth of a body of water from the shore or from the surface of the water up to 150 m (492').*	*G*	*5*	*250*	*2*

Table P: List of Technology

Item	Description	Availability	Complexity	Tech level	Cost Ụ$	SUscore
Aquadrone	Standard size drone for surface water operations.	G	6	5	1,600	2
Aquagill Dome	Foldable, submersible bioplastic dome in a small case that extracts oxygen from water and traps it under the dome to allows underwater breathing for a group of four (huddled together).	X	7	6	22,000	2
Body armor, Graphoenix	Abrasion-resistant, full body Graphoenix suit worn under clothing to protect against scrapes, abrasions, cuts, and burns.	X	5	5	1,200	3
Body armor vest, Graphoenix	Abrasion-resistant Graphoenix vest worn over clothing to protect against scrapes, abrasions, cuts, and burns.	X	5	5	400	3
Bot	Electromechanical and programmable devices of unlimited shapes and sizes used for accomplishing various tasks or functions. May have artificial intelligence or be tethered (controlled by a human or an A.I. bot) via a remote-control device.	X	8	6	5,000+	2
Flakjacket	Protects against high velocity projectiles and cuts	G	4	5	350	2
Generator, portable	Portable (40 x 40 x 40 cm/ 16” x 16” x 16”) generator uses hydrogen fuel cells and can run a home for one week.	X	8	6	20,000	2
HazMat Suit	Full body Graphoenix suit worn over clothing to protect against exposure to hazardous biologically and chemically hazardous materials.	G	6	5	800	2
Holoprojector	Small case contains projector that can project a HD 3D VR hologram in living color with sound.	G	6	5	350	2
Landrone	Standard size drone for surface land operations.	G	6	5	1,800	2
Leafs	Bionanotech synthetic leaf technology in clothing or other applications that converts sunlight into electrical energy or splits water molecules into hydrogen and oxygen and uses the hydrogen as a fuel in hydrogen fuel cells.	X	6	8	27,000	2
Radiation suit	Full body Graphoenix suit worn over clothing to protect against exposure to radiation.	G	5	4	900	2
Rainmaker	Canister of nanopellets that is carried up into the sky by a drone to seed clouds to force rainfall over 1 square km within 1-4 hours.	G	5	5	1,000	0
Skydrone, delivery	Standard to large size flying drone for aerial delivery of medium to large packages.	G	6	5	20,000+	2
Skydrone, reconnaissance	Standard size flying drone with cameras and microphones for aerial surveillance operations.	G	6	5	16,000	2
Solar panel, mini 25 Watt	Provides solar energy for Gadgets (20 x 20 cm/8”x8”)	G	2	4	25	3
Toolkits						
Toolkit (basic)	Case with carpentry and general-purpose tools and e-tools.	G	2	4	250	4
Toolkit (eco)	Case with tools for ecological restoration/testing of soils, water, air, trees, plants, fungi, wildlife.	G	5	6	4	200
Toolkit (mechanical)	Case with tools for repairing machines, engines, motors and mechanical equipment	G	6	6	4	200
Toolkit (tech)	tools for repairing computers, Gadgets, bots, drones and high-tech equipment	G	7	6	2	500

Table Q: List of Vehicles

Vehicle	Tech level	Energy/Fuel	Max Speed kph/mph	Range k/mi	Passengers	Cargo Space m^3/ft^3	Cost U$	SUscore
Airplane, Skyplane 1800, single engine, pontoons	5	biojet fuel	483/300	1610/ 1000	4	1/35	400,000	2
Airplane, eBearCub 20X, electric, single motor, pontoons	5	electric	290/180	1046/ 650	2	1.3/46	230,000	2
Amphibious car - on land	6	electric	130/80	563/350	5	1.1/40	100,000	2
- on water	"	"	70/44	724/450	"	"	"	"
ATV, 4 wheels, cargo cage, electric	3	electric	128/80	322/200	2	0.1/4	10,000	2
ATV, 4 wheels, cargo cage, engine	3	biofuel	121/75	322/200	2	0.1/4	11,000	2
Bicycle	3	NA	32/20	∞	1	(0.03/1)	150	4
Bus, 60-passenger, electric	5	electric	121/75	402/250	60	12/424	350,000	2
Canoe, wood	1	NA	5/3	∞	4	0.6/21	500	4
Car, hydrogen fuel cell	5	hydrogen	145/90	563/350	5	0.85/30	63,000	2
Car, biofuel	5	biofuel	145/90	563/350	5	0.85/30	65,000	2
Car, electric	5	electric	161/100	724/450	5	0.75/26	50,000	2
Cart, wood (1.8 x 3 x 1 m/6'x10'x3')	1	NA	NA	∞	2-4	1.7/60	1,000	4
Construction vehicle, biofuel	3	biofuel	121/75	402/250	6	2.8/100	400,000	1
Fishing boat, biofuel	3	biofuel	121/75	724/450	8	14/500	35,000	2
Fishing boat, hydrogen fuel cell	4	hydrogen	121/75	724/450	8	14/500	32,000	2
Fishing boat, electric	4	electric	121/75	885/550	8	14/500	25,000	2
Glider	3	NA	250/155	402/250	2	0.25/9	65,000	3
Helicopter, jet	6	biojet fuel	417/250	1610/ 1000	6	11/400	3,500,000	2
Helicopter, hydrogen fuel cell	6	hydrogen	290/180	1610/ 1000	6	11/400	3,350,000	2
Hoverboard, jet	6	biojet fuel	64/40	24/15	1	NA	4,000	1
Hover car, hydrogen fuel cell	6	hydrogen	290/180	563/350	4	1.4/50	100,000	2
Hover car, electric	6	electric	338/210	724/450	4	1.4/50	90,000	2
Hover cycle, hydrogen fuel cell	6	hydrogen	290/180	885/550	2	0.1/4	50,000	2
Hover cycle, electric	6	electric	338/210	1046/ 650	2	0.1/4	35,000	2
Jet ski, biofuel	4	biofuel	121/75	160/100	2	0.1/4	10,000	2
Jet ski, electric	4	electric	128/80	322/200	2	0.1/4	7,000	2
Jetpack	6	biojet fuel	161/100	62/100	1	0	27,000	1
Kayak	1	NA	6.5/4	∞	1	0.2/7	150	1
Motor cart	4	electric	40/25	322/200	4	0.25/9	500	3
Motor scooter	4	electric	128/80	724/450	2	0.1/4	1,500	3
Motorcycle, biofuel	4	biofuel	250/155	482/300	2	0.1/4	13,000	2
Motorcycle, electric	4	electric	280/174	724/450	2	0.1/4	9,000	2
Paraglider, non-powered	4	NA	64/40	16/10	1	0	2,500	3
Paraglider, powered	4	electric	96/60	322/200	1	0	6,000	3
Personnel carrier, armored, hybrid	6	hybrid biofuel/ electric	96/60	805/500	11	2.8/100	500,000	0
Raft (inflatable)	3	NA	3/2	∞	6	0.6/21	800	3
Riverboat, wood, electric	3	electric	60/37	1046/ 650	5-12	14/500	100,000	3
Rowboat, wood	1	NA	3/2	∞	5	0.85/30	350	4
Sail car, aluminum	4	wind	80/50	∞	2	0.2/7	350	2
Sailboat, wood	3	wind	40/25	∞	3-8	11/400	50,000	4
Sleigh/sled	1	NA	32/20	∞	2-6	0.25/9	200	4
Snowmobile, biofuel	4	biofuel	240/159	62/100	3	0.1/4	15,000	2
Snowmobile, electric	4	electric	270/168	322/200	3	0.1/4	8,000	2
Submarine, mini, hydrogen fuel cell	6	hydrogen	40/25	160/100	4	0.25/9	800,000	2
Tall sailing ship	3	wind (electric)	14/9	∞	10-100+	566/20,000+	750,000	4
Tractor, biofuel	4	biofuel	40/25	62/100	2	0.2/7	65,000	2
Tractor, electric	4	electric	55/34	322/200	2	0.2/7	45,000	2
Truck, light utility, biofuel	4	biofuel	145/90	563/350	2-5	2/70	55,000	2
Truck, light utility, hydrogen fuel cell	4	hydrogen	145/90	724/450	2-5	2/70	53,000	2
Truck, light utility, electric	4	electric	161/100	724/450	2-5	2/70	48,000	2
Ultralight, single motor	4	electric	113/70	322/200	1-2	0.1/4	7,500	4
Wagon (passenger), horse-drawn	2	NA	7/4	∞	10	5.6/200	3,000	4
Yacht, hybrid	6	hybrid biofuel/ electric	89/50	1610/1000	6-20+	14/500+	1,000,000	0

Table R: List of Sustainability Best Practices

Best Practice	Primary Category	Community Action	Organization/ Business Action	Individual Action	Secondary Categories											
					1	2	3	4	5	6	7	8	9	10	11	12
Adopt regenerative farming/gardening	1 Food	X	X	X	●				●	●	●	●	●	●	●	
Adopt agroecology	1 Food	X	X	X	●				●	●	●	●	●	●	●	
Adopt farm-to-table / fishery-to-table	1 Food	X	X	X	●		●								●	●
Adopt lawn-to-orchard / lawn-to-garden / lawn-to-hatchery	1 Food		X	X	●				●	●	●	●		●	●	
Adopt urban aquaculture for fish, shellfish, seaweed	1 Food	X	X	X	●				●	●	●	●		●		
Adopt hydroponics	1 Food		X	X	●				●	●	●				●	
Install raised-bed gardens	1 Food	X	X	X	●				●	●	●	●		●	●	
Install roof gardens	1 Food	X	X	X	●	●		●	●	●	●	●		●	●	
Install vertical gardens	1 Food	X	X	X	●	●		●	●	●	●	●		●	●	
Create farmers/fishers markets (community mandate)	1 Food	X			●				●						●	●
Build a resilience garden network	1 Food	X	X	X	●				●	●	●	●		●	●	●
Create farm hubs	1 Food	X	X	X	●		●						●		●	●
Create fish hatcheries coop	1 Food		X		●				●	●	●	●		●		●
Create tree/plant nursery coop	1 Food		X		●	●			●		●					●
Adopt seed saving	1 Food	X	X	X	●						●	●			●	
Adopt simplified diets	1 Food			X	●										●	
Adopt brownfield-to-greenhouse	1 Food	X			●				●			●		●	●	
Build hoop houses/greenhouses	1 Food	X	X	X	●									●	●	
Adopt no-till farming	1 Food		X	X	●				●			●		●		
Adopt insect harvesting for food	1 Food		X	X	●				●							
Set community quotas for minimum food production	1 Food	X			●				●					●	●	●
Build root cellars	1 Food		X	X	●	●							●	●	●	
Eat in season	1 Food		X	X	●			●					●	●	●	
Develop a famine strategy	1 Food	X	X		●									●	●	●
Adopt regenerative homebuilding	2 Housing	X	X	X		●		●	●	●		●	●	●	●	
Require bioassessment and SUscore history for home sales	2 Housing	X	X			●			●			●			●	●
Adopt house-to-homestead	2 Housing	X	X	X	●	●		●	●	●		●	●	●	●	●
Adopt mansion-to-flats	2 Housing	X	X	X		●		●	●				●	●		●
Transition to multi-family housing	2 Housing	X		X		●			●					●		●
Design houses for deconstruction	2 Housing	X	X			●			●			●	●	●		
Salvage building materials from house deconstruction	2 Housing	X	X	X		●						●	●	●		●
Build home offices/studios for work from home/learn from home	2 Housing	X	X	X		●	●	●	●					●		
Build co-housing and intentional communities	2 Housing		X	X		●			●						●	●
Conduct green rehab of housing	2 Housing	X	X	X		●		●		●		●	●	●	●	
Install graywater plumbing	2 Housing	X	X	X		●			●	●		●	●	●		

Best Practice	Primary Category	Community Action	Organization/ Business Action	Individual Action	Secondary Categories											
					1	2	3	4	5	6	7	8	9	10	11	12
Build strawbale houses	2 Housing	X	X	X		●		●	●				●			
Build tiny houses	2 Housing	X	X	X		●		●	●	●			●	●		
Install passive solar systems	2 Housing	X	X	X		●		●								
Install weatherization and insulation	2 Housing	X	X	X		●		●							●	
Install compost toilet	2 Housing	X	X	X		●		●	●				●	●	●	
Install biofuel heating	2 Housing	X	X	X		●		●	●			●			●	
Install geothermal heating	2 Housing	X	X	X		●		●	●						●	
Install xeriscaping	2 Housing	X	X	X	●	●		●	●	●				●		
Remove impervious surfaces	2 Housing	X	X	X		●	●		●	●		●		●	●	
Develop a sustainable housing and homelessness strategy	2 Housing	X	X			●								●	●	●
Build walkable communities	3 Transportation	X				●	●	●	●					●	●	
Build multi-use trails	3 Transportation	X	X				●	●	●					●	●	
Build bicycling lanes on roads	3 Transportation	X	X				●	●	●					●	●	
Build bicycling commuter centers with showers	3 Transportation	X	X				●	●		●				●	●	●
Expand public transit via electric trollies, trains, buses, subways, drones	3 Transportation	X					●	●	●			●		●		●
Install high speed rail	3 Transportation	X					●	●	●					●		
Expand water-borne transportation/short -sea shipping	3 Transportation	X	X				●	●		●				●		
Redevelop ports for local/regional trade	3 Transportation	X			●		●		●	●				●		
Transition to electric and hydrogen vehicles	3 Transportation	X	X	X			●	●				●		●	●	
Install electric and hydrogen recharge stations	3 Transportation	X	X				●	●						●		
Adopt carpooling and rideshare	3 Transportation	X	X	X			●	●						●		●
Adopt drone cabs	3 Transportation	X	X				●									
Convert roadways to permeable surfaces	3 Transportation	X	X				●		●	●		●		●		
Declare snow day/flood day to pause unnecessary transportation	3 Transportation	X					●	●						●	●	●
Adopt work-from-home/telecommuting	3 Transportation	X	X	X		●	●	●						●	●	
Design vehicles with amphibious capabilities	3 Transportation	X	X				●							●		
Develop a sustainable transportation strategy	3 Transportation	X	X				●	●	●				●	●	●	●
Adopt local /decentralized microgeneration of renewable electric energy and bioenergy	4 Energy	X	X	X		●		●	●					●		●
Adopt green building codes and standards	4 Energy	X				●		●	●	●		●	●	●	●	
Install smart electricity grids (networked/modular)	4 Energy	X				●	●	●					●	●		
Adopt energy use quotas	4 Energy	X				●	●	●					●	●		
Install biogas generators (anerobic digesters)	4 Energy	X	X	X				●	●			●	●	●	●	
Install land-based/offshore wind energy generation	4 Energy	X						●	●	●				●		
Install hydrokinetic energy generation	4 Energy	X						●		●				●		

Best Practice	Primary Category	Community Action	Organization/ Business Action	Individual Action	Secondary Categories											
					1	2	3	4	5	6	7	8	9	10	11	12
Install air source heat pumps	4 Energy	X	X	X		●		●						●	●	
Adopt biofuel energy generation	4 Energy	X	X	X		●	●	●	●					●		
Install ultralow-emissions woodstoves	4 Energy	X	X	X		●		●	●	●		●	●	●	●	●
Retrofit fossil gas distribution lines for green hydrogen energy	4 Energy	X	X			●	●	●	●	●		●	●	●	●	●
Develop a sustainable energy transition strategy	4 Energy	X				●	●	●	●	●		●	●	●	●	●
Adopt sustainable planning/green zoning	5 Land Use/ Biodiversity	X			●	●	●	●	●	●		●	●	●	●	●
Rezone buildings out of flood zones	5 Land Use/ Biodiversity	X					●	●	●	●				●	●	●
Adopt special biodiversity reclamation zones	5 Land Use/ Biodiversity	X			●	●	●	●	●	●		●	●	●	●	●
Adopt open space protection	5 Land Use/ Biodiversity	X	X		●	●	●		●	●				●	●	●
Adopt watershed-based planning	5 Land Use/ Biodiversity	X	X		●				●	●		●	●	●	●	●
Assess property taxes according to SUscore	5 Land Use/ Biodiversity	X			●	●	●	●	●	●		●	●	●	●	●
Adopt environmental impact assessment fees on homes according to SUscore	5 Land Use/ Biodiversity	X			●	●	●	●	●	●		●	●	●	●	●
Build urban block commons with central shared greenspace	5 Land Use/ Biodiversity	X	X		●	●	●	●	●	●		●	●	●	●	●
Conduct reforestation	5 Land Use/ Biodiversity	X	X	X	●	●	●	●	●	●				●		●
Conduct wetland restoration	5 Land Use/ Biodiversity	X	X	X	●				●	●		●	●	●	●	●
Remove impervious surfaces	5 Land Use/ Biodiversity	X	X	X		●	●	●	●	●		●	●	●	●	●
Apply concentrated development	5 Land Use/ Biodiversity	X				●	●	●	●	●		●	●		●	●
Redevelop brownfield sites	5 Land Use/ Biodiversity	X	X					●	●			●	●		●	●
Redevelop declining areas	5 Land Use/ Biodiversity	X	X		●	●	●	●	●	●		●	●	●	●	●
Conduct biodiversity protection	5 Land Use/ Biodiversity	X	X	X	●				●	●		●	●	●	●	●
Daylight urban creeks	5 Land Use/ Biodiversity	X							●	●		●	●	●	●	●
Restore creeks	5 Land Use/ Biodiversity	X	X	X					●	●		●	●	●	●	●
Adopt agroforestry	5 Land Use/ Biodiversity	X	X	X	●				●	●			●	●		●
Create nature preserves and protected natural areas	5 Land Use/ Biodiversity	X	X						●	●		●	●	●		●
Purchase development rights	5 Land Use/ Biodiversity	X	X		●	●			●							●
Create land banks and land trusts to restore and redistribute abandoned property	5 Land Use/ Biodiversity	X	X		●	●			●			●	●		●	●
Adopt an ecosystem approach	5 Land Use/ Biodiversity	X	X	X	●	●	●	●	●	●		●	●	●	●	●
Adopt regenerative soil management	5 Land Use/ Biodiversity	X	X	X	●				●	●		●	●	●	●	●
Plant pollinator gardens	5 Land Use/ Biodiversity	X	X	X		●			●					●		●

Best Practice	Primary Category	Community Action	Organization/ Business Action	Individual Action	Secondary Categories											
					1	2	3	4	5	6	7	8	9	10	11	12
Build urban green space	5 Land Use/ Biodiversity	X			●	●			●	●		●	●	●	●	●
Carry out guerilla seeding	5 Land Use/ Biodiversity		X	X	●	●			●							●
Remove invasive species	5 Land Use/ Biodiversity	X	X	X	●				●	●		●		●	●	●
Conduct a natural resources inventory	5 Land Use/ Biodiversity	X	X		●				●	●				●		●
Conduct a bioblitz	5 Land Use/ Biodiversity	X	X	X	●				●	●		●		●	●	●
Use citizen science monitoring	5 Land Use/ Biodiversity	X	X	X				●	●	●		●	●	●	●	●
Build green infrastructure	5 Land Use/ Biodiversity	X	X	X	●	●	●	●	●	●		●	●	●	●	●
Implement ecosystem-based adaptation	5 Land Use/ Biodiversity	X	X	X	●				●	●				●	●	●
Implement lawn conversions	5 Land Use/ Biodiversity	X	X	X	●	●	●	●	●	●		●	●	●	●	●
Revegetate with native species	5 Land Use/ Biodiversity	X	X	X	●	●	●	●	●	●		●	●	●	●	●
Build habitat corridors to prevent fragmentation	5 Land Use/ Biodiversity	X	X	X		●	●	●	●					●		●
Restore coral reefs	5 Land Use/ Biodiversity	X	X		●				●	●		●	●	●		●
Restore estuaries	5 Land Use/ Biodiversity	X	X		●		●	●	●	●		●	●	●		●
Restore and protect threatened species	5 Land Use/ Biodiversity	X	X						●	●		●	●	●		●
Convert monocrop planting to diverse planting	5 Land Use/ Biodiversity	X	X	X	●				●	●		●	●	●		●
Monitor invasive species at ports of entry	5 Land Use/ Biodiversity	X			●	●	●		●			●		●		●
Introduce biocontrols for Invasive species	5 Land Use/ Biodiversity	X			●				●	●		●		●	●	●
Conduct ecosystem services assessment	5 Land Use/ Biodiversity	X	X		●			●	●	●		●	●	●	●	●
Implement adopt-a-shoreline	5 Land Use/ Biodiversity	X	X	X	●		●		●	●		●	●	●	●	●
Build bird box / bee box / bat box	5 Land Use/ Biodiversity		X	X		●			●					●		●
Develop a biodiversity conservation strategy	5 Land Use/ Biodiversity	X	X		●				●	●		●	●	●		●
Develop a sustainable land use strategy	5 Land Use/ Biodiversity	X	X	X	●	●	●	●	●	●		●	●	●	●	●
Create a floodwater strategy	6 Water Use	X	X	X	●	●	●	●	●	●		●	●	●	●	●
Restore and protect lakes	6 Water Use	X	X		●	●	●	●	●	●		●	●	●	●	●
Protect groundwater recharge areas	6 Water Use	X	X	X					●	●		●		●	●	●
Protect karst areas from groundwater contamination	6 Water Use	X	X	X					●	●		●		●	●	●
Build upland ponds/ reservoirs/retention basins	6 Water Use	X	X	X	●	●			●	●		●		●	●	●
Require water withdrawal permits	6 Water Use	X								●			●	●		●
Remove obsolete dams	6 Water Use	X			●	●	●	●	●	●		●	●	●	●	●
Restore water-borne transportation system	6 Water Use	X	X				●	●	●	●		●	●	●	●	●
Build separated sewer systems and eliminate CSOs (combined sewer overflows)	6 Water Use	X				●	●		●	●		●	●	●	●	●
Protect storm sewer drains	6 Water Use	X	X	X		●	●		●	●		●	●	●	●	●

Best Practice	Primary Category	Community Action	Organization/ Business Action	Individual Action	Secondary Categories											
					1	2	3	4	5	6	7	8	9	10	11	12
Convert to low-water use facilities	6 Water Use	X	X	X	●	●		●	●	●		●	●	●		●
Install low-flow faucets	6 Water Use	X	X	X		●				●			●	●	●	●
Develop a drought strategy	6 Water Use	X	X	X	●	●		●	●	●		●	●	●	●	●
Require ecolabelling (scannable at point-of-sale)	8 Contaminants/ Toxics/	X			●	●	●	●	●	●		●	●	●	●	●
Conduct bioremediation/ phytoremediation	8 Contaminants/ Toxics/	X	X						●			●		●	●	●
Ban toxic substances	8 Contaminants/ Toxics/	X			●	●	●	●	●	●		●	●	●	●	●
Institute environmental impact sales taxes	8 Contaminants/ Toxics/	X			●	●	●	●	●	●		●	●	●	●	●
Adopt green chemistry	8 Contaminants/ Toxics/	X	X		●	●	●	●	●	●		●	●	●	●	●
Adopt TMDLs (total maximum daily loads) for water bodies	8 Contaminants/ Toxics/	X							●	●		●	●	●	●	●
Adopt cap-and-trade or cap-and-dividend programs for pollutants	8 Contaminants/ Toxics/	X	X					●	●	●		●	●	●	●	●
Adopt the precautionary principle (do no harm for new product releases)	8 Contaminants/ Toxics/	X	X		●	●	●	●	●	●		●	●	●	●	●
Install pollution scrubbers/filters	8 Contaminants/ Toxics/	X	X				●	●	●	●		●		●	●	●
Ban green-washing advertising	8 Contaminants/ Toxics/	X	X		●	●	●	●	●	●		●	●	●	●	●
Develop a toxic substances strategy	8 Contaminants/ Toxics/	X	X		●	●	●	●	●	●		●	●	●	●	●
Start a refuse, reduce, reuse, and recycle campaign	9 Consumption/ Waste	X	X		●	●			●	●		●	●	●	●	●
Ban short-term engineered obsolescence	9 Consumption/ Waste	X	X			●	●	●				●	●	●		●
Design for adaptability, disassembly and reuse	9 Consumption/ Waste	X	X			●	●	●				●	●	●	●	●
Create a circular economy for recycled/reclaimed materials	9 Consumption/ Waste	X	X		●	●	●		●	●		●	●	●	●	●
Design facilities and products for deconstruction	9 Consumption/ Waste	X	X			●	●	●		●		●	●	●		●
Eliminate non-essential single-use and disposable products	9 Consumption/ Waste	X	X	X	●	●	●	●	●	●		●	●	●	●	●
Mandate use of recycled plastics/materials only	9 Consumption/ Waste	X			●	●	●	●	●	●		●	●	●	●	●
Adopt and promote simple living lifestyle	9 Consumption/ Waste		X	X	●	●	●	●	●	●		●	●	●	●	●
Create a sharing economy	9 Consumption/ Waste	X	X	X	●	●	●	●	●	●		●	●	●	●	●
Create a tool exchange Coop	9 Consumption/ Waste	X	X		●	●	●	●	●	●		●	●	●	●	●
Host repair clinics	9 Consumption/ Waste	X	X		●	●	●	●	●	●		●	●	●	●	●
Apply tax to frivolous consumption	9 Consumption/ Waste	X			●	●	●	●	●	●		●	●	●	●	●
Adopt bulk-buying (BYOC - Bring Your Own Containers)	9 Consumption/ Waste	X	X	X	●	●	●	●	●	●		●	●	●	●	●
Eliminate excessive product packaging	9 Consumption/ Waste	X	X		●	●	●		●	●		●	●	●	●	●
Adopt composting	9 Consumption/ Waste	X	X	X	●			●	●			●	●	●	●	●
Conduct product life-cycle assessment	9 Consumption/ Waste	X	X		●	●	●	●	●	●		●	●	●	●	●

Best Practice	Primary Category	Community Action	Organization/ Business Action	Individual Action	Secondary Categories											
					1	2	3	4	5	6	7	8	9	10	11	12
Transition to zero waste (Community must process/store all its waste locally/regionally)	9 Consumption/ Waste	X	X	X	●	●	●	●	●	●		●	●	●	●	●
Use only natural materials for clothing	9 Consumption/ Waste	X	X	X				●	●	●		●	●	●	●	●
Adopt vegetarian or low meat diet	9 Consumption/ Waste			X	●		●	●	●	●		●	●	●	●	●
Develop a low consumption and waste elimination strategy	9 Consumption/ Waste	X	X	X	●		●	●	●	●		●	●	●	●	●
Transition to decentralized renewable energy	10 Climate Change Action	X	X	X		●	●	●	●	●			●	●	●	●
Shut down fossil fuel power plants	10 Climate Change Action	X	X					●	●	●		●	●	●	●	●
Conduct GHG emissions inventories/audits	10 Climate Change Action	X	X	X	●	●	●	●	●			●	●	●		●
Build resilient local economy	10 Climate Change Action	X	X		●	●	●	●	●	●		●	●	●	●	●
Conduct climate change vulnerability assessments	10 Climate Change Action	X	X	X	●	●	●	●	●	●		●	●	●	●	●
Develop climate change adaptation pathways	10 Climate Change Action	X	X		●	●	●	●	●	●		●	●	●	●	●
Develop GHG emissions elimination pathways	10 Climate Change Action	X	X		●	●	●	●	●				●	●		●
Conduct future scenario planning	10 Climate Change Action	X	X		●	●	●	●	●	●		●	●	●	●	●
Implement a transition to Localization	10 Climate Change Action	X	X	X	●	●	●	●	●	●		●	●	●	●	●
Transition to zero emissions (Community must store all its carbon emissions locally/regionally)	10 Climate Change Action	X			●	●	●	●	●				●	●		●
Develop coastal blue carbon plan	10 Climate Change Action	X							●	●				●	●	●
Prepare for future climate disruptions	10 Climate Change Action	X	X	X	●	●	●	●	●	●		●	●	●	●	●
Initiate managed coastal retreat via house buyouts	10 Climate Change Action	X	X			●			●					●	●	●
Prepare for new pandemics	10 Climate Change Action	X	X	X										●	●	●
Relocate roads, railroad tracks and bridges out of flood zones	10 Climate Change Action	X	X				●	●	●	●				●		
Move other assets out of flood zones	10 Climate Change Action	X	X		●	●		●	●	●		●	●	●	●	●
Develop a climate action and resilience strategy	10 Climate Change Action	X	X		●	●	●	●	●	●		●	●	●	●	●
Implement carbon sequestration via carbon farming/biochar	10 Climate Change Action	X	X		●				●					●		
Adopt physical fitness routines	11 Health and Wellness			X									●	●	●	●
Reduce taxes/fees to reward healthy lifestyles	11 Health and Wellness	X			●								●		●	●
Offer universal health care coverage	11 Health and Wellness	X												●	●	●
Establish a health insurance cooperative	11 Health and Wellness		X											●	●	●
Use Herbal medicinals	11 Health and Wellness	X	X	X	●				●					●	●	●

Best Practice	Primary Category	Community Action	Organization/ Business Action	Individual Action	Secondary Categories											
					1	2	3	4	5	6	7	8	9	10	11	12
Establish community health clinics	11 Health and Wellness	X	X						●					●	●	●
Practice Tai Chi / Yoga	11 Health and Wellness			X											●	
Practice personal rehydration routine	11 Health and Wellness			X						●			●		●	
Require truth in labeling	11 Health and Wellness	X	X		●	●	●	●	●	●		●	●	●	●	
Practice daily manual labor	11 Health and Wellness			X											●	●
Build walking paths	11 Health and Wellness	X	X				●	●	●					●	●	●
Build bicycling paths	11 Health and Wellness	X	X				●	●	●					●	●	●
Practice weekly solidarity fasts	11 Health and Wellness		X	X	●								●		●	●
Implement a junk food tax	11 Health and Wellness	X			●							●	●		●	●
Implement a junk food/sugar ban in schools	11 Health and Wellness	X	X		●							●	●		●	●
Develop a health and wellness strategy	11 Health and Wellness	X	X	X	●	●				●		●	●	●	●	●
Build local neighbor-to-neighbor networks	12 Participation in Community	X	X	X	●	●	●	●	●	●		●	●	●	●	●
Build capacity of local governments	12 Participation in Community	X	X		●	●	●	●	●	●		●	●	●	●	●
Form watershed community associations	12 Participation in Community	X	X	X	●				●	●		●	●	●	●	●
Form community think tank & innovation team	12 Participation in Community		X	X	●	●	●	●	●	●		●	●	●	●	●
Host town hall meetings and citizen assemblies for direct democracy	12 Participation in Community	X	X		●	●	●	●	●	●		●	●	●	●	●
Adopt community-based ecosystem-management	12 Participation in Community	X	X		●				●	●		●	●	●	●	●
Adopt commons governance and economy	12 Participation in Community	X	X		●	●	●	●	●	●		●	●	●	●	●
Perform regular Volunteerism/Community Service	12 Participation in Community		X	X	●	●	●	●	●	●		●	●	●	●	●
Use participatory community sustainability planning	12 Participation in Community	X	X		●	●	●	●	●	●		●	●	●	●	●
Implement a community mobilization and engagement strategy	12 Participation in Community	X	X		●	●	●	●	●	●		●	●	●	●	●
Build local businesses/ entrepreneurship	12 Participation in Community	X	X	X	●	●	●	●	●	●		●	●	●	●	●
Adopt a local currency	12 Participation in Community	X	X		●	●	●	●	●	●		●	●	●	●	●
Use crowdsourced funding	12 Participation in Community	X	X	X	●	●	●	●	●	●		●	●	●	●	●
Create a Community Foundation to pool donations	12 Participation in Community		X		●	●	●	●	●	●		●	●	●	●	●
Create local investment groups	12 Participation in Community		X	X	●	●	●	●	●	●		●	●	●	●	●
Form coops	12 Participation in Community		X	X	●	●	●	●	●	●		●	●	●	●	●
Promote BIMBY (begin in my back yard) by rewarding early adopters	12 Participation in Community	X	X	X	●	●	●	●	●	●		●	●	●	●	●
Establish new businesses as benefit corporations	12 Participation in Community		X	X	●	●	●	●	●	●		●	●	●	●	●

Best Practice	Primary Category	Community Action	Organization/ Business Action	Individual Action	Secondary Categories											
					1	2	3	4	5	6	7	8	9	10	11	12
Develop community youth leaders	12 Participation in Community	X	X												●	●
Create youth conservation corps	12 Participation in Community	X	X		●			●	●	●		●	●	●	●	●
Develop and support wise Elders	12 Participation in Community		X	X	●				●	●			●		●	●
Engage volunteers in adopt-a-hectare ecological service projects	12 Participation in Community	X	X	X	●				●	●		●	●	●	●	●
Conduct citizen science monitoring	12 Participation in Community	X	X	X	●			●	●	●		●	●	●	●	●
Create mentoring / apprenticeship programs	12 Participation in Community	X	X		●	●	●	●	●	●		●	●	●	●	●
Restore free access to the legacy Internet	12 Participation in Community	X	X		●	●	●	●	●	●		●	●	●	●	●
Build and support public libraries	12 Participation in Community	X	X		●	●	●	●	●	●		●	●	●	●	●
Adopt peer-to-peer learning	12 Participation in Community	X	X	X	●	●	●	●	●	●		●	●	●	●	●
Use gamification to motivate community participation	12 Participation in Community	X	X		●	●	●	●	●	●		●	●	●	●	●
Adopt green neighbor agreements	12 Participation in Community	X	X	X	●	●		●	●	●		●	●	●	●	●
Build capacity of climate migrant receiving communities	12 Participation in Community	X	X		●	●	●	●	●	●		●	●	●	●	●
Use augmented reality/virtual reality for visualization	12 Participation in Community	X	X	X					●				●	●		●
Practice community conflict resolution	12 Participation in Community	X	X	X										●	●	●
Practice peaceful communications	12 Participation in Community		X	X											●	●
Adopt re-skilling for essential skills	12 Participation in Community	X	X	X	●	●	●	●	●	●		●	●	●	●	●
Promote election days (compulsory voting)	12 Participation in Community	X	X													●
Adopt payments-for-ecosystem services	12 Participation in Community	X	X		●			●	●	●		●	●	●	●	●
Offer universal education via community schools/homeschool networks	12 Participation in Community	X	X		●	●	●	●	●	●		●	●	●	●	●
Mandate sustainability education, green entrepreneurship, re-skilling, and apprenticeships for all children	12 Participation in Community	X	X		●	●	●	●	●	●		●	●	●	●	●
Implement an arts and communication strategy	12 Participation in Community	X	X		●	●	●	●	●	●		●	●	●	●	●
Develop sports leagues for the Mud Games	12 Participation in Community	X	X											●	●	●
Promote the SUbadge program	12 Participation in Community	X	X	X	●	●	●	●	●	●		●	●	●	●	●
Convene traditionalists, changers and Elders	12 Participation in Community	X	X	X	●	●	●	●	●	●		●	●	●	●	●
Celebrate diverse cultures	12 Participation in Community	X	X	X	●								●		●	●
Develop local supply chain	12 Participation in Community	X	X		●	●	●	●	●	●		●	●	●	●	●
Protect and promote cultures/languages	12 Participation in Community	X	X	X	●	●	●	●	●	●		●	●	●	●	●

Best Practice	Primary Category	Community Action	Organization/ Business Action	Individual Action	Secondary Categories											
					1	2	3	4	5	6	7	8	9	10	11	12
Adopt Earth Laws (including model local laws)	12 Participation in Community	X			●	●	●	●	●	●		●	●	●	●	●
Adopt multi-lingual education	12 Participation in Community	X	X												●	●
Create cultural exchanges for knowledge sharing	12 Participation in Community	X	X		●	●	●	●	●	●		●	●	●	●	●
Adopt diverse uses of Graphoenix	Cross-cutting	X	X	X	●	●	●	●	●	●		●	●	●	●	●
Adopt diverse uses of nanotechnology	Cross-cutting	X	X	X	●	●	●	●	●	●		●	●	●	●	●
Adopt diverse uses of bionanotechnology	Cross-cutting	X	X	X	●	●	●	●	●	●		●	●	●	●	●
Adopt uses of biomimicry	Cross-cutting	X	X		●	●	●	●	●	●		●	●	●	●	●
Promote cybersecurity	Cross-cutting	X	X		●	●	●	●	●	●		●	●	●	●	●

Table S: Governments of EarthQuest

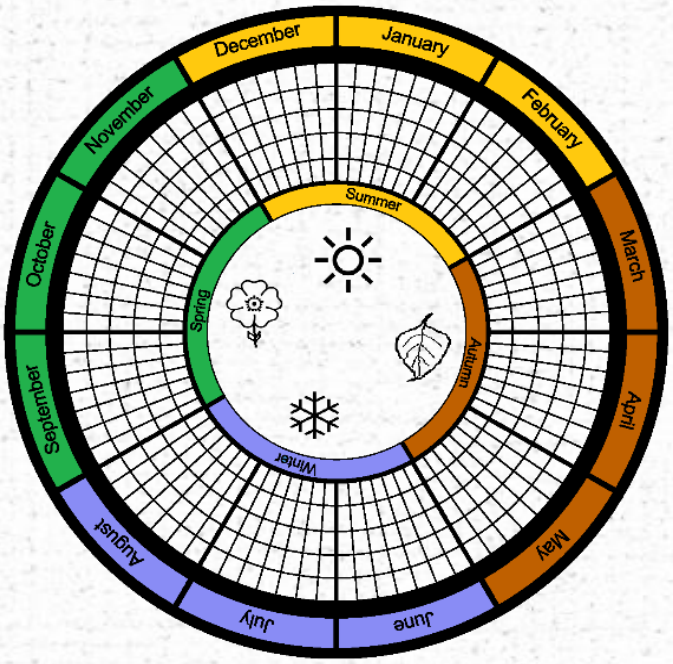
Unum League	
Governance:	Unum Assembly, made up of the executive heads of all ecoregional governments and municipal governments; creates committees of appointed members and temporary staff as needed. The Assembly serves as an Advisory body to ecoregional governments, and also as a supreme court to decide appellate-level constitutionality decisions. During emergencies, the Chair leads the Troopers.
Leaders:	Assembly representatives (governors and mayors); Chair of the Assembly; committee chairs, members and staff.
Funding:	Ecoregional Governments and municipal governments are assessed a fee based on economic activity, impact, and sustainability levels
Laws:	The Unum Assembly has no power to enact laws, only recommends laws to ecoregions, and negotiates treaties and agreements to be ratified by ecoregional and municipal governments. Ecoregions may "delegate up" responsibilities to the Unum Assembly.
Elections:	May 1
Issues:	Sustainability and sustainable economic development, GHG reductions, climate change adaptation, peace keeping and defense, regional disaster response, environmental restoration, mass migrations, transitioning to new governance, international relations and treaties.
Additional Information:	The Unum League is a network of Ecoregional Governments. Meets in a different city every two years, and business and staff are hosted in that city over the two-year period. Can call up and oversee military peacekeeping forces and national defense forces in times of regional emergency. These troops are drawn from ecoregional peacekeeping units (Rangers), and once assembled, are called "Troopers."

Ecoregional Governments	
Governance:	Ecoregional Council or Legislature (Legislative), Governor (Executive), Ecoregional Courts (Judicial), Agency (Administrative), Citizen Watershed Councils (advisory, Administrative, impact fees, with some executive/legislative veto powers)
Leaders:	Governor, Councilors or Representatives (40+), Justices or Judges, Administrators, including the Ecoregional Marshal to command the Marshals and the Rangers.
Funding:	Property tax, ecosystem services assessment, carbon tax, co-op/corporate/ business taxes
Laws:	Commerce/trade, corporate regulations, infrastructure, ecoregional environment (with watershed councils), human services, public health, housing, culture, peace/security/defense, law enforcement, labor/employment, planning/zoning, agriculture and food, education/universities, court system.
Elections:	August 1
Issues:	Sustainability transitions, sustainable economic development, GHG reductions, climate change adaptation, transitioning to new governance, environmental degradation, food security, water security, housing, energy, transportation, commerce, corporations, environmental health, peace, crime and the black market, elections, chartering cities for home rule
Additional Information:	Ecoregional governments are similar to US counties and based on watershed boundaries. Ecoregional governments usually assign sustainability scores (SUscores) and regulate the wearing of SUbadges. Ecoregional police force members are called Marshals and the

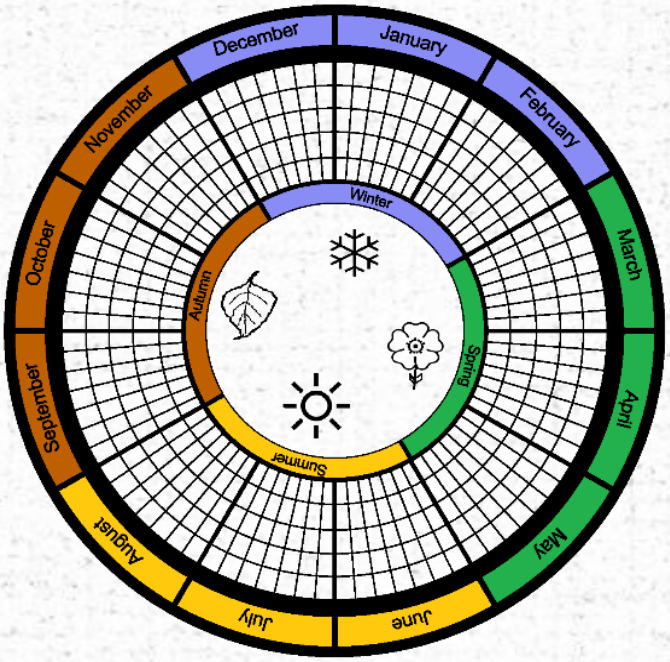
	peacekeeping/defense forces are usually called Rangers.
City Governments	
Governance:	City Council (Executive), Departments (Administrative)
Leaders:	Mayor (elected), Councilors (10-20 - elected), Bureaucrats (appointed)
Funding:	Ecosystem services assessment, carbon tax, co-op/corporate/ business taxes
Laws:	Infrastructure, planning/zoning, environment, local business, agriculture and food; human services, law enforcement, public health, housing, promoting culture, labor/employment
Elections:	August 31
Issues:	Urban administration, transitioning to new governance, environmental degradation and urban blight, environmental health, economic development/commerce, job creation, peace, promoting culture, black market, crime, elections
Additional Information:	City governments usually range in size from large metropolises to medium- or small-size cities. Law enforcement force is called the police.

Table T: Calendar of Seasons

Season	Northern Hemisphere	Southern Hemisphere
Spring	March 19 – June 20	September 22 – December 21
Summer	June 20 – September 22	December 21 – March 19
Fall	September 22 – December 21	March 19 – June 20
Winter	December 21 – March 19	June 20 – September 22



Southern Hemisphere



Northern Hemisphere

Resource Links for Best Practices

Institute for Local Government's Sustainability Best Practices Framework	https://www.ca-ilg.org/sustainability-best-practices-framework
Toward a Sustainable Community: A Toolkit for Local Government (Vol. 1)	https://cdn.shopify.com/s/files/1/0145/8808/4272/files/G3977-01.pdf
Toward a Sustainable Community: A Toolkit for Local Government (Vol. 2)	https://cdn.shopify.com/s/files/1/0145/8808/4272/files/G3977-02.pdf
Transition Network.org - Essential Guide to Doing Transition	https://transitionnetwork.org/resources-essential-guide-transition
The Great Transition Initiative	https://greattransition.org/
What Works in Conservation	https://www.openbookpublishers.com/product/1031
Conservation Evidence	https://www.conservationevidence.com/
Regeneration International (regenerative food, farming and land management)	https://regenerationinternational.org/resources/
Regenerative Agriculture	https://regenerationinternational.org/why-regenerative-agriculture/
Stockholm Resilience Centre TV	https://www.youtube.com/channel/UCG0QUKa0MTBzBKiW18AZfTg
Sphaera Solutions	https://solutions.sphaera.world/solutions#query=&page=1
Solutions	https://www.thesolutionsjournal.com/

Democracy Collaborative	https://democracycollaborative.org/
On the Commons	http://www.onthecommons.org/
P2P Foundation Wiki	https://wiki.p2pfoundation.net/Main_Page
Natural Capital Solutions	https://natcapsolutions.org/resources/
Capital Institute Library of Recommended Reading	https://capitalinstitute.org/book-library/
Capital Institute Thought Pieces	https://capitalinstitute.org/thought-pieces/
Community-Wealth.org	https://community-wealth.org/
International Cooperative Alliance	https://www.ica.coop/en/online-library/resources
Democracy at Work Institute - US Federation of Worker Cooperatives	https://institute.coop/
ARC-X - USEPA - Climate Change Adaptation Resource Center	https://www.epa.gov/arc-x
The Earth 2100	https://www.youtube.com/watch?v=MDqRpM72Odg
Project Drawdown for GHG emissions	https://www.drawdown.org/solutions/table-of-solutions
Strategies for Climate Change Adaptation	https://www.epa.gov/arc-x/strategies-climate-change-adaptation
UNFCC - practices, tools and data for adaptation	https://unfccc.int/files/adaptation/application/pdf/compilation_litkp.pdf
Climate Interactive	https://www.climateinteractive.org/ci-topics/multisolving/great/

EQ Gamesheets

Gadgets Owned: (Av-C-Ac)	Functions

Gear Owned:

Clothing Owned & Style:

Loaned Gadgets, Gear and Vehicle:

Funds: U$

Food:

Portfolio

Missions Accomplished:

Innovations:

Key People in Social Network:

Ceremonies/Rituals Celebrated:

Ancestor Accomplishments:

EarthQuest Vanguardian Folder

Player Name:
Vanguardian Name:
Branch/Level:
Home Ecoregion:

Gender: Age:
Race:
Height: Weight:
Hair: Eyes:
Mentor:
Tchacker:
Elder:

Educational Background:

Cultures/Languages:

SUbadge

1 Food 2 Housing 3 Transportation
4 Energy 5 Land Use/Biodiversity
6 Water Use 7 Ancestor Lifestyle
8 Contaminant/Toxics Use 9 Consumption/Waste
10 Climate Change 11 Health & Wellness
12 Participation in Community Sustainability

Reputation:	Resources:
Health Points:	Recovery:

	Score	Points
Knowledge		
Persuasion		
Influence		
Sensing		
Physique		
Wellness		
Intelligence		
Intuition		
Consciousness		

Drawing, Avatar or Symbol

Purpose:

Goal:

___Wisdom Path
___Attribute:
___Resources

___Sustainability Score:
___Skill:
___Culture/Language:

Goal Details:

Affiliations

Academy:
Alliance:
Spirituality:

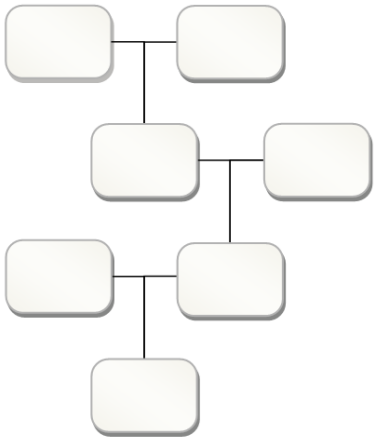
Personal:

Heroes:

Quotes:

Notes:

Ancestor Tree



Skills (Level 1-10 + mod):	
Wilderness Survival _____	Electronics _____
Herbal Use _____	Energy Tech _____
Healing _____	Biotech _____
Navigation _____	Computer Tech _____
Weather Prediction _____	Nanotech _____
Plant Identification _____	Mercantile _____
Wildlife Identification _____	Martial Arts _____
Tracking _____	Acrobatics _____
Animal Husbandry _____	Stealth _____
Agriculture _____	Disguise _____
Aquaculture _____	Ground Vehicle _____
Textiles _____	Watercraft _____
Woodcraft _____	Aircraft _____
Tool Making _____	Ecotesting _____
Mechanics _____	HazMat Handling ____
Construction _____	EcoRestoration _____

Staff Description:

Herbals: (A-P)	Uses	Doses

EarthQuest Portfolio

Player Name: Vanguardian Name:

Missions Accomplished:

Innovations:

Key People in Social Network:

Ceremonies/Ritual Celebrated:

Ancestor Accomplishments:

EarthQuest Herbals

Player Name: Vanguardian Name:

Herbal Name (Availability, Potency)	Form /Preparation	Uses	Doses

Herbal Name (Availability, Potency)	Form /Preparation	Uses	Doses

EarthQuest Ancestor Accomplishments

Ancestor Name: Vanguardian Name:

Ecological Service Projects:	Number of Hours:	Date:

Civic/Advocacy Work:	Number of Hours:	Date:

Sustainable Living Changes Adopted:	Date:

EarthQuest Wisdom Path

Player Name:

Vanguardian Name:
Elder(s):

Wise Elders Met :	Details::

Stories collected:	Details::

Traditional Ecological Knowledge (TEK):	Details::

Wisdom / Insights / Other:	Details:

Dreams/Visions:	Details:

Quests or Pilgrimages:	Details:

Spoke Truth to Power:	Details:

What Vanguardians can do during a Mission:

- Work as a team and use your Vanguardian attributes, abilities, skills and training to help people and the environment
- Boot up old web hubs to provide communities with access to the legacy Internet
- Look for and decipher hidden AReggs
- Collect information and assemble a place story
- Assemble clues to solve an environmental mystery
- Meet with key people in the community, have them share their personal stories of transition, then add them to your Vanguardian's social network of friends and allies
- Travel to and explore ecoregional settlements and identify their best practices
- Find legacy environmental problems and test for environmental contamination
- Research the historical roots of environmental problems with the legacy Internet
- Mobilize the community or volunteers to get involved in civic activities
- Persuade a key person to perform an important action
- Present a persuasive argument to change public opinion
- Influence decision making of politicians and other leaders
- Carry out espionage to investigate black market activities that harm the local economy
- Promote justice by apprehending and interrogating criminals and gangsters
- Defend poor and marginalized people and families facing harms and threats
- Heal the wounded and sick
- Help track down needed Gear, Gadgets, Herbals, equipment and supplies in the community
- Use, acquire or make new high tech Gadgets
- Find and train a companion animal
- Neutralize drones and bots under the control of the Other Forces
- Respond to climate change-related disasters
- Mediate disputes and conflicts using peacemaking and conflict resolution skills
- Participate in community celebrations or perform a Vanguardian ceremonial dance or ritual
- Survive in remote wilderness areas and adapt by living off the land
- Help solve simple and complex community problems
- Come up with new innovations to solve problems
- Plan and implement ecological restoration projects
- Create a strategy for helping the community cut carbon emissions or adapt to climate disruption
- Create a plan for transitioning the community to sustainability and improve its SUscore
- Present a final report of findings and recommendations to community leaders and to Vanguardian HQ
- Meet Wise Elders and gain wisdom on the Wisdom Path
- Set and carry out goals for personal growth, including improving SUscores
- Carry out an unlimited number of other creative options

EarthQuest Player Tips

Vanguardian Code

We blend science and wisdom to weave the New Story in our quest to restore right relationships among people and the earth. This is our EarthQuest.

◊ We maintain right-relationships among all people and all other living and nonliving members of the earth.

◊ We promote ecological sustainability to protect the wellbeing of current and future generations.

◊ We offer reverence for all cultures and generations, which carry insights, knowledge and wisdom necessary for thriving and survival.

◊ We support sustainable simple living to live well and be content.

◊ We uphold nonviolence, peacemaking and cooperation.

◊ We promote healing in mind, body, spirit and relationships wherever we are.

◊ We commit to lifelong learning and the pursuit of knowledge and wisdom.

◊ We are committed to servant leadership and right use of authority and resources.

Helpful player strategies for coordinating work as a team

1. To learn EarthQuest, each player can become an "expert" in one component: Attributes, Abilities, Skills, Herbals, Gadgets, etc.
2. Everyone skims through the Vanguardian Brief, but each player agrees to focus on a range of pages to read more in-depth.
3. To accomplish the Mission's tasks, players take on a major task and/or fill out a gamesheet:

- Take notes
- Lead the mapping
- Assemble the place story
- Mobilize and engage the public
- Look up info on the legacy Internet
- Assemble environmental mystery clues
- Visit settlements for best practices
- Find web hubs and AReggs
- Reach out to key people and Elders
- Request resources
- Draft a CARAT plan
- Draft an ecological restoration plan

EarthQuest Place Story Gamesheet

KEY

- Key ecological issues
- Key social issues (social, economic and government)
- Mission Brief facts
- New stories, evidence, facts and data
- Relationships between humans, nature and “other humans”
- How nature, poor people and immigrants are treated
- Assemble ecosocial system map
- Show relationships between humans and nature
- Rearrange system map to tell how the system works, what is happening, causes and effects, and how people make

EarthQuest Environmental Mystery Gamesheet

Solving an Environmental Mystery

What?
- Cause
- Effect

Who?

When?

Where?

Why? (Motive)

Historical Roots?

Hypothesis?

KEY

Clues ◆ ◆ ◆ ◆				

Working Hypothesis

EarthQuest CARATS Planning Gamesheet

Community Adaptation, Resilience and Transition to Sustainability

Name of Ecoregion: Results:

Sustainability Scores:

___ *Food*
___ *Energy*
___ *Governance*
___ *Climate Action*
___ *Water*
___ *Transportation*
___ *Contaminants/Toxics*
___ *Health & Wellness*
___ *Housing & Infrastructure*
___ *Land Use & Biodiversity*
___ *Consumption & Waste*
___ *Participation in Community Sustainability*

Description of planning body and democratic public engagement process:

Summary of community data (ecosocial clues, facts and best practices):

Shared community vision and priorities:

Four futures (two key uncertainties):

CARATS Strategy

EcoTown Hall Success Matrix

Best Practice	SUscore Category	High Potential for Impact	High Social Acceptability	High Likelihood of Successful Implementation	Acceptable Level of Difficulty in Implementing	Affordable Cost	Avoids Maladaptation	Total	Success?

Stage	Activities, modifiers and determining success	Mods
1	**Mobilize and engage the ecoregional community for the EcoTown Hall.** Vanguardians describe how they will promote the EcoTown Hall by generating publicity and then mobilizing and engaging people from three components of the ecoregional community—the general public, local influencers, and marginalized people—to participate in the democratic, participatory EcoTown Hall process.	
1.1	**Generate publicity and news media coverage for the EcoTown Hall meeting by successfully outreaching to local media during the Mission.**	
Mod	☐ Increases social acceptability +1 ☐ Roll successful Reputation, else Other Forces engage in false media campaigns and decrease social acceptability -6	
1.2	**Mobilize and engage the general public to be present at and participate in the EcoTown.**	
Mods:	☐ Roll successful Reputation to increase social acceptability +1	
1.3	**Mobilize and engage local influencers to be present at and participate in the EcoTown Hall.** Influencers include local elites, some key people, and influential stakeholders.	
Mods:	☐ Roll successful Persuasion to increase social acceptability +1	

1.4	**Mobilize and engage marginalized people who are present and participate in the EcoTown Hall.** Marginalized people include non-citizens, recent immigrants, climate migrants, Freebies, youth, people in poverty, and other historically excluded people.	
Mods:	☐ With the support of wise Elders, a Vanguardian on the Wisdom Path rolls successful Consciousness to increase social acceptability +2 ☐ Use a ceremonial dance at public gathering and roll successful Reputation to increase social acceptability +1	
2.	**Deliver Final Mission Report, create future scenarios, conduct community visioning and set priorities.**	
2.1	**Complete and present Vanguardian Final Mission Report to participants gathered.**	
Mods:	☐ Increases social acceptability +1	
2.2	**Participants at EcoTown Hall generate four possible future scenarios, a community vision, and priorities for action** (included in each Adventure).	
Mods:	☐ Completed place story increases social acceptability +1 and likelihood of success +1 ☐ Completed Environmental Mystery Gamesheet increases likelihood of success +1 and acceptable level of difficulty +1	
2.3	**Complete an Ecological Restoration Plan that responds to the community scenarios, vision and priorities.**	
Mods:	☐ Increases likelihood of success +1 and acceptable level of difficulty +1	
3.	**Complete a CARATS Plan that responds to the community scenarios, vision and priorities.**	
Mods:	☐ Increases likelihood of success +1 and acceptable level of difficulty +1	
3.1	**Vanguardians brainstorm best practices and/or innovations to adopt based on SUscore categories.** Include these on the EQ CARATS Planning Gamesheet using the EcoTown Hall Success Matrix.	
Mods:	☐ Increases avoids maladaptations +1 ☐ Inclusion of best practices already being used somewhere locally improves social acceptability +1 and likelihood of success +1	
3.2	**Using the EcoTown Hall Success Matrix, roll 1d12 to create a rating for each of the following aspects of a best practice:** • High potential for impact • High social acceptability • High likelihood of successful implementation • Acceptable level of difficulty in implementing • Affordable cost • Avoids maladaptation	
4.	**Mobilize and engage the ecoregional community, including the general public, local influencers, and marginalized people for implementing the community plan and best practices.** Vanguardians describe how they will mobilize and engage three components of the ecoregional community to achieve community-wide implementation of best practices.	
4.1	**Mobilize and engage the general public for implementing the community plan and best practices.**	
Mods:	☐ Roll successful Reputation to increase social acceptability +1 and likelihood of success +1	
4.2	**Mobilize and engage local influencers for implementing the community plan and best practices.** Influencers include local elites, some key people and influential stakeholders.	
Mods:	☐ Roll successful Persuasion to increase social acceptability +1 and likelihood of success +1	
4.3	**Mobilize and engage marginalized people for implementing the community plan and best practices.** Marginalized people include non-citizens, recent immigrants, climate migrants, Freebies, youth, people in poverty, and other historically excluded people.	
Mods:	☐ With the support of wise Elders, a Vanguardian on the Wisdom Path rolls successful Consciousness to increase social acceptability +2 and likelihood of success +2	
4.4	**Use EarthQuest Simulator for virtual reality mobilization and engagement with the public and real-time public feedback of community plan and best practices implementation.**	
Mods:	☐ Increases social acceptability +1 ☐ Increases likelihood of success +1 ☐ Increases potential Impact +1 ☐ Increases acceptable level of difficulty +1 ☐ Increases avoids maladaptations +1 ☐ Roll successful Reputation, else Other Forces mobilize the public using misinformation and false stories to decrease social acceptability -6 and likelihood to succeed -3	
5.	**Determine success of community plan and best practices implementation and increase of community SUscore.**	
5.1	**Using the EcoTown Hall Success Matrix, roll 1d12 (adding modifiers) to determine the success of each set of best practices.**	
5.2	**For each best practice set that is successful, improve the community's SUscore in that category by one.**	
5.3	**Award Vanguardians' Experience Points and Reputation Points for completing the Mission based on improving the community SUscore.**	

EarthQuest Ecological Restoration Plan Gamesheet

Name of Ecoregion and Watershed(s):

Ecological Health Assessment:

___ *Surface Water Quality*
___ *Air Quality*
___ *Open Spaces/Habitats*
___ *Forest Health*
___ *Groundwater Quality*
___ *Soil Quality*
___ *Biodiversity*
___ *Grasslands Health*
___ *Wetlands Health*
___ *Stream Health*
___ *Fish/Wildlife Populations*
___ *Brownfields*

Natural resources and ecosystem services provided:

Threats to ecosystem from impacts of climate disruption, legacy contamination, urban development, overharvesting and other human activities:

Ecological restoration focus:

___ *Water Pollution Prevention*
___ *Air Pollution Prevention*
___ *Habitat Restoration*
___ *Invasive Species Removal*
___ *Reintroduce Predator Species*
___ *Soil Erosion Control*
___ *Soil Protection/Amendment*
___ *Open Space Preservation*
___ *Revegetation/Tree Planting*
___ *Brownfield Cleanup*
___ *Wetland Restoration*
___ *Stream Restoration/Daylighting*
___ *Breeding/Restocking Species*
___ *Controlled Burns (Trees/Grasses)*
___ *Flood Control/Green Infrastructure*

Description of strategy and best practices:

Ecological Restoration Success Matrix

Best Practice	SUscore Category	Potential Impact	Social Acceptability	Cost	Difficulty	Likelihood of Success	Success?

Attach an ecoregional map with watershed boundaries, creeks, open spaces, wetlands, flood zones, and other features

EarthQuest Innovation Gamesheet

Player Name: **Vanguardian Name:** **Date:**

1. Problem to be solved:

2. Problem background (History & Post-history of the problem, various sides, best practices, etc.):

3. Proposed solution(s) innovation:

4. Potential impacts of solution innovation (environmental impacts, social impacts, and impacts on cultures and marginalized people):

   - Potential benefits/positive impacts:

   - Potential negative impacts:

Social Acceptability (0-3): **Technical Feasibility (1-12):**

EarthQuest Press Release Format for Service Projects

Once a service project is completed, a press release should be created and uploaded to the EarthQuest Player Network. This becomes an Ancestor Accomplishment for your Vanguardian and Tchacker to find in the future, and increases Reputation points.

Youth Group Engages in Creek Restoration Project

Keep the title concise and include important keywords.

Albany, New York - April 22, 2025

The dateline should include city, state, month, day, year.

Four young people in Albany, New York spent an afternoon trading textbooks for shovels as they repaired critical damages to a local creek that empties into the Hudson River. The quartet took up what they considered their civic responsibility to restore habitat, protect biodiversity, and prevent a human health crisis by planting trees, restoring fish habitat, removing storm debris, and stabilizing eroding stream banks.

The lead paragraph needs to announce the news item and hook the reader.

"No one was really doing anything, and we weren't going to wait to be invited," said Mark Meiwards, (16), a student at Smith High School. After reading and discussing recent newspaper articles on the problems with the creek, and playing an environmental role-playing game called EarthQuest to simulate the problems, Meiwards and friends Leesa Farmlind (17), Kara Pouling (16), and Sol Arpour (17) all agreed to spend a day making a difference by volunteering to do a hands-on conservation service project on the creek, which is part of their own local watershed.

Body copy should contain 300 to 400 words

After placing a call to the county Soil and Water Conservation District, the four, all of whom are Smith High students, worked out details of how to engage in a meaningful environmental service project that would make a difference. They learned best management practices (BMPs) from the district conservationist, set a date, got permission (and promises of help) from local landowners, borrowed tools, and biked over to the project site for a day of dirt, water, and tree seedlings.

The four worked alongside restoration expert, Carrie Hitout from the Soil and Water Conservation District to remove debris, stabilize creek banks, replace large rocks in the creek to enhance fish habitat, and plant 250 willow tree seedlings to help restore wildlife habitat and reduce erosion. They spent seven hours working on Saturday, April 21.

Include the date, number of hours and type of volunteer work or the nature of the place-based field trip.

"This was just excellent, and the best way for me to put my money where my mouth is," laughed Farmlind. She and Poulind were members of the Sustainability Club on campus, which focuses on helping the next generation learn sustainable living skills and climate change adaptation tools. Meiwards and Arpour (pronounced „er POWER") are founders of a campus-wide EarthQuest game club that engages students in role-play simulations that explore environmental futures and require solving ecosocial problems with innovative solutions.

Include information about your group or club.

For more information, the Sustainability Club and the EarthQuest game club can be reached at info@anamduan.org.

Include contact information for more information

EarthQuest Vanguardian Team
Final Mission Report Gamesheet

Name of Ecoregion:

Insights from the place story:

Results of the environmental investigation:

Historical roots of ecosocial problems, what could have been done back then to prevent future problems, and what can be learned:

Recommended best practices or innovations to improve the ecoregion's SUscore in one or more areas:

1 Food, 2 Water, 3 Housing & Infrastructure, 4 Energy, 5 Transportation, 6 Land Use & Biodiversity, 7 Governance, 8 Contaminants/Toxics, 9 Consumption & Waste, 10 Climate Action, 11 Health & Wellness, 12 Participation

More on the Vanguardians

The Vanguardian Council

In general, the Vanguardians are loosely organized and function as a collection of diverse units with diverse organizing rules and structures, since the Vanguardians are still relatively new and still in the process of organizing. However, there is an international **Vanguardian Council** which serves as an oversight and policymaking body. The Council is well respected because of its extremely high moral authority. The Council consists of twenty-one Vanguardian Counselors from around the world, and all are considered wise Elders.

When a Vanguardian Council seat is vacant, a slate of eligible and qualified Elder candidates is submitted from various Vanguardian communities. All Vanguardians are allowed to submit recommendations and commentary on the candidates, and the standing Vanguardian Council takes these under consideration before voting. The new Vanguardian Counselor is elected by a supermajority of 14 out of 21 votes.

Vanguardian Academies and Academy Councils

Vanguardian Academies are the primary training centers for Vanguardians, although satellite training centers do exist. Each Academy also houses administrative offices where many Vanguardian Missions are coordinated. Vanguardian Academies are often donated structures that have been rehabilitated for sustainable use. Some facilities are more elegant than others.

Vanguardian Academies are run by a **Vanguardian Academy Council**, which range in size from 7-15 councilors. Faculty at the Academies are mostly Vanguardians. Vanguardian Academies are mostly residential, and hundreds of youth students and young adult Postulants (Vanguardians in training), and also Vanguardian faculty and agents, are housed onsite. Many Academies host an EarthQuest Simulator, and Vanguardian Postulants, especially Tchackers, are trained in the EQ Simulators.

Vanguardian Academies teach talented and promising youth beginning at age 12 or 13. Young people who show promise or potential are often identified, recruited and sponsored by agency Alliances or sector Alliances. These youth apply to the Vanguardian Academy, and qualified applicants are accepted by the Vanguardian Academy Council for education and training. Some youth remain in the Academy and eventually become Vanguardians.

Vanguardian Academy Training

Academy students are enrolled in an intense six-year program of academics, skills development, physical fitness training, applied professional training, and personal formation and social development. Students graduate with an equivalent of a high school diploma, bachelor's degree and master's degree. The most talented youth then apply to and are accepted into the **Vanguardian Postulancy** program to begin pre-training as a Vanguardian.

The first year of Postulancy training is called the **Initiate Year**, and first year **Postulants** are called **Initiates**. This is a special year of transition, where Postulants spend much of the year in non-formal education in the wilderness with mentors. Initiates participate in a **Vision Quest and** participate in Rites of Passage. Initiates choosing the Anima way are mentored by a small circle of Anima Elders and one Animus mentor. Other Initiates choosing the Animus way are assigned a primary Animus mentor along with a small council of Elders. Upon completion of the Initiate year, the Postulant takes a temporary pledge, oath or vow (depending on the culture) to commit to the next three years of training and formation. This first year is also called "**Wilderness Year**."

The remaining years in Postulancy are called **Seasons,** and a Postulant progresses from first Season to second Season to third Season. Seasons are intense times of advanced academic training, Vanguardian skills training, professional training, learning of cultures and languages, participation in social networking events, and participation in the EarthQuest Simulator on practice Missions. During any Season, a Postulant may also serve in an internship as a Tchacker. During the three seasons, a Postulant completes the academic program in a chosen discipline. This will build on the Academy training and education completed before entering Postulancy. Upon completion of the third Season, the Postulant takes a permanent pledge, oath or vow (depending on the culture) to commit to the Vanguardian lifestyle, and takes on a new Vanguardian name.

Agency and Sector Alliances

Agencies and organizations from various sectors that support the work of Vanguardians come together to form **Alliances** that sponsor Vanguardians and Vanguardian Academies. Alliances are relatively newly formed and collaborate to support Vanguardians in four ways. Alliances scout, recruit and sponsor promising youth to be Vanguardian candidates or applicants to the various Vanguardian Academies. Alliances provide financial support to the Academies. Alliances are part of the advisory committees to advise the Vanguardian Academy (and some Alliances seem to overemphasize their own role in providing oversight of the Academy). And finally, when Vanguardian Postulants graduate from the Academy and become Vanguardians, Alliances continue to support Vanguardians by providing resources and political influence though its networks.

Academies usually have multiple Alliance affiliations, and it has happened that conflicting ideological and political views make collaboration challenging. Alliances may and do change over time.

Table U: Alliances and Academies

Alliance	Affiliated Academy	Specialty Area
Western Tribal Alliance Western Cultural Alliance Southwestern Trade Alliance	Thunderbird Southwestern Vanguardian Academy	Agriculture, Livestock, Natural Resources, Culture, Tribal, Low-technology
Eastern Tribal Alliance Eastern Cooperative Alliance Eastern Cultural Alliance Northeastern Trade Alliance	Carson Northeastern Vanguardian Academy	Oceans, Low-technology, High-technology, Culture, Aquaculture, Natural Resources, HazMat/ EcoRestoration, Construction
Western Cooperative Alliance Northwestern Trade Alliance	Columbia Northwestern Vanguardian Academy	High-Technology, Oceans, Tribal, Natural Resources, Aquaculture
Great Lakes Cooperative Alliance Great Lakes Trade Alliance	Leopold Great Lakes Vanguardian Academy NGO	Technology, Water, Agriculture, Livestock, Natural Resources
Southern Cultural Alliance NGO Alliance Southern Trade Alliance	Bullard Southern Vanguardian Academy	Agriculture, Low-technology, Religion, Textiles, Oceans

POST-HISTORY AND THE WORLD OF EARTHQUEST

"The Earth is a wild place. Life is wild. People live in fear when we don't accept that and live with that. Come walk with me. It is time again for our dialogue." Ollamh▷ Grayhe was an old man by then, but I could not tell how old. He gracefully shifted his weight onto his staff—it was dark, weathered oak and heavily carved with the symbols of the wisdom from his lifetime of Missions—and gently rose like a sleek cat from the large flat rock he was sitting on. When Ollamh Grayhe moved, it was like every limb was taking part of a slow, rehearsed dance. He always moved intentionally and gracefully. He did not move like a rickety old man in pain with a breaking down body. That's why it was so hard to tell his age.

None of us could agree on how old he was. He definitely spoke with wisdom collected from a life of experiencing, listening, and learning. And his face was as wrinkled as the old white oak tree near the swimming hole beneath the waterfall. He had thin wispy white hair that he let blow freely in the breeze, and never tried to comb it into place. So, he definitely looked old. And yet his eyes were sharp and clear, and he noticed pretty much everything. He heard the tiniest of sounds. We could never sneak up on him. He had a strength and stamina about him. He was stable and firmly planted. He had like an aura, and we all felt it.

The three of us followed along as usual, carrying our own smooth, clean staffs. Maya was 17, and she was an acrobat and a rain singer. Chen was 16, and he was the tracker and drummer. I was 15 and was the healer and the poet.

Looking straight forward, he spoke as he strode. "There have been three great correctives in the history of humans on the Earth. This you know from your readings thus far. The first was when we were the hunter-gatherers transitioning to agricultural communities with large settlements. The Great Religions and Philosophies were the first corrective that allowed humans to move from using our individualistic, selfish, competitive alpha genes to activating our more refined beta collaborative gene behaviors that enabled us to all live together and work together as neighbors in relative peace and harmony. We developed farming, villages and metallurgy for tool making. We discovered the power of symbolic thinking and the power of story that introduced a corrective to human behavior that added morality, a social ethic, and some level of restraining our self-centered, primal drives.

▷ Ollamh (pronounced "olive") means "professor."

People deeply sensed the Great Mystery, and religion gave them language to talk about it, a story that they belonged in it, and ritual to enter into it and experience it. Religion was prophetic and produced wisdom to guide us away from pettiness and power abuse. But primitive religion alone can become unbalanced and co-opted, and did not help us to understand the Earth very well.

"The next major corrective was the age of science, reason and technology. This allowed us to carefully observe, study and learn how the Earth and the universe actually worked. This corrective helped us develop the large, organized cities, harvest enormous energy to run the machines to do our difficult work, build mass economic systems to transform the raw bounty of the Earth into more usable goods, create communication and transportation systems to connect most people around the Earth, and discover medical advances to help us live longer and healthier.

“Unfortunately, science and reason eventually become unbalanced and co-opted too. Rather than being used as a corrective to build upon primitive religion, science and reason were pit against religion. And religion was pit against science. It was throwing the baby out with the bathwater. Science and technology became unbalanced, because they were harvested and controlled by the few, and used to slowly erode the fullness of humanity for most of the Earth's people. They were used to liquidate the Bounty of the Earth into immediate profit by taking away the Earth from the children of tomorrow.

“Unbalanced science and technology disconnected us from our Earth, the Mysteries of the Universe, and from one another. Some call this "alienation." When a people lose their sense of identity, meaning and purpose, it is called "anomie." Feelings of alienation and anomie were so widespread when I was young like you, it erupted into a youth leadership movement that the three of you have now inherited.

"So, the third great corrective is unfolding now. Some have called this the Age of the Anthropocene, but this is not helpful. The Age where the collective actions of humans dismantle the very workings of the Earth? That is not a life-giving way to name it. No, the great corrective is the time when we reimagine the New Story, which brings back the balance and incorporates everything humans have ever learned from the beginning. It includes the science Story of the Universe, and it recognizes that humans must now become co-writers of the New Story, because it is still unfolding. We must help re-weave the web of life wherever we have broken it. We Vanguardians call this third corrective the Age of the Earthlaw or the rise of Homo Habitatus, humans finally at home.

"We accept and harness our primal drives and emotions that are deeply embedded in the cycles of life on Earth. We use the power of transformative religion and spirituality to offer identity, meaning, and purpose with a moral critique, deep wisdom, and prophetic voice when the human family inevitably gets lost. We harness the power of reason, science and technology to understand how people, and the Earth and the Universe work, and

give us new tools for survival, peace and stewardship. And we focus on restoring right relationship between Humans, the Earth, the Mystery, and what every age and society defines as "other humans": poor people, marginalized people, outcasts.

“The New Story allows us to re-enter the Story, re-make ourselves and our new roles, and become imaginative co-creators and stewards once again. It restores our original identity, activates our collaborative and altruistic nature, and the fullness of our own humanity in all its diversity, like the diversity of the tropical rainforests, the great river estuaries and the ocean coral reefs. The Universe is not finished yet, and the Earth is ever changing. Humans are still evolving and adapting, too, mostly through our New Story and the blossoming of the Earthlaw."

He always spoke like this. He has followed the Wisdom Path all his life, and he found it easier to talk by using poetic language of the Mystery. His words and images were very powerful, and it made the hair stand up on the back of my neck. I always felt electrified, even though I did not always quite understand what he was saying. He assured us we would get it someday. I trust he is right.

Maya and Chen were caught up in it, too. We were typical youth growing up after the Tribulations, and we had all experienced the alienation and the lack of meaning and purpose he mentioned. I think all youth do. So, when the three of us were discovered as children by the Vanguardians, we were all blown away by talk of the Earthlaw and the New Story.

Ollamh Grayhe stopped for a moment in the middle of our walk. He was listening to something deeply, and he closed his eyes to focus. It was beautiful here along the banks of the creek. The wild roses were in fragrant bloom, and there were shiny clumps of black raspberries sprouting from the shoulder-high bushes all along the path.

"I can smell the roses telling their story now." He made a graceful sweeping gesture with his outstretched staff, and his knees made a half-genuflect to the right. Almost instinctively, the three of us joined in. Maya, Chen and I knew this movement well, the rose bloom dance. The four of us together moved with synchronized steps and staffs to a rhythm we could hear only from within. It was a short dance in celebration of the simple joys of nature, but its sweeping, gentle movements were energizing, and our senses were heightened.

"It will rain soon, Ollamh Grayhe," whispered Chen, careful to not disturb the peace.

"Good," answered the Ollamh.

"We can continue our talk under the veranda over there," suggested Maya in a questioning tone, pointing in the direction of a simple wooden shelter off to the right.

"We will be at this for a while today, so let us take up Maya's offer," he said.

Once under the open-air shelter, we all were seated on the floor, and Ollamh Grayhe continued. I watched him as his left hand drooped to the hardwood floor and caressed its surface in slow circular motions. He was always trying to make a connection.

"Let us move now to the story of our Post-History," the Ollamh announced.

Post-History

“The transition time period between the Collapse and the current world––the contemporary world for Vanguardians––is referred to as "Post-History" to distinguish it from the preceding period of human history up to the early 21st century before the Collapse. For most scholars, this time of Post-History begins the Anthropocene, the era in the earth's evolutionary history when nearly every aspect of the earth's biosphere is influenced and even dominated by the human species, Homo Sapiens, under a homo economicus story.

"By the mid to late 21st century––no one actually agrees on the precise Gregorian date or its relevance anymore––generations of environmental degradation along with decades of political inaction, successful public misinformation campaigns, and citizen disengagement and apathy had taken their toll. The Earth’s final straw was climate disruption. With record-breaking frequency and intensity of annual natural disasters––hurricanes, wildfires, blizzards, tornadoes, floods, droughts, extreme heat waves, species extinctions, insect plagues, and crop losses––and a permanent disruption in oil and fossil gas supplies, national governments and global corporations

throughout the world experienced what they called “The Collapse.”

"Widespread ecosystem crashes triggered a breakdown of economies and unprecedented job losses. People had taken too much away from the Earth for too long, and the Earth was forced in many places to stop doing what everyone expected the Earth to do forever. A shortage in fossil fuel production and dwindling phosphorus sources for fertilizer meant unreliable industrial food supplies. Frequent power outages transformed daily life and businesses.

“As if that was not enough, the onslaught of several waves of annually recurring bubonic plague pandemics from the mutated Yersinia pestis bacteria resulted in enormous population losses. The plague was worsened by generally weakened human immune systems from constant exposure to constantly mutating avian flu pandemics, environmental health hazards and declining nutritional value of processed industrial foods. There were no affordable cures and no solutions except grieving, hoping, building up natural defenses in the human body, and the slow passage of time."

As if on cue, the sky burst forth with a massive downpour and the onslaught of heavy raindrops pounded the earth so harshly, we could feel the vibrations through the ground. The storm was a cleansing, terrible beauty, scraping the film of microfibers from the air and flushing it down to the soil as if passing the baton to the next runner to take it to the finish line. Maya, especially, loved storms. She leaned out into the rain to let the raindrops drum a beat on the palm of her hand. Chen was trying to follow the path of the storm, searching the sky for signs of where it might be moving, and what it might do next. This was the kind of

storm that took over only half of the sky, while the defiant sunshine bathed the other half of the sky with the golden brightness of summer. This cast that unusual muted amber light that made everything glow in a temporary haze as if a twilight stage were illuminated only by candlelight. Ollamh Grayhe waited for us to draw all this in, and then continued.

"These three interconnected calamities––climate disruption with ecosystem collapse, energy crunch from Peak Oil and the carbon bubble, and the series of influenza and plague pandemics––became known as the "Unholy Trinity." I am sure you remember that term; it is used all the time now in everyday conversations. The Unholy Trinity was too much for the fragile early 21st century hierarchical societies and governments to handle. While some people, families and communities did prove to be resilient because of precautionary and adaptive actions they had taken, most centralized governments and other institutions were not resilient. The response was not all gloom and doom, however. A resilient and hopeful new generation of innovative youth leaders emerged with a vision for a better way.

"These visionary young people connected with each other around the world, and they created regional collaboration networks of action. They discovered that individuals competing against each other to win were not as successful in securing food and other resources and adapting as a community working together collaboratively. They collected the best ideas and best practices and shared them throughout the networks. They were the ones responsible for the Great Elections of U.S. citizens, which brought about a new political reality.

To stand at the edge of the sea, to sense the ebb and flow of the tides, to feel the breath of a mist moving over a great salt marsh, to watch the flight of shore birds that have swept up and down the surf lines of the continents for untold thousands of years, to see the running of the old eels and the young shad to the sea, is to have knowledge of things that are as nearly eternal as any earthly life can be.
Rachel Carson

"America experienced yet another polarized national election. This time, the popular vote was influenced and manipulated at unprecedented levels by global corporate money in an attempt to control the outcome and the status of democratic government throughout America. Eastern, western and coastal states experienced the historic mass mobilization of young voters and overwhelmingly voted in the national referendum of the special elections to temporarily decentralize the federal and state governments into a network of ecoregional democracies as a way to navigate American communities through and out of the Tribulations. These networked ecoregional democracies became known as the Unum League.

"They also voted to establish a League-wide Earthlaw as part of their constitutional charters. The new Earthlaw provision recognized the intrinsic rights of Nature and

conferred legal "personhood" to Nature—similar to corporate personhood under the law. The Earthlaw recognized the inalienable human right to a clean, healthy, biologically diverse and resilient ecosystem and planet. The Earthlaw also established a right to environmental justice and climate justice for all people and intergenerational equity for all future generations to enjoy the rights of sustainable use of all that nature provides. The local ecoregional governments also adopted a series of “little Earthlaws” that focused on protecting and restoring local watershed ecosystems, setting up ecologically sustainable local fair-market economies, and increasing ecosystem resilience to climate disruption.

"During the Great Elections, after a very expensive social media political communication campaign, voters in several central, Heartland states from Louisiana to North Dakota rejected the ecoregional democratic government option and the Earthlaw, and instead voted to form the United States of Middle America (USMA). They temporarily moved the U.S. capitol from Washington, D.C. to Kansas City, Missouri, and then devolved most federal government responsibilities to weak state governments and privatized most government powers to wealthy and powerful corporations with constitutionally protected rights as corporate "persons."

“USMA states focused on restoring the “free-market economy” run by competing multinational corporations that bought up and liquidated vast areas of natural resources, many from former national forests, national wildlife refuges, and national parks, for rapid economic growth and private wealth creation that was guaranteed to trickle down to all employees. Many people in the USMA said they did indeed feel trickled on. Private corporations in the USMA, now with powers of government, rewrote laws and repealed most regulations and directed the USMA economy to maximize corporate economic freedom. This, they argued, was the best way to ensure democracy, freedom, and maximum wealth for all and for providing all employees a way to work their way into financial wealth over time through part-time entry-level jobs with occasional overtime pay.

Ollamh Grayhe paused at this moment. The rainstorm had stopped as quickly as it had started, leaving us in a hushed silence broken only by the drip-droppy sounds of the final raindrops diving off leaves and branches and the edges of the roof. The Ollamh had been gazing out at a rainbow that had formed in the stormy sky. He drew in a deep breath and slowly turned toward Chen, Maya and me with a mysterious grin slowly blooming on his face. He said nothing, but we all felt as if he were handing off to us some mystical baton or torch, so that we might take our rightful place in this race against time. After a very long moment that seemed to stop time itself, Ollamh Grayhe continued with his lesson.

"In the eyes of many, the task of humanity and its governments has always been to organize human communities to adapt to, survive and thrive within the forces of nature and by harvesting from her bounty. Human history was now calling upon its next generation of young people to take the lead with new ideas, new energy, and new purpose in the ongoing challenge for the continued survival of humanity. This would take place in a world undergoing rapid ecological and social change and transformation. We learned that this could

only be done in collaborative community commons with servant leadership."

Social Transitions

"The balance was re-set in the early 21st century. Climate change––now usually referred to as "climate disruption"––ushered in a new reality for the Earth and human civilization. The most important issues for people and governments were food insecurity, water scarcity, increased natural disasters, the global health pandemics and rapid and unexpected economic "collapse." At the same time, they also had to address peak phosphorus, fossil fuel energy crisis from Peak Oil and the carbon bubble, and rapid demographic changes from mass migrations and immigration of environmental refugees.

"The onslaught of the "Unholy Trinity"––with its combined effects of climate disruption with ecological decline, the energy crunch, and the influenza and plague pandemics––convinced most people that the current ways of living, thinking, making money, and running government were completely out of sync with the biophysical reality of how the real world works. While the Unholy Trinity was anticipated and studied for many years by most governments and many scientists and scholars throughout the world, it still caught most people off guard. People were just going on with their normal daily lives as usual, and were not prepared for the overlapping social, economic, and ecological ripple effects.

"As if these issues were not trouble enough, a series of enormous solar flares (coronal mass ejections) produced electromagnetic pulses (EMPs) that knocked out many telecommunications systems, including satellites, computer communication hubs, cell towers, cell phones, and other sensitive digital technology. Then it took down centralized electrical power grids and the legacy Internet. Cybercriminals, crime syndicates, and rogue states took advantage of this and wreaked havoc on the globally connected digital world. FlyCorp executives saw the solar flares erupt, but intentionally did not warn anyone or take preemptive measures. The eruptions were perfectly timed with the marketing roll-out of the Fly, and consumers were forced to sign up as their legacy Internet connections went down.

"International conflicts erupted over dwindling natural resources––especially food and drinking water resources––and communities experienced widespread poverty-related crime by desperate and hungry people. This resulted in riots and uprisings, localized military skirmishes, and corporate micro-wars. In most places, social instability and economic insecurity caused tremendous widespread worry and fear about the future.

"The unequal way these problems impacted various groups and communities, hitting poor, working class, and immigrant people, people of color, other minority and disenfranchised people, and young people especially hard. It was an injustice to the people without power. This resulted in public outcries, demonstrations and protests against government and corporation inaction, incompetence and discrimination. Again, it

was young people who took on leadership in the peaceful and non-violent protests."

Ollamh Grayhe paused for a moment, and said ominously, "Social and cultural systems decay and our collective humanity is diminished when feelings of alienation and anomie combine with widespread experiences of unfairness and injustice." Then he continued the lesson.

"There were increased migrations into America's recently depopulated cities, especially upland areas of coastal cities that were not yet lost to sea level rise. Million-dollar luxury real estate properties stretching mile after mile along former beaches, now worthless under a foot of sea water, were quickly dismantled for their salvageable building materials. They left the skeletal frames as a memorial to the lunacy of climate inaction.

“People were also immigrating to coastal port cities from overseas. In the minds of many, cities were being seen as centers of safety, order, access to technology and energy, and places to learn practical skills from people from many cultures. They sought jobs in local businesses, and local city governments and neighborhood networks were believed to be more successful at ensuring adequate supplies of food, water, housing, renewable energy, and police protection. The increasing urban population also meant some cities became more powerful and influential.

“Americans were rapidly abandoning suburban areas that had no way to produce their own food, water, fuel or electricity, and no local businesses able to provide essential human needs. Twenty-Uni latte coffee shops, fashionable clothing boutiques, and travel agencies for cruises to exotic coastal resorts no longer had customers. Living in suburban areas had become unrealistic from bankrupt suburban governments and skyrocketing taxes, disruptions in delivery of food and supplies, loss of communications networks, unavailable and unaffordable automotive fuel supplies, and unmaintained roads and other expensive suburban infrastructure. Unemployed middle-class homeowners could not pay their suburban home loans.

Suburban homes were scavenged for usable building materials and skeletal remains of homes were often bulldozed and converted back into forests or grasslands, or turned into renewable energy sites for nearby cities. Decades of chemical pesticides and fertilizers prevented suburban land from ever growing food again for the foreseeable future. Some suburbs in the USMA were converted into immigrant shantytowns, and a good number of shantytown residents were youth.

"At the same time, in the rural areas surrounding cities, an explosion of new farmers—almost all were young organic and regenerative farmers—and their networks of farmer cooperatives became well-respected and relatively prosperous in the fledgling local economies. Farmers ensured urban populations a steady and reliable supply of local, affordable, organically grown food just as the global industrial phosphorus supplies crashed, agricultural fertilizer prices skyrocketed, and corporations’ large industrial farm complexes collapsed. Innovative farmer cooperatives supplied renewable solar, wind, and geothermal energy produced on rural farmlands alongside food crops, and they protected

clean drinking water that flowed from rural upland watersheds down into lowland and coastal cities.

“Likewise, a new generation of young fishers and fish farmer cooperatives provided essential seafood and renewable ocean energy in coastal communities, and grew to become highly influential and esteemed in their communities. Brilliant and community-minded youth leaders who saw what was about to happen and got into farming and fishing several years before the collapse were able to cushion the impacts for their neighbors and communities who supported them. It is always the young who lead the necessary change that the rest of us are not even able to see coming."

Ollamh Grayhe turned toward the three of us as he said this, and bowed his head ever so slightly, as if to honor us as representatives of the world's youth leaders. After a moment's pause, he continued.

"During the Tribulations, society had experienced tremendous hardships and tragedies, and much of them were rooted in poor decisions and lifestyles chosen in the decades of the late 20th and early 21st centuries. And yet, there were many positive developments that provided hope and opportunity for the youth generation.

“Young engineers redirected their attention to addressing real social problems instead of developing new generations of frivolous hi-tech trinkets for entertainment. The result was an amazing flowering of technological advances in hi-tech electronics, bionanotechnology and even new "low-technology" inventions based on hand-powered machine designs rescued from early 20the century historical patents. All these technologies were very practical, because

Le microbe n'est rien, le terrain est tout.
(The microbe is nothing, [caring for the health of the Earth's] terrain is everything.)
Louis Pasteur (1822)

they were needed by people to solve real problems they now faced. People no longer expected technology to magically solve all their problems at the push of a button. Instead, they focused most of their attention on working together to change their own behaviors and lifestyles. When social change was not enough, only then did they apply technological innovations.

"Large, centralized, hierarchical government agencies were not responsive and effective in solving problems anymore. They could not change their operations quickly enough to get anything done. Governments produced no visionary leaders, no innovations, and no solutions to complex problems. Government leadership would only take on simple, safe, easy problems. Talented but frustrated government civil service workers resigned en masse from their positions to join the new ecoregional government agencies, which were small, creative, collaborative and nimble. Hierarchical federal and state bureaucracies were soon defunded and rapidly dismantled.

“The ecoregional governments also recruited creative, educated youth leaders who developed innovative solutions and helpful policies. They adopted local versions of the Earthlaws. They networked with one another, collaborated, and engaged the power of citizens working together. Collaborative

ecoregional governments brought urban communities and rural communities back together within natural watershed boundaries that bound urban and rural together. This was not easy, since urban people and rural people had been polarized by self-centered political leaders to hate each other and compete with each other. This was the short-sighted way to build quick political base support for political parties, but also the surest way to destroy communities and the American heritage of unity despite diversity.

"Most people had a wake-up call when a series of climate-related natural disasters hit, one after another after another. People in ecoregional communities rapidly adopted simple, sustainable lifestyles out of necessity. They rapidly built new local economies with small businesses and cooperatives that were concerned with providing goods and services for everyone's basic needs. They no longer wanted to or could rely on multinational corporations making products that no one really needed or wanted and funneling customers' money out of the community, all in the name of maximum profits for shareholders. Ecoregional economies and businesses adopted the "triple bottom line" that is equally concerned about economic, social and environmental wellbeing.

"When the global corporate capitalism economy crashed, an overwhelming majority of what they used to call the middle class very quickly declined into the ranks of the working class and poor. Local economies had to refocus on providing basic goods and services for the working class and poor people, rather than the luxury wants of the wealthy.

"Many communities that fostered multi-cultural exchanges among its diverse residents and climate migrants also experienced cultural and spiritual revivals.

Immigrants were helping their neighbors learn new skills and think about life in less materialistic ways. They taught their neighbors how to grow and prepare healthy foods from community gardens, and they all learned together how to adapt their practices to new conditions under climate disruption. People returned to learning skilled trades and crafts, making products out of local raw materials, and restoring fair trade. They became good stewards of their land, water and forests. Many places experienced a remarkable simplification of lifestyle, and a corresponding increase in rates of happiness and life satisfaction in polls and social surveys. This was a sign that implementation the Earthlaw was making sense and felt right to people."

As the sky cleared up, and sunshine crowded out fleeing storm clouds, Ollamh Grayhe stepped out from under the roof of the shelter, and back onto the footpath. His staff glided from side to side as he gently brushed large leaves to playfully send beads of

raindrops scuttling to the ground below. We all smiled at one another behind his back, knowing that Elders on the Wisdom Path often expressed a focused seriousness with a childlike wonder and joy. The Ollamh chuckled quietly with sheer delight at the beauty of the natural world at his feet. His staff snapped quickly back into position, and he led us onward along the path. He proceeded with his oration.

Climate Disruption

"Over the past 10,000 years, the Earth's biosphere had maintained a fairly stable range of climate conditions and biochemical and geological processes that enabled Homo sapiens to survive and thrive. However, since the Industrial Age, human civilization under the newly developed technologies and modern cultures had pushed the Earth's boundaries beyond the range or zone that scientists determined was safe for human survival. Pushing beyond these boundaries and limits in pursuit of maximized wealth for the few was bringing about unbelievable risk and uncertainty to everyone else, including future generations of children and grandchildren. Pushing the Earth beyond these boundaries would leave future generations with few natural resources, not many options and little hope to survive the inevitable climate disruptions and widespread ecosystem collapses. Let me share with you a little bit about the history of climate disruption.

"Initially, as the global human population continued to swell, urban areas experienced rapid development for more housing, schools, transportation, energy, drinking water and food production. Before the Collapse, almost all levels of government had become aware of the science of climate disruption. In response, their younger government staff developed excellent smart growth plans, environmental protection plans, and community sustainability and resilience plans for cities. However, very few government leaders were able––or politically willing––to pass the laws and policies needed to actually transition communities to sustainable and resilient conditions. Multinational corporations actually put their wealth, power and influence behind preventing governments from taking action, and even funded the election campaigns of people who promised to halt climate action if elected to office. Remember at this time, the Great Elections had not yet taken place, and the Earthlaw was only ideas on paper. At best, these early plans and policies only somewhat slowed environmental degradation and climate disruption.

"Most government funding for climate change was spent not on solving actual problems, changing behaviors and making an impact. Instead, year after year, governments generated volumes of scientific data and drafted—but never carried out—good plans. They mostly just measured and reported on the increasing levels of ecological decline and climate disruption. As a result of government inaction, environmental conditions continued to slowly erode, pollution mounted, climate was increasingly disrupted, more species became extinct, forests were cleared, ocean and fisheries declined, sea levels rose, local ecosystems collapsed, food crops routinely failed, and human health and economies that depended on a stable climate and healthy ecosystems were seriously harmed.

"Climate disruption effects had been unfolding for decades and everyone knew it. Some pretended to not know it, many distracted themselves from knowing it, and

some were paid handsomely to convince the public not to know it. However, saltwater flowing into subway tunnels and corn crops spontaneously bursting into flames and erasing a year's worth of food had a way of helping people to know climate disruption in a way that agency reports and scientific measurements did not. Climate disruption had brought about many rapid changes as had been predicted. What no one seemed to anticipate was how rapidly major changes would all unfold, and how much these climate disruption events would ripple out to impact everything important to human communities.

"The melting of polar ice caps and glacial ice sheets caused a rapid rise in sea levels that resulted in major coastal flooding for heavily populated coastal cities. Average global sea levels rose nearly two feet, and nearly twenty percent of the land mass became inundated with the rising seawater. Tens of millions of people were displaced as environmental refugees when their homes, urban neighborhoods and villages became submerged. Ocean species moved toward the poles away from the warmer and more acidic ocean waters, taking away a significant food and income source for people living along the coasts.

"Extra heat in the atmosphere meant more evaporation and a shift in where traditional rain and snow had been falling for millennia. Heat waves lasted for several days, ruining food crops, derailing trains from buckled steel tracks, disrupting powerlines from melted wire insulation, buckling pavements in roads and highways, shutting down sewage treatment plants and nuclear power plants, causing power blackouts as overloaded electrical grids could not support the number of air conditioners being used, and causing unprecedented human deaths. Droughts and wildfires contributed to massive expansion of deserts and the drying of vast lakes. Once fertile agricultural lands, critical for feeding people, were turned to parched plains with the loss of once rich agricultural soil. Inland and mountain flooding redrew the courses of rivers, lakes streams and creeks, and caused ancient and historical human settlements and economies to be abandoned.

"In all cases, the surviving people became environmental refugees and climate migrants. There were both international and domestic refugees and migrants. Americans were relocating from the southwest, the Gulf Coast, Florida and the South, Hawaii, the lower Mississippi River valleys, and other pocket areas hit by various environmental and climate change disasters. They began the mass migrations to urban areas they believed to have more water, cooler weather, fertile soils, protection from natural disasters, working ecosystems and economies, and effective governments that could respond with real solutions to real problems. People were driven by fear, anger, desperation and...hope."

"Hope," the Ollamh repeated. "Most definitely hope."

The Mass Migrations

"The mass migrations were set in motion once the people began to tell new stories about climate disruption and what was most

important in life. Some people moved because they had to; there was nothing left of the lives and communities they had been building for so long. Others moved because they did not want to sit and wait to become the next climate disruption victims. Some even moved because climate disruption had awakened many people who wanted to rethink their lives and were attracted to the vision of joining others to create new models for sustainable, resilient living in healthy places. Whatever the reason, the mass migrations moved people throughout the U.S. toward the north, toward the Great Lakes, toward higher elevations away from coasts, toward Canada, and mostly away from the south and southwest toward strong cities in ecoregional democracies. Groups of European young adults from the same climate-threatened regions moved overseas to more resilient Unum communities to start cultural ecovillages, bringing traditional European farming techniques to share locally. This same model was adopted by African, Central American, and Asian young people who also relocated together in Unum communities.

"The mass migrations changed the game in America and throughout the world. Wherever the most people choose to live is where culture, wealth and power will concentrate. As once viable institutions collapsed, new ones had to be created elsewhere. Economies and governments crumbled. Housing, shopping centers, town halls, power plants, and factories were abandoned. Shanty towns sprung up around stable cities that offered refuge or at least hope of a future. In many places, government, business and other traditional institutions could not lead, and talented, visionary community members arose to provide their own solutions with alternative sustainable lifestyles, foods, and participatory democratic governance. Some of these leaders were truly heroes and heroines; some, unfortunately, were charlatans looking for opportunity.

The Energy Crunch

"The long-anticipated energy crunch hit in the early 21st century, and economic crisis descended as cheap oil, gasoline, and fossil gas evaporated. Peak Oil––the point where the consumer demand for oil exceeded the declining amount of oil produced––forced oil gasoline, and fossil gas prices into a never ending upward spiral of price increases until the average consumers and business owners could no longer afford to purchase gasoline for their cars and delivery trucks. Sales plummeted for new and used cars using gasoline. Corporations responsible for fossil fuel energy production––oil, coal and fossil gas extraction, refinement, and shipping––tried to manipulate prices to maximize profits by first curtailing production to inflate prices, then quickly ramp up production to sell as much of the supply at the new high price. Then fossil fuel production crashed. There was simply not enough remaining supply of cheap oil to supply all the cars, machines, plastic plants and chemical plants. They were forced to extract the more expensive fossil fuel reserves from deep underground and the deep sea. It took ten units of energy to extract oil worth twelve units of energy, selling it at a price that almost no one could afford. This is called "Energy return on energy invested"––or EROEI rates. High EROEI fossil fuel production made fossil fuel energy unfeasible and unprofitable. High energy costs were compounded as climate disruption produced increased natural disasters that disrupted remaining fossil fuel supplies and destroyed energy supply and

distribution infrastructure like cables, wires, pipes, pipelines and storage tanks.

"Another reason fossil fuels became unprofitable was the carbon tax. Burning fossil fuels creates enormous amounts of carbon dioxide that rises into the atmosphere and gets trapped there. It forms a thick blanket of carbon around the earth that holds more and more heat on earth, resulting in climate change. To reduce carbon emissions from the burning of fossil fuels, all governments began charging a carbon tax to help pay for the effects of climate disruption. A gallon of gasoline with a hefty carbon tax became even more unaffordable to the average person driving a gasoline engine car.

"As cheap oil disappeared, it also took with it the wide availability of cheap fossil-fuel derived materials and products. Plastic supplies and plastic manufactured goods were not always available, which meant most things made of once-cheap plastic also became unaffordable to the average consumer. New bioplastic materials were developed, but banks, under pressure from fossil fuel-based plastics industry leaders, would not provide loans to startup bioplastic companies until it was too late to make a difference.

"Local microgeneration of electricity and sustainable renewable energies––solar, wind, hydro, geothermal, hydrokinetics, and biofuels––were the answer to many urgent power needs. Unfortunately, sustainable, renewable energy had long been aggressively opposed by multinational fossil fuel energy corporations, who feared the competition and profit losses. They had spent billions on slick advertising and misinformation campaigns and government lobbying to convince the general public and government legislators that the energy crunch was a hoax pushed by environmental extremists. Despite that, renegade community energy cooperatives, under the leadership of young entrepreneurs, were successful in setting up wind and solar energy microgeneration stations in small pocket areas where people in the community made the commitment to transition to affordable, renewable energy.

"Some innovative tinkerers were able to rig their internal combustion engine cars and trucks to use biofuels from home-made vegetable oils, algal oils and seaweed oils. Most gasoline cars, though, were simply abandoned or sold for scrap metal, or even traded for bicycles. Owners of electric cars were luckier, as long as they could produce adequate renewable energy locally. Visionary young people in small communities took initiative to transition to renewable energy microgeneration long before it was socially acceptable."

I noticed Maya and Chen had both taken out their pocket NGC energy collectors. The Gadgets were mostly solar powered, and the bionanotechnology had come a long way since the first community solar panels were developed. Once engineers stopped working on frivolous electronic consumer products, they could focus on important technologies like NGCs. Ollamh Grayhe acknowledged their

Gadgets and said, "Yes, we will come to that topic eventually." He continued speaking.

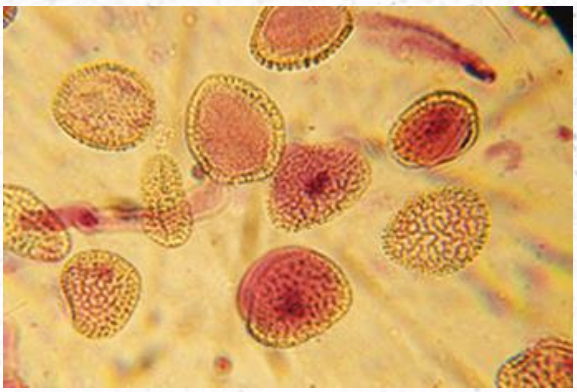
The Carbon Bubble

"The long-anticipated Carbon Bubble came much earlier and much more rapidly than people expected. Few communities had invested in sustainable and renewable power generation and transmission infrastructure––the cables, poles and transformers. So, rolling electricity blackouts brought local economies and communities to a screeching halt. Waiting in long lines at gasoline stations made the public demand an immediate solution to the fossil energy crisis. The Carbon Bubble had burst. The response was too little, and much too late. The time it would take to transition to decentralized sustainable, renewable energy would be lengthy. There were no longer any quick, cheap and easy solutions at this point.

"At the dawn of the energy crunch, the financial value of major multinational fossil fuel corporations plummeted dramatically. Carbon capture and storage ––pulling carbon dioxide emissions from the air and storing it underground––could not happen as quickly as the technology investors promised. So, international governments finally agreed to set strict greenhouse gas emissions limits and force severe cuts. They all adopted carbon taxes to be assessed on every amount of fossil fuel purchased and burned. That rapidly raised the price everyone had to pay for fossil fuels. The revenues from carbon taxes were used to pay to begin fixing some of the problems caused by climate disruption. That also meant that most of the remaining expensive fossil fuel reserves had to be left in the ground. If oil, fossil gas and coal were extracted and burned, they would release so much carbon dioxide, the global climate would warm beyond 4 degrees Celsius. Fossil fuel corporations appeared to have enormous wealth, because they included the value of all the fossil fuels they planned to extract from the ground. That was artificial wealth––a Carbon Bubble––that gave them extra power and influence to push people, communities and governments around. But these fossil fuel reserves now could never be extracted from the Earth and burned, so fossil fuel corporations lost all this artificial wealth. And power. Abandoning stranded fossil fuel assets deep underground ended––burst––the so-called Carbon Bubble.

"Everyone who owned stocks in fossil fuel corporations also lost money. Fossil fuel stocks were also owned by the world's leadership class or middle class, whose retirement plans investments were to be used to fund their living costs during retirement. The world's middle class could not sell off these stocks quickly enough, and their middle-class retirement funds disappeared almost overnight. Investment in oil drilling and development was halted in most places, and the cost of fossil fuels––already hitting Peak Oil effects––simply skyrocketed once national, regional and local fuel hoarding policies began."

Ollamh Grayhe turned to us with a wry smile. He said, "I want you to know, the Vanguardians have never, ever invested in



fossil fuels, and have never, ever owned fossil fuel stocks. We are 100% renewable and sustainable energy supporters." He turned back around and continued his pace and his lesson.

Global Pandemics

"When the first of the plague pandemics hit, it was long overdue. A strain of the Yersinia pestis bacteria had successfully mutated to form a new type of modern bubonic plague. This bacterial strain had been the same one responsible for both the Plague of Justinian, which had wiped out half of global population in 541-542 AD, and the Black Death of Europe, which erupted in 1348-1350 AD. That one decimated the population of Europe. This time, mutated Yersinia pestis had initially been transmitted by fleas on rodents from imported industrial food in coastal and port areas. Climate disruption increased American reliance on food imported from overseas industrial agriculture plantations, which helped the global spread of infected fleas and rodents.

"Health science researchers already knew about the widespread overuse of antibiotics in the agricultural and health industries. Their research discovered that Yersinia pestis had mutated by embedding itself in the lungs of humans to become an airborne version of the bacteria, easily coughed out and rapidly spread person to person. The airborne mutation of the Yersinia pestis bacteria was able to kill its host within 24 hours of infection. The death rate of the infected was seventy percent.

“There had been several other pandemics, especially the contagious and drug-resistant mutated avian influenza virus, which came in waves, had a high mortality rate, and weakened many immune systems of those who did survive. Avian influenza and the plague both seemed to take advantage of widespread weakened human immune systems and overwhelmed centralized medical insurance and health care industries.

"The pandemics came in several waves and sequential outbreaks over a period of a few years, until Avian influenza and the plague had completed their cycles and the remaining human population had developed formidable immune systems that eventually defeated the viral and bacterial invasions. Population loss and rapid mass migration away from high-risk plague areas brought increased refugees and increased chaos throughout the globe. Many leaders fled in private jets and yachts to their secure and well-furnished luxury survival bunkers, abandoning their communities and neighbors.

Economic Change

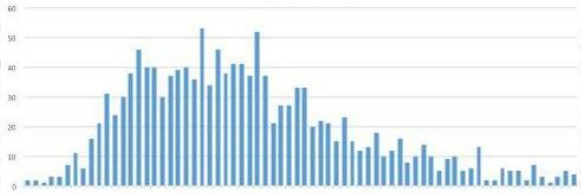
"Before the pandemics hit, human population growth had continued to grow. Experts expected that population growth would level off because higher income people have fewer children. That leveling off did not happen. As general economic decline trickled downward, families were more inclined to have more children and provide them with higher education and a higher level of skills. This

would turn offspring into economic assets to the family—extra sets of hands to work the family gardens—while also providing more economic security for parents in their elder years. People are driven to rise to—or remain in—the comfort and security promised by leadership class or middle-class status. Middle class membership means a demand for more material goods, higher energy consumption rates, and inevitable increases in pollution and wastes, all of which created a burden the Earth's ecosystems could not bear. Economic collapse and irreversible ecological collapse were well underway as the pandemics hit.

"America was always deeply in debt. It borrowed from its future children and grandchildren to pay for the high lifestyles of the present generation of older adults. China loaned money to America and expected America's future children and grandchildren to pay them back. When the global corporate capitalism economy soured, China demanded early repayment in order to feed and care for its people. The deeply indebted American federal government needed to generate quick cash to pay off some of this debt to China. The American federal government began to sell off federal lands—like national parks, forests, and wildlife reserves—to some wealthy individuals and multinational corporations, in order to repay debts to China. When corporations bought these federal properties, they were investments in valuable natural resources, like clean drinking water, forest timber, fish and game, phosphorus supplies for fertilizer, minerals for manufacturing, and arable soil for food production.

"Most investors and corporations had long ago shifted world manufacturing to China and other places in Asia. These areas had low-wage workers and no environmental laws, making it much cheaper for corporations to manufacture high-profit goods. However, new higher fossil fuel costs meant higher shipping costs to America, and soon made goods manufactured overseas more expensive than goods manufactured in America.

"At the same time, labor unions and worker cooperatives—democratic businesses owned by and run by the workers themselves—had spread to overseas factories. This forced increases in worker wages and compliance with environmental laws. This then increased the cost of overseas manufactured goods even further. It soon became cheaper to move manufacturing back to America and closer to



the customers who would buy the manufactured goods. Factories could either automate production with bots or take advantage of newly arriving migrant laborers and environmental refugees, who would probably be willing to work for lower wages. Most overseas manufacturing that returned to America relocated to midwestern Heartland states where the environmental regulations were more lenient, and labor unions were banned. Eastern, western and coastal states began rapidly shifting toward local economies, supporting small sustainable businesses, and creating worker cooperatives to take over failing private companies. These governments also implemented strict environmental, health, carbon emission, climate adaptation and resilience, and sustainability regulations.

"While some people following the American Dream in two-income households did rise to the leadership class or professional class—

what they used to call the middle class—many more people who worked just as hard could not. The competition to succeed made the price of staying in the leadership class too costly. Much of the high-skilled work could now be done through automation, which relied on technological breakthroughs in robotics and artificial intelligence. Low-skilled jobs and even some traditional high-skilled jobs were simply not available to provide enough opportunities for the growing workforce. The corporate capitalism economy could no longer grow with decreasing quantities of natural resources, increased fossil fuel costs, housing pressures for undeveloped land, reduced phosphorus mining for agroindustrial fertilizer supplies, declining food production rates, and the increasing demand for high paying middle-class jobs.

"The stressed economic system and Earth's biosphere could no longer provide a middle-class lifestyle to more than a million people, while also providing subsistence needs for the basic survival of the planet's ten billion poor and the demands for ever increased profit-making and wealth creation for the very few members of the upper class. The number of high-skilled middle-class jobs was extremely limited, but the number of low-skilled working-class jobs had grown tremendously. Stark divisions between the wealthy "haves" and poor and leadership class "have nots" created a system of extreme inequality, especially in America. What was once known as the American Dream or the "Middle Class Dream" became mocked by many as the global "Uberstory" of manipulative corporate marketing campaigns promoting an unachievable middle-class fantasy. People were rejecting the Uberstory and changing to a new story.

"The greatest part of the economic collapse actually resulted from the loss of people's confidence and trust in the existing corporate capitalism economy, and two different economies emerged. One was a revived global corporate capitalism economy, where corporations working closely with elected government officials had to convince people to restore their trust in the corporations that would run a restored corporate capitalism economy. This globalized corporate capitalism economy was more consolidated and centralized with corporate control of investment dollars; used government enforcement of corporate capitalism rules; and used tax revenues to bail out the multinational corporations that were too big and too important to fail. Corporate and government marketing efforts to restore the people's trust in the corporate capitalism economy would be the key to building up people's trust in manufactured products, merged corporations, the extraction of the very last bit of very expensive fossil fuel, and the value of perpetual economic growth for the corporate capitalism economy.

"The other economy that emerged parallel to the corporate capitalism economy was a local sustainable fair-market economy with opportunities for international fair trade. This more diversified local fair-market economy was made up of many small family businesses, cooperative businesses, and especially youth-run businesses. It also included the informal economy of bartered handmade goods, home-based services, locally grown food, renewable energy microgeneration, voluntary "neighbor labor," and green retrofit housing rehab. Communities often created their own local currency, since they often could not convince corporate investors to invest their money in the local efforts. Local young people often

pooled the small amounts of money of neighbors to start needed new cooperative businesses, sometimes also borrowing small amounts of money from local community credit unions that offered no-interest loans to young entrepreneurs. Of course, nothing was completely clear cut, and the two different, parallel economies remained interwoven and interdependent even as they competed to earn the trust of the people.

"Global protests resulted from decades of misinformation to the people, and ecological and social injustices that unfairly discriminated against various categories of people. Local youth-owned business cooperatives began suing multinational corporations for climate impacts, environmental destruction and environmental health impacts caused by their unsustainable business practices. When the cooperatives began winning lawsuits, and were awarded large financial settlements, it transferred wealth to local cooperatives that used the money to buy local land, restore it and turn it over to other youth to create community-based regenerative farms and homesteads.

"Non-governmental organizations—or NGO's—introduced new "Truth in Manufacturing" legislation to force all product labels to include information about the ecological and carbon footprints and social justice impacts of the product. Excessive packaging of products was made illegal, since it just added to waste that local communities had to deal with. Zero emissions manufacturing was developed by young business owners and used whenever it was required and enforced. As the idea of Earthlaw principles began to spread throughout the world, mainly through the work of youth leaders, there was an increase in environmental protection treaties, often between nations and reluctant multinational corporations. Global corporations had become quasi-nation-states because of their enormous wealth, power, and amount of land they owned throughout the world.

"When climate disruption and micro-wars interrupted global supply chains and energy supplies, global markets began to collapse, large-scale manufacturing and shipping slowed to a crawl, many people lost their corporate jobs, government tax revenues plunged, and poverty rates skyrocketed. In a consumer-based economy, this was a crisis for everyone. Since most products, food and energy in America were imported from overseas, the cutoff in international commerce forced hungry and desperate people to be creative. Most people simplified their lifestyles and found creative new ways to produce essential goods and services locally. Young leaders had been preparing for several years and were ready for the economic crash. Rather than wait for the jobs with multinational corporations that would never come back to America, young leaders mobilized unemployed people to plant regenerative gardens and farms in their back yards, to learn new skills needed in the community, to start their own home businesses and worker-owned cooperatives and to set up local fair-market economies and new local currencies."

"And as you can already guess," Ollamh Grayhe began as he turned back toward Maya, Chen and me. But he did not continue.

"Young people took the lead in the transition," offered Maya.

"And young people and our Elders are still leading this transition," added Chen.

"And this is why you are sharing all of this with us, Ollamh," I chimed in.

"You are all three my pride and joy and hope in this world," he said in a very serious tone.

"My final measure in this life I have lived for so long will be what I have been able to nurture in you, our next generation. When it is my time to go, I take nothing with me. I leave behind a healthy Earth and a next generation of youth with the right stories and skills to care for it; that is the only true measure of wealth in a person's life. That is the only true measure of a good society. We have our work cut out for us if you are to help me become wealthy before it is my time to go." He chuckled quietly again, and we joined him with hearty laughs. After a very long pause, which allowed his wisdom to sink in to all of us, he turned back toward the path. I could see his thumb rubbing one particularly large symbol carved into his staff. It was the Vanguardian symbol. He continued his talk.

Organized Crime

"In many areas, government leaders tried to jumpstart the economy by increasing taxes on the people and using the funds to bailout global corporations and banks threatening to leave communities. The public saw this as corporate welfare and an unfair redistribution of wealth from poor people to the rich people. People continued to lose faith in the corporate capitalism economic system. Many places experienced the rise and spread of the black market, driven by gangs and organized crime, especially in the poor shanty towns that sprouted up. Organized crime syndicates also rose to take advantage of the chaos, the lack of effective government and the decline in law enforcement. Organized crime fought for complete control over the black market by trying to bribe and corrupt local government officials, law enforcement officers and business leaders to ignore the black market's destructive effects."

Political and Government Change

"Stressed by increasing climate disruption, the tremendous turmoil from economic, social, and ecological collapse put America into terrible disarray. The elected leaders in Congress and the White House and the seventy-three appointed justices on the Supreme Court were polarized and paralyzed. Federal politicians were embroiled in conflicts over power grabs during the crisis, thinking voters were no longer paying attention. Lobbyists from global corporations carried briefcases with cash, and the level of corruption shifted American voters' attention away from ineffective federal politics and government toward local and metropolitan government. Because the polarized Congress could not agree on anything, they could not pass budgets and laws to continue funding federal government operations. The Supreme Court used a constant stream of novel legal philosophies to throw out most federal environmental laws, preventing the federal agencies from protecting the people and the ecosystems they depended on and cherished. Frustrated and unpaid federal government workers resigned en masse. Most of the older staff retired early and unwittingly bought cheap ocean front properties now on stilts in the ocean. Many of the younger highly-educated, skilled and capable bureaucrats moved out of the Washington, D.C. area and came back to their homes of origin. These youth leaders took jobs working for metropolitan and ecoregional governments and nonprofit agencies to help their communities. Many young government employees also became worker owners in local cooperative businesses or set up their

own local organic farms. When the Carbon Bubble finally hit, American society could not afford $25-per-gallon gasoline and modern civilization began to collapse. A few local governments with these visionary youth leaders had been working around the clock to set up an alternative local energy system, food system, and economic system that did not rely on fossil fuels or buying food from corporate factory farms or borrowing capital from multinational corporate banks. These were the only local governments and communities prepared for what was to come.

"As the events of the Tribulations unfolded, almost all local governments went bankrupt as a result of the economic crisis and depression. There were minimal tax revenues coming in and local governments had no ability to borrow money to see them through the crisis. The Antarctic and Greenland ice sheets had begun melting and added two feet to average global sea level rise. Climate disruption resulted in catastrophic natural disasters, including megadroughts, intense heatwaves, unprecedented floods and slow-moving category 5+ hurricanes, and there was no government funding to recover. The federal flood insurance program was in bankruptcy, billionaire private investors had lost most of their capital wealth when the Carbon Bubble burst, and the Chinese government refused to provide any more loans to finance additional U.S. federal debt.

"Climate disruption brought particularly severe impacts and costs to governments responding to the midwestern and southwestern, and southeastern megadroughts, which reduced water and wiped out many food crops. The megadroughts began the long anticipated "Water Wars," with fights over drinking water, industrial water, and agriculture water. Governments were not able to resolve the Water Wars. In the east, local governments were pressured by organized youth leaders to set up decentralized watershed community-based stewardship of water resources. Every resident of the watershed was required to adopt conservation measures and use green infrastructure. This helped considerably to protect ecoregional water supplies.

"West of the Mississippi River, governments had long ago adopted "Prior Appropriation" water rights. This allowed wealthy investors and global corporations to buy and sell water rights, based on historical claims of who started using the water first. This approach made the situation more complicated. Many homeowners living along waterways mortgaged their water rights during tough economic times. They took out loans and promised to turn over their water right if they couldn't repay the loans. Everyone expected the economy to return to normal right away. When the economy did not turn around, and people could not repay their loans, billionaires, banks and global corporations re-possessed the water rights just as they had planned. Global corporate banks scooped up water rights throughout the west and sold them to the highest bidders: private water broker corporations. Water prices skyrocketed in the west, leading to the Water Wars.

"In general, local communities that created voluntary greenhouse gas elimination, climate adaptation plans and new local governance and economy models using watershed community cooperatives were the most prepared and the most resilient to climate disruption, the Water Wars, and the other impacts of the Unholy Trinity. In many cities and towns, youth leaders had been

mobilizing people using grassroots efforts to create alternative, sustainable "ecodistricts" whenever they could not get formal government support. Some entire towns bypassed their formal governments and became "Transition Towns." Filled with optimism and hope rather than despair, young people had established global online networks to share the best ideas for good government. Slowly, do-nothing local government leaders were voted out of office. Youth leaders convinced their communities to established innovative, viable ecoregional democratic governments with a new purpose: adapt, become resilient and sustainable, and survive.

"During these times, everywhere was filled with political chaos and government shutdowns. The federal government had mostly collapsed from political party gridlock. Many citizens in central and midwestern Heartland states refused to accept any new federal sustainability and climate change resilience laws and regulations. They were led to believe government regulation and government spending caused all the problems. Global corporations created slick voter education campaigns and congressional lobbying campaigns to sell everyone on the idea that increased fossil fuel drilling and policies to expand the corporate capitalism economy as the way to run society were the only solution to problems.

"The Great Elections resulted in a presidential declaration of a National State of Emergency and also resulted in adoption of the Earthlaw. The president and remaining members of Congress passed national emergency legislation temporarily creating two political divisions within the United States. This allowed devolution of federal government powers to state governments in the Heartland states, and delegation of federal powers to ecoregional governments in the eastern states and west coast states. This was supposed to allow a quicker government response to temporary environmental, economic and social crises during the Tribulations. The remaining federal government leaders, including all thirty-seven Supreme Court Justices, moved temporary operations to Kansas City, Missouri.

The Military

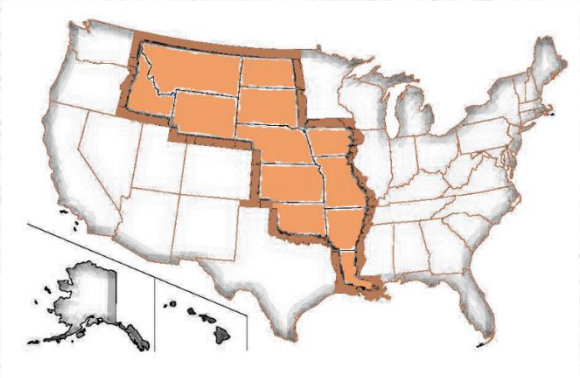
"The U.S. military was hit hard by economic losses, and funding was inadequate for maintaining military readiness and capability at the levels previously maintained at the beginning of the 21st century. Military personnel were hit particularly hard by the pandemics, and medical treatment for soldiers combined with responding to so many global and domestic violent skirmishes over remaining resources, overwhelmed Pentagon budgets and capacity. Many military personnel were given an emergency discharge for health reasons, and many more were released temporarily to care for and defend families. A massive reduction in force dismissed a majority of the remaining military and civilian personnel. Many soldiers, sailors, airmen, marines and coast guardsmen returned home to join local militias to put down repetitive uprisings or to seek pay raises by joining private multinational corporate security forces.

"The Pentagon sold off many federal military bases—including now privatized military units and civilian personnel still stationed there—to private multinational corporations to raise money and pay down federal military debts. The remaining Pentagon leaders also relocated to Kansas City, Missouri, and

maintained control of the remaining navy and army. The Coast Guard was the only branch of the military that was legally transferred over to the western and eastern coastal ecoregions, forming the backbone of what was to become the Unum League Troopers. "Military devolution" was an international phenomenon, as all nations across the globe experienced high military personnel fatality rates during pandemics, and downsized or dismantled militaries, intentionally or unintentionally, smoothly or not so smoothly.

"Nuclear weapons and nuclear power facilities were all scheduled for decommissioning, although record keeping and auditing of these procedures could not be confirmed. China helped to decommission nuclear weapon capabilities throughout the world and was widely believed to have decommissioned all its own nuclear weapons. No one seems to know exactly what happened to nuclear waste storage facilities, and what happened to all the decommissioned nuclear power plants that stored nuclear waste onsite."

At this point, Ollamh Grayhe turned toward us with a solemn look on his face. "Unfortunately, this terrible responsibility has now fallen on the shoulders of your generation. My generation has not been able to solve this one. I deeply, deeply regret this, and my heart is very heavy over this one issue in particular. In time, you will see why." He looked down at the ground for a moment and curled his toes into the soil as if trying to make a fist. He released his toes and stood in absolute stillness for what seemed to us like an eternity. Maya swore later that she had seen his eyes fill with tears, but he turned his face away and none of us ever knew this for certain. The Ollamh took a few slow steps forward, then resumed his normal pace and his lecture. All three of us held this heaviness in the pits of our stomachs for quite some time after we resumed our walk. He continued his story.



A Divided America

"As I said, the American Congress and president declared an extended temporary national state of emergency with extended martial law and granted extraordinary powers of federal delegation of authority to state and local governments. This allowed new forms of government, including home rule for states and cities wishing to participate in a temporary union or other forms of temporary democratic government. Extensive eminent domain powers––the power of government to confiscate land to use for public purposes––were delegated to state and local governments to create possibilities for land annexations for food production. In almost all cases, it was used to return or reclaim land that had previously been public land, held as commons in the Public Trust, but long ago privatized and awarded to wealthy private owners for personal profit. Under the new Earthlaw, they also delegated expanded ecosystem protection powers for drinking water protection and forest and wetland protection. New local tax systems, local economic systems, and local watershed-based

governance systems were encouraged through these emergency federal laws.

"The two and a half centuries-old federalist system of America was dissolved, "temporarily" dividing the United States geographically and politically as an experiment with flexible governance. All states held emergency constitutional conventions to make the needed legal and governance changes. Eastern and western coastal states turned to local and ecoregional governance reorganization under a cooperative union, effectively dissolving state governments and legislatures (until called again into session after the crisis). These states all adopted versions of the Earthlaw. This union of ecoregional democracies in the former eastern and western coastal states became the Unum League. Even still, some local governments collapsed into anarchy or strict martial law.

"Midwestern Heartland states rallied around states' rights under small, limited-power state governments, and stronger corporate capitalism economies under the leadership of multinational corporations. The Heartland states included Louisiana, Arkansas, Oklahoma, Missouri, Kansas, Iowa, Nebraska, North Dakota, South Dakota, Wyoming, Montana, and Idaho. None of the Heartland states adopted the Earthlaw. The Heartland states became known as the United States of Middle America or the USMA.

"The Heartland states insisted on maintaining at least a shadow federal government in Kansas City, Missouri with an intact 37-justice Supreme Court and Department of Defense (Pentagon), in order to preserve continuity with the American Constitution. However, the polarized Congress would never be able to meet in quorum, and so many Supreme Court justices had to recuse themselves from court cases to avoid conflicts of interest from their personal and family ties and vast financial investments, all non-military federal action was essentially frozen. The acting Congress could do nothing other than issue conflicting informal advisory statements, one from each party. Although the American Constitution was de facto "suspended" since the Supreme Court was also not able to meet in quorum to make legal decisions, existing justices formed two opposing caucuses and always issued two conflicting opinions, one from each side, on whether or not new state laws were consistent with the American Constitution. No new state laws have ever been found unconstitutional. The Pentagon, now a streamlined command of remaining high-ranking officers and intelligence personnel from all branches of the military, could act using "emergency powers."

"The acting federal government in Kansas City—the Supreme Court, the Pentagon, the Congress, and a few other remaining federal officials—were relocated to a top-secret bunker facility that had been constructed decades before to house Congress, the Executive Branch leaders and the Supreme Court during emergencies to ensure "Continuity of Operations." Most multinational corporate headquarters throughout the western and eastern coastal states also relocated to Kansas City. While people in Unum League areas refer to The Collapse, USMA officials refer to it only as the "Temporary Emergency Devolution" or TED.

The United States of Middle America (USMA)

"In the USMA, the people and their leaders had generally placed their trust in the corporate capitalism economy; the rights of the individual to private property as the

primary expression of freedom; the extended family and strong corporation as the basic units of society; corporations as the ideal way to pursue financial prosperity; media corporations as the primary means for disseminating ideas, news and consumer product information; centralized corporate banks as the most effective way of providing investment capital for business development; and competition within a self-regulating corporate capitalism economy as the basic morality system for society. In many circles, independent community churches provided the moral guide for personal life, although other private spiritual expressions were generally tolerated.

"State governments still operated in the USMA as "necessary evils," but not trusting government was considered a truly American way of life that could be traced back to the Founding Fathers' distrust of the 18th century British monarchy. State governments were expected only to enforce social decency laws and corporate capitalism business laws, promote healthy economies, provide a criminal justice system to punish criminals and demonstrating protestors, and provide civil defense in case of foreign invasion or domestic riots by unruly mobs. State governments were severely restricted in their taxing authority and budgeting with a series of strong limits, checks and balances. State governments were generally restricted from adopting regulations and were watched carefully by the news media corporations. Almost all elected government officials were business leaders, since a background in business was believed to provide the preferred set of skills to successfully run government. Almost all elected and appointed government officials took a short-term leave of absence from their corporate executive jobs in order to run government and returned to their corporate positions when their government term expired.

"The USMA set out to be the high-technology, financial and economic development capital of the world. They believed they alone would jumpstart the global economy and restore America to its rightful place as the economic, military and political world leader. The USMA created "emergency" low-tax policies to attract wealth and investors. As a result, USMA areas became very attractive to corporations, manufacturing and industry, and vast former agricultural and forested areas provided excellent areas for high-tech manufacturing, cheap coal, oil and fossil gas power plants, and industrialization. Although much of the labor needs were being met by automation with robotic assemblers, the seemingly unlimited supply of environmental refugees, migrant laborers, criminals in prisons, and former middle-class Americans from the shanty towns kept labor costs low or even free. New laws allowed immigrants to work as indentured laborers, with some legal protections. Many of these indentured laborers were older youth.

"An extreme socio-economic divide developed between rich people and poor in the USMA. This divide reinforced the deeply held belief in the USMA that hard working, educated, moral employees who made the right choices in life would rise to financial success in a corporation and society. The lazy, uneducated, and character-flawed people would stay where they deserved, at the bottom of the socio-economic ladder, until they changed their ways and made better decisions. Statistically in the USMA, most of the population apparently chose the latter. This accepted belief about the deserving and the undeserving made the economic divide a non-issue.

"Political leaders decided annually on the socially-acceptable level of poverty during the decades of temporary economic crisis. This allowed communities and governments to shift resources away from welfare and anti-poverty programs in order to focus on investing in economic growth that would eventually benefit every employee who was willing to work hard to succeed. Rural gentrification policies created a rapid flight of the wealthy class into the country to create self-sustaining usually gated or walled estates of high value homes and mansions. Many wealthy people in the USMA also relocated to private, high-tech, floating "ocean islands" in the coastal offshore areas beyond the jurisdiction and reach of the Unum League. The wealthiest of the wealthy maintained estates in the country and out on the ocean. In order to cheaply house their needed laborers, shanty towns were set up outside every urban area and gated community throughout the USMA. The excessive socio-economic divide was bolstered by widespread reports of discrimination and oppression based on race, class, sex, gender and orientation, religion, nationality and immigration status. Every category presented a new opportunity for lowering the status and diminishing the rights of others. Many, many people of conscience from the Heartland who opposed the political, social and economic shifts in the USMA on moral, ethical and legal grounds soon found themselves in the exurban shanty towns. Many joined in the Rose Community resistance.

"The USMA continued to extract and use fossil fuels, primarily coal, fossil gas from hydraulic fracturing techniques, and the residual heavy oil and shale oil deposits. Internationally, the USMA was considered a global menace and accused of “crimes against humanity" because they repealed all greenhouse gas emissions laws and rolled back most environmental laws in order to extract fossil fuels, manufacture plastics and other toxic chemicals, and sell their goods wherever they could create a willing market. USMA officials insisted that free-market forces would solve any environmental problems, and global corporations should be left alone to solve their own environmental problems. Many nations instituted economic sanctions—some even erupting into short military skirmishes—against the USMA, because the USMA continued to extract fossil fuels, emit high levels of greenhouse gases, and use the military to defend corporate confiscation of natural resources overseas. The USMA also refused to accept environmental and climate refugees for resettlement with full socio-economic integration. The USMA was even accused of expelling their own poor citizens—many of whom were former middle-class professionals impoverished by climate disruption disasters, job loss, and health crises—by putting them on buses and dropping them off in Unum ecoregions.

"Many middle-class families in the USMA lived paycheck to paycheck, and had taken on insurmountable debt for homes, vehicles, higher education, health care and frequent disaster recovery. The loss of a job, the

sudden spike in fuel, energy, food or health costs, or a climate disaster forced many families into instant poverty and homelessness and earned a free bus ride to the nearest shanty town. Mass migrations of these newly poor from USMA areas to Unum League communities had been common for decades. Those who had exhausted all resources and could not afford the expense of leaving the USMA had no choice but to move to the nearby shanty towns, and if motivated, joined one of USMA's small number of pocket Rose Communities. Rose Communities were considered by some to be oases of sustainable and resilient local governance within the USMA states. Publicly they were ridiculed as socialist slum communes. And yet, these Rose Communities were a source of alternative thinking, experimental living, and radical forms of community and sustainable economies, and their ideas did spread slowly.

"USMA corporations dominated the desperately needed nanotechnology and bionanotechnology that was increasingly used globally for resilience, adaptation, ecological restoration and sustainability. Global economic sanctions were rarely more than symbolic and were always short in duration. USMA corporations also controlled the Fly. The USMA boasted a consistently increasing Gross Domestic Product (GDP) and slow but steady economic growth. The USMA was the only nation in the world that still used the GDP as the only measure of national economic wellbeing and high quality of life."

Ollamh Grayhe stopped suddenly and let out a deep sigh. "We are not enemies, you know. We are all part of the same family. We are just so different in so many ways, and the actions and worldview of their leaders cause so much harm. We must keep dialogue open, keep challenging one another, remain committed to peace. We just have very different standards for how humans should live on this Earth and with each other." The fingers of his left hand instinctively reached up to touch the small badge attached to his shirt just below his left collar bone. He caressed the acorn shaped symbol several times. It was the size of a hen's egg, with a base of tarnished metal and deep green wedges arranged in a circular pattern.

I saw Maya and Chen look down at their own SUbadges they had designed, although theirs had several wedges with much lighter shades of green. My own badge was in the shape of a salmon and had a mixture of light and dark wedges of aqua blue. They are inlanders from forests, mountains and grasslands. I am from the coast. Ollamh Grayhe began walking again and picked up the pace. Walking faster did not seem to have any effect on him, but the faster pace made Chen, Maya and me breathe a little more heavily up at this altitude. Our Ollamh continued his lesson.

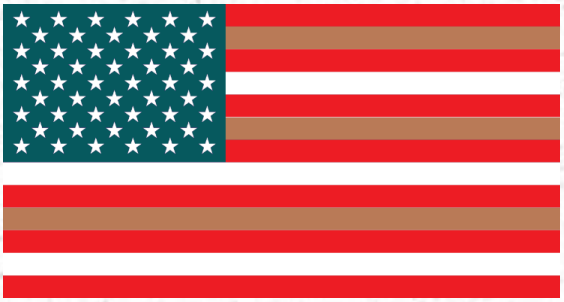
Unum League and Local Ecoregional Governments

"In eastern, western and coastal states, confusion, miscommunication, conflict and chaos emerged as the federal government became paralyzed and lost the power––and tax revenues––to enforce federal laws. It is the oddity of life when the ones with the power have no ideas, and the ones with the ideas have no power. Power shifted from the federal government to state governments for a very short time, until state government leaders proved unable to solve problems because they were too rigid and could not think creatively to solve problems. People's trust in the corporate capitalism economy had dissolved. People lost their trust in what they saw as paralyzed and dysfunctional

government that was corrupted by status seeking, power grabs, and corporate influence. In general, people blamed corporate power abuse and the destructive forces of a wayward corporate capitalism economy for the decline of society after the Unholy Trinity. This made people turn to their local governments to handle local crises. By partnering with citizens and non-governmental organizations they could come up with creative solutions to the array of problems. They had to address economic collapse, high unemployment, the energy crunch, climate disruption impacts, and the onslaught of epidemics. This is the opportunity youth leaders had long been preparing for.

"Many other institutions had also lost credibility with the people because they had not provided leadership, taken initiative, nor remained socially relevant during the crises. None had the vision or foresight to transition to resilience and sustainability. This included universities, traditional faith communities, labor unions, and even many environmental NGOs. There were some visionary leaders––most of whom were highly educated young people––who did arise, however, and transformed the old into the new. Community cooperatives were the most common of these new institutions. In time these new young leaders earned the public's trust because they responded to the crisis, they created working local economic systems, they were effective, they were determined, and they had moral authority.

"Many failing businesses were not generating the profit levels their investors demanded and were being shut down. Many young people organized the workers into community cooperatives––businesses owned by the workers who run them––to buy the failing businesses. By doing so, they saved jobs and addressed immediate local economic needs of supplying food, housing, energy, and health care to communities. The mass migrations of environmental refugees and the "new poor"––former middle-class families who lost their jobs and economic status––were the ones who benefited right away from the efforts of these community cooperatives.



"Ethnic communities, including immigrants and environmental refugees, reclaimed their cultural traditions that brought meaning, purpose, and wisdom back to people's lives, especially celebrations in connection with natural cycles and agricultural seasons, and the growing of medicinal herbs, the people's medicine. They restored intergenerational ties between Elders and young leaders, combining the energy and passion of youth with the wisdom and knowledge of Elders. This restoration of generational ties would prove to be a watershed moment for the Vanguardians.

"Communities that had been in America for many generations were also seen as very important. Native American tribes, Amish communities, and Mennonite communities helped with re-skilling in growing foods, survival skills and simple lifestyles. People looked to religious communities for a moral compass, direction and leadership. The religious revival was led by younger religious communities that embraced ecospirituality

and science, and proclaimed restoring healthy relationships between humans, the Earth, the Divine and care for poor people."

Ollamh Grayhe walked alongside of the three of us and looked to see the expressions on our faces when he said this. I know both Maya and Chen had been crinkling their foreheads and looked puzzled. "I can tell from the expressions on your face that this seems odd to you, that religion might once have been pit against science. And yet, there was a time when that happened. Nowadays we are used to hearing religious leaders referring to "stewardship of the Earth," and that science is helpful for unlocking the secrets to the Storybook of Creation, or some similar language." He continued his talk as he walked with us.

"Many public schools had been abandoned from loss of funding and decay of the building structures. Fuel costs for school buses put transportation companies out of business. Education shifted back to cooperative community home-schooling by parents and other community members. Youth leaders volunteered to become teachers and formed teams to run neighborhood school cooperatives to teach reading, writing, and math. They taught earth sciences and agriculture sciences, environmental democracy, and community-building skills. Many neighborhood school cooperatives used refurbished obsolete computer hardware to access the revived legacy Internet. After the fee-based Fly had mostly shut down the free legacy Internet, some groups of youth leaders made it their life's work to restore the legacy Internet to reclaim lost knowledge and provide education, as well as share resilience and sustainability practices, distribute news, and sell locally made products. Community survival and revival depended on free access to the legacy Internet."

The Ollamh stopped for a moment and stood still. He looked up into the sky as if he were trying to collect his thoughts. He turned back toward the three of us, and said, "Those comms you wear on your forearms are a lifeline for Vanguardians and communities everywhere." Instinctively, Chen and Maya both looked down at their comms. All three of us had been using them to record Ollamh Grayhe's talk while we walked. We knew we would need our comms to review our notes, so that we would be able to retell this entire story from memory.

Ollamh Grayhe continued. "I cannot emphasize enough how very, very important it is for all people to have free access the collective knowledge and wisdom of the human race. We must be able to share what we know and learn what others know. No person or organization or corporation should own or control or manipulate the information we all need to survive. That is why we Vanguardians go to great lengths to restore, protect and defend access to the legacy Internet." We all nodded, and I think we all

Simplify your life. Don't waste the years struggling for things that are unimportant. Don't burden yourself with possessions. Keep your needs and wants simple and enjoy what you have. Don't destroy your peace of mind by looking back, worrying about the past. Live in the present. Simplify!
Henry David Thoreau

clearly understood what he was saying. Maya and Chen had already completed their terms working as Vanguardian Tchackers, and I was just about to finish up my term. Serving as Tchackers, we had learned the ins and outs of how the legacy Internet was used and misused, and the ongoing efforts by outside forces to cripple the legacy Internet's use.

Sharing of information, ideas, scientific research, best practices for sustainable living, and ongoing learning is such a deeply human process. Efforts to limit that are like eroding our own humanity. Ollamh Grayhe might be proud of me for coming to that insight, but before I could share it with him, he began walking. Sharing my insight could wait until later. I entered a silent note into my comm. Our Ollamh continued telling his story.

"New adult community learning centers were set up and led by a new generation of young professors. They were impatient with the increasing irrelevance and abuses of traditional universities. The universities had become too hierarchical, too isolated in their little disciplines, and too elitist to be

concerned with the issues of society. They were too focused on pursuing money for corporate-funded research on frivolous consumer products, and they charged too much money for people to have the privilege of reading their published science. The new generation of young professors focused on practical and applied research that combined many disciplines––agronomy, biology, geology, social psychology, economics, political studies––to solve real problems facing humanity. They had no patience for professors who studied the flow rate of ketchup to increase corporate profits. The new community learning centers admitted any serious student with intellectual promise, rather than selecting students based on who could afford to pay. They worked on solving the wicked problems of humanity and the Earth and teaching new students how to do the same.

"Labor unions, under new youth leadership, were transformed into international networks that fought corporate abuses and injustices against poor workers throughout the world. The new labor unions organized workers and worker leaders to also fight against industrial abuses of the environment anywhere factories were degrading the Earth. These new unions raised the standard of living of workers and the quality of life in factory towns throughout the world. This prevented global corporations from abandoning workers in one country to set up operations in another country without environmental protection laws and worker protection laws.

“It was becoming harder for abusive global corporations to shift factory operations in search of "cheap labor" elsewhere. Labor unions also organized workers into cooperatives to buy out closed-down factories, redesign green manufacturing processes, and then operate the business themselves. The workers became worker-owners of successful, environmentally-

friendly businesses, and these cooperatives invested their profits in helping to rebuild their own local communities. International labor unions had begun to win over the support and loyalty of the general public in ecoregional communities.

"Perhaps the most revolutionary new institution, however, was the new democratic ecoregional governments, networked through the Unum League. As I said previously, federal and state governments had mostly dissolved. In order to address ecological problems and socio-economic needs, government was decentralized into these democratic regional governments at the local level. They redrew jurisdictional boundaries using watershed boundaries, since the basics of human life—drinking water, food, medicinal herbs, water transportation, wood from forests—followed watershed boundaries rather than the old political boundaries.

“Many of these new ecoregions already had well-established citizens’ watershed councils that had been providing de facto grassroots governance for local areas for years. Led again mostly by young people outraged by the environmental legacy problems they were inheriting, these citizens’ watershed councils organized neighbors and households using voluntary "good neighbor agreements" to adopt serious resilience and sustainability practices through simple living practices and low energy lifestyles. They created ecovillages and used commons-based models to fairly manage their natural resources. These wildly successful best practices and ecogovernance models spread rapidly and became the basis of the local Earthlaws. The ecoregional governments formed an extensive collaborative network throughout eastern, western, and coastal states, and were the inspiration and origin of the formal ecoregional governments that united in the Unum League.

"Ecoregions formalized by drawing up their own “Ecoregional Charter of Governance” for home rule and submitted it to affirmation and consent by other ecoregional governments in the Unum League. The Earthlaw was a key component in every ecoregion's charter or constitution. Ecoregional governments were expected to use the latest science and social science for laws and policies, adopt best management practices for resilience and sustainability, and ensure democratic processes, justice and universal human rights and dignity in the economy and governance. Adaptive governance, experimentation, innovation and variety characterized ecoregional governments in Unum areas. The Unum League's model of networked ecoregional governments was adopted in many places throughout the world.

"Ecoregional governments adopted the most appropriate model local Earthlaws. They created high corporate tax rates for non-sustainable businesses, effectively driving them out of business or driving them out of Unum areas to the USMA. Local sustainable economies were developed to prioritize the provision of basic needs: healthy ecosystems, food, water, clothing, housing, transportation, energy, education, communication, health care and culture. Bartering for basic needs was encouraged and use of regional currencies as a supplement to the official dollar currency was common. Eventually, the Uni became the primary currency throughout the Unum League, while the dollar was maintained in the USMA. Almost all ecoregions eventually created their own local ecoregional currency to complement the Uni. Business development focused on creating local livelihoods and full employment,

especially through small business entrepreneurship. They still managed to trade products internationally, even though shipping took much longer on tall sailing ships and solar electric canal barges.

"Frequent widespread public protests had resulted from decades of manufacturer misinformation to consumers and other ecosocial injustices. Ecoregional governments responded by adopting consumer justice legislation to force "Truth in manufacturing," labeling all products for ecological footprint, carbon emissions and social justice impacts. Excessive and non-recyclable packaging was banned. Irresponsible corporations were the targets of lawsuits by community-based cooperatives seeking compensation for environmental degradation of lands and waters under the Public Trust Doctrine and for their human health impacts. Successful lawsuit settlements were extremely effective in transferring wealth to local cooperatives. The cooperatives used legal settlement funds as capital to invest in local sustainable business initiatives and bought up land to restore and create organic farmsteads. Zero emissions manufacturing was born in the Unum League.

"Ecoregional governments had completely eliminated coal, nuclear and oil as energy sources, and the last remaining fossil gas plants were being phased out. New wind, solar, hydropower, marine hydrokinetic, geothermal, and biofuel energy sources were brought online. This required communities to adopt microgeneration of energy. Nearly every home and building installed renewable energy generation technology. At the same time, this local renewable energy transition required a drastic reduction of energy use and simpler, low energy lifestyles. The energy crunch finally made that possible...and inevitable. As much as possible, lives were oatmeal-powered. People ate oatmeal for breakfast, then did the work by hand. Critical improvements in battery technology by several collaborating battery manufacturing cooperatives were also very important for making this happen.

“Fortunately, in the minds of many, the new simpler, low energy lifestyles were not compared with the luxurious high-energy lifestyles of the early 21st century. Instead, people were comparing their new low energy lifestyles with what they used to experience under the previous power outages, rolling brownouts, and "out of gas" signs at gas stations during the energy crunch. Reliable, free, renewable energy was considered a delight.

"Ecoregions focused on producing high quality, low-technology manufactured goods for domestic consumption and international trade. These new manufactured goods also had to be low energy to make and to use. Some high-technology, especially nanotechnology and bionanotechnology, was manufactured in lower quantities to supply local ecoregional needs, but some high-technology was imported when needed. The high-tech, especially nanotechnology and bionanotechnology, was dominated by USMA-based global corporations. Unum ecoregions invested in locally-made commercial sailing

ships—the tall wooden sailing ships used before the 20th century. They rejuvenated water-borne travel and regional water-borne shipping. Cities that had originally been built along rivers—they once called these "Rust Belt Cities"—were now coming back to life in their ecoregions by reclaiming their river access, canal access and ports. International trade of sustainable, fair trade goods from the Unum League were in high demand, and their fleet of tall wooden sailing ships made international trade feasible again."

Chen and Maya looked at one another and smiled. All three of us shared a love for these tall sailing ships. They both had families that came to America as environmental refugees in one of these wooden sailing ships, and my daily life growing up in a coastal port area was dominated by the activities of these beautiful and majestic ships coming and going every day. I spent a good many hours of my childhood daydreaming about working on one of the ships someday. Once I started my training as a Vanguardian, travelling by sailing ship was just a way life. It was an odd contrast to travel upriver for a day on a tall wooden sailing ship, and then hop on the back of a high-tech Vanguardian hovercycle to travel the rest of the way to a community training event. Ollamh Grayhe, holding his simple wooden staff in his right hand, while occasionally flashing a glimpse of the very high-tech comm armband hidden under the left sleeve of his robe, was a model of how Vanguardians have been able to seamlessly integrate the best of both high-tech and low-tech worlds—and remain humble about it. He continued talking.

"To motivate and engage people in their ecoregions, young leaders brainstormed ideas to turn changing behaviors and lifestyles into fun activities. They decided to turn it into a game. Ecoregions entered into friendly competitions with one another to adopt best practices to restore ecosystem health, reduce ecological impacts, achieve resilience to climate disruption, and become sustainable. These competitions were very successful in motivating community members to get engaged and in rapidly mobilizing volunteer efforts. Winning the inter-ecoregional competition and placing in the top ten came with bragging rights for ecoregions and allowed them to change their official ecoregional sustainability scores. Just as important, the ecoregions that scored the highest in sustainability scores wound up attracting investment dollars and new motivated citizens who wanted to live there. This also put political pressure on ecoregional elected officials to keep up with their neighboring ecoregions, lest they lose citizens and financial revenues to their neighboring ecoregions.

"Refugees, migrants, and poor people were generally welcomed in all Unum areas. Diverse people were seen as assets and a labor source to help transform their ecoregions into healthy and sustainable places. Many environmental refugees and migrants were older youth, teens, and young adults, especially young parents of infants and small children. Seen as resources and future productive citizens, these newcomers were actively engaged in building their own housing, growing their own food, learning their own preferred vocational skills, and celebrating their cultural heritage. Their simple living skills and knowledge of growing food and working with the land was especially valuable to ecoregional leaders.

"Some short-term effects of high immigration were not positive, and no one wants to be unrealistic about these early struggles with

very diverse communities. Cultural, ideological, generational and ethnic conflicts did arise. That is where so many of us in Unum areas became skilled using peaceful communication methods. It took time for diverse communities to create a new shared vision and identity that allowed them to work together and live together in a peaceful and productive way. Lifestyles of newcomers were very modest and simple, not abundant and luxurious, but initial government costs for new immigrant empowerment programs was high.

It took some time for people to see the long-term results, like full employment, the absence of shanty towns in Unum areas, and a very low socio-economic divide between rich people and poor. Well, the poor and the not-quite-as-poor people. It was extremely difficult to "get rich quick" legally within Unum areas, since economic development was no longer based on simply growing and maximizing individual or corporate financial wealth and letting it trickle down to the common people. And yet, the Genuine Regenerative Prosperity and Happiness Indicator (GRPHI —pronounced “graffee”) for ecoregions in Unum areas far surpassed that of states in the USMA."

Rise of Youth Movements

"Young people saw that they had little opportunity for their future under a broken and collapsed system. Unlike their parents and grandparents who had initially benefited from the early 21st century system and socio-economic structure, young people had almost no chance for "the good life." As their world faced increasingly certain decline, young people began using their digital social networking tools to communicate. They refocused their conversations on the new realities of their world. Many came to believe that their own future––the future of humanity––had been squandered away for frivolous consumption by previous generations. When the older generation passed along the proverbial "keys to the car," the keys belonged to a car that was speeding downhill toward a cliff, and had long ago run out of the fuel needed to steer the car away from danger. And the debt owed on the car was way more than the car was worth.

"Young people saw the writing on the wall for their future and began to organize and mobilize. They could not convince their parents and grandparents of the need to rethink everything along the lines of resilient, sustainable communities and lifestyles. They could not convince their parents and grandparents to make radical lifestyle changes immediately by giving up the luxury, comfort and conveniences of a high-energy, high-consumption, high-pollution lifestyle. The whole generation of young people took the initiative to adopt radical simplicity, sustainability, and resilience and create new systems, structures, technologies, and lifestyles without the support of the older generations. In every Unum ecoregional community, young people established a community **Museum of Waste** (CMoW), with

cheeky, witty displays of previous generations' conspicuous consumption, retail product packaging, frivolous technology, and waste. CMoWs were meant to be sarcastically funny and ironic, but educational; visitors usually leave shocked, angry, sad and ashamed. A cultural "generation gap" was created that far overshadowed the generation gap of the 1960's countercultural youth movement.

"The "back to the land" movement was a key component to the youth movement. This happened in cities, suburbs and rural areas. They restored land and soil, planted fruit and nut trees and gardens, and dismantled buildings to create sustainable housing from the reclaimed building materials. "Clubs" of visionary young people "stormed" whole neighborhoods and rural villages to set up re-designed sustainable watershed-based communities, cooperative businesses, cultural life, and learning and skills centers. The youth movement was a "re-skilling" movement, and young people borrowed from world cultures and from old fashioned 19th century western farming and food preparation techniques. They eagerly integrated the latest high-technology and new low-technology advances to augment simple lifestyles, sustainable housing, organic farming and fishing, renewable energy generation, and global information sharing.

"Many youth clubs built old-style sailboats and started "pilgrimages" to overseas communities to exchange information, techniques, cultural traditions, and technology. Young people would spend some time immersed in the culture in order to learn skills, understand cultural insights, build relationships, and undergo personal growth and transformation. They also usually worked in the factories that American corporations

Be the change you are trying to create.
Gandhi

had relocated overseas to take advantage of cheap labor. Young people could not find jobs in America, so they found them overseas. Pilgrimages helped them personally transition from their previous middle-class Western culture to a new culture of simple, sustainable living. Domestic pilgrimages were made by bike, horseback, and river boats to exchange information and trade goods with youth of other sustainable communities. Many went on these domestic pilgrimages especially to seek advice from tribal and indigenous communities, immigrant communities, Amish communities, and other cultural communities that had long embraced simpler, sustainable lifestyles.

"As youth pilgrims encountered wise Elders from the older generations, the names and reputations of Elders were quickly disseminated throughout the youth social networks, and these wise Elders were sought out as mentors, guides and wise visionaries for the youth movement. These youth pilgrimages quickly became an almost universal experience and rite of passage for every young person, and it was expected or assumed that every youth would take at least one pilgrimage at some point early in their lives. Note that the Vanguardians continue to maintain the tradition of pilgrimage for our postulants.

"Another aspect of the youth movement was an acceptance and solidarity with youth from around the world. Through mass migrations of environmental refugees, a majority of

whom were children, youth, young adults and young parents of infants and small children, young people residing in America—citizens and non-citizens—interacted and found common ground. Youth leaders all knew that political efforts to ignore climate disruption or oppose taking immediate action to transition to sustainable living impacted mostly the youth of the world, and their legal residency status didn't matter. No one could run from climate disruption. It was everywhere.

"Many youth leaders began to hold "humanitarian raids" to rescue children and youth from immigrant detention centers located just inside American borders. These immigrant detention centers were overcrowded with environmental refugee youth who had escaped environmental destruction, food shortages, and violence in their home countries, and were simply seeking food, water, and normal lives in America. To American youth leaders, it wasn't fair that politicians and corporate executives let climate disruption destroy the homes of young people around the world, and then locked them up when youth fled to America for their lives. Many young people from the USMA also fled their homes and migrated to Unum communities. They were angered that USMA policies favored the current older generations at the expense of the younger next generation and their future. A new story among young people emerged: climate disruption meant climate injustice against the world's youth and children. In solidarity with young people from around the world, youth leaders in America committed to finding solutions that would benefit all children and youth everywhere. They rejected any so-called "solutions" that shifted harm to youth and ecosystems in other places in the world. All harm anywhere eventually comes back to us here.

"The youth movement was also a next generation spiritual and religious movement. But like all other aspects of the youth movement, young people fused together many traditions into new spiritualities and religious traditions that made sense to them and worked for them. Older religious elements and theological uniformity were still alive in small pockets among the older generations. But these ways did not make sense to young people, and they were abandoned by youth. A scientific understanding of the evolutionary universe and life on the planet Earth was a foundation for these new youth spiritualities. Cultural diversity was embraced. Scientific understandings of the universe were integrated into Christianity, Judaism, Islam, Hinduism, Buddhism, and other religions held by young people, and it did not cause a problem for youth. Ecospirituality and ecotheology became much more important and were essential components of this new youth religious movement.

“The youth religious movement strongly emphasized a balance of personal and communal religious prayer and ritual, with a public morality. Their public morality meant they actively engaged in service and advocacy to protect and restore the Earth, to serve the needy, and to promote social justice and liberty to poor and oppressed peoples. Young people generally accepted that religion should push people to maturity, connectedness, meaning and purpose, moral living, love and wisdom through conversion, transformation, or enlightenment.

“Prosperity religion that pursued wealth and luxury was irrelevant and was dead to them. Personal, private religion that had no

connection with the public world was escapism and was dead to them. Judgmental religion that only condemned the world and its peoples without compassion and love and service to them was dead to them. Young people generally rejected religious institutions that abused power, that were ethnocentric, that could not tolerate other religions, and that would not protect the Earth. These old religious institutions were dead to them.

Communications

"Enormous solar eruptions knocked out many communications systems, including satellites, computer communication hubs, cell towers, cell phones and comms, electrical power grids, and other sensitive technology. This global communication system was never completely restored for the masses, although wealthy private individuals and global corporations in some areas rebuilt their own communications and power infrastructure to restore their own strategic communications access globally. In other areas, some communications access and access to the legacy Internet were restored, especially by youth activists.

"Technological advances, especially nanotechnology, allowed the widespread use of powerful personal communicators or "comms." These comms were often wearable or handheld devices with a variety of built-in technological features, like microcomputers, data storage, micro energy generation, video cameras, remote controls, environmental scanners, health sensors, GPS and various activity monitors. As a communication tool and information tool, comms were invaluable tools. As intrusive, attention-consuming, and behavior-manipulating devices of the global population under the control of unethical forces, comms, now owned by almost everyone everywhere, were also potentially dangerous.

"Attempts had been made to establish a corporation-controlled subscription-based digital communications network to replace the free World Wide Web, the legacy Internet. Some argued it was chaotic, inefficient, promoted anarchy, and undermined progress of the global corporate capitalism economy. Although much of the infrastructure for the legacy Internet had been damaged by natural disasters and the electromagnetic pulses from the solar eruptions, private corporations worked together to dismantle as much of the remaining legacy Internet as possible.

“This effort was opposed by the global network of young activists, many of whom had become proficient in the use of electronic communications to promote grassroots electronic democracy or "Emocracy." Young leaders formed communications cooperatives to purchase and repair web hubs, satellites, and antique computers to restore the legacy Internet. This legacy Internet system was then used to share sustainability ideas, promote local economies, train and educate leaders, and promote local democratic governance."

As if on cue, all four of our comms emitted short, sharp alarm signals simultaneously. Instinctively, we each looked down at our comms to see what was happening. "Heat wave warning," Maya blurted out first. "Not today, but tomorrow and the next three days," Chen added. We had all gotten used to these warnings during the summer here. We all were taught that sea level rise and flooding were supposed to be the most dangerous impacts of climate disruption, and everyone prepared more for those effects. No one really anticipated that heat waves would be so

devastating. Food crops, wildlife, and buckling roads, train tracks and buildings just could not adapt quickly enough, and localized heat waves were really hard to predict. And then so many elderly people could not adapt. They always reported the casualty rates after a heat wave, and that usually meant elderly people.

Ollamh Grayhe tightened the look on his face. We all knew the heat would be especially difficult for him because of his advanced years, although he never let on how unpleasant he felt. "It is warning services like this that drive the Vanguardians' efforts to restore the legacy Internet. Communities throughout the world have come to rely on us as protectors and restorers of the legacy Internet, and the cybersecurity work Tchackers like yourself provide against constant attacks to shut it down. Rumor has it that the three of you were particularly good as a Tchacker team."

I don't know who blushed more just then, Chen or Maya. It was true that the three of us had become an excellent Tchacker team, and we had thwarted dozens of cyberattacks. We had also found and helped our Vanguardian mentors restore over a hundred web hubs. That was the record so far. We had also earned a reputation for pulling off some of the funniest and most witty avatar patches and security encryptions. People still laugh at some of our classics.

We were proud of the critical jobs we had done, even more so that we were so young. Ollamh Grayhe always said that youth were not the future generation, we were the present generation. All youth have the potential to make a difference right here and right now. Most youth just were convinced otherwise, and never made the effort. Vanguardians prepared youth for leadership and service to the community today, unlike the old way of keeping kids disengaged until they were adults. Ollamh Grayhe said the greatest contribution the Vanguardians have ever made was to show the world what youth can do with the guidance of their Elders. Those who say it can't be done need to get out of the way of youth leaders who are already doing it.

Ollamh Grayhe said, "We will adjust our time together for the next three days to avoid the worst of the heat wave. But for now, let us continue."

“One of the most critical aspects of restoring the legacy Internet is that we no longer know what is going to happen with our global carbon emissions. Before the Collapse, the whole world—or at least some of the world—were in a frantic race trying to cut greenhouse gas emissions down to a reasonable level to keep global climate change to only 1.5°C. The international reporting stopped, the information went missing, and the legacy Internet mysteriously came down. Everywhere I have been, there are no fossil fuels still in use, and everywhere in the Unum League has banned fossil fuels. The USMA reports all say that they have transitioned away from all fossil ules, but none of that can be verified and nothing on the Fly can really be trusted. It is all just

commercials for frivolous products and ideological propaganda.

“The bottom line is, we simply do not know at this point in time if we will make it. Every time the Vanguardians boot up another web hub, we are able to search the databases for information on all historical and legacy activities from the early decades of the 21st century that either generated carbon emissions or reduced them, and we feed that data into the EarthQuest Simulator to inform our running models. But much of the data we find is blatant greenwashing, intended to look like corporate, industrial and government carbon emissions reductions, but are actually coverups for increases in emissions. We can trust only the information we find that is coming from grassroots efforts by the Founders and their networks. It is these grassroots efforts from all over the world that give us hope today. We know their grassroots mobilization and actions made a difference.

“We have Tchackers, Vanguardians, people from Rose Communities and youth everywhere using sensor drones to try to secretly measure carbon emissions coming from industrial sites, old wells and other facilities all over the world, and we feed that into the EQSim, too.

“This issue is one of the most important questions everyone is secretly asking without ever using words. Did the previous generation succeed? Did they do it? And will we make it? Will all our efforts to adapt to climate change in this generation be enough because our grandparents and parents did their part on our behalf? Did our grandparents and parents save us, or did they sacrifice us?

“We live with these unknowns and uncertainties everyday as climate change impacts grow, and we do all that we can do to frantically adapt now and live by hope that our parents and grandparents did indeed care and the grassroots efforts of the Founders were able to make a difference.”

Ollamh Grayhe held the silence of that moment. It seemed to last an eternity. Maya and Chen both stared into the distant horizon with unsure emotions sweeping over their faces. I was stunned that he had asked those questions out loud. And a part of me was also very relieved that I wasn’t the only one losing sleep at night screaming these questions into the night and getting only an abyss of shocked silence in return. Did they? Will we?

Ollamh Grayhe broke the silence. "We will hope. Let us now move on."

Educational Change

"At the beginning of the collapse, universities initially took on a leadership role in society. Many people had shifted their loyalty and trust away from federal and state governments and global corporations, and university professors, especially the younger ones, offered science-based solutions to many socio-economic, environmental and climate disruption problems. Many college and university professors served as repositories of research, monitoring data and knowledge, and were called forth to serve as consultants to community and local governments.

“College students and graduate students were reaching out to the local communities to apply their new knowledge and to serve on local committees, working groups and think tanks. However, university departments and academic societies were found to be too entrenched in hierarchy and corporation-sponsored research.

“The university world split. There were those who were tied to the older system of corporate funding and an obsession with new status and privileges based on generating the highest number of irrelevant publications. There were those professors who instead chose to serve the societal transition to climate resilience and sustainability. As research professors split ranks mostly along generational lines, the older professors stayed, while younger professors fled the colleges and universities––along with a critical mass of the students––to form the “New Academies.” A handful of wise older professors did leave to became mentors and Elders.

“Public elementary schools, middle schools and high schools were shut down from lack of funding, staff, and even students. Many parents became concerned that the schools were preparing their children for careers and futures that no longer existed, and children would need to be re-educated on practical survival skills, resilience skills and integrated sustainability studies. Young adult parents took the initiative to rethink their children's education and began homeschooling their children. They helped establish and staff “homeschool academies" to supplement training and learning in resilience, sustainability, applied sciences, social sciences, culture and practical skills.

“Rural field schools and urban community learning centers were set up as community-based education cooperatives by young professors and many of their promising college students to train and educate adult community members. They taught applied sciences, democracy and governance, humanities and culture studies, and resilience and sustainability skills that helped prepare a new generation of leaders for the transition. Exams, texts and term papers were replaced with community-based participatory applied research addressing the transition to sustainable communities. Most of these field schools and centers ran farms, ranches, fish farms, homesteads, gardens, plant nurseries, parks, nature preserves, and forestlands. All education was grounded in understanding ––and experiencing and celebrating––human and nature relationships or "ecosocial systems."

“The university community dismissed applied research work as unscholarly. They rejected interdisciplinary and applied studies, and publicly opposed the New Academies. Young scholars and teachers were blacklisted for not adhering to the long-established university traditions. While most traditional colleges and universities were forced to shut down for lack of students, funding, new faculty, and political support, these field schools and learning centers flourished and spread. As they were refined and grew in prominence, and their young professors grew in reputation, the field schools and learning centers transformed into upper level “New Academies” for talented adolescents and young adults.

Religious Change

“During the crises and chaos, many people from all cultures, societies and walks of life turned to spirituality, faith and religious communities for guidance, meaning, comfort, and purpose. Among these were people who considered themselves "spiritual," and who wanted an experience of the sacred without the "complications" of organized religious institutions. Many religious institutions underwent a rediscovery of their earth-centered roots and began to re-emphasize their ancient ecospirituality, ecotheology, and

outdoor rituals and worship. As these faith communities took seriously once more their "care for Creation" traditions, they called their followers to a deep responsibility and moral obligation to protect the environment and the indigenous communities, ethnic immigrant communities, and poor people who depended on nature for food and survival. Many faith communities also encouraged followers to rediscover the religious value of nature as a means for experiencing the divine and the transcendent and as part of the full human spiritual journey.

"One common hallmark for this renewed spirituality and religiosity was the attempt to dialogue with and integrate the scientific understanding of the cosmos and the evolution of life. It was a given that religion should provide moral authority to be actively engaged in protecting the Earth, living sustainably, and fighting oppression and injustice. Respected religion was assumed to foster growth, maturation, conversion or transformation to generate deeper identity, meaning, purpose, morality, love and wisdom. Many scientists and academic philosophers who did not consider themselves "religious" or even "spiritual" still generally acknowledged and accepted common, repeating patterns of non-randomness to exist at subatomic and microscopic levels, in matter and energy, in genes and at cosmic levels throughout the universe. There were always some that still believed in chaotic chance and randomness as the sole driving force for the cosmos.

"Religious essentialism—religion with a few simple, dogmatic beliefs that bonded together their few divinely-chosen believers—was still alive in some areas among the members of the older generations and the people who

Thousands of tired, nerve-shaken, over-civilized people are beginning to find out that going to the mountains is going home; that wildness is a necessity.
John Muir

joined out of fear during the Tribulations. Many of these individuals relied on simplistic dogma and secret truths known only by the inner circle of their own religious followers. There is a common human tendency to hold tightly to religious certainty and stability during times of fear, uncertainty and unrest. These essentialists were suspicious of people and religions seeking experiences of sacred mystery and wisdom, and were more known for their public messages of condemnation and judgement of anyone different from themselves. A growing number of young people who were raised in religious essentialist traditions left the flock in search of other religious and spiritual communities espousing ideals and experiences of hope, compassion, love, forgiveness and wisdom.

"Religious communities that were able to adopt sustainability, environmental justice and social justice advocacy on the behalf of poor and marginalized people and at-risk children became leading moral voices in many communities. In general, it was these religious communities that earned the respect, trust, and loyalty of many people.

“There emerged an integration of a scientific worldview and spirituality, and this was seen by many as one of the most important intellectual revolutions, religious revolutions and pivotal social innovations in the history of human civilizations. In the minds of many,

the science vs. religion battle was over. It was both/and. Science and the transcendent can fit together.

There was a steep drop in formally ordained clerical leaders. There was a loss of usable religious properties and formal worship buildings––cathedrals, basilicas, churches, chapels, synagogues, and temples––due to sea level rise, extreme heat and other climate-induced natural disasters in major coastal and inland cities. Most religious communities did not prioritize making worship spaces resilient to climate change. And yet, there was a corresponding rise in educated lay leaders, lay ecumenical and interfaith groups, and non-denominational lay faith communities and networks that were part of both the religious revival and the transition to sustainability. Amish communities, Quaker, Franciscan and Celtic Christian communities and Buddhist communities had become extremely popular and widespread in the United States.

Religion and Evolution

"In some way or another, modern religious communities integrated biological evolution, quantum physics and an evolving, unfolding universe into their theological and spiritual views of the divine, and into the creation of the world. They accepted the divine origin of biological evolution and its four drives or laws:

1 Ensure that life lives and life survives

2 As the earth changes, every living creature evolves for a better fit within the Creation

3 The Creation always increases biological diversity

4 The best and most fit creatures—individuals and especially groups—will survive and thrive, and these are the creatures that learn to become the most regenerative

"Climate disruption had resulted in the need for rapid change, faster than living cells can adapt using the mechanisms of biological evolution. Cellular-level adaptation under biological evolution is already slow and much too slow to adapt to rapid climate disruption. Earthly creatures needed a new evolutionary process that could change more quickly to ensure survival during times of rapid change. Only one species was endowed to evolve special cognitive abilities for abstract thinking and consciousness or awareness. Only one creature was gifted a mind. Eventually, these special cognitive abilities allowed homo sapiens sapiens—the human creature—to imagine and consider the flow of time—the past, present and future— to remember past experiences with disasters, poisonous plants and predator attacks, and to anticipate and prepare for possible future threats and dangers. Abstract thinking and consciousness of the mind allowed the human creature to plan for adequate food needs for the whole group through winter seasons, droughts, wildfires and floods. The human creature's mind could think creatively and create innovate solutions to problems and develop new tools to survive and thrive in various ecosystems.

"Abstract thinking helped them develop language for communication and storytelling to remember and rapidly share information, especially through ritual and dance, and to pass on learning to the children and the children's children. Consciousness helped the human creatures feel connected to everyone and everything around them, to feel a sense of belonging, meaning and purpose—a divine calling—and to make a special place

anywhere in creation that felt like home. These new cognitive abilities of the mind allowed the human creatures to rapidly change their behaviors for a better fit and become the supreme adapters in creation. These newly evolved abilities of the mind also helped them to develop a sense of stewardship, using their powers of adaptation to help all species of creatures and all ecosystems of creation to adapt and survive and thrive along with them. It was as if a being with a voice and a mind and a consciousness issued forth from the Earth itself to become the one Earthling that could speak, think and act on behalf of the whole of Creation.

”Most ancient mythological and religious traditions have a story of a great flood where humans collected and protected a diversity of wild creatures and then released them to repopulate after the disaster. Thus, stewardship for creation had become an essential divine calling or command for the human creatures.

“According to these traditions, as groups of human creatures migrated throughout creation to different ecosystems and climate zones, they created elaborate stories, songs, ritual dances, practices and other elements of culture to store and recall and share and pass on critical knowledge of how to live within each new place. All human cultures and languages are divine treasures with stored knowledge and secrets essential for the human creatures’ survival in the earthly creation. Stewardship for creation means protecting the diversity of all human cultures and languages and ensuring their survival as essential for the survival of humans and creatures all other living things in creation.

“Most religious traditions taught that all human cultures, groups, and institutions can get steered off course, become misguided, get co-opted by false leaders, or otherwise turn away from the Wisdom Path of truth and love. Likewise, every human person or group can get distracted, lose hope, turn astray or get co-opted, and the divine process of biological evolution provides a natural corrective solution. This natural corrective is almost always found in the prophetic wisdom traditions of human cultures. The natural corrective is made up of the many levers that can help the human creatures change when they are on a self-destructive course. These levers for change are the sacred and inspired transformational stories, rituals, ceremonies, and positive group norms and heroic identities of religious and spiritual communities found within the diverse human cultures. Although these sacred processes of transformation, enlightenment or repentance allow rapid change of behaviors for adapting to a rapidly changing world, they still take some amount of time to do their work because they always happen within communities and always require a concerted effort to change.

“The real power of false leaders and demagogues to lead people astray is the ability to waste people’s time, distract them, run down their clocks on frivolous pursuits, so that people have little time, energy and attention left to make the changes necessary to put them back on the right course. This is why the Wisdom Path dismisses and insulates from the Uberstory and the Uberculture.

"Religious communities, theologians, and other spiritual leaders had become deeply engaged in working out the implications of biological evolution and quantum physics of the “Universe Story” for science and religion. The next step in integrated human consciousness was well underway and was an

essential element to catalyze the global social movement, especially of youth leaders, toward the transition to sustainability, resilience and regeneration, especially with leadership from those on the Wisdom Path.

The Rise of China

"Meanwhile, China continued to grow economically, dominating manufacturing and technology fabrication. They controlled the international supply of rare earth metals that were necessary for most high-technology. The Chinese population tended to maintain comparatively simpler lifestyles and spent much more of their time and wealth engaged in culture that brought meaning, purpose and identity to their lives. Not needing to divert so much of their financial resources for citizen luxuries and conveniences, China invested heavily in international development, especially renewable energy technologies, sustainable agriculture and aquaculture, and natural resources. The Chinese government's strategy to purchase a controlling interest in many key multinational corporations was also successful, and during times of economic crisis, this allowed China to provide food and services to its own citizens. They loaned America the money to finance its pursuit of wealth and power, and watched America sink into heavy debt that its next generations could never repay.

"China's rapid expansion of overseas "trade missions"—their coastal urban colonies—throughout the world involved setting up little "China Towns" to expand trade and markets for Chinese goods. China purchased or leased many international naval bases overseas, and these Chinese bases were transformed into strategic international trade ports and Chinese cultural hubs. In places where sea level rise and coastal storms threatened onshore coastal facilities and installations, China built ocean water-based floating trade platforms as offshore micro-cities.

“Although China was hit especially hard by climate change impacts, including sea level rise, heat waves, flooding and coastal storms, their policy was to cut losses in any damaged or climate-risky settlements. If a city was severely damaged, they rescued and relocated survivors, salvaged building materials, and rebuilt their cities in safer locations within weeks. This also increased the need to provide new places for Chinese people to live outside China. Mandatory coastal retreat saved China hundreds of billions of Yuan in adapting to climate change, and created new financial opportunities worldwide through Chinese trade missions.

"Chinese trade missions also provided bases for launching humanitarian aid in response to increased climate disasters, improving the international image of China, and promoting Chinese culture. America and Europe were collapsing, and China was there to provide world leadership and humanitarian aid. As a result of China providing extensive international climate disaster aid and humanitarian aid—which created jobs for high skilled Chinese workers—China became generally well-received by world citizens for its strategic leadership. The trade missions

were wildly successful, and international "Chinamania" and "Chinaphilia" resulted.

"China rose to power in the international arena by relying not on military might, but rather on "market dominance" and Chinaphilia, and by providing highly-prized high-tech goods to the wealthy class and the remaining pockets of professional class consumers. American engineers could design high-tech and market it, but only China could manufacture it for them. Many skilled Americans also began large scale emigration to China for high-tech fabrication and technology research jobs.

"China's influence came to dominate the Pacific Ocean, the ocean economy, and even international ocean conservation strategies. The Chinese "Navy" was actually more of a merchant marine fleet and humanitarian aid and disaster response fleet. After decades of climate policy avoidance tactics, new Chinese leadership initiated a strategic policy turnaround to become the global leader in international climate change mitigation policies that reduced greenhouse gas emissions. This new leadership in China was remarkably young, and reflected the values of China's growing youth movement as many of their older leaders died during the pandemics. China's international leadership in climate disruption policy and action was aided by the de facto abdication of leadership by American leaders on international climate disruption policy.

"Many thought the emerging Russian empire might be a global superpower contender with China, but the Russian people made a different choice. With support and resources from China, the Russian people overthrew their tyrant leaders and as a surprise to China's leaders, created a network of sustainable, resilient ecoregional

Everybody needs beauty as well as bread, places to play in and pray in, where nature may heal and give strength to body and soul.
John Muir

democracies similar to the Unum League. As the northern frozen wastelands of Russia became very habitable and farmable under climate change, the world's climate migrants were welcomed into these new areas to help create new little agro-utopias surrounded by biologically-diverse and protected Zapovedniks. China still officially observes their Russian neighbors with interest.

"On the energy front, China used so-called "real clean coal" technology advances its scientists had developed by "perfecting" CO2 sequestration. While so-called "real clean coal" actually required very expensive refining technology and the creation of enormous storage compounds for toxic coal waste in China's wilderness areas, coal pollution and harmful local emissions were mostly moved away from immediate human settlements. This was considered a technological––although very expensive––success, although the resulting artificial earthquakes were just tolerated as a necessary side-effect.

"China's official energy policy was to use coal only for national wealth creation and job creation for its vast numbers of low wage foreign laborers who had come to China seeking jobs in China's factories and coal mines. China's government permitted the use of coal energy only to manufacture non-essential goods for export to foreign countries, especially America. Chinese

citizens were officially discouraged from engaging in coal industry jobs, except for top executive leadership positions, because of the high cost of health care for Chinese coal workers. This allowed Chinese workers to be re-trained and shift to higher wage skilled jobs outside the coal industry. For its own internal energy needs, China converted to sustainable energy sources, high-efficiency energy uses and technologies, and low energy lifestyles and communities. China became completely energy independent on their own renewable energy resources in providing subsistence food, clothing, shelter and ecosystem services for Chinese citizens.

"The high costs of China's fossil fuel energy were passed on to American consumers in the cost of their manufactured goods imported from China. Eventually, of course, "real clean coal" use had to be reduced in order to meet greenhouse gas emissions reductions requirements. The costs for producing and burning so-called "real clean coal" simply skyrocketed in a very short period of time. Most economists agreed that China's decision to transition away from using the cheaper "real clean coal" to manufacture most consumer goods for export to middle-leadership class consumers in developed nations was a major contributor to the not-so-gradual economic collapse of the leadership class in America, Europe, and other places.

"In the minds of most Chinese and their government and business leaders, China had succeeded in the transition to sustainability. They had increased their people's general prosperity, quality of life, happiness, international standing and influence, while Western cultures had generally experienced collapse. To many throughout the world, China had become the new international moral authority for environmental conservation, sustainability, climate policy, and even humanitarian disaster relief.

"The Chinese did begin the slow process of democratic reforms, beginning with decentralization of the national government and the democratization of local, regional and metropolitan governments. This was the effect of China's youth activists. However, the Chinese government was still considered to be too authoritarian. China's mostly centralized government required Chinese consumers to live simply and reject luxury and waste, and tended to promote Chinese cultural expressions over all others. Chinese leadership saw themselves as wiser good stewards to other cultures and nations in need of China's assistance.

"In the minds of many, China was still a very "closed" government with state secrets and a "Big Brother" model of oversight. As a result, China continued to experience considerable internal social turmoil and conflict over the slow process of expanding human rights and civil liberties. Throughout human history, in times of economic, political, and social crisis and disasters, most people have been very willing to trade freedoms for security and safety. This turned out to be true again in China, America and elsewhere in the latter part of the 21st century.

The Rise of India

"India's population continued to grow, and it now boasted the highest population, the second largest economy after China, and the population with the largest concentration of youth. That changed drastically after a series of pandemics, coastal climate disasters, and economic collapse. As a result, India turned inward, focused on societal healing and rebuilding sustainably, and shifted its economic strategy toward sustainable food production and local economies.

"India's simple living and universal care for their poor was an inspiration to the world, and almost all of India's wealthy elite class donated their wealth to support poor people and live simply in solidarity. The long-entrenched social caste system no longer had any meaning or purpose to the younger generation and did not survive the Tribulations and India's youth movement. This societal transformation required a renewal of Indian culture, led by youth and their wise Elders. Indian culture helped people to find simple joys of life, to accept hard labor as a blessing, to find meaning in living close to nature, and to accept hardship and loss with hope and persistence. They also experienced a flourishing of national spiritual renewal, especially reconnection with the sacred and the divine through nature and service to poor people. Most religions in India benefited from the many Indian and foreign pilgrims seeking spiritual fulfillment.

"At the same time, India also saw mass emigration of many of its talented and educated youth, who had been mesmerized by technology, the promises of middle-class financial and material success, and the disappointment with India's transition away from that. As a whole segment of more materialistic young people emigrated out of India to find professional and material success in other places of the world, some considered this a societal "purification" of selfishness.

"The spiritual blossoming in India, however, spread globally and eventually even amongst its emigrants. India rose, therefore, as a world power, but not in the traditional sense; in the eyes of many, India and the lived example of its peoples had become a powerful moral conscience for ecosocial justice, human meaning and sustainable communities.

The Rise of Canada

"As Canada became an independent constitutional republic, it took on an intentional international role of welcoming new immigrants, especially young adult migrants from the United States and other climate refugees and migrants from around the world. This was especially important as

Canada's frozen tundra wilderness areas were now open for redevelopment, and attracted sustainable farmers, homesteaders, and transition village advocates. Canada's population continued to grow, and although many elected officials regularly boast of having the third largest population in the world, the Canadian census has not been able to keep up with an accurate account of its rapid population changes.

“Canada has seemed to benefit most of all nations from the warming effects of climate change. Canada's new commitment to sustainable use of its extensive and now accessible natural resources and its more moderate winter and summer climate has made it the new "El Norte" and the new “Promised Land” for many of the world's climate refugees. Canada is still struggling to access enough renewable energy to support this migratory movement and resettlement of large populations. Canadians are still struggling with the legacy problem of cleaning up vast areas of industrial tar sands that went bankrupt and nearly destroyed the national Canadian economy. The younger generation of Canadians are mobilizing to ensure Canada’s Transition is sustainable and resilient, but there are still economic and political forces in place to challenge them every step of the way.

The Rise of the African Union

“As African nations plunged into poverty, famine and impacts of climate disruption during the Tribulations, for various reasons, Western societies, China and Russia did not respond with the aid they had promised.

“The African Union experienced an uprising of benevolent servant leaders with a commitment to pan-African unity and raising the African people out of poverty, hunger, disease and climate catastrophe. Together, African leaders pledged cooperation to end corruption, violent conflict and economic colonialism that prevented African economies from thriving.

“African Union leaders worked as a consensus council and formed pan-African peacekeeping forces and put down all attempted military coups. Power was returned back to ecoregional democracies and democratic, constitutional monarchies. Although they used New English as a common language for commerce and trade and as a way to unite the many African peoples, the new generation of Africans were all multi-lingual.

“The African Union mandated a “bond tax” on wealthy elites, forcing the purchase of 30-year government bonds to raise adequate internal capital funding for African economic development. With this, African communities build community schools and health clinics to provide universal education and healthcare to all. They developed a global network of Africans in the Diaspora, where African emigrants abroad could also invest in African government bonds and support networks of microcapital lending for small, local African entrepreneurs.

“African Union leaders declared a Decade of Jubilee, postponing repayment on all outside colonial corporate loans to Africa that carried excessively high and immoral interest rates. With a goal to be the first to succeed in setting up a steady state, zero-growth economy, the

African Union focused on sustainable economies and green technology. All African raw material exports were banned until they were converted into value-added products by African companies and African workers. All products leaving Africa for the global marketplace now carried the label, "Made with Loving Hands in Africa." The Made in Africa initiative spurred small-scale green manufacturing and the creation of worker-owned cooperatives as the most common form of business in Africa.

"Local communities reorganized to form democratic, water basin-based ecoregional communities, and developed renewable energy projects, such as hydropower and hydrokinetic power, solar, geothermal, wind and ocean hydrokinetic power. They invested in ecosystem-based adaptation to climate change, reforesting areas to fight desertification and drought, and adopting agroforestry to grow food, fiber, medicinal herbals and other crops alongside intact forests. They focused on preserving biodiversity and ecosystem health, engaging millions of African youth in conservation corps as part of their education and service learning experience. The next generation of Africans knew how to work peacefully and collaboratively with other Africans from many different cultures. Many of these became the African Vanguardians.

"As the microeconomies grew, and Africa showed the world how to build sustainable, regenerative local economies from the ground up, Africa was flooded with workers from around the world, especially descendants of African emigrants, who came to learn and bring these ideas back home. Many simply stayed. This was called the "African Brain Gain."

"Addressing climate destruction with ocean storms, sea level rise, and flooding along the coasts became the rallying cry for African unity and innovation. Inland flood areas and hot zones also contributed to the mass migration of African climate refugees. Now seen as a resource, refugees were trained and put to work in the rapid construction of newly-designed sustainable homes and the dismantling of at-risk colonial factories that were rebuild in more appropriate inland receiving communities.

"African communities inherited an unanticipated "donation" of colonial industrial infrastructure and capacity—mostly abandoned factories and mines along African coasts and inland areas threatened by flooding and heat zones and no longer insurable or attracting Western, Russian or Chinese investors. These new industrial resources allowed them to build their own internal manufacturing of the continent's abundant mineral resources, agricultural resources and ocean resources. All legacy colonial interests were removed from African soil, except lingering multinational corporate interests.

“African peacekeeping forces and well-trained local village civilian militias fought military skirmishes with multinational corporate militias that attempted to confiscate abandoned industrial sites, including fossil fuel production facilities and pipelines that were now banned throughout the African Union. Not one battle resulted in an African loss, although the cost in African casualties was high.

“Economically, African communities built up their infrastructure, including resilient ports, permeable roads for hydrogen hover vehicles, tracks for high-speed hydrogen trains, hoverports and electric vehicles, most of which were manufactured in Africa. African communities became the builders of the finest wooden tall sailing ships, and the developers of innovative new "green technologies" for manufacturing using natural and sustainable materials. African coops were major manufacturers of **Graphoenix** materials and bioglass, and all-natural fiber, textile and clothing products. African coops developed sustainable ocean fisheries and aquaculture operations.

“Perhaps the most important key to Africa’s rapid development was its vast mineral resources, especially rare earth minerals needed for the global transition to sustainable energy. Of course, no rare earth minerals were to be exported out of Africa without first becoming value-added products on African soil by African hands. Although several multinational corporations attempted to use their corporate militia forces to confiscate African mineral resources, African Union peacekeepers, local village militias and the African Vanguardians prevailed. Seemingly overnight, Africa became a global high-tech manufacturing leader with successful industrial worker cooperatives and has begun its pan-African journey to shared African prosperity. The African Union continues its struggle to control corruption, put down attempted coups by Dark Triad despots, resolve internal conflicts over resources, fight regional epidemics and famines, and address the growing impacts from climate disruption, but the African Union now seems to have the human, financial and technological resources, unity and determination of the African people to survive and thrive.

The Transition to Sustainability and Resilience

"In general, there was a gradual awakening in America to the need for sustainable lifestyles and sustainable communities. Scientific research showed that climate disruption was increasingly linked to the increase in natural disasters. Most Americans agreed that climate disruption deniers and skeptics were on the wrong side of history. The business community saw profits decline as supply chains were disrupted and customers shifted their purchasing away from frivolous spending and luxury purchases toward only essentials. Americans adapted their lifestyles downward and focused on survival. Other communities around the globe boycotted products from high-carbon American communities, and even forced economic and trade sanctions on them. These global sanctions were mostly lifted for Unum League communities that met their carbon emissions reduction targets, but are still in place against the USMA even today.

"Governments had shifted declining tax revenues toward providing immediate disaster response, relocation assistance, recovery of agriculture and food systems, importing foreign fossil fuel energy, and rebuilding adaptive resilient communities.

Traditional centralized government bureaucracies proved incapable of effective response. Creative problem solving, rapid response, innovation and collaboration were needed, but most professional bureaucrats with these traits had been intentionally weeded out of government service for decades for being "loose cannons" and "idealists."

"Local governments tended to be more responsive to disgruntled citizens demanding immediate changes. Many local governments were more successful in transitioning to "alternative" governance models that hired innovators and creative problem solvers to lead local elimination of carbon emissions, and transitions to sustainability, resilience and adaptation to climate disruption. The most successful local governments began transitioning to ecoregional governments based on watershed boundaries. They created new sustainability and resilience laws and ordinances, sustainable local economies, and ways for effective innovations to be incorporated into local decisions.

"These local governments responded to the public demand to set up local food systems and local microgrid energy systems, like solar, wind, geothermal, biofuel, and hydrokinetic river, ocean and Great Lakes power. Local laws were passed requiring low-energy homes and lifestyles. Coastal watershed governments developed ocean-based economies with the return of tall sailing ships, seafood farming and marine bio-based products and materials.

The Founders - Early Origins of the Vanguardians

"As the world began to transition and the Tribulations began, there were many young people who saw that they had few job and career prospects and little to no opportunities in life. They also longed for experiences of nature that the previous generations once experienced, when the rivers ran wild, the oceans teemed with fish, the landscapes of grasslands and forests burst with a variety of birds and wildlife. They wanted to experience the coastal shorelines and mountain views

that were once spectacular and when the air was fresh and clean, and the orchards and farm fields grew golden and verdant food crops as far as the eye could see. They knew that under the old early 21st century system and institutions—which were completely unprepared for the Transition and adapting to a rapidly changing world—that their generation would certainly be much worse off than their parents and especially their grandparents.

"The leading institutions were paralyzed from a lack of vision, a lack of solutions, and a lack of political will to make things happen. Most public leaders were either stuck in denial, or too busy with meaningless projects that would have no impact other than keeping them busy and earning a steady paycheck or ongoing re-election. Government bureaucrats had only enough resources and willingness to provide more data and information; they lacked innovative ideas and critically needed solutions, and they lacked the skills to lead needed social and ecological change.

"Business and corporate leaders could not––or would not––find a way to shift an economy toward producing what people really needed and what ecosystems could sustainably support. What was needed was a bio-based sustainable or closed-loop zero growth economy. Rather, global corporations continued to focus on manufacturing frivolous and toxic fossil fuel-based products and services for perpetual economic growth. Their salespeople had to manipulate customers to over-consume harmful products in order to maximize short-term profits.

"Many young people could not or would not wait for others to lead, and so they took the initiative to start creating a new life and new opportunities and a new world for themselves and others. Many of these youth leaders had been inspired by environmental and sustainability writers and activists of their times. They formed communication networks among other young people to share ideas and best practices for social change. They had no power to change things from the top down, but they had the power to change things at the grassroots level and from the bottom up.

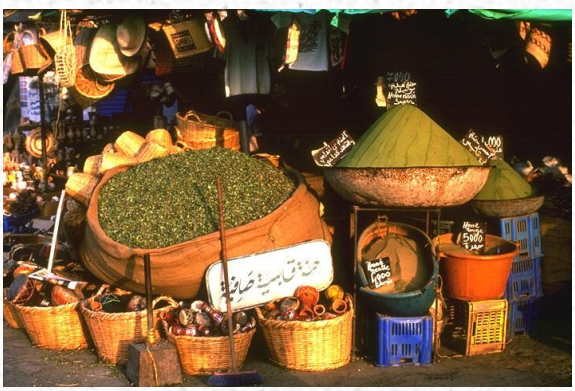
"They studied sustainability, ecology, green chemistry, sustainable agriculture and mariculture. They learned about bioproducts engineering, community and social change, local governance and public policy. They taught themselves how to become ecosystem restorers, biotechnology innovators, community developers, and sustainability entrepreneurs. They established new non-governmental organizations––NGO's, co-ops, small family businesses, and B-Corporations––benefit corporations––to restore ecosystems, grow healthy food, and build affordable green housing. They generated sustainable energy, delivered relevant education and skills, and promoted community-building cultural activities. They developed sustainable bio-based technologies, materials, and needed products, and launched sustainable economic development projects to benefit local communities and provide meaningful employment opportunities.

The green economy should not just be about reclaiming throw-away stuff. It should be about reclaiming thrown-away communities. It should not just be about recycling things to give them a second life. We should also be gathering up people and giving them a second chance.
Van Jones

"They mastered the properties of the new sustainable nanomaterial, Graphoenix, a refined, low-cost, nontoxic and ecologically inert form of graphene, and helped local manufacturing transition to Graphoenix use, making many toxic plastic products obsolete as a result.

"Graphoenix is extremely light and has exceptionally high strength. It is 100 times as strong as steel, and yet can also be made extremely flexible without breaking. It strongly absorbs light, giving Graphoenix its famously dense black color. It can also be made transparent and can even switch between being transparent and opaque. It can be highly conductive of electrical currents, conducting electrons at nearly the speed of light, 100 times faster than any other material can. It can conduct heat very efficiently and

can have strong magnetic properties that can also be switched off. It can self-repair holes and is invaluable for the production and use of bioglass. Graphoenix can be used in electronic circuits, electric batteries, solar voltaic cells, bioscanners, quantum nanocomputers, air and water filters, clothing, tools and equipment, and most other high-tech Gadgets. It also has many biomedical applications.



“Early founders and later Vanguardians mastered the properties and production of Graphoenix and helped local manufacturing transition to its commercial use, replacing toxic plastic products made from fossil fuel derivatives. It was mostly rejected by major multi-national corporations that preferred to use cheap, toxic plastics derived from fossil fuels. Graphoenix revolutionized the manufacturing of technological Gadgets, creating smaller, lighter, less expensive, indestructible and long-lasting products, and was invaluable to the transition to sustainable local economies.

"In time, these young leaders––these pre-Vanguardian Founders––fostered the creation of experimental voluntary watershed communities, along with their own local democratic leadership and governance structures. They were set up as simple voluntary membership "clubs" for local citizens living within the same watershed. They also welcomed those who were inspired by this vision to move into the community. These were based on beta collaborative ideas, servant leadership styles, and commons-based community governance models. These early intentional watershed communities or ecovillages had elected collaborative leadership councils. These watershed communities used membership fees instead of government taxes to pool funding for important projects.

“Their elected watershed community councils attracted visionary local leaders––most of whom were young people––who implemented innovative solutions to social, economic and environmental problems within the local watershed community. They did not try to take down the existing broken system that had been in place for so long. They simply built their new institutions right alongside and parallel to the existing system. People had a choice.

"These young leaders of the movement––usually referred to as simply the "Founders"––focused on addressing local needs that arose from the community. The Founders helped watershed communities provide for their own needs, especially sustainable energy, affordable green housing, organic food production and food security, and clean water. The Founders helped communities develop herbal medicines and wellness care, practical education and skills training, public transportation and communication networks, and local arts and culture experiences. The Founders helped communities produce high-quality manufactured tools and low-technology equipment, bio-based products, and local ecological services.

"The Founders developed effective community education efforts, and most

people quickly learned that their own health and the health of their children depended on the health of their food and water systems. Their quality of life depended on how they managed their interactions with their local watershed. With the overwhelming support and involvement of citizens, watershed community councils worked with the Founders to create community sustainability and resilience guidelines for everyone in the community. The Founders helped spread the idea for intentional watershed communities, democratic councils and sustainable local economies. These youth leaders set up a collaborative network of community councils, and a trade network to support sustainable ecoregional economies.

"Within these watershed communities, the Founders established community credit unions to pool members' money to invest only in sustainable businesses run by local watershed members. They created workers unions and co-ops and charged member fees to pool more local capital. They first developed local food and pure water capacity by investing in and restoring lands within the rural uplands of local watersheds. They protected and restored farms, forests, and river shoreline properties.

"The Founders worked together with local watershed community members to buy and invest in sustainable energy projects and sustainable technology. They started native organic food seed banks and composting systems that converted human and animal waste and food scraps into natural fertilizers. They helped set up small factories to cleanly manufacture needed hand tools, bio-based products and high-quality machines. They helped create artisan guilds of high skilled crafters who learned and then taught traditional crafting and smithing skills using wood, recycled metals, bio-based materials, ceramics, leather, and fibers to build high quality tools and low-technology equipment.

"The Founders, early Vanguardians and other youth leaders set up the Cooperative World Insurance Network (C-WIN) which is a cooperative land, food and forest financial insurance system. C-WIN was initially crowdfunded by youth, including recent inheritors of old wealth, who established a fund to buy up farms, abandoned suburban mansions, forests and other land all over the world. The properties were then reclaimed and restored via community conservation, and run as working preserves with youth, Elders and climate migrants as resident stewards.

"Land was used primarily for sustainable housing and to sustainably generate food and forest products, which were then distributed regionally to C-WIN member-worker owners, which included people, communities, cooperatives, watershed groups, tribes, ecovillages, and local governments who owned insurance shares in the cooperative. C-WIN collected insurance premiums in the form of cash, local currency, and even barter

for land, seeds, labor or other non-frivolous assets, and then made payouts only in the event of an insured climate disaster. Payouts were mostly in the form of food, lumber or community currency to buy local food and goods. However, payouts were only for subsistence levels to secure only the means for basic survival and security.

“Since C-Win was a cooperative, any wealth generated and all profits went back into land acquisition and ecosystem restoration for productive food generation. C-WIN is still run mostly by member volunteers, especially youth and their Elders, in exchange for room, board and a stipend. The C-WIN cooperative continues to acquire land from government and private donations, parks abandoned by governments, and corporate abandoned lands, and maintains close ties with the Vanguardians.

"Climate disruption had been changing the Earth's normal patterns so rapidly and in such unanticipated ways, humans and other species were struggling to adapt. Unpredictable natural disasters forced many people and species to migrate across the country and around the globe. The Founders worked to find solutions to overwhelming numbers of international environmental refugees, and the large-scale movement of Americans moving to new places with higher environmental quality, secure food and water supplies, and less risk of natural disasters.

"The Founders had helped many watershed communities transition to sustainability by forming democratic commons, and as a result, they experienced rapid local population growth, especially with poor people, young people, families with children, and the elderly. Many were environmental refugees, and many were simply people inspired by the sustainability transition movement. These newcomers were usually eagerly invited to join watershed communities. They were expected to infuse their passion, determination, creativity and innovative ideas from various cultures around the world to benefit the entire watershed community.

"Watershed community members were expected to adhere to a common sustainability ethic, developed by the Founders and adapted locally. Like all democratic commons, they created their own rules and enforcement procedures to manage their natural resources and local food supplies. All community members were expected to be productive in some way, or else they would lose membership in the watershed communities. The sustainability ethic was codified into a sustainability measurement, which eventually became the basis for the SUbadge.

"Restoring the legacy Internet was a key strategy for the Founders. The legacy Internet was needed for networking, communication, research and education, and dissemination of best practices for sustainable living and community organizing in watershed communities.

"The Founders also helped set up the first salvage mining business co-ops to recover reusable metals and other recyclable materials from former landfills, dumps, and legacy industrial brownfields. The Founders also trained groups of "Salvagers" to find old but repairable electronics—especially portable computers—to refurbish and upgrade to connect to the legacy Internet. The Founders distributed the refurbished computers to watershed communities to give their members access to legacy Internet resources and new communication networks.

"For the Founders, ecological restoration and low energy-high quality lifestyles were the goals. No one expected the existing economy to help them to "get rich" anymore. Rather, the economy was expected to provide for basic needs and basic quality of life, and to restore ecosystems back to health again for everyone. The Founders were credited with creating successful sustainable local economies that were considered by watershed community members to offer a high quality of life. In general, as life simplified and people re-rooted themselves in community, culture and nature, life satisfaction was considered very high. Founders were especially successful in mobilizing poor people, the working class, and youth and getting them excited about and engaged in the transition toward sustainable lifestyles and sustainable communities. Most importantly, the Founders offered hope, vision, passion and concrete strategies.

"After some years of success, and some not so successful "adaptive learning experiences," the most visionary members of the Founders dedicated several months of intense discussion and debate to draft a visionary document. They issued the Declaration of Transition to Sustainability and initiated the "Blue-Green Movement." This called for long-term volunteers and life-long commitments and vocations to a newly created Blue-Green Eco-Peace Corps. This was the first attempt for the Founders to formally organize themselves, add some structure, and mobilize other young people to be part of the sustainable communities transition movement. The name "Blue-Green Eco-Peace Corps" was rejected, but the visionary idea spread like wildfire. These young visionary leaders became known simply as the BG Corps, or the BGs.

"As public schools collapsed from lack of funding and resources, the Founders and their collaborators began "homeschool academies" to help families better educate and train their own children at home. Most education was now learned de facto via homeschooling and supplemented with one or two day a week homeschool academy sessions that taught transition skills to parents and other adults who then taught children. The Founders also created field schools and learning centers to train BG Corps members and other community members in the applied sciences, humanities and culture, and resilience and sustainability skills. These practical field schools and learning centers ultimately were transformed later on into upper level "Vanguardian Academies" for talented adolescents and young adults.

“In ancient times, games and sports used to be a way for humans to help each other through competition. The job of every team player was to help the other team's players get better and better with every play, every game, every season. It was not about winning or destroying the competition, but providing challenges and obstacles to make your team, the other team and really all members of the community get better and better at cooperative behaviors for overcoming obstacles and challenges over time. But even sports and games had become co-opted, and

competitive sports had been turned into an individualistic triumph to obliterate competitors, create one dominating and superior winner and cast off many inferior and lesser losers, and financially, winner took all. Sports and games became an economic engine for the owners. The Founders restored that original purpose of competitive sports and games through the **Mud Games** and the EarthQuest, teaching and promoting collaboration skills through competition.

"Alas, after all these successes, innate human flaws and limitations lead to abuses of power and authority among some of these pre-Vanguardian Founders. It was well known that government, military, corporate and other institutions throughout history had attracted people who voraciously amassed power and authority and used it for blatant personal gain, bringing oppression, injustice, corruption, conflict and violence, ecological degradation, poverty, and suffering to the masses. This also existed in the early 21st century, and especially over the control of energy, food and natural resources. Abuse of power occurs more often from the unintentional lack of active, constructive use of power by those elected or appointed to use their authority to build healthy communities, protect ecosystems, provide for adequate basic human needs, fight oppression and injustice, and promote peace and sustainability. Abuse of power happens whenever the right and proper use of power to serve people and the common good is absent.

"Many Founders had become de facto peacekeepers when needed. Initially they used primitive hunting weapons and farming tools—bows, poles, spears, nets, slings—to counter violence and to serve as a police force. The more this happened, the more the public began to question the Founders' possible excessive uses of force, and the routine escalation of conflict situations into all out violence. The Founders were generating fear among the people.

"Most Founders had expected, or at least assumed, that young people who had witnessed so clearly the effects of power abuse by older leaders within the social institutions, would never resort to power abuse themselves. After all, the Founders, BGs and other young people who were part of the sustainability transition movement did not accumulate personal wealth from their activities, they were not in positions of formal power within government or corporations, and they were all committed to selfless public service and simple living. Nevertheless, they found that young people without guidance and wisdom from experienced Elders, often adopted patterns of power abuse themselves. They were still activating their selfish, competitive alpha genes rather than their collaborative beta genes, and this threatened to ruin the credibility, trust and reputation the Founders and the BG Corps had built over time with the public and even respected government and business leaders. The harm caused by the abuse of power by those few alpha elites who have spent a lifetime holding, wielding and voraciously pursuing complete power and authority over the masses, is second only to the harm caused by the abuse of power by the many who have

their first taste of just a little power and authority over a few.

"The Founders turned to cultural communities to study ancient traditions that taught servant leadership, personal formation and growth in morality and wisdom, and right use of power and authority. They learned the difference between competitive alpha genes and collaborative beta genes, and they formed small ecovillage community commons to ensure they continuously activated their altruistic, cooperative and selfless genes. This turned out to be transformative. Under the advice and guidance of wise Elders from several tribal, religious and traditional ethnic groups, the Founders formalized their learning into what they called the "Wisdom Path" and they created Elder circles and a council of Elders.

"Under the Wisdom Path, the Founders adopted servant leadership, peacemaking and non-violence principles. The Founders became practitioners and promoters of non-violence, peacemaking, conflict resolution, and mediation. They set aside all weapons, and instead trained in defensive martial arts and the use of flash mob defense. Under the Wisdom Path, they all committed to adhering––almost religiously––to a formal code of ethics to promote servant leadership, peace, sustainability, ecological protection, and collaboration for the common good.

"With these new formalities in place––a written declaration, ecovillage community commons, a Wisdom Path, formal training and schools, a code of ethics, and an Elder council––these early Founders formally became the Vanguardians. They all took a vow to adhere to the Vanguardian Code of simple living; non-violence; servant leadership and public service; constant learning and growth; protecting nature; protecting human dignity; and ensuring the transition to sustainable lifestyles through democratic commons."

Ollamh Grayhe slowed his pace a little, and then turned toward Maya, Chen and me with a broad, contented grin. He said, "And this, my dear young people, is how it all began, and how we became the Vanguardians."

I felt the surge of pride well up inside of me. At that point, I wanted to shout, "YES!" with all my heart. I was part of something that was changing the world, that was bringing hope and new life into the world. For the most part, I knew who I was, why I was here, what I was supposed to do, and how I planned to do it. The Vanguardians helped me to discern all this. I was connected to the Earth, the Cosmos, my people and our culture, my Vanguardian brothers and sisters, and I was at home in my watershed and I belonged to my ecovillage commons community. Before my generation, I don't think any young person my age would have ever said that. But this is the world Maya, Chen and I live in now.

As we walked the remaining length of the path, and concluded our day with the Ollamh, the three of us took turns reciting out loud the lines of the Post-History timeline we all knew by heart.

EarthQuest Post-Historical Timeline

- Climate disruption effects increase, especially natural disasters and ecological “dead zones”
- General ecosystem decline
- Youth sustainability movement begins
- Discovery of Graphoenix
- Peak phosphorus and the "P Wars" over remaining world supplies of phosphorus needed to make synthetic fertilizers for the industrial food supply
- Founders lead local food movement, creating rapid decentralization and devolution of food production that is increasingly organic
- Peak Oil and the bursting of the Carbon Bubble end cheap energy and cause food insecurity
- The pandemic (bubonic plague pandemic from the Yersinia pestis bacteria) hits and three billion deaths
- The Mass Migrations unfold - Global mass migrations of mostly environmental and climate refugees
- Unprepared governments and institutions lose credibility with citizens
- The Collapse (from the "the Unholy Trinity"), also known as "Temporary Emergency Devolution"
- Faith communities join in Transformation, rediscover ecospiritualities, ecojustice morality and creation theologies
- Founders lead the global environmental restoration movement with biodiversity restoration
- The Great Elections - Creation of local ecoregional democratic commons and the Unum League
- U.S. divides between ecoregional democracies (Unum League) and centralized corporations in the United States of Middle America (USMA)
- Rise of the Blue-Green Party
- Most large corporations move offices and manufacturing to USMA
- Fly commercial internet developed in USMA and Legacy Internet systematically dismantled
- Expansion of renewable energy technology and bionanotechnology
- Transformation of local sustainable economies
- Rise of sustainable products businesses
- Discovery of XM band energy waves that take advantage of quantum mechanics properties
- Invention of bioglass
- Invention of handheld energy collectors
- Mobile nuclear power generators developed in USMA
- Insurrectionists carry out periodic disturbances, mostly over food and water
- Invention of various bionanotech materials
- Communication technology revolution
- Rise of new education system
- Rise of the Vanguardians

The World of EarthQuest

My name is Anthony, and I am a Vanguardian Tchacker. I am enrolled in the Carson Northeastern Academy. I live in the Croton Ecoregion in the Lower Hudson Watershed, which is where my family long ago fled to escape coastal flooding in our former home of New York City. My parents are vegetable farmers and former lawyers. I have been assigned to document the current events and conditions of our world. We are all struggling to get accurate information about what is happening now, and what we can do about it. There are so many sources of misinformation and false news reports that no one knows what to believe anymore. It is hard to make decisions about life without knowing what is really going on. Here is what I know to be true so far.

Society, Government and Culture in the United States of Middle America and the Unum League

Early 21st century America is now divided between the United States of Middle America (USMA) and the Unum League. The USMA is reorganized under the leadership of traditional political institutions and a single political party, the Depublicrats. They call it one-party rule. The USMA maintains ties to an inactive and powerless federal government in order to preserve Constitutional legitimacy. The USMA includes central midwestern Heartland states extending from the Gulf Coast to the border with Canada: Louisiana, Arkansas, Oklahoma, Missouri, Kansas, Iowa, Nebraska, North Dakota, South Dakota, Wyoming, Montana, and Idaho. State governments are officially in authority, but with no effective organized political opposition, state governments are severely downsized to allow the free-market corporate capitalism economy to order a society of free, competitive persons with protected private property rights, and corporations are persons with the most rights, the most freedom, and the most property.

In the USMA, centralized free-market economies, minimal government and strong corporate businesses are the pillars of society. Market competition helps the most competitive, gifted and resourceful persons (which primarily means corporations) to rise to unlimited levels of wealth, status and influence. Those individuals who do not compete as well hold low-wage jobs and are members of the poor or working class. Businesses—usually corporate subsidiaries—that do not compete as well are bought out or run out of business. There are some skilled professionals who make up a new "professional class" and maintain high-status careers, comfortable high-tech lifestyles, and earn considerable salaries, but live "paycheck to paycheck" and can lose their status at any moment. The social status-wealth divide between the haves and the have-nots is intentionally stark in USMA.

People from former eastern, western and most coastal states have devolved their state governments into a cooperative network of ecoregional democratic governments, called the Unum League. Ideally, these ecoregional democratic governments allow communities to respond more rapidly, effectively, and creatively to ecological and socio-economic crises and transition to resilience and sustainability, especially as the effects of climate disruption continue to be unleashed. Collaborative ecoregional government is a radical innovation adopted as a best means to survive and thrive under rapid change, uncertainty, collapse and transformation.

Political and jurisdictional boundaries have been redrawn along watershed boundaries out of former county (or parish or borough) and township political boundaries.

Innovation, experimentation, diversity and adaptation characterize ecoregional governments in Unum areas. Each ecoregional government operates under a democratic constitution called an "Ecoregional Charter of Governance" which allows home rule. These constitutions require ecoregional governments to ensure democracy, promote justice and equality, protect universal human rights, protect future generations and intergenerational justice, and ensure the rights to a healthy, sustainable ecosystems. They also require the use of science and social science when making new laws and policies, consider impacts seven generations into the future, and incorporating best practices for eliminating carbon emissions and increasing community resilience and adaptation in the face of climate disruption. Elected leaders from ecoregional governments form the Unum Assembly, which represents all ecoregional governments and advises ecoregional governments on model local laws and best practices for ecosystem restoration and sustainable socio-economic development to promote stability, security, equity, peace, justice, freedom, resilience, sustainability, prosperity and a high quality of life.

Unum areas have restored economies as decentralized, sustainable local fair-market economies bound by social networks of local business owners and locally created regulations. Ecoregional governments use tax policies to encourage sustainable businesses and sustainable local market economies to provide food, water, clothing, housing, transportation, energy, education, health care, healthy ecosystems, and culture. Family-operated small businesses, small nonprofit community cooperatives and worker-owned cooperatives are the most common institutions used to address these immediate economic needs. Ecoregional government policies also promote full employment through small business entrepreneurship and local livelihoods. Bartering is encouraged, as is the use of regional currencies to supplement the common Unum currency, the Uni. American dollars are invested by corporations where they will make the most profit, and that means dollars are pretty rare in Unum areas where many things are more valuable than maximum profits. Large, centralized corporations find it difficult to compete in this environment, especially because the local economies are built on local relationships of trust. Unum areas also lack complete uniformity of most laws and regulations, and that makes the local business environment less predictable and much more of a profitability risk for corporate stockholders.

In general, everyone recognizes that the previous U.S. culture and society from the early 21st century had failed—because society, economies and ecosystems had collapsed—but there are two general explanations and responses. From the perspective of leaders in the USMA, society experienced devolution because of government failures, over regulation, abuses

of bureaucratic power, and the limits and restrictions put on the market economy and corporations. If these had not been in place, they claim, the market would have naturally moved consumers and corporations toward a sustainable and resilient society through private ownership of all resources. However, in the eyes of leaders in the Unum League, society collapsed from the failures and abuses of unregulated corporate-controlled free-market economies, and political corruption and stalemate that prevented government effectiveness in the face of climate disruption, corporate greed, and a history of treating different groups of people unfairly. It was also because of an overly individualistic, materialistic, and consumerist culture (the "Uberculture") that created a dangerously wide socio-economic divide between the haves and have-nots that pushed almost all of the struggling middle class into the ranks of the poor.

When the series of global crises unfolded—climate disruption, the health pandemics, and the collapse of the cheap fossil fuel energy industry—U.S. society was not resilient and sustainable enough to respond. The people living in the Unum League are now convinced that it was the anti-environment and pro-fossil fuel leaders and organizations throughout history—those who opposed the transition to sustainability, resilience and climate action—who were the "public enemies," while pro-environmental organizations, thinkers, and leaders, including those who took the lead in the transition to sustainability, resilience and rapid climate action are lauded as American heroes. Kids were either proud of their parents and grandparents, or deeply embarrassed by and ashamed of them. Every ecoregion has installed public memorials dedicated to the memory of the people and natural areas lost to climate disruption.

Under climate disruption, with increased and unpredictable frequency and intensity of natural disasters like hurricanes, heat waves, wildfires, blizzards, tornadoes, floods, droughts, species extinctions, insect plagues, and agricultural crop losses, the whole world has become more chaotic, poor, violent, and unhealthy. And yet in American society, there were and still are the seeds of incredible promise and hope. In a lot of ways, society *had to* collapse in order to free up the creative energy, survival drive, sense of urgency and necessity, and political will to "rebuild civilization" sustainably.

With the fall of the middle class, there emerged what some now refer to as the "professional class"—what we call the "leadership class" in Unum—made up of the remaining middle-class people who are highly educated, skilled and talented in bureaucratic and institution skills. In both Unum and the USMA, there is a fervent attempt to maintain a strong professional class, because people in this class tend to have prized characteristics and abilities, like leadership skills, adaptation skills, people skills, communication skills, land use skills, and artisan skills. They are innovative,

visionary, and entrepreneurial, and have a positive self-image; and a clear identity, meaning and purpose. They are knowledgeable and wise. In the USMA, these people are needed to manage all the subsidiary business divisions of the large corporations on behalf of investors and owners. They are rewarded for maximizing profits for elite corporate stockholders. In Unum areas, members of the leadership class are engaged in public service and work toward the public good and the transition to sustainability. They are servant leaders who are rewarded for saving the world and making the world a better place. Many run cooperatives, small family businesses, farms and fisheries, and ecoregional government agencies.

One major conflict in the USMA is that the wealthy elites are accused of hoarding energy and financial resources for their luxurious lifestyles, while the working class struggles to earn enough for food, drinking water, an apartment, education, and health care services for their families. The professionals, scientists, social scientists, engineers and inventors—the professional class—of the USMA are very few in number, but also live high-tech lives of comfort. The leadership class in the Unum League earn modestly higher salaries than the working class, and work mostly part-time in relatively simple, low-tech home offices, labs and research rooms trying to invent and perfect the energy technologies, low-energy appliances and machines, mass transportation, product materials, housing designs, and economic policies and laws to pull people out of poverty and primitive living. They also go back into history to reclaim nature-based solutions from earlier civilizations and cultures. They then restore ecosystems, regenerative farming and aquaculture, and build a

The movers and shakers on our planet, aren't the billionaires and generals, they are the incredible numbers of people around the world filled with love for neighbor and for the earth who are resisting, remaking, restoring, renewing and revitalizing.
Bill McKibben

decentralized sustainable local fair-market economy. In the Unum League, nearly everyone, including those in the leadership class, works at least part-time farming or fishing to produce food.

Another major social conflict is the competition between commitment to the "Common Good" and to the "Private Good." People working together in social networks for a sustainable community and local fair-market economy is considered by some to be a blend of the best of progressive and conservative ideas and "old fashioned American values." To others, people working too closely together is "socialist" and "communist." They think individuals and corporations competing with everyone else in free market capitalism to get the biggest pieces of the pie is "rugged individualism." It looks like "corporate power abuse and selfish greed" to other people. In Unum areas, ethnic communities, including many immigrant communities of recent climate refugees, are helping to restore intergenerational ties between Elders and young leaders. Together old and young are reclaiming cultural traditions that bring meaning, purpose, and wisdom back to people's lives, especially in

connection with natural cycles, agricultural seasons, and the sense of community and the common good.

Technology is very important in both the USMA and Unum. In the USMA, high-technology (electronic Gadgets, computers, robotics, medical devices, and gaming and entertainment, etc.) is a status symbol, and looking high-tech is a high social value. High-technology has also become essential for adapting to an ecologically compromised world and helps humans to live outside nature's limits, at least for a little while longer. Most domestic high-technology manufacturing and innovations come from the USMA. However, there is an extreme digital divide, since high-technology is expensive and uses extraordinary amounts of expensive energy. In the USMA, poor people have almost no home access to high-technology, and are only exposed to high-technology in the workplace where they may work in low-paying factory and service jobs, and especially as domestic servants for the wealthy.

In Unum areas, high-technology is generally downplayed in society, and is not used as a status symbol. Living low-energy and low-impact lifestyles with minimal—usually reclaimed and refurbished—low-technology is important. High-technology Gadgets are generally expected to be behind the scenes and discrete, while using mostly low-technology (hand tools, bicycles, simple farming machinery, etc.) is the widely-held social norm. Advanced informational, communication, mass transportation, and energy technologies and bio-based products are embraced in Unum areas when used as tools to enhance human adaptation and survival, to live sustainably within nature, or to gain knowledge about nature and human health. Other high-technology is not readily available or affordable to most consumers, except through professional work. Simpler bio-based technologies and products that can be generated easily and inexpensively at home and or in a small community are widespread.

In Unum, lifestyles are low-impact: low-energy, low-water, no-waste, and low-consumption. Living is labor-intensive, culture-intensive, learning-centered (formal, informal, and skills-based education), communication-oriented, and community-based. Those who work out of the home have an average 24-hour work week of three eight-hour days. Those who run their own family businesses out of the home, a very common practice for most households, often work much more. Individual wealth is generally lower, since taxes are higher, but household wealth is generally considered adequate for maintaining a high-quality of life. It occasionally happens that roving bands of marauders descend upon communities, so communities also prepare for safety, security and defense together in tight social networks as neighbors help neighbors.

In the USMA, class and social status are based on maximizing wealth, political and economic power, fame and popularity, and access to exclusive social circles of the wealthy class. Wealth is mostly measured in money and material wealth, especially high-technology, and the number of domestic servants and working-class employees one controls. Since only the very few can ever enter into the wealthy class, (the economy and ecosystem cannot bear the cost of a large population in the wealthy class), maintaining membership in USMA's wealthy class is extremely competitive, time-consuming, resource- and

wealth-intensive, and requires extremely high use of energy and natural resources.

Social class and status in Unum are no longer based on constantly increasing wealth, fame and political power. Rather, social class and status are based on sustainability class, and corresponding reputation and influence to secure resources and get things done to increase sustainable and livable communities. High social status comes from affiliation with the Vanguardians, recent Ancestors who were pioneers in the sustainability transition, and low ecological footprint. Wisdom, knowledge and education (especially in relation to sustainability studies and cultural studies), and sustainable living skills also contribute to high social status. One's level of public service; wellness, health and fitness; and creativity and innovation increase social status. Access to technology and other resources (but almost never ownership), access to influence, and having children who are well-adjusted and raised sustainably are all contributors to social status. Generally, status is based on how helpful you can be to the community's survival and prosperity.

In Unum areas, the working class generally earn a living wage and are able to secure adequate food, clothing, housing, health care, culture, and basic education. The Unum professional class earn more income than the working class, but the difference is modest, and it is expected that they offer hospitality and donate in times of community need. Many in the professional class simply reinvest their extra income into increasing their sustainability lifestyles. The class difference is in really status level, since the professional class are in positions of leadership and authority. A newly emerging social norm in Unum areas is the "culture of enough." Individuals and families who achieve "prosperity" means they have a little extra than what they need and that is enough. People tend to use the legacy Internet (or the Fly) for social networking and exploring others' status, and this helps to know who is in need and how to get surplus resources to people who need them and can use them.

In Unum areas, non-citizens (also called "**free riders**" or "Freebies") are individuals who intentionally opt out of citizenship. Some are recent immigrants or refugees who reject the culture or social structure to which they have been forced to flee. Most are individualists or anarchists, live off the land, and sometimes live in communes or bands. Many live a life of constant travel, and never stay for too long in any one place. They usually exchange on the black market as needed. Freebies are low-tech, and even primitive tech, and many are not formally educated. Most are extremely skilled in natural survival techniques. They pay no taxes, but receive no overt social benefits either. They are generally tolerated, but Freebies are not legally permitted to participate in the economy or social institutions. They have very limited legal rights or recourses and may not be able to communicate well because of language barriers. Some Freebies in need may receive assistance from religious charities or NGOs.

Because high-impact lifestyles have spillover ecological and social effects on downstream neighbors, households in Unum areas often abide by voluntary "good neighbor agreements." These agreements are negotiated and agreed to by local watershed neighbors and bind property owners and residents to serious resilience and sustainability practices through simpler lifestyles. It is unknown if there are very wealthy people living in Unum areas, since it is socially unacceptable to flaunt wealth or live luxuriously when other members of the community are poor and struggling for survival. Several public surveys in Unum areas show that once poor and working-class people have enough income to meet their basic needs, they report an increased quality of life, and their life satisfaction and happiness rates are consistently higher than even the wealthy class in the USMA.

Life for the wealthy in the USMA is unimaginably luxurious and high-tech. Owning and displaying expensive, high-tech material belongings, vehicles, and homes is a sign of high status in the USMA. The professional class also live high-technology, comfortable lives, although clearly in a much lower level than the wealthy. The professional class earn high salaries, but unlike the wealthy, the professional class must work for a living in professional level careers to maintain their lives of comfort. Any change in employment status or an unexpected life crisis usually means a rapid descent into the ranks of the lower-class. Life in the USMA is very competitive, and survey research shows that the professional class live in constant fear and anxiety that they will lose income or status. The poor people of the USMA are generally very poor, and often struggle to secure adequate food, clothing and housing. Medical care for poor people is almost non-existent, except from charity and faith-based organizations. Quality education is not usually available to poor people, since there is no funding for a public school system. Surveys indicate that the wealthy in the USMA have high life satisfaction rates, but professional class rates for quality of life, life satisfaction and happiness are low or mixed as a result of high anxiety, fear, insecurity, depression and loneliness. Life satisfaction rates of poor people in the USMA are generally very low, except in Rose Communities, where quality of life, life satisfaction and happiness rates are consistently higher than among other poor people in the USMA. Surveys also show that many USMA poor people, especially the youth, are hopeful for the future and hold strong beliefs that if they work hard in working class factory or service jobs, or they win a USMA lottery, they will someday become wealthy and famous business owners, bankers or corporate executives.

In the USMA, cities have been mostly redesigned and gentrified in the downtown areas to accommodate the wealthy, while working class people have access to the outer limits and shanty towns that surround the urban core. A few small "pocket communities" or "pocket villages" have been set up in urban fringe neighborhoods, shanty towns and rural areas as model alternative sustainable communities with cooperative economic models. They are often called Rose

Communities by those who live in them or “Blood Cities" ("red on the outside, blue on the inside") as a derogatory term by many in the USMA. Residents are often harassed publicly as extremists, radicals, socialists or communists. Rose Communities tend to attract young people, poor people, and former professionals who are disillusioned and/or have lost their status. Others flee Rose Communities to migrate to the Unum League.

In the Unum League, all communities have already adopted or are in the process of adopting sustainable and resilient lifestyles by their residents as required by law. Economic development must now be sustainable and meet the triple bottom line of economic, social and environmental wellbeing. They use the Genuine Regenerative Prosperity and Happiness Indicator (GRPHI) and the SUscore as measures of community wellbeing. All local economies are refocused on first addressing especially the basic needs of poor people and are usually referred to as decentralized fair-market economies or new local economies. Unum communities have generally achieved a remarkable simplification of lifestyle.

In the USMA, high-tech energy efficiency has allowed for reduced energy costs and increased technology sales. The centralized free market economy of the USMA produces the high-tech luxury status goods demanded by the wealthy and professional class and basic needs goods for poor people. The USMA officially measures only Gross Domestic Product and does not release official government happiness and life satisfaction survey scores to the public.

Cities are powerful and influential, and in Unum, are often the powerhouse and economic engine of local watersheds and ecoregional governments. Many communications systems and infrastructure, including satellites, computer communication hubs, and cellular communications towers are slowly being rebuilt and restored, providing connectivity and access to information. Rural upland areas surrounding cities provide urban populations with food, renewable energy, forest resources, and clean drinking water that flows down into lowland and coastal cities. In Unum, rural areas are often controlled by mostly young, independent organic farmers and networks of farmer cooperatives that are influential and well-respected. In the USMA, rural lands are owned by private landholders and agrocorporations, which bought up vast amounts of farmland during the Tribulations. Widespread local (and international) conflicts over agricultural land for food production, forests, fresh water supplies for drinking water, and other natural resources frequently result in localized uprisings and violent skirmishes. Food riots are also common whenever increasing poverty and social inequality, especially in USMA areas, create concentrations of hungry, desperate and insecure people.

Ongoing suburban migrations into cities, especially coastal cities, have swelled urban populations. In USMA, this increases the growth of shanty towns and slums on the outer fringes of cities. Cities are the centers of economic activity, manufacturing, jobs, culture, technology, energy, housing, food and water, and security. Suburban developments are now mostly abandoned ghost towns, although some are being converted back into farms and forests, wind and solar energy farms, or are being annexed by cities for high density housing or industrial development. In some Unum ecoregions, suburban leaders organized to transition their suburban developments into sustainable and

regenerative ecovillages, with local farms, renewable energy generation, waste systems, small businesses and storefront shops. In USMA, some suburban communities have been gentrified into exclusive, high-tech gated communities for those who can afford such lifestyles.

Unum cities and ecoregional governments now provide stewardship for offshore areas along the coasts, managing them as Public Trust resources. Coastal fishermen and fishing cooperatives provide essential seafood and marine products to cities. Along with leaders of renewable ocean energy cooperatives, seaport cooperatives, and marine shipping cooperatives, fishermen—like farmers—are highly influential and esteemed in coastal urban areas. In USMA, federal offshore areas in the Gulf Coast are privatized and all marine resources are controlled by marine trades corporations, including marine hydrocarbon energy firms and port authorities, to ensure maximum efficiency, control and profit.

USMA areas emphasize American Heritage, patriotism, and reverence for national symbols including the American flag and the U.S. Constitution. Strict guidelines are used to select which aspects of American Heritage and History are to be promoted, and which parts of the Constitution are to be publicly promoted. Private religious practice and public prayers at civic events is common, although most places have strict guidelines for which religious traditions are permissible. Cultural and spiritual revivals are taking place in many Unum communities. In the Unum League, there is an important societal role for Amish communities, immigrant communities from developing nations, and Native American tribes, all of whom have historically maintained simple living skills that have become highly prized and sought out by adjacent communities. These communities hold onto their traditional cultures, with wisdom stories, rituals, and traditions that value simple, humane living. These many conservative traditions and values have been brought together with progressive values and lifestyles to create a new cultural dynamic throughout the Unum League, emphasizing local democracy, freedom, fairness and equity; community, family, youth and Elders; local market economies, innovation, and working hard on the land and seas; multi-cultures, tradition and spirituality; simple living, sustainable and regenerative lifestyles, and protecting the environment.

In Unum areas, researching, preserving and promoting indigenous cultures is a high priority. This inspired an effort to recover ancient traditional cultural roots of many Western cultures including Celtic, Basque, Nordic, Saxon and others. Finding clues to survival and meaning in old myths, stories, and cultures is a critical task for many scholars and other leaders in the effort to find diverse ways to achieve resilience and sustainability within communities. Many "China Towns," "Little Italies" and other concentrated cultural communities have been reconstructed to promote vibrant cultures, and some have even been located in critical ecological areas to serve as stewards of particular ecosystems, applying traditional land management practices to restore and protect the land. Coastal Chinese and Asian Indian communities are especially numerous and strong. Cultural and tribal groups sponsor public cultural celebrations, festivals, parades and ceremonies open to other groups. They also sponsor education and skills centers to train their own youth and interested outsiders in their indigenous

cultural and sustainable ways. Many people leave modern Western cultures to “go native” or adopt Chinese, Asian Indian, Native American, African, South American and other indigenous cultural communities, especially those that seem to have succeeded in restoring a sustainable human-nature relationship with the local ecosystem. However, cultural and community conflicts are still common, and intergroup mediation and peace making is a constant necessity.

In Unum areas, there has been a popular backlash against what is called the corporate "Uberculture" of early 21st century America. The Uberculture is believed to have had little to no meaningful substance or relevance to what it truly means to be human and offered no guidance for living sustainably and resiliently. According to its antagonists, the Uberculture is the unplanned, decentralized and cumulative result of powerful corporate marketing strategies that turned people into hyper-consumers seeking luxury, convenience, and social status through consumption and accumulation of material goods. That value system is directly at odds with the values of sustainability, resilience and simple living that now reflect modern living in the Unum League.

The basic tenets that lead to the so-called Uberculture are embraced in the USMA as a societal norm, and this is a source of cultural tensions between people in the USMA and people in Unum areas. In the USMA, corporate free market capitalism is expected to simply provide the goods and services in demand by consumers. Its purpose is not to shape the values and lifestyles of consumers who are given maximum freedom to choose whatever is best for each individual. Motivated, hard-working and smart individuals are expected to be rewarded with increased income, material wealth, and social status, and this arrangement is held up as the highest social good. Sustainable, low-impact lifestyles are simply one option, and individuals in the USMA are freely left to choose this lifestyle if it is a personal value and desirable.

In many areas within the USMA and in the Unum League, periods of economic collapse, government breakdown, and general social chaos continue to offer new opportunities for corporate opportunists, but also the rise of the black market, gangs and organized crime. In some pocket areas, "warlords" (some of whom were even former federal politicians, small-town bureaucrats, corporate business leaders, and law enforcement officers) exercise control. Some of them are benevolent rulers with widespread popular support, while most others are oppressive tyrants who rule using violence, coercion, fear, manipulation, and "economic incentives." Some use the title "mayor" or "governor" and even host regular elections, which they always seem to win by landslide. Out of market necessity to bring high demand products to consumers willing to pay for them, many profit-driven corporations often use the black market and connections with the warlords to supply goods and services to

areas where their products would otherwise be banned or overregulated.

A new calendar year numbering system has been generally adopted and accepted, called the New Anthropocene Era (N.A.E. or NAE). Some use the term "Anno Anthropocenus" (A.A.). The calendar year was reset as 1 NAE in the year of the Great Election. The months and days are the same as in the familiar Gregorian calendar. The traditional Gregorian calendar year is still often used locally, and both date systems are officially used in the USMA.

Current social threats in the USMA and Unum areas include: climate disruption and natural disasters, degraded and collapsing ecosystems, food and drinking water insecurity, energy insecurity, unsustainable resource use, pollution and environmental health problems, limited access to quality health care, poverty and unemployment, economic insecurity, disinformation, exploitive business, black market and consumer fraud, government corruption and ineffectiveness, crime and violence, injustice and oppression, and public riots and uprisings. Current opportunities, positive trends and hope is based on working solutions for adaptation and resilience to climate disruption, successful practices of sustainable living, new models of local democratic government, the successful creation of local fair-market economies and businesses by entrepreneurs, increased scientific understanding of the environment and the human-nature relationship, new practical and useful technologies, the availability of new cultural and spiritual wisdom, the rise of youth leaders to lead the transition to sustainability, and the rise of the Vanguardians.

Climate change is the single biggest thing that humans have ever done on this planet. The one thing that needs to be bigger is our movement to stop it.
Bill McKibben

My name is Mahira, and I am in my third Season at the Carson Northeastern Vanguardian Academy. This is my second year as a Tchacker. I live in the Croton Watershed, which is where my family relocated to escape coastal flooding in our former home of Boston, where my home and the homes of most of my neighborhood were washed into the ocean. Both of my parents and my maternal grandparents now run a vegetable farm and fish farm. My parents used to be corporate lawyers. I have been assigned to research and document the current events and conditions of the world. Accurate information and news are no longer readily available, so we are working to provide accurate information sources that can be used to make decisions and choices. Here is the result of my research at this point in time.

Environmental Decline

Environmental decline, especially worsened by climate disruption impacts, dominates all issues and decisions for leaders and citizens in both the USMA and the Unum League. The environment is the source of food and water, energy, and raw materials for everything. It is the basis for human health or illness. It is the foundation for all economic activities. It is also a source of identity for many people, cultures and religions. And yet, because of a

chain of historical events, many ecosystems have already been pushed to their tipping point. Some ecosystems have already collapsed and no longer sustain human life or much biodiversity. Current environmental conditions in most human-dominated ecosystems continue to slowly erode especially from the impacts of new and legacy pollution, and the loss of habitats and species. Climate disruption is now changing the rules of the game. Climate-driven natural disasters are setting off a series of events that can abruptly alter ecological and social systems, like watershed communities, and ripple effects can result in the end of important ecosystem services, like providing drinking water and food, cleaning air and soil, controlling pests and disease, and protecting against natural disasters.

Urban areas, especially along the coasts, continue to experience a steady increase in population. This historical trend was slowed only by the ravaging onslaught of the pandemics during the Tribulations. This urban growth requires increased development for housing, energy, food and drinking water, sewers, roads and transportation, community schools, and health clinics. All of this development threatens to have tremendous negative impacts on ecosystems, unless communities can invent and implement new ways to live sustainably. Consuming less and living more simply, using only biodegradable and recyclable materials, creating zero-waste lifestyles, and using renewable energies are the favored strategies. This is the focus of the societal transition to sustainability.

Despite this hopeful transition approach, communities are overwhelmed with environmental issues they have inherited from previous generations. It is common knowledge now that by the early 21st century, a vast majority of Americans were aware of environmental and climate issues, knew how their lifestyles negatively impacted ecosystems and greenhouse gas emissions, and had the knowledge and wealth to begin the transition to sustainability, but did not. Because of this, the early 21st century is now considered one of the most disturbing periods in human history, and is a source of cultural shame for young people today who cannot prove that their forbears were actually part of the Transition. Living beyond ecosystem limits to maximize one's wealth passes on the costs to those who live downstream and to the children and grandchildren of the future. Living like this has created what we now call "hyper wealth," which is only temporary. It is a replay of the children's fairy tale about the greedy couple who killed the goose that laid the golden eggs.

The legacy environmental issues faced by the current generations include soil erosion, desertification, deforestation, wildlife habitat loss, biodiversity loss, species extinction, spread of invasive species, coastal erosion, air and water pollution, overfishing and marine dead zones, and coral reef destruction. As a result of degraded ecosystems, human health

is also seeing declines through increased allergies, increases in environmental diseases and cancers, reduced fertility, and cognitive disabilities and premature deaths in children. Children are always the most vulnerable to environmental degradation, and so inevitably they serve as experimental guinea pigs for the previous generations' environmental actions and inactions. Sky-rocketing infertility rates by the early 21st century was the result of globally widespread endocrine disruptors in the environment—"forever chemicals"—and are still causing a plummet in testosterone levels and reproduction.

Approaches to environmental decline and human-environment relations are different in the two areas. The USMA maintains a utilitarian and conservation approach where nature is considered a valuable treasure chest to provide for human needs. Nature is meant to be exploited for wealth creation, provision of food and water, raw materials, medicines, recreation, and initial inspiration for technology and synthetic materials. Lands, forests, and waters are managed under conservation principles for maximum sustained yields. Some land is set aside for the ongoing construction of landfills to dispose of wastes and pollution, and there are still plenty of underutilized places in undeveloped lands and ocean waters left to dispose of these wastes.

In the worldview of people from the USMA, nature has always been in conflict with humans, and humans are the unique creatures who can tame and harness nature with using human willpower and the power of advanced technology. In the USMA, humans can, and therefore should, apply technology to improve both nature and human biology, so that humans are no longer held back by natural and biological limits. This applies to the planning and management of cities, land and other natural resources. Common sense urban and rural conservation plans in the USMA, focus on wise use of natural resources for perpetual economic growth. These conservation plans willingly tolerate some amount of ongoing environmental decline as an acceptable tradeoff for vibrant wealth creation and a high GDP. In times of economic decline, USMA budgets are reduced to bare essentials, which excludes environmental conservation and other non-essentials like social programs. The cost of paying for surprise climate disruption impacts like natural disasters will keep the USMA on austerity budgets for some time.

In Unum areas, the worldview is different. With new scientific understanding of the universe, the biosphere, and the human mind and biology, a new story is being told. New thinking in the Unum League is now becoming consistent with the underlying science. Everything and everyone is connected, so human social problems are interwoven with environmental problems. This realization is changing values, priorities, choices, lifestyles and cultures. People in Unum areas want their lives to mean something beyond buying, playing, and being entertained. They want to spend their time on important issues, solving problems, having an impact, and making a difference in the world. They want to feel connected with one another

and the earth. They want to feel fully human and fully alive. The transition to sustainability has captured the imaginations, the hearts and the minds of leaders, young people and the public in Unum communities. This is uniting diverse people, giving them hope and motivating them in the face of hardship and tragedy.

Ecoregional governments in the Unum League work with the public to be responsible for living sustainably within their watersheds. Homo sapiens—people—are essential species in the ecosystem and play important roles in our ecological niches. In this Age of the Anthropocene, people now consider themselves to be "Homo Habitatus," or at home in their sustainable watershed habitats, and working alongside other species to make the entire social-ecological system work for all people and non-human species. As a result of a shift toward this way of understanding and experiencing, Unum communities have passed the Earth Law, which legally recognizes the intrinsic worth and right to exist of all species and ecosystems. The implications and details of what this means are still being worked out.

In general, every person, community and organization is being challenged to become fully engaged in the transition to sustainability, and to restore right relationships between all humans and all ecosystems. This means changes for laws, policies, government spending, lifestyles, allocation of time, eating, working, volunteering, career paths, education, essential skills, celebrating, raising children, and home making.

Unum communities are restoring ecosystems, decommissioning polluting or ecologically damaging technologies and structures, rebuilding homes and communities in better locations, collecting field data to understand how local ecosystems work, harvesting better foods, and redesigning economies to be in harmony with their environments. Working together, empowering all members of the community, developing all youth as servant leaders, and creating important roles and responsibilities for each person is also key to local environmental democracy and successful sustainability and resilience. And then they celebrate with story, song, dance, drama, and ritual. Often.

Unfolding Climate Disruption Effects

Climate disruption effects have been unfolding for decades and almost everyone knows it. Carbon dioxide emissions and methane emissions come from extracting and burning fossil fuels. This creates a thick blanket around the earth's atmosphere, allowing sunlight and heat in, and preventing much of that heat from escaping back into space. This has been heating up air temperatures and ocean temperatures over time, shifting how much and where rain falls and is stored on the earth, and disrupting what normal climate and weather patterns and cycles that have been in place for centuries.

The earth now has more heat energy, sea levels are rising, and water patterns and locations have shifted rather dramatically. Extra heat in the atmosphere means more evaporation and more severe rainstorms. These climate changes are not unfolding as gradually as many had expected. They are coming as abrupt fits and starts as climate impacts trigger "tipping points," exceeding limits that have kept the earth in balance and stable for thousands of years. The most disturbing changes the collapse of regional

ecosystems, more destructive natural disasters, and megadroughts that disrupt drinking water and food supplies. Every government, community, institution and business is now trying to find out when and where the next climate disruption disasters will occur.

In the pursuit of maximum wealth, profit and power, generations of corporate and political leaders designed the economic system to extract the earth's natural resources beyond what the earth could bear, created factories with chemicals and products that harmed nature and human health, and then dumped toxic wastes back into the earth's rivers and oceans, soils, forests, and air to contaminate everything. Then to power the economy and modern lifestyles they marketed to, they over-extracted fossil fuels—coal, oil and fossil gas—out of the depths of the earth and burned it in engines and power plants, or chemically changed it into plastics, fertilizer and other petrochemicals. Everything they did, earned them massive wealth and power, while harming poor people who lived near their pollution, harming wildlife into extinction, harming rivers and wildlife with their plastic wastes, and harming the earth's climate from continuously burning fossil fuels emitting greenhouse gases. All of this harm to people and the earth came long before climate disruption, and weakened the human immune systems, threatened biodiversity, and stressed ecosystem health. Climate disruption was the last straw that pushed all of these problems caused by wealthy and powerful corporate and political leaders to the edge and beyond the limits of nature and humans.

Greenhouse gas emissions continued to climb from excessive fossil fuel combustion to power modern human societies. As a result of the earth's extra heat energy, the West Antarctic Ice Sheet and Greenland Ice Sheets are now rapidly melting and have already added two feet to global sea level rise, with even more rise in some coastal areas. Some extra heat energy is being absorbed by the oceans, causing the waters to warm and expand, creating sea level rise. No one anticipated how rapidly this would actually happen, and sea levels continue to rise several inches each year now. Coastal flooding, erosion and land loss for heavily populated coastal cities is occurring, and commercial buildings, resorts, homes, urban neighborhoods and villages are being slowly submerged and abandoned.

Coastal storms are bringing ocean storm surges into coastal communities, causing more frequent, more extensive and deeper floods. Many roads, bridges and railroads are being destroyed by flood waters, disconnecting coastal roads and bridges, and leaving only boats and ships as a viable option. Entrepreneurs are taking advantage of this new opportunity.

Saltwater is intruding on groundwater supplies, creating brackish aquifers that can no longer be used as drinking water or for farming. Competition over access to limited fresh water is causing serious conflicts. High-tech desalination plants—many of which are run only on fossil fuels—are being built in coastal communities using parts and materials from manufacturing plants in the USMA. Some local communities are harvesting their rainwater and reusing graywater and stormwater, but all global supplies of rainwater have been contaminated with "forever chemicals" since the early 21st century.

When the oceans absorb extra atmospheric carbon dioxide, it dissolves into carbonic acid

and creates ocean acidification, which harms marine life and seafood supplies. Oxygen levels in the ocean are also dropping. The length and timing of seasons is shifting, changing when marine food sources become available. Ocean species are now migrating toward the poles away from the warmer, more acidic, and low oxygen ocean waters, taking away a significant food and income source for people living along the coasts.

In non-coastal areas, mountain glaciers and winter snowpack are being drastically reduced and even eliminated by global heating. Inland and mountain flooding are constantly changing the course of where rivers, streams and creeks flow. Some mountain communities that depended on snow for winter recreation economies and snow melt for drinking water have been completely abandoned. Hotter temperatures are bringing extended droughts, increased large wildfires, and destroying once rich, moist agricultural soils needed to grow food crops.

Some terrestrial wildlife species are adapting to climate disruption. They are changing their range, herd size, behaviors, and diets. Some less adaptable species are simply becoming extinct. This is problematic because all species serve one or more ecological niches, and as members of a food web and several natural cycles, too many species changes and extinctions are degrading and collapsing ecosystems. Biodiversity migrations and collapse are already harming soil health, reducing food production, increasing deforestation and wildfires, and increasing the spread of disease and number of pandemics.

As a result of climate disruption, populations of mostly poor people—including those who have fallen out of the middle-class to become the newly impoverished—are being permanently displaced, creating mobile and transient climate refugees and environmental refugees. The mass migrations of climate migrants and environmental refugees are a result of peoples seeking water, food, and security from natural disasters and violence at the hands of former neighbors competing to survive. Rumors of the best relocation areas—receiving communities—spread along climate refugee flight corridors, within border towns and throughout coastal port areas. Communities with more viable ecosystems, sustainable economies, and responsive and effective governments are now attracting motivated, innovative, and talented migrant entrepreneurs determined to succeed in their new homes. Many have traditional skills for survival, tool making, food production, and working as a community. These traditional and cultural skills have become unexpectedly valuable to communities in the midst of rapid transformation under climate disruption and ecological decline.

On the heels of an extended, decades long effort to convince the uneducated public that climate change was a hoax (often referred to by historians as the "climate change denialist movement"), many wealthy and powerful corporate funders from the fossil fuel industries, fighting to prevent any reduction in the use or sale of oil, coal and fossil gas—and reductions in exorbitant fossil fuel profits—had to develop a new social messaging and corporate branding campaign when the old one clearly failed. The effects of climate disruption have now become clearly evident to nearly everyone coping with unprecedented heat waves, droughts, floods and food shortages, and the dwindling, fragmented climate change denialist movement was publicly derided out of

existence. Corporate and political leaders who funded and incited the climate denialist movement did the only thing they could do short of admitting they had been wrong about climate change all along: they are now spinning a conspiracy theory that has captured the imaginations of former climate denialists. Brilliantly designed by corporate marketing experts, this new conspiracy theory claims that the world's leading scientists gathered to develop and unleash technologies that seeded the earth's atmosphere with artificial substances in order to cause changes in the climate.

The second part of the marketing strategy, disseminated electronically throughout Fly websites, is to convey the following message on behalf of the fossil fuel industry: "If society had only known then what we know now. It is now too late to cut greenhouse gas emissions, since it will have no effect on reducing today's climate changes. We now need the natural fuels from the earth [i.e., fossil fuels] more than ever to meet the threat of climate change. We need natural fuels from the earth to power the heavy machinery to rescue and rebuild. We need natural fuels from the earth to run the factories to produce the new technologies to protect us. We need natural fuels from the earth to power the engines to pump out floods, close sea walls, and desalinate our drinking water. We need natural fuels from the earth to create the fertilizers essential for increasing food production, and we need natural fuels from the earth to power air conditioners and heaters to make our homes comfortable during heat waves and polar vortex freezes." This corporate messaging strategy has been wildly successful throughout the USMA, and the multinational corporation-owned fossil fuel industry are now considered public heroes for aggressively fighting climate disruption through harnessing natural fuels from the earth and contributing to stockholder profits at the same time. Doing good while doing very well.

Adaptation and resilience to climate disruption is expensive. Dealing with the overwhelming expense of ongoing climate disaster preparation and response is so much costlier in the midst of the unfolding crisis than it would have ever been had previous generations prepared for the long-anticipated effects of climate disruption. It is now the responsibility of the children, grandchildren and great grandchildren to assume the legacies, burdens and debts bequeathed to them by their parents, grandparent and great grandparents. This generation has all the costs with few of the benefits and is paying off old and new public debts with dwindling resources.

Legacy Contamination Sites

Another source of ecological degradation is the abundance of legacy sites of toxic and hazardous industrial chemical spills, dumps, seepages, and failed containment systems. These legacy contamination sites are now a constant discovery that every local community deals with. Many toxic waste disposal and containment systems had been designed to last a few decades at most in order to keep disposal costs "reasonable" for

the corporations that built them. However, this resulted in legacy toxic “land mines” for all future generations. Information was limited about site locations and obsolete containment technology, the chemical properties of obsolete toxic and hazardous substances, and the dynamics of leakage, seepage and underground flows of contaminated soil and water. To this day, no one fully knows the cumulative effects on biota and humans of the chemical soup now festering under most urban and industrial areas, in the sediment of most lakes, rivers, and nearshore ocean areas, and on former rural agrofactory farms. No one alive today can understand what previous generations were thinking about the impacts they would have on future generations—their own grandchildren and great grandchildren—when these legacy time bombs and land mines would all go off. The oft repeated cliché heard everywhere now is, "What were they thinking?"

Tremendous amounts of energy, people power and funding are now expended every year to locate, assess, and plan for legacy contamination sites, and then neutralize the toxic and hazardous materials in them to prevent more harm to future generations. There is simply not enough funding available to solve current environmental crises, climate disruption and take on the costs of legacy environmental costs passed on from the previous generation. There is no one left to sue, and no one to hold accountable to pay the costs of cleanup.

In the USMA, some immigrant and environmental refugee communities "voluntarily" agree to move to environmental contamination sites, in the hopes of owning their own affordable piece of land to build a home on and grow food. They are sometimes provided small corporate charity foundation grants to purchase hand tools and plants for brownfield reclamation, and restore contaminated areas through bioremediation. They plant mushrooms, trees and other vegetation to draw toxins from the soil to make the soil arable for farming and the water potable for drinking once again. This rarely is possible, but many poor residents see no other choices available to them and their children. They build homes, grow vegetable gardens, drink the water, raise chickens and fish, and often start micro-businesses in these "reclaimed" areas. They also try to have children here, but children are rare in these places. The human infertility rates are high in these bioremediated areas, as are rates of prenatal irregularities, birth defects, infant mortality, and cognitive and physical handicaps.

These bioremediation communities are often tight-knit multi-ethnic communities that are trying to figure out ways to survive and increase climate resiliency and adaptation. They are often publicly cheered on as heroes and pioneers in the USMA, and their settlements are referred to as “Frontier Colonies.” These types of communities are called "environmental justice communities" in the Unum League areas, and allowing poor people to live in risky contaminated areas is strictly prohibited.

My name is Lashauna, and I am finishing my second year as a Vanguardian Tchacker at the Leopold Great Lakes Academy. My family and I live in the Minnesota River Watershed along Lake Superior, but I am originally from the Chattahoochee Watershed in the Atlanta Ecoregion down in the South. My family relocated away from the Southeastern Droughts—we all called them the "Parchments"—when the city drinking water

supplies ran dry, and they had to start trucking in water that no one could afford. It was the scariest time in my life, and everyone was just abandoning their homes and fleeing north. We had an expensive home down there, but it wasn't worth anything without water, so we just left it. My parents were engineers for a tech company, but now they design drinking water systems for ecoregions here and are learning to be sheep and mushroom farmers. For this assignment, I am documenting current events and describing how our world now works. There are so many false news reports and many sources of inaccurate information that are now confusing people. My intent is to help people learn the truth, so they can make better decisions and choices in their lives. This is what my research has uncovered so far.

Agriculture, Food Security and Water Stress

The availability of clean drinking water and safe, reliable food supplies are considered to be at crisis levels throughout much of the USMA and Unum League. This is a global phenomenon, and water stress affects more than half of the world's population now. Food insecurity, especially from the failure of food crops and the disruption in shipping of international food supplies, affects sixty percent of the global population. This includes many non-affluent communities in the USMA. In Unum areas, food insecurity is mostly a result of unexpected population growth from mass migrations of climate migrants, food crop losses due to climate disruption, and the limited success in converting former suburban land back into restored and productive farmland or small homesteads. The conflicts over food and water are bringing everything to a head. While energy shortages drive people to fear and anger, hunger and thirst are driving people to desperation, rage and violence.

Climate disruption has transformed normal precipitation patterns, and in many places has shifted moisture and rains from one area to another. Heat waves, droughts, polar vortex deep freezes and floods are happening in the same season in different parts of the country. Midwestern and southwestern megadroughts continue to reduce surface water supplies, and the overreliance on unreplenished groundwater supplies is drying up wells and underground aquifers. The northeast, Great Lakes and eastern coastal regions are regularly inundated with rain, snow and ice from frequent, intense storms, resulting in regular flooding and constant changes in the courses of rivers, creeks and streams. Floodwaters from surface runoff and saltwater from rising sea level constantly contaminate drinking water supplies. It is very common for people to carry a personal water collector and purifier to ensure impurities are removed from drinking water before drinking.

West of the Mississippi River, the mortgage banks bought up "water rights" from poor and desperate homeowners and farmers, and they resold those water rights to the highest bidding private water brokers. This has shifted ownership and control of water to private corporations. Market-based water prices are exorbitant in the heartland, and the cause of conflict. This conflict jump-started the long anticipated "water wars," with fights over control of and access to drinking water, industrial water, and agriculture water.

In Unum areas, community-based water retention through green infrastructure (ponds, flood retention areas, wetlands, rain gardens, and rainwater harvesting systems) have helped significantly to address the

problems of flooding and maintaining adequate freshwater supplies. This has helped to reduce violent conflicts over water, but water riots and conflict have not ended. Use of gray water systems in homes and periodic drinking water rationing is still common. Ecoregional governments are also using eminent domain powers to annex land and expanded ecosystem protection powers for drinking water protection and increased food production. Most water is held as a Public Trust for the people, and in some areas, they have adopted a community commons approach to democratically managing watersheds and water supplies by the people who live there. Offshore desalination plants are in use in some coastal areas, but this water is extremely expensive from the high energy use and high-technology required. It is mostly only wealthy gated communities that can afford water from desalination plants.

Food insecurity is fairly common now. Not enough food means a lot of hunger. Climate disruption, peak oil, natural disasters and pests are all impacting the amount and availability of food and its affordability. The tradition of farm monocropping––planting only one variety of one species in one region––seemed very efficient and profitable at first, but disease and pests resistant to chemical pesticides caused massive crop losses. Decades of genetic engineering had eliminated food crops' natural resilience and survival traits in exchange for prettier-looking fruits and vegetables in the grocery store have caused a loss of breed variety and diversity. Corporate factory farms secured lucrative patents on genetically-modified foods which only they could sell and allowed them to become monopolies od specific fruits and vegetables. That has now changed. Thankfully, forward thinking community groups had begun organic native food seed banks, collecting and storing a variety of genetically diverse seeds. These seeds are in the process of being distributed to communities where needed. And no one can patent them or create corporate monopolies from them.

In response to food insecurity, Unum ecogovernments and states in the USMA have adopted new policies and approaches. In Unum areas, diets have changed to mostly vegetarian, with some fish and shellfish, chicken, mutton, goat, rabbit, squirrel and venison. Beef is almost non-existent in Unum areas. Beef is the primary source of protein for the affluent in the USMA. In Unum areas, homes and apartment buildings are required to grow vegetable gardens, edible mushrooms or fruit and nut trees in place of lawns. Farms, fish farms and orchards are being reintroduced in reclaimed and restored suburban areas and industrial sites. In the USMA, vast tracks of open space properties and former public lands are now privately owned by agricultural corporations. They bought up or were transferred for free by new state laws swaths of public lands as investments, mostly to control and sell clean drinking water sources, forests, fish and game, and agriculture land for monocropped GMO food production.

A native local foods movement is sprouting up, and people are seeking out edible plant, mushroom and seafood species that are adaptive to rapid climate changes. Many of these plants, fungi and seafoods have never been commercially harvested before, and many plants had even previously been considered weeds. However, with a renewed interest in traditional ethnic foods and crops, gardeners and fish farmers are researching and cultivating native plants, fungi, fish and

shellfish from the region and planting them in their food gardens, mushroom yards, and fish farms. Working class people also grow medicinal Herbals for enhancing wellness and immune systems. Many ethnic communities and some poorer communities also harvest and eat insects to supplement agricultural crop foods, since many insects are tasty and a good source of protein and energy.

SUbadges

In the Unum League, as a way to encourage communities to rapidly transition to low impact, sustainable, regenerative and resilient practices, all people earn an official sustainability score. Almost everyone wears a colored sustainability badge—called a SUbadge (pronounced SOO' baj)—indicating a person's or family's sustainability level, which is the basis of social status. A SUbadge is usually proudly worn as a status symbol by citizens and other community members, and it creates an instant public perception once the SUbadge is seen by others. Not wearing a SUbadge often raises questions, and usually only visitors from the USMA or recent refugees do not wear SUbadges. A SUbadge changes as an individual or household become more sustainable. It is a violation of the law (misdemeanor) to wear a SUbadge that overstates one's sustainability level, however, the social stigma from neighbors is usually much more severe.

Some SUbadges represent a household score and are worn by each member of a family. Although even children are usually proud to wear their family's household SUbadge, receiving an individual official score and earning a personal SUbadge is an important rite of passage for youth. Ecogovernments issue the rights to a SUbadge based on completion of an application and a lifestyle sustainability assessment. Once the official SUbadge score is assigned and a permit is issued, the owner has a SUbadge created right away, usually crafted by local artists. An individual's or household's sustainability level is also a basis for government tax rates and other fees. People who have the highest impact lifestyles pay the highest taxes, and those who are living most sustainably pay the lowest taxes.

It is very common for neighborhoods, organizations, co-ops, businesses, faith communities, and watershed communities to achieve "sustainable community" or "regenerative community" status by mobilizing all their members to successfully adopt low-impact lifestyles with high sustainability scores, and then every member of the community can wear the community's SUbadge. Group or community Sustainability scores have slightly different metrics for determining scores. There is tremendous prestige and status for living in a certified sustainable or resilient community. Because of status and privileges accorded to sustainable communities, the most sustainable, regenerative and climate-resilient communities and ecoregions attract the most members or citizens and these

communities or ecoregions tend to have the most successful social, civic and economic activity.

When purchasing Gear and other products, almost all buyers use a comm to scan the item's SUcode (sustainability code based on what used to be called a QR code). The SUcode has details on price, specs, origin, ecological sustainability of materials and assembly, greenhouse gas emissions, energy consumption, and other factors. Providing SUcodes for all purchases allows customers to monitor their own consumption levels, impacts, and sustainability, and can be used as data to their application for a new or updated sustainability score and SUbadge.

Each SUbadge has twelve wedges representing the twelve official sustainability indicators or measures, and almost any variety of badge shape is allowed. The most common shapes are a circle, oval, leaf, or animal shape. There are two official colors for wedges: aqua blue (blue-green) for coastal communities, and green for all other communities. The intensity of the color of the wedges indicates the score, and ranges from white (low) to dark green or dark aqua blue (high). The center of the SUbadge often includes an outline of a home watershed map, cultural icon, coat of arms, or other family symbol. The following are the twelve indicators for personal or household sustainability:

1 **Food** A person or household with a high score produces much or all of their own organic food (for example, through gardening); consumes only the amount of food that is needed; and relies only on low-impact foods that are organic, grown locally, and are not pre-processed at a factory.

2 **Water** A person or household with a high score has onsite drinking water that is high quality (clean and uncontaminated), is produced within the local watershed, uses only the amount that is needed, and abides by quotas limiting water amounts during periods of drought.

3 **Housing** A person or household with a high score lives in housing that has a low ecological impact, is located close enough to work to walk, is an efficient size for the number of people living there, is built with non-toxic and sustainable materials, and has an energy efficient design.

4 **Energy** A person or household with a high score uses sustainable and renewable energy sources, generates most or all of their own onsite renewable energy, maintains an efficient and low-energy lifestyle, and emits no greenhouse gases from their energy use.

5 **Transportation** A person or household with a high score has a good ratio of 1:2:3, where 1 is the amount of walking or biking or no energy transportation, where 2 is the amount of public transit or ride share used when needed, and 3 is the amount of use of a renewable energy personal vehicle with no GHG emissions.

6 **Land Use and Biodiversity** A person or household with a high score works with natural watershed processes, has natural vegetation instead of grass lawn, uses no impervious pavement, uses their land to retain or store rainwater or snowmelt, prevents stormwater runoff and soil erosion, uses other green infrastructure practices, and is not located in an environmentally sensitive location (like a flood zone, hazard zone, forest wildfire zone, wetland, salt marsh, critical wildlife habitat or erosion area). Furthermore, a person or household with a

high score has a yard or land that restores and protects habitats, and maintains high diversity in its soils and microbial life, native plants and trees, insects, bird species, aquatic life and other wildlife.

7 **Ancestor Lifestyle** A person or household with a high score has located online records on the legacy Internet verifying that the person's ancestor(s) lived a sustainable lifestyle and engaged in a variety of sustainability activities and community-based civic and environmental service work.

8 **Contaminants/Toxics** A person or household with a high score does not use toxic chemicals or contaminants in the home, does not release toxic chemicals or contaminants onto the property or into the environment, and cleans up onsite legacy contaminants and toxic substances on the property or in the yard.

9 **Consumption and Waste** A person or household with a high score consumes only what is needed, purchases low-energy and low-impact products that are locally produced with sustainable or recycled materials, makes use of used or repaired products when possible, makes use of a gray water plumbing system that connects to a public sewer system or onsite septic system that collects and reuses waste water, uses compost toilets that harvest phosphorus and other nutrients from excretions, composts all food scraps and vegetation remains, uses only recyclable and biodegradable materials, and has the capability of onsite repairs or access to local repair services.

10 **Climate Change Action** A person or household with a high score lives a low energy lifestyle that uses no fossil fuels and emits no net greenhouse gas emissions, with any lingering carbon emissions locally or regionally sequestered safely into the earth. A person or household with a high score also is prepared for inevitable climate disruption by maintaining strong relationships with neighbors and the larger local community, adopting many adaptation and resilience actions, including living in a geographic area that is not prone to disasters like flood zones, sea level rise, hurricanes, mega wildfires, megadroughts and prolonged heat waves. They have adopted homesteading, grow much of their own food and medicines, generate local energy, rely on a primarily local supply chain and water supplies, are working to help the local ecosystem and wildlife to adapt, and have a plan for adapting to all the other climate disruption changes that are unfolding.

11 **Health and Wellness** A person or household with a high score engages in exercise and outdoor recreation activities to maintain physical fitness, eats healthy foods, uses Herbals and probiotics to maintain healthy immune system and healthy digestion, participates in wellness care services and medical services when necessary and if available.

12 **Participation** (in Community) A person or household with a high score volunteers for conservation service and legacy pollution cleanup in the local watershed, participates in voting and democratic town hall meetings, engages in community cultural and civic activities, participates in lifelong education and learning, develops and uses practical skills needed by the community, contributes to a local sustainable economy via working livelihoods or entrepreneurship, and if a parent, rears children for resilience and sustainable lifestyles.

Youth

In the USMA, young people have a limited role, since their inexperience and lack of skills are not seen as assets in the corporate business world and youth are seen as potentially just one more source of competition to adults pursuing high-status goals. The lack of viable economic and leadership opportunities for youth tend to keep them somewhat disengaged in society and slow to mature out of childish behaviors. Young people from well-off families tend to form youth clubs to at least keep members busy with sports, games, entertainment, and socializing until adult opportunities arise. The wealthiest young people stay in school to earn college degrees. Poor youth find ways to help support their families in any way possible. Many motivated young people who want to make a difference—whether poor or wealthy—often move to Rose Communities to take on voluntary leadership positions, travel overseas, or migrate to Unum watershed communities where there are opportunities for youth to make a difference.

In the Unum League, the role of young people is drastically different. Youth are seen as valuable resources and their skills and energy are eagerly welcomed. Development of youth is a high priority for most communities, and youth are intentionally engaged in community service work, especially environmental restoration work and farming work. Youth leadership and apprenticeship opportunities are available for most youth, and youth advisory councils operate in most organizations and watershed ecogovernments.

In Unum areas, young people are usually the most visible leaders in embracing lifestyles of simplicity, sustainability, and resilience and are the social entrepreneurs responsible for most innovations in new systems, structures, and technologies that foster the transition. They are leaders in the "back to the land" movement in cities and rural areas, where they restore land for food production (organic and regenerative farming and fishing), restore forests and wetlands for biodiversity and habitats, and build green housing with renewable energy for sustainable and resilient living. Young people are mentored by older young adult peers to use digital social networking tools to communicate and organize, and many youth activists are engaged in ongoing restoration of the legacy Internet. Teams of young leaders run education cooperatives to teach children and younger youth basic education and practical sustainable living skills.

Many youth leaders form small study circles or online networks to share readings and discuss ideas from environmental and sustainability writers and activists, and share applied best practices for change. They study sustainability, ecology, green chemistry, sustainable agriculture and mariculture, bioproducts engineering, community and social change, local governance, public policy, languages and culture.

Many young people are also leaders in grassroots faith-based and spiritual initiatives. These efforts are often grounded in the spiritual revivals that integrate a scientific understanding of the universe and life on earth, cultural diversity, and ecospirituality. These decentralized faith-based and spiritual initiatives include service and advocacy work to protect and restore the Earth and serve poor people who are impacted by environmental injustice, especially climate disruption impacts. To guide their lives to meaning and purpose

through social ethics, wisdom and love, it is common for young people to seek out and take on spiritual advisors or mentors. These mentors are usually wise Elders from the older generations who were once youth leaders themselves. Wise Elders and now serve as guides and wise visionaries for youth movements.

Many youths set out on overseas or domestic “pilgrimages" as a rite of passage to immerse themselves in other cultures. Pilgrimages are made on foot, bike, river boats and sea-worthy sail boats. It is expected or assumed that every youth leader will have at least one grand, life changing pilgrimage early in their life. It is common for young people to begin a conversation with one another by saying, "Where did you do your pilgrimage?" An often heard saying among young people is, “It doesn't matter how much you make or how much you own. What matters is how simply you live, how simply you love others and simply who you are becoming."

Religion

In both the USMA and the Unum League, there is a renewed popular interest in and appeal to spirituality, and a continuing spiritual revival as people, especially younger people, seek guidance, meaning, comfort, and purpose. There is also a general desire for people to find deeper sacred connection with one another, nature, the cosmos, and what many experience as the divine. In the USMA, this is primarily through traditional but transformed religious communities. In Unum areas, there are as many people who seek fulfillment through transformed traditional religious communities as there are people who consider themselves "spiritual" but who experience the sacred outside of formal religious institutions. Many traditional religions and faith communities are still undergoing a rediscovery of their earth-centered roots and emphasize their ancient ecospirituality and "care for Creation" traditions that give energy and inspiration to social movements toward environmental sustainability and conservation.

Many faith communities serve as leading voices for social ethics in communities, calling their followers and everyone in society to be responsible for protecting the environment and the poor people who depend on nature for food and basic survival. Faith communities that serve as advocates and actively engage in protecting the earth, living sustainably, and fighting oppression and injustice hold the respect, trust, and loyalty of the public.

Although small, isolated pockets of traditional religions can still be found among the members of the older generations, these are rare. Most religion has accepted and integrated a scientific understanding of the

cosmos and the evolution of life, and no longer perpetuates a science vs. religion conflict common in the 20th century. It is generally expected that religion and spiritual life should foster growth, maturation, and conversion or transformation to deeper meaning, purpose, social ethics, wisdom and love. Public outdoor rituals, prayer vigils and worship services are common, and it is not uncommon to see even non-adherents participating in these experiences.

There are many ecumenical and interfaith groups, and non-denominational lay faith communities and networks. Most leadership in faith communities is provided by trained lay leaders rather than by formally ordained clerical leaders. Many of these lay leaders are young people. Amish communities, Quaker communities, Franciscan communities and Buddhist communities had become extremely popular and widespread.

It is common enough to see faith communities construct monasteries or oratories (prayer centers) next to legacy hazardous and toxic waste sites and other contaminated sites, with monks or hermits agreeing to live a life of sacrifice and witness, serve as guards or sentinels, and carry out experimental organic and regenerative restoration treatments. These environmental legacy sites have been listed as restricted "no one's land" under monastic stewardship. Many monks are older retirees who have become religious monks later in life and have accepted this responsibility as penance for their inaction earlier in life or the inaction of their predecessors or Ancestors in previous generations. Most of these monks or hermits die of environmental health problems, but have become locally inspiring and revered heroes.

Above all we must realize that each of us makes a difference with our life. Each of us impacts the world around us every single day. We have a choice to use the gift of our life to make the world a better place - or not to bother.
Jane Goodall

My people are the Diné, the Navajo of New Mexico, Utah and Arizona. My father's people are from the San Juan River Basin, and my mother's people are from the Little Colorado River Basin. My name is Shiya––or John––and I live in the Navajo Nation as a member of the Upper Colorado Watershed in New Mexico, where many Diné are fleeing because of the droughts and heat waves. My parents are goat farmers, and also are woodworkers. I am enrolled in the Thunderbird Southwestern Vanguardian Academy for my third season, and I am completing my final year as a Vanguardian Tchacker. I have been assigned to accurately document the current events and conditions of our world in response to widespread misinformation and inaccurate news reports that people no longer trust. Here is what I have researched and documented so far.

Health and Wellness

The leading health issues include exposure to natural disasters from climate disruption—especially heat waves, polar vortex freezes, wildfires, hurricanes, tornadoes, and flooding—and exposure to environmental pollution through soil contamination, water contamination, and air contamination, which have made their way into wildlife, the human

food chain and drinking water supplies. Legacy environmental contamination sites-created throughout the 19th to early 21st centuries-were never cleaned up by the generations that created them, and frequent natural disasters now routinely expose people to toxic and hazardous materials and substances. Poverty is common throughout the USMA, and food and water shortages are regular issues in Unum communities and in the USMA. Epidemics are still frequent, and localized outbreaks of violence—often competition over dwindling resources or misunderstandings between cultural groups—result in a high rate of injuries. Scanners and handheld bioscanners are a common technology used everywhere to determine the health of human tissue, and the contamination or pollution levels of ecosystems.

In the USMA, the medical care system is completely privatized, and offered as a fee-for-service model. Health insurance is available to the professional class based on employment. All wealthy people have full access to medical doctors, hospitals, pharmaceuticals and high-tech surgeries and biodevices. Many corporate businesses have their own private doctors onsite. Some charities and religious organizations provide some basic health care at clinics in poor communities. Alternative medicine practiced by non-doctors is generally banned by law in the USMA.

In Unum areas, a universal health care system is being developed, but is not yet accessible by all people, since trained medical personnel and facilities are rare. High-technology medical devices are generally not available in Unum areas because of the expense, but many hospitals do rely on older medical technology that is kept in good repair by trained legacy technicians. As a result, Herbal medicines, naturopathic treatments, and holistic healing have become the health care of the masses. Working class people generally use "bionatural preventatives" (Herbals and organic health foods) for enhancing wellness and generally boosting the natural human immune system. Chinese medicine and other traditional and ethnic healing practices are also widely practiced and available in many ethnic communities in Unum areas. Most ecoregional communities provide formal training for practitioners of Herbal medicines and other naturopathic treatments, and most families and neighborhoods grow extensive Herbal gardens and health food gardens for use at home.

Institutions

New and reformed institutions have arisen in the USMA and Unum areas that seem to be winning over at least tentative support and trust of the people because they are inspiring, effective, socially relevant, and are responding to the needs of the people. Private corporations are the most important institutions in the USMA. Private corporations provide research and investment capital, manufactured goods, high-tech products and military weaponry, advanced medical services, sales and distribution outlets, and professional class jobs. Private corporations promise restored economic prosperity.

The most important institutions in Unum areas include nonprofit community organizations, worker-owned cooperatives, cooperative networks of local small businesses, and ecoregional governments. Organized crime has also arisen everywhere to provide almost anything to almost anyone at almost any price.

Corporations

Corporations are the primary social, economic and governance institutions in the USMA, and provide almost all essential government services through private contracts with state and city governments. Corporate ownership of almost all local business franchises is the preferred way to ensure efficiency, high standards, and maximum profit under a relatively free-market economy. The remaining privately-owned small businesses, like farms and ranches, usually work under tightly-controlled subcontracts with existing corporations. Most corporations own a broad range of diverse businesses and tend not to specialize in any particular goods and services. Corporate executives exercise considerable influence in policies and laws in the USMA, which tend to be minimal, flexible, often voluntary, and uniform to provide the most predictable and profitable corporate business environment. Successful public marketing campaigns have helped many corporate executives to rise to near heroic status with the general public and consumers, and many people in the USMA turn to these successful business leaders for inspiration, moral guidance, capital and investments, and charitable donations, especially for ecological cleanup projects.

Most private corporations have their headquarters in the USMA or overseas, or are based on artificial islands in the ocean beyond government jurisdictions. In general, private corporations control fossil fuels, most high-tech factories and high-tech goods, military and weapons manufacturing, most satellites and space facilities, and all operating nuclear and fossil fuel power plants. Private corporations also own many military installations with naval ships, armored vehicles, and aircraft. Corporations host their own private security forces to ensure markets, supply lines and corporate facilities and compounds are not threatened by force. A private, multinational corporation, FlyCorp, owns the entire ComNet, the private, fee-based internet, now branded and marketed as "the Fly."

Co-ops

In Unum areas and in USMA Rose Communities, worker cooperatives or "co-ops" (pronounced COE-ops) are organized by community members who are owners, directors, members, and employees of the co-op. Co-ops are a collaborative, democratic alternative to private businesses, and do not pursue maximum profit making as the sole or primary goal. Co-ops are organized to meet the triple bottom line of income generation for paying worker wages, building social capital, and fostering environmental sustainability. There are cooperative farms, fisheries, forests, food stores, retail stores, manufacturers, banks (usually called "credit unions"), energy producers, medical clinics, schools, housing developments, artisans' guilds, and arts and culture groups.

Co-ops as an institution have earned the loyalty of the people, because they are committed to a noble ideology, are able to thrive without outside capital (not prone to bribes or corporate control), and tend to draw in concentrations of skilled and motivated people with practical know-how and a commitment to resilience and survival. Co-ops are usually founded by a group of people who pool the little money they have to start the co-operative business. They democratically, fairly and cooperatively make their decisions together. Rather than foster cut-throat competition, co-ops tend to be

linked or networked with other co-ops to maintain solidarity and to share market information and best business practices. Co-ops tend to dominate the market in the sectors of small scale and niche manufacturing, food production, education and training, energy production, housing, the arts, and ecological restoration.

Co-ops are mobile, organized, extremely flexible, based on ties of loyalty and ethical behavior, highly-trained and self-sufficient, and offer effective worker education and leadership development. Perhaps their greatest strength is that they are very adaptable. Money for capital investments is not usually available for small business development, so sharing resources through the co-op network often ensures access to locally-raised capital for new business development, job creation, and expansion of business. Co-ops also tend to attract the best and brightest of the younger generation, who are able to assume leadership roles in co-ops, which they cannot do in most corporations. Some co-ops are drawn into power struggles with elite groups, ecoregional governments, and corporations, because they have grown in power and influence over people and local policies.

Most surviving labor unions now operate as member-run international co-op networks, and fight to end worker injustices, raise workers' living standards, and prevent abuses of using "cheap labor," including forced labor and slave labor, that tend to uproot and relocate corporate manufacturing wherever labor costs are cheapest and the least regulated. Labor unions also work globally to prevent industrial environmental degradation and corporate greenhouse gas emissions that cause climate disruption.

Organized Crime

The black market is run by gangs, local warlords and organized crime in poor urban and rural ghettos and shanty towns throughout the USMA and some scattered areas within the Unum League. Organized crime syndicates have risen to considerable power, taking advantage of the opportunities created by climate disasters, social chaos, weak governments, the lack of financial capital, and the breakdown of markets and supply chains. Organized crime is usually the source of corrupt local government officials and corrupt business leaders, and traffics slaves, stolen goods, and illicit products and substances. Nonetheless, leaders in the black market often provide the only job opportunities and source of income for many poor people or blacklisted people who have no access to participate in the regular economy. The black market is weakest where worker co-ops, local businesses and co-op networks are strongest.

Gangs appeal especially to youth who see no other positive outlet for their talents and aspirations, and no other economic opportunity to provide for their needs. Gangs offer talented youth income, high-tech skills training, business management and planning experience, responsibility, and leadership opportunities, but focus these on destroying communities, families and human lives with fear, oppression, harmful products, and violence.

The Mud Games

The Vanguardians invented the Flood Games in order to demonstrate a more collaborative approach to games and sports, and to restore the original community purpose for team-based athletic competitions. These games were later renamed the Mud Games, and are now practiced throughout the Unum League areas and even in many Rose Communities in the USMA using lower-cost low-tech athletic fields.

The tradition is that all electricity in the community goes off during a Mud Match, and everyone in the community gathers around the specially-constructed Mud Games field to watch. The Mud Games or Mud Match lasts for 90 minutes, and everything is powered by renewable energy. The playing field is a special dug-out arena, like an elongated swimming pool partially filled with various levels of water, which gets muddier over time as the game goes on. The field is 120 meters long and 48 meters wide, and 3.5 meters to 4 meters deep. The walls are usually made of bioplastic or Graphoenix. The field is cluttered with randomly-spaced floating wood buoys that are anchored in place to the ground. The Mud Games field has a 1.5 to 2-meter high self-cleaning, clear bioglass shield surrounding and extending above the field walls to protect the spectators and to keep the waters, especially from the waves, on the field. On either end of the field is a chute wall, behind which (and almost always completely encased), are high powered pumps and motors that pump water onto the field through thirty 3 cm holes, include blower jets of hot, dry air for drying helmets and game balls with flags. Occasionally and at random times, the chute walls generate high, powerful waves of muddy flood waters.

There are two opposing teams of twelve players, each wearing tight, long-sleeve shirts with high necks, long tight pants, high leather boots with cleats, and a thick, form-fitting leather helmet that is a bright color when dry, but a faded, pale, shaded color when wet. Each team has an assigned color combination, and each player wears an assigned number on their uniform. Each team carries its own 24-centimeter round leather ball with six thick 6x24-centimeter cloth strips called flags. Flags are helpful for carrying and tossing the ball, keeping it dry and out of the water. The ball and flags are the same color as the team's helmets and also change color when wet. The ball is usually held by the flags near the player's chest, shoulders or over the head, and is usually thrown (tossed or pitched) to team members by holding onto the flags. Each team also has a floating concave wood panel (called the shield), pulled by a rope or thick cord, with two 2-meter wooden poles called staffs placed on top.

The game (a match) begins with initial water filling the field at 12 centimeters deep, and players of both teams descend onto the field by ladders or stairs from the spectator level. Each team begins by lining up with their backs against their own chute wall and the shield also touching their chute wall. The objective is for each team to get their dry game ball across to the other side by quickly wading through the muddy water and avoiding entanglement in the anchored wood buoys that interfere with movement. Teams must also drag their floating shield with them while the opposing team tries to delay them by tagging them (knocking players down into the water and getting their helmet wet) and tagging their ball (knocking their ball down into the water and changing its color). "Tagged" players are players whose heads go

under water and whose now wet helmets change color. Tagged players must be lifted and carried by their team and placed onto the floating shield, which must be dragged, floated, and/or paddled across to touch the opponents' chute wall. Tagged players on the shield can use the two wood staffs to help propel the shield, move wood buoys out of the way, or defend against attacks by opposing players (by poking or thrusting the torso, arms or legs only). Once a shield touches the opponents' chute wall, all tagged players on that team are "released," and jump off the shield, dry off their helmet at a dryer hole in the chute wall, and as soon as the color returns to their helmet, return to their team to play on their own feet again.

If a team's ball gets tagged, the ball and flags turn color and can no longer be held by the flags. The ball must be placed on the shield and be dragged to either side of the field to be dried off at one of the dryer holes along a chute wall. A tagged ball cannot be used to score until it is "released" and the color returns to normal.

Once a team gets their ball to the opposite side, they throw the ball or stuff it into a hole with a chute (called the chute) set three meters high on the chute wall. Once the ball makes it down into the chute, the team scores one point and the ball is then automatically cleaned, completely dried and shot back out for the team to catch.

The Wave Maker behind each chute wall occasionally and at random times throughout the game blasts huge muddy water waves (and wind), and the rules of the game change from a competitive to cooperative game. During a wave, all players on both sides must work together to "survive" and avoid losing points, mostly by huddling together and anchoring in place. For each player of either team that goes under water—wave tagged—during a wave, both teams lose one point. At the end of the 90-minute match, the team with the most points wins, and the winning team is expected to pay for a treat for the losing team in thanksgiving during post-game celebrations together with fans of both teams.

Schools and Education

In Unum areas, education no longer focuses primarily on preparing youth for working in jobs within the corporate capitalism economy. Rather, education focuses on providing the critical knowledge and skills needed for living in a changing world under climate disruption and intergenerational sustainability. Parents, students and communities demand that children and youth are prepared for the real world that now exists. Education now prepares youth to assume an array of responsibilities, especially participation in democratic government, entrepreneurship in local market economies, understanding ecosystems and human communities, and leadership in schools, faith-based and ethnic organizations, local community groups, and family.

In Unum areas, elementary level education is usually provided through family or multi-family home-schooling. Community-based "homeschool academies" are usually once a week experiences led by travelling teams of circuit-riding educators who supplement and complement homeschooling with training and learning in resilience and sustainability skills, applied sciences, social sciences, culture studies, environmental democracy and community-building, entrepreneurship and small business management. Some ecoregions have community-based rural field schools and urban community learning centers to train and educate older students

and adult community members in applied skills and vocational skills for the transition to sustainability. Field schools and learning centers are flourishing and spreading.

All education is now experiential and is based on teaching and experiencing human and nature relationships as interdependent "ecosocial systems" or "social-ecological systems." Most schools and centers run farms, gardens, ranches, fish farms, plant nurseries, parks, nature preserves, and working forests. Cultural and tribal groups also sponsor education and skills centers or just workshops to train their own youth and interested outsiders in their indigenous cultural traditions. They create important roles and responsibilities for youth participation in ethnic communities and organizations, especially through the rituals, ceremonies, the arts and cultural performances.

In the USMA, education is provided either through homeschooling, tuition-based private schools, or religious charity schools for poor children. In formal education, schools adopt either traditional disciplinary-based curricula almost identical to early 21st century public and private schools, or they adopt the new integrated curricula where "Sociotech," "Ecotech," "Agrotech" and "Business tech" are the primary metadisciplines, along with humanities (primarily western and global history, art, philosophy and religion). All disciplines integrate technology and throughout.

The higher education and academic world is split between those tied to the older system of universities and academia, and those that form the "New Academies." The New Academies, which are almost exclusively located within Unum areas, are focused mostly on practical and applied concerns, and serve society's transition to resilience and sustainability with applied research and education. The New Academies all have extension divisions that work closely with the re-education and re-skilling of citizens, communities and ecoregional governments to advance sustainable societies, the study of cultures, the development of practical technology, the restoration of ecosystems, and cutting-edge research into new and emerging fields. Younger scholars make up most of the faculty at the New Academies, while the older scholars remain with the universities and the older disciplinary associations, of which most are in USMA areas. It is estimated that some eighty to ninety percent of new students enroll in the New Academies rather than the older universities. The older university community dismisses new applied research as unscholarly, and generally rejects interdisciplinary and applied studies of the New Academies.

Police and Military

Government downsizing and budget limitations have resulted in the reduction of police forces. Communities in the USMA and the Unum League help to ensure public safety and security through citizen policing. Every community member is expected to help provide surveillance and prevention functions of citizen policing, targeting petty crimes and persistent roving gangs. When needed, trained police units are called in to take over policing and law enforcement functions. When incidents escalate into larger scale situations, or when regional security is threatened the military is called in. Many citizens in both the USMA and Unum areas exercise their right to be trained in peacekeeping and defense skills, including the right to keep and bear arms, and have formed

unofficial community militias or community defense networks. There is still some confusion and conflict over authority, role and control of these informal community-based citizen defense groups.

In Unum areas, city law enforcement units are called "police," headed by a police chief, and ecoregional law enforcement units are called "marshals," lead by chief marshal. Ecoregional peacekeeping and defense forces (military) are called the "Rangers." In times of national or regional emergency, the Unum Assembly of Ecoregional Governments can collaboratively call up and oversee military peacekeeping forces and national defense forces, drawing troops from ecoregional peacekeeping units (Rangers). Once they are assembled as a national security force under the authority of the Unum Assembly, peacekeeping and defense units are called "Troopers."

The U.S. military has mostly been decommissioned, and the top leadership of ecoregional peacekeeping forces are former leaders from the decommissioned U.S. military. Military nuclear weapons and facilities are in the process of being decommissioned. The USMA still hosts the temporary Pentagon facility with a combined skeleton force of official federal army, navy, marine and coast guard units that mostly serve as training, capacity building, and strategic intelligence units serving the USMA and Unum League. Private businesses in the USMA are allowed to support their own "reasonably sized" security forces. Illicit privateers involved in the black market find ways to undermine military and nuclear decommissioning by supplying-or offering to supply-any type of weapons from a myriad of global sources...for the right price.

In the USMA, private corporations host their own private security forces to ensure markets, supply lines and corporate facilities and compounds are not threatened by outside forces. Private corporations manufacture and sell almost all military weapons, equipment and supplies, and they now own many former U.S. military installations, including decommissioned naval ships, armored vehicles, and aircraft. Some privatized military bases now operate as small fortified semi-sovereign cities.

My name is Eliza, and I am a third year Tchacker. I am in my third Season at the Carson Northeastern Vanguardian Academy. I live in the Winooski Watershed in the Eastern Lake Champlain Ecoregion, but my family is originally from Miami. We are American environmental refugees who relocated from Florida when we lost our home and entire life when Hurricane Valentia hit. Our former neighborhood is now under ocean water most of the time. My parents are now learning to be farmers, but they used to be bankers. My assignment is to report on the current events and conditions of our world. Everyone says it is now so hard to get accurate facts about what is happening, and we need the best science to help us know what we can do about the challenges we face. The following is what I have been able to uncover so far.

Laws, Policies and Politics

There are a variety of societal issues and concerns faced by communities and government that are addressed through laws and policies. This is especially challenging during this time of adaptation to climate disruption, recovery from socio-economic collapse, and the transition to community sustainability and resilience. The disagreement over the cause of problems, the

appropriate solutions, and which policies and laws to enact is the source of fierce political debate and conflict within both the USMA and the Unum League. Both are committed to democratic processes, the rule of law, freedom, equality, and justice, but the USMA and Unum League have different interpretations of these ideals, and each has enacted different sets of laws and policies.

Laws and policies focus on addressing the following priority issues in the USMA and the Unum League: food and water insecurity; environmental protection and restoration; preventing health crises and providing health care; energy supply crisis; elimination of all remaining carbon emissions; adaptation to climate disruption and sea level rise; rebuilding the economy after collapse and economic development; transition to sustainability and resilience; crime and corruption; widespread civil unrest and protests; and education and training.

In the USMA, private property rights and laws are still prioritized overall. Other laws were changed to reduce the power of government, eliminate most regulations, and to ensure a free-market (corporate capitalism) economy by protecting the rights of business owners and corporations. For example, government eminent domain powers are restricted by cost-benefit analysis, burden of proof to show public purpose, and permanent public trust use of the property that cannot ever be privatized. Corporations' "personhood rights" are expanded to include the right to vote and other rights.

In Unum, local (ecoregional) courts have been set up to work out the boundaries for a new series of emerging "Earth Laws," where nature has been granted intrinsic legal rights, and human advocates are given legal standing in courts to advocate on behalf of nature when the ecosystem and species have been harmed. The Earth Laws have been a revolution in the legal system, and the details are still being worked out in the courts. Unum ecoregional courts also address the balance and limits of private property rights versus public rights to ecosystem services, the public trust, public goods, and common pool resources. Corporations in Unum areas are denied "personhood."

In the USMA, new tax laws simply cut taxes across the board. However, Unum's ecogovernments have created a series of new tax laws. They apply tax rates based on watershed sustainability scores (how sustainable a community is), personal lifestyle (based on individual and household sustainability scores and SUbadges), utility and ecosystem user fees as needed, and sales tax on categories of consumer goods. Sales taxes are not based on the sales price, but rather on the "true cost" of items (based on life cycle analysis and all externalities). The more sustainable the item, the lower the tax cost. The higher the consumption rates, the higher the tax rate. Some unsustainable items are just so expensive to produce, they are not available (unless acquired through the black market).

Political Parties

Political parties include the Blue-Green or Earth Party, Progressive Party, Depublicrats, Tradition or Trad Party, anarchy party (who never allow their party name to be capitalized), and Patriot Party. The Blue-Green Party dominates politics and government in the Unum League. It is committed to ecoregional democratic governance, environmental protection, sustainable fair-market economies, small business development, cooperatives, human

development programs, and cultural diversity. The Progressive Party is a reform party, and opposes institutional power abuse, including the internal power abuses within its own party, which take up most of its energies and funding.

The Depublicrats are the only politically viable party in the USMA and dominate all elections and government positions in those states under one-party rule. They were formed by two previously “opposite” parties from the early 21st century that found they had much more in common than not, so they combined and simply convinced their voter members that winning was everything and policy issues were no longer as important. They have not lost an election in the USMA since then. The Depublicrats are extremely well-funded and are committed to small or minimal government, strong free-market economies, corporate personhood, strong police and security forces, the importance of private charity, and crime prevention.

The Tradition or Trad Party is a very small party made up of extremely wealthy elite families who have maintained vast wealth from generation to generation. They believe in a natural class hierarchy where wealthy elites are bred for leadership of society and have a responsibility guiding the economic, political and moral life of the lower serving classes. They believe in elite leaders controlling a strong government that provides a moral code and laws for the lower classes, and in extensive private charity to care for the food, clothing and shelter needs of the less fortunate. They almost never endorse a candidate, but their interests are always somehow protected, nonetheless.

The anarchy party is generally anti-government, anti-establishment, loosely organized, and has no unifying philosophy except general opposition to institutions and laws, while promoting maximum individual freedom. They are poorly funded from grassroots donations and their iconic "brownie bake sales."

The Patriot Party is an anti-global government group, but usually does not explicitly and publicly endorse political candidates in elections or get involved in political campaigns. However, they are often extremely involved in government, policies and laws behind the scenes, and sponsor elaborate public information campaigns to "wake up the public." Their motto is "Freedom. Whatever the cost." Party members fear and vehemently oppose a "New World Order" (NWO), and what they allege are its ties to communism, socialism, and fascism. Patriot Party members have no faith in any existing government, military or police to prevent the emerging NWO. Members tend to be very ideological and extremely passionate. They support the manufacture, ownership, distribution and use of small arms for all people throughout the world. The Patriot Party has undisclosed corporate financial backing and includes support from a loose international network of private businesses that contract with corporations and engage in what they see as "anti-global government actions." They are led by an emerging "High Command” with a Board of Directors that seeks to consolidate power to form a global force united to fight a suspected and anticipated, but as of yet unannounced NWO global military force. Patriot Party operatives make use of black stealth helicopters for their special actions and are believed to engage in private spying and use of globally placed spy drones. They claim to have been very "successful" in carrying out actions.

Universally Adopted State Laws throughout the USMA

Freedom from Regulatory Tyranny Act: Requires the phasing out of all government regulations deemed not urgent and unnecessary for the operation of a privately driven free market economy.

Government Takings Restriction Act: Government eminent domain powers (to seize private property to use for public purposes) are restricted by requiring cost-benefit analysis, proof of clear public purpose, and permanent public trust use of any seized property that cannot ever be turned over to another private owner.

Common Sense Conservation and Sustainability Act: Requires using cost-benefit analysis before any conservation or sustainability action and allows only voluntary measures. Encourages privatization of all public resources and use of low-level fines to send warnings to violators of the law.

Common Sense Social Welfare Law: Encourages voluntary, private charitable giving toward social causes. Offers tax incentives and public recognition and awards for those who participate in charitable giving.

Common Sense Public Education Law: Allows local governments to decide whether or not to run a public school system based on cost-benefit analysis. If a local community adopts a public school system, it must use a common-sense curriculum based on the "Three R's," history, morality, and high-tech job skills.

Universally Adopted Ecoregional Laws throughout the Unum League

Earthlaw: Nature is granted intrinsic legal rights and human advocates may serve as legal advocates to sue in a court of law to protect an ecosystem and species from harm. Species used as food must be treated humanely and may not be bred or genetically modified to the point that the species loses genetic diversity nor is unable to survive in the wild. Biodiversity and viable habitats must be protected, and no species may be overharvested to the point where unnatural extinction is possible. Declares that humans are an essential, interdependent and beneficial aspect of the social-ecological system. Defines Homo sapiens as having a positive ecological niche role as "adaptive stewards" who can change their roles in the ecosystem to any of several needed roles to ensure balance, adaptation, resilience and sustainability. The Earthlaw has been adopted into the charters or constitutions of all ecoregions in the Unum League.

Environmental Restoration Act: Polluters must pay for and restore ecosystems that they have harmed. Provides funding for ecological restoration that allows subsequent use of the restored area or natural resource for sustainable business activity.

Sustainable Farming and Aquaculture Act: Prevents food and seafood growers and processors from adding harmful chemicals to food or to crops being grown for food. Adopts the precautionary principle, which requires the food and seafood industry to prove chemical use does not harm humans or ecosystems. Allows and encourages decentralized, local production, sale and

consumption of organic, natural, raw, and minimally processed foods, herbs, and animal feed. All community members have the responsibility for growing food on their property, and for converting grass lawns to food or beneficial herb production. "Natural foods" are defined as organic and produced without harmful chemicals.

Sustainable Communities, Transportation & Housing Act: Requires watershed-based analysis, green building materials, low energy appliances, and the installation of home capacity (hookups) for onsite power generation. Encourages use of public transit, renewable energy electric vehicles, and redevelopment of neighborhoods based on sustainability and resilience design principles. Promotes investment in wind-powered commercial sailing ships, water-borne travel and regional water-borne shipping. Requires the issuing of official sustainability footprint scores for individuals and communities and outlines the use of sustainability badges.

Local Economy Act: Establishes decentralized sustainable local fair-market economies with locally created regulations to provide food, water, clothing, housing, transportation, energy, education, health care, healthy ecosystems, and culture. Promotes full employment through small business entrepreneurship and local livelihoods, and encourages small businesses, small nonprofit community cooperatives and worker-owned cooperatives to address immediate economic needs. Encourages the use of bartering for basic needs, participation in the informal economy and the use of community currencies to supplement the common currency. Requires economic planning to consider best practices for economic resilience, sustainability, fair trade and a transition to regenerative economies.

Culture and Ethnic Heritage Protection Act: This promotes human ethnic cultures, allowing cultures to be listed as endangered or threatened, and offering them protection and preservation. It also protects language, and allows the adoption of any official language, but in places where New English is not the official language, makes the New English language the official “common secondary language" of business and government.

Education for Sustainability Act: This requires ecological sciences and sustainability studies as mandatory subjects to be studied by all students at all levels, whether formally or informally. Sustainable business education is required for all secondary students and above. It mandates service-learning experiences for all students, especially environmental service learning and participation in other civic and cultural activities. It requires the learning of multiple languages, and the study of cultures. It funds New Academies to prepare youth for leadership in sustainable and resilient communities.

Health and Wellness Act: Provides universal health care, and fee reductions for healthy living practices and high sustainability scores. Adopts the precautionary principle, which requires industry to prove chemical use does not harm humans or ecosystems. Prevents manufacturers from adding harmful chemicals to products or using harmful chemicals that could find their way into the ecosystem to harm humans.

Tax Reform Act: Ecoregional governments have the power to tax and must apply tax

rates based on: watersheds. Tax rates are to be based on the watershed sustainability and resilience scores of the community, individual and household as appropriate. Utility costs and ecosystem service fees are assessed based on impacts to the social-ecological system. Applies a carbon tax on ecoregional governments, industry, businesses and households based on greenhouse gas emissions. Sales tax on products and services is assessed based on the impacts to the social-ecological system and the rate of consumption, and must reflect the true cost of items, including life cycle impacts and all externalities. More sustainable items and lower levels of consumption receive the lowest tax rates.

Migration and Relocation Act: Requires the protection of immigrants, especially environmental and climate refugees, economic refugees, and political refugees from discrimination, and requires fair and equal treatment. All immigrants and refugees have a right to earn enough to provide for their own basic food, clothing, housing, health care, vocational and living skills, culture and education. All immigrants and refugees have a responsibility to increase their education and skills, serve the community, stay healthy, raise healthy and competent children, and grow food. Also allows immigrants and refugees the right to start their own sustainable small business. Also offers the same protections to climate migrants who relocate from one ecoregion to another as a result of climate disruption impacts or to relocate to a more climate-resilient community with higher climate adaptation capacity.

Youth Formation Act: All youth have a right to food, clothing, housing, health care, vocational and living skills, culture and education. All youth have a responsibility to serve the community, stay healthy, and grow food. Also allows youth who reach age 14 to hold adult rights, including temporary full citizenship (ecoregional and global) for one year if they pass the annual civics test and submit a portfolio of qualifications; right to pilot vehicles and boats; right to vote if they pass a test for knowledge of issues (and a second vote if they have a high sustainability score); right to wear their own SUbadge (instead of family badge); a right to start their own business; and an assigned Elder mentor.

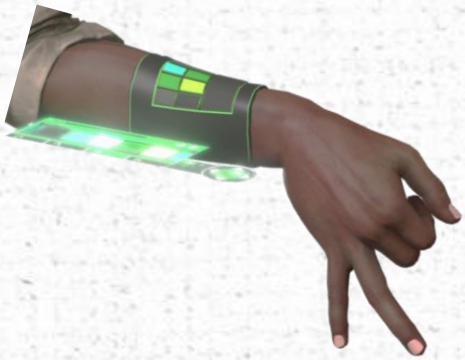
Recycled Manufacturing Act: Requires the reuse of recycled materials in manufacturing, the mining of landfills to recover re-usable materials, and severely restricts the extraction of non-renewable raw materials. Adopts the precautionary principle, which requires industry to prove chemical use does not harm humans or ecosystems. Requires sustainable practices.

Voting Duty Act: Voting is legally mandated and required of every citizen 18 years and older. Mandatory civic holidays called "Voting Days" (May 1 and August 1) encourage 100% turnout and allows for the study of political and policy issues and candidates. In voting, everyone gets one vote with an optional second vote for earning a high sustainability score. The law requires making voting available by physical polling booths and by electronic ballot (via comms).

Sustainable Energy Act: Requires renewable energy production, energy efficiency, low-energy products, and distributed generation by all community members. Uses carbon taxes to help lower-income households transition to renewable energy. Bans non-sustainable and non-resilient energy production, and non-

emergency use of fossil fuels in vehicles or for heating. Bans the non-emergency transportation of nuclear energy waste.

Citizenship and Public Service Act: Requires a two-year mandatory public service term for all citizens to engage in "sustainability and resilient community service." All students in schools are required to participate in public service part-time as part of their education.



I am a Vanguardian Tchacker, and my name is Moha. I am a first year Vanguardian and am finishing up my first Season at the Columbia Northwestern Vanguardian Academy. I am a member of the Puget Sound Ecoregion, but my family has been living in a temporary resettlement camp in the Snohomish Watershed, because of the flooding of our neighborhood in Seattle. My parents are herbal farmers now, but my father was a public health nurse, and my mother is a former power plant inspector. I have been assigned to document the current conditions of our world and current events. The struggle to get accurate information and accurate news reports makes our efforts here essential. The following details are an accurate accounting at the time of this writing.

Technology

Technology development is important as a tool to enhance human adaptation to live within nature, and to gain knowledge about nature, to advance human dignity, and provide a high quality of life. Technology engineering firms and businesses are redirecting their focus to address actual social and ecological problems, like energy and water shortages and food insecurity, and this is creating a renewed technological renaissance in both high-tech digital and bionanotechnology and new "low-technology." These technologies are increasingly seen as essential for addressing climate resilience and adaptation, ecological restoration through bioremediation, and the transition to sustainability.

Corporations in the USMA dominate the high-tech nanotechnology and bionanotechnology industries. In Unum areas, small manufacturers make low-technology manufactured goods that use low energy or no energy for use in sustainable households. In some ecoregions, some specialized high-technology, especially clean tech nanotechnology and bionanotechnology, is manufactured in lower quantities. For the general public, handheld and smaller high-technology products are almost always referred to generally as "Gadgets."

Clean tech has been developed in response for more sustainable products. These technologies are designed, manufactured, used and "retired" so that through life-cycle planning, they have minimal or no harmful impact on the environment and human health. Many products are designed based on biomimicry, mimicking the processes and structures found naturally in wildlife and ecosystems. New bioproducts and bio-based

products, made from substances naturally grown or harvested from ecosystems, are always being developed. New nanomaterials like Graphoenix, refined into Graphoenix, are revolutionizing how technological products are made, creating smaller, lighter, less expensive and more indestructible and long-lasting products. Self-assembly of nanomaterials has been essential to the development of new Gadgets, and bio-molecular self-assembly is used in bioremediation of environmentally contaminated sites.

In USMA areas, much of the technology developed using more sustainable materials and processes are manufactured for export to Unum areas and to global markets, which have strict environmental, health and sustainability standards. Nearly half of manufacturing in USMA relies heavily on more traditional nanotechnology, and fossil fuel-based materials, products and technology. Materials used include metals, nanometals, rare earth metals, and a variety of hydrocarbon plastics and nanoplastics. These more polluting products are sold domestically, since environmental, health and sustainability standards and regulations have been eliminated or made voluntary in the USMA to offer cheaper consumer prices and facilitate a more robust free market with higher profits not achievable otherwise.

Some technological advances are extremely important and notably commonplace, even in some relatively low-tech communities. Augmented reality is the predominant standard for conveying and acquiring information. Digital overlays in audio and/or visual form enhance users' experience of geographic surroundings, usually to provide supplementary information about a place while travelling, recreating or exploring.

Artificial intelligence has advanced to the point that digital personas, including robots (bots) and interactive computer system interfaces, have been programmed to sense and use subtle human emotions; they have a pleasant, human-like bedside manner.

There are a variety of tools and Gadgets that allow sensory augmentation, especially visual and auditory (e.g., headgear, clothing, eyewear, handhelds, and jewelry). These include primarily environmental scanners, which can analyze air, water, soil and biotic material contamination, mineral content of materials, or even various indiscrete sounds. Some scanners are designed to access supplemental information on almost anything (like lifecycle cost and ecological impact) if the item’s barcode is scanned or a picture is taken of the object using optical image recognition.

Nearly everyone in both Unum areas and the USMA carries a citizen or resident identification smartcard with critical personal, genealogical, health and medical information, and GPS coordinates of the card. This information is continuously updated. Some people, especially those with critical health problems, often opt to have a smartchip surgically implanted as a backup. In this case, the person's chip can be tracked using GPS.

Personal communicators or "comms" are used by nearly everyone. They are used for global interpersonal communications and are manufactured in a nearly unlimited variety of shapes, styles, and with any number of integrated utilities and features. All comms include a minicomputer with an internet browser, telephone, video telecommunicator, watch, GPS, audiovisual player and recorder, and camera. It is also common for comms to be carried in the form of smartwatches or

smartbands (arm bands, neckbands, earbands or headbands) for hands free use. Some advanced models have remote controls, various environmental scanners and health sensors, micro energy generation, and various activity monitors. More advanced and expensive comms make use of directed self-assembly (DSA), aligning electromagnetic energy and existing air particles with a reflective side out, allowing a virtual visual projection screen and 3D imagery projection. This technology also makes it difficult for comm projections to be seen well from other angles by others, allowing increased message security. Vanguardian comms allow a Vanguardian to convert their image into their avatars, in order to protect their identity from outside lurkers. Older model comms are usually still functional, albeit slower and with fewer features, are easily self-repaired, and are affordable for even very poor people.

Quantum computers (technically "omni-quantum computers") are used by those with the financial resources to do so, and by many businesses, corporations and government agencies. These are especially helpful for data mining the vast quantity of consumer and citizen data available through home appliances, electronic recordkeeping of most transactions, and data collected from ID cards. Quantum computing is also used to run the EarthQuest Simulator.

3D printing is ubiquitous, including in many homes, almost all businesses, and even at local neighborhood stores. They are often used throughout the day to quickly create replacements of broken parts of machines or misplaced tools or Gadgets. Almost all 3D printers use cylinders of recycled materials, bioplastics, or nanomaterials to construct objects, and designs of millions of common objects, tools, Gadgets and parts are freely available on the legacy Internet. Some bionanotechnology engineers in the USMA are hoping to create a 3D printer that is able to build or grow biological material using genetic material from extinct species. There are several genetic libraries of extinct species' DNA that had been created in the early 21st century in the hopes to reverse the mass extinction trends brought on by climate disruption.

Bots and drones are also used everywhere in the USMA, and in some essential places in Unum areas. Having a bot in the home in Unum areas is not usually socially acceptable, while it is a status symbol in the USMA. In Unum, most electronics and computers are built, repaired or refurbished with nanotechnology using salvaged electronic garbage from landfills and remanufactured parts from 3D printers.

While technology is important everywhere, there is a significant technology divide. There are wealthy communities who rely heavily on technology for status quo. There are mixed income communities who intentionally minimize high-technology, preferring to rely on "socio-natural technologies" and low-

technology in order to have more sustainable but high-quality lifestyles. There are poor people who have little access to any technology and rely on subsistent dependence on the natural environment with help from only primitive technology like old fashioned hand tools.

In Unum, technology is ubiquitous, but usually invisible, and its use is focused on supporting human living without obtrusiveness and interfering with human relations. Flashy Gadgets that serve no real purpose are considered an embarrassment and are socially unacceptable. The major emphasis for the sustainability transition in Unum areas was the search for bioproduct technology to replace petroleum-based technology. Bioproducts engineering and environmental engineering are the most common engineering focuses for Unum ecoregions. Materials, products and technology include bioplastics (mostly vegetable oil), wood and woody debris (especially composite materials), clay and ceramic, natural fibers (cloth) and nanofibers, animal and insect products (bone, shell, tusks, fur, skins, leather and silk), glass and bioglass. In Unum, the oceans are the new sustainability frontier, and ocean farming and marine bioproducts are a major resource.

In the USMA, technology display is celebrated, obvious, and almost gaudy (by Unum standards) because it is a status symbol for the wealthy. Human living adapts to technology. Fossil fuel-based materials and products are the primary emphasis, and the domestic use of bio-based products is vehemently opposed by industry as a direct competition to fossil fuel-based products. Bio-based products are exported to Unum areas. In the USMA, technology is not generally accessible to poor people.

Wealthy people in the USMA live extremely high-tech worlds, growing their own foods onsite their self-sufficient estates on adjacent "plantations" (sometimes just called a "garden"), and creating their own synthetic ecological filter systems to technologically clean the air, water, soil, and food of toxins, viruses, and radiation. Immigrant laborers are used—as are bots—to tend the plantations. In the USMA, wealthy people have access to high-technology medical care, and it is generally believed that these people can live to be 125 years old or longer by using technological enhancements and high-tech surgeries.

Low-Tech

In Unum, low-technology is emphasized. It is also the only technology other than primitive tools available to poor people and moderate-income people in USMA areas. High skilled hand-made goods or low-volume machined goods of very high quality are generally available, but expensive. However, high quality items last much longer and are designed for easy repair. "Engineered obsolescence"-intentionally designing consumer products to break or fail after a short period of use in order to encourage the purchase of its replacement-is illegal in many ecoregions within the Unum League, and a company that produces products that seem to break too early are usually the target of embarrassing and costly consumer boycotts. Low-tech tools are made from local hardwoods, recycled metals, (most regions have one or more metal foundries), leathers, cloth or fibers, glass, clay, ceramics, and even bone and shell. Many available technology items are refurbished antiques from legacy landfills from the 19th through early 21st centuries, when people used to throw away slightly damaged items because repairs cost

more than buying a newly manufactured low-quality item. Creative designers and amateurs in ecoregions have worked with these low-tech and more primitive manufacturing processes to create a variety of stylistic "retro looks" as a way to be creative, expressive and fashionable while being sustainable, low-tech, and low income. This look is often mocked in the USMA, where fashion is based on expensive, exclusive style.

Mostly in Unum areas, the low-technology trade is made possible by skilled crafters and repairers, but also by salvage mining companies and salvagers. Salvage mining companies buy up or lease old dumps and landfills, and then mine the area for re-usable or recyclable materials and technology goods. Salvagers are individuals or small groups who travel around and seek out abandoned sites, facilities, plants, compounds, and other deserted or abandoned areas and strip the valuable technology and materials from it. The technology is often outdated legacy technology, but still valuable in Unum areas where there is a demand. Salvagers sell recyclable material to small foundries or manufacturers located in ecoregions. Salvagers also seek the services of repairers and resell refurbished technology items via "repurpose shops."

Manufacturing, Craftsmanship and Style

In Unum areas, manufacturing processes are sustainable, and industrial designers have looked to the past for simpler mechanical designs that can be replicated for lower production using less energy. Many of these retro manufactured items integrate post-production high-tech components and decorative overlays by skilled craftsmen using traditional hand techniques and materials. For example, many comms are manufactures using high-tech components imported from the USMA. However, the casings are manufactured in Unum's ecoregion factories using recycled metals, wood and leather. Skilled craftsmen then add decorative designs using recycled metal and other natural materials to produce a final consumer product. All products including Gadgets, tools, machines, and even clothing must be repairable in a local workshop using hand tools or low-powered tools. As a result, industrial styles, architectural styles, and even clothing styles are an eclectic mix drawn from historical time periods when items were easily made and repaired by hand. These styles are drawn from the Middle Ages, Renaissance, Colonial, Victorian, American Frontier and American Wild West. In the USMA, eclectic styles are based on the American 1950's, 1980's and a new future modern style augmented with bionanoplastics. All elite styles are digitally designed and robotically nanomanufactured, and are infused with high-tech Gadgets and digital designs as much as possible. It is usually easy to tell the difference between USMA citizens and Unum League citizens by their clothing styles.

Energy

Many Unum communities experience rolling power blackouts and brownouts on occasion or even often, depending on how quickly a community has been able to transition to renewable and affordable energy generation and low power use technologies. Replacement of energy generation equipment, and replacement of transmission infrastructure is still underway in many communities, and frequent storms make this power restoration effort commonplace in areas that still rely on above ground power

distribution lines. Most communities in Unum are transitioning to microgrids and decentralized power generation by homeowners or neighborhood co-ops. In the USMA, power grids are centralized and privatized, but have the ability to de-centralize to microgrids when needed. Poor people and communities in USMA have not made affordable energy generation a high priority, so many simply go without power.

Each area does an assessment of sustainable energy assessment to determine the best mix. Solar, wind, offshore wind, hydro, geothermal, biofuel, marine biofuel, tidal, wave, lightning harvest, methane, hydrogen fuel cell, and methane hydrate are all considered renewable energy sources. Second Generation nuclear energy that uses legacy nuclear waste (spent nuclear fuel rods) as a fuel source is not considered renewable energy, but because it has created a market for otherwise hazardous nuclear waste, it is usually considered an acceptable energy technology, when there are no other choices.

Officially, coal, oil, and fossil gas are banned as a fuel source in Unum areas, but the high price of fossil fuels makes them almost unmarketable anyway. In the USMA, consumer costs of fossil fuels are heavily subsidized, however production of cheap fuels has peaked and annual energy increases are simply a way of life. Clean, efficient, renewable energy generation is seen as an essential public good and is provided by co-ops and ecoregional governments in the Unum League. Major renewable energy sources are solar, wind (including offshore wind), biofuels, geothermal, hydro, wave, and tidal, with lingering mobile nuclear generators in USMA and some 3rd world ecoregions.

To some degree, the process of transitioning to the hydrogen economy has successfully begun. Hydrogen fuel cell vehicles are in use. Some homes use the artificial leaf technology to take in sunlight to convert water into hydrogen and oxygen and use the hydrogen as a fuel in home hydrogen fuel cells. Since this technology is extraordinarily expensive now that the cheap fossil fuel energy system has collapsed and cannot be used to manufacture and supply sustainable energy, very few households can afford this renewable hydrogen fuel cell energy technology.

Most households are extremely low energy, and most have "resource meters" to determine energy efficiency and resource use. Polyenergy, energy technology that integrates two or more energy sources, is very common, and many businesses will use solar, wind and biofuel-generated electricity to power a shop.

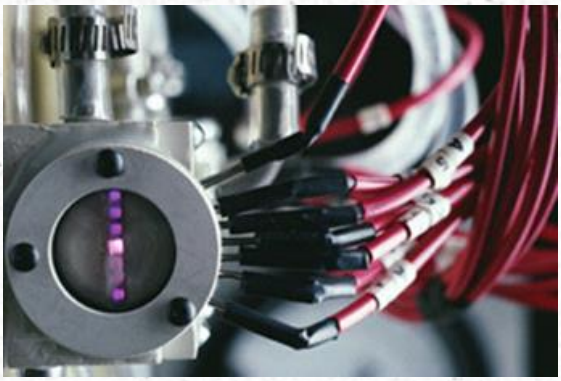
Energy transmission, along with communication transmission, uses the "XM band" transmission waves, a recently discovered and poorly understood Quantum mechanics level properties of energy waves. It allows both low level energy and information to be transmitted along the same energy transmission path. Wireless energy transfer, especially wireless charging using electromagnetic induction, resonance charging and "shielded near field magnetic coupling" are common technologies for vehicles, portable handheld Gadgets, and home appliances. Portable, usually handheld energy collectors (NGCs) are used to capture energy in small quantities to power portable handheld Gadgets, including in outback or wilderness areas. High-powered, drive-up energy collector stations are peppered throughout urban and settled areas, and are

used to quickly recharge vehicles and personal Gadgets as needed.

Communications

The USMA and Unum League are both still in the process of restoring communications systems and infrastructure, including satellites, computer communication hubs, and communications towers that had been damaged and knocked offline by a series of solar eruptions. Communications systems are considered essential for modern human societies because they make it possible to coordinate information especially in times of emergency and disaster; they allow the dissemination of information between government and citizens to promote "Emocracy"; they enable access to essential information, cutting edge knowledge and lifelong education; and they promote electronic commerce.

Continuous connection to the internet is a reality of post-modern living for most people, no matter what socio-economic class people are in, and wireless connections are via legacy Wi-Fi services or XM band waves. "XM band" energy waves are a recently discovered and poorly understood property of Quantum mechanics that allow both low level energy and information to be transmitted along the same path to deliver information and energy. XM waves have unique penetration capabilities, and can effectively reach where other wireless transmissions cannot, like underground, in canyons, underwater, and in fortified structures. They can also carry more information. XM transmission technology is still in its relative infancy, but many Gadgets are developed XM-compliant in order to capture new features as they are developed.



Audio-visual communication (telephone service) and internet connection is primarily through portable handheld comms (communicators), and often in the form of smart watches or smartbands, or any other creative form of Gadget. Comms are ubiquitous...everyone who wants a comm owns or has shared access to a comm, whether new or used. However, comms are extremely high-quality and durable (by law), and only rarely need a minor software or chip upgrade. In Unum areas, comms are usually simpler and utilitarian in design, and are either donated to or subsidized for those who cannot afford them. In the USMA, elaborate and flashy comms are status symbols, and often come with an increasing number and variety diverse features that are rarely ever used, but can add to the status of the owner if they are on the current hot trend list.

I am Li Min, and I am a second year Tchacker for the Vanguardians. I attend Leopold Great Lakes Vanguardian Academy and am in my second season of studies. I live in the Sandusky Watershed along Lake Erie in Ohio. My family is originally from the San Francisco Bay Watershed, by we had to evacuate when Sea Level Rise flooded our home along the coast. My parents and grandparents were business owners there, and now our family manages a woodlot and raises livestock in the woods. My assignment is to document current events and present conditions of the world,

and to present accurate information to counter the inaccurate information that is now widespread. This information can be used to guide important decisions in communities. The following is my based on my research.

Internet

There are two versions of the internet. The legacy "World Wide Web" or "legacy Web" or “legacy Internet” was developed in the late 20th century and was the only global electronic information and communications network until the ComNet (now branded as The Fly) was developed by private multinational corporations. While both of these are available in Unum areas (and throughout the world), Unum areas generally reject the Fly except for some entertainment and purchases, while embracing the general net neutrality of the legacy Internet. In the USMA, Fly is overwhelmingly used, with the legacy Internet seen as ancient, inefficient, and full of radical propaganda that undermines corporate free-market capitalism and the use of common sense.

Most of the contemporary and legacy Internet resources were previously bought up by a consortium of private multinational corporate partners, including multinationals owning the fossil fuel industry, with the intent to shut the legacy Internet down and replace it with the privatized and commercial form of the web, the Fly. Web hubs (servers) were shut down, some sites were erased, all advertising (and hence funding) was transferred to the Fly, and power service was denied to hubs. Legacy Internet software was no longer made available, all old hardware was exchanged for Fly’s nearly free upgrades, satellites were decommissioned, and every other strategy was used to dismantle the existing free legacy Internet. The legacy Internet is not even accessible to modern Gadgets in most USMA areas, and there is little desire to get access. The most successful legacy Internet retirement strategy has been the use of sophisticated marketing tools and political action to get the legacy Internet all but banned, and get Fly subsidized by government tax rebates and other incentives.

Fly is available only to subscribers and all software is cloud-based. Fly-compliant equipment and required technology updates are expensive, and the expense limits access to only those who can afford it. Fly has been completely redesigned as the "Internet of Things" (Machine-to-Machine or M2M) and all technology, appliances, hardware, software, buildings, vehicles, and workspaces, are now manufactured with automatic cloud-based control linkages to Fly. Access to Fly is available everywhere around the globe via annual subscription, and all content providers have to be certified, approved and adhere to strict guidelines in order to be part of Fly. Fly is connected to a variety of virtual reality portals, so that the experience of Fly can be as full-mind and full-body as the customer-subscriber desires, with each increase in sophistication requiring a higher fee level. Subscribers are limited to personal blogs or participation in existing virtual worlds or social media sites, but are not allowed to design their own content without being trained and certified by and under contract with Fly. Fly's digital marketplaces use the most sophisticated technology and consumer behavioral research to customize product messages and sales pitches based on the patterns assembled from big data collected through data-mining from personal comms.

The "Internet of Things" technology is dominant in USMA homes, workplaces, and

publicly accessible buildings, and is constantly sharing information about the subscriber and use patterns for business purposes. Everything is connected through Fly, which uses metadata mining and prediction algorithms to allow the prediction of human preferences and behaviors within the home or workspace. As a result, appliances can automatically be adjusted minute by minute for peak performance settings based on the subscriber. Most high-tech homes have a home system "voice" that confirms preferences before changing the home environment. "You appear cold. Would you like to me to increase the room temperature 3 degrees for you? The cost will be $1.23 on your monthly power bill." If an appliance is left on, the user can be contacted away from home with a message: "You left your stove on and the risk of starting a house fire is 32% with an estimated risk cost of $18,000. For $2.00, would you like to turn your stove off?" It can then automatically be shut off, saving the subscriber from a potential disaster. Calculation errors and misreadings by sensors only happen infrequently.

A major function of the Vanguardians is to bring legacy Internet web hubs (data centers and server farm installations) back online, so that communities have access to the wealth of information, especially free environmental information, data maps and science and health research from federal, state and local government agencies, nonprofit organizations, university research centers, and the United Nations. This includes educational "how-to" instructions and do-it-yourself web videos for people interested in re-skilling and training their children in once lost practical skills and craftsmanship. Legacy Internet websites are also valued for their alternative news stories generated under "freedom of the press" journalism, a type of journalism that is now much less common.

Legacy Internet web hubs are located throughout Unum areas and USMA areas. Many are located in isolated areas in large warehouses with hundreds and even thousands of computer server units, and the miles of electric cables and data cables linking them. Some hubs are located in abandoned corporate headquarters, offices, industrial complexes, and municipal buildings. When waves of power disruptions and communications system disruptions from a series of electromagnetic pulses (EMPs) hit the US in the early 21st century, many web hubs automatically shut down and were never rebooted. Since many relied on backup power generators that used fossil fuels, when supplies of diesel fuel were interrupted for long intervals, web hubs simply ran out of power. Many hubs were intentionally dismantled, disrupted, or hacked to be unusable. Many teams of Founders, and now Vanguardians and their Tchackers, set out to locate, map, assess, repair, restore and reboot legacy web hubs, and bring information back online. They often find that they have to relocate and guard these rebooted and restored web hubs in order to prevent other groups from vandalizing them. Creating renewable energy power stations is always part of the restoration process.

Many Unum co-ops and the Vanguardians have also been buying up the old legacy Internet technology and reassembling it slowly. Old comms and even very old legacy computers, especially laptops with Wi-Fi, are being refurbished and retrofitted, since no new technology is currently manufactured to connect to the legacy Internet. Since many older communications satellites and towers are functional, Vanguardians and other

groups attempt to access and maintain these legacy resources. The legacy Internet is now used as a way of sharing free and unscreened news, information, history, genealogy, culture and education, especially in Unum areas and even throughout the world. Anyone is free to upload content, and all content can be viewed freely.

AReggs

The Other Forces and their followers holding positions of authority were very powerful, and they made it very difficult for sustainability activists to get critical information about local environmental and sustainability problems and act on it. Other Forces undermined efforts to mobilize the public and engage political leaders. People did not know what to do. They lived in fear that social networks would turn on them in polarized times.

A seed of an idea arose. Early Founders used crowdsourced networks of young environmentalists, scientists, sustainability and climate change action advocates, transition community members and youth leaders to explore the problems and solutions. They brainstormed a type of augmented reality "Easter eggs"—AReggs—that could hold information about local environmental problems, clues to solving environmental dilemmas, and personal notes about their struggles of their times.

They encrypted their information in digital media riddles and puzzles that would need to be solved first in order to crack the cybersecurity protecting the AReggs. They hid the AReggs all over the Internet, where they were stored in particular web hub locations for future generations to find and respond to. Then the early Founders raised their own children to become the ARegg solution finders of the future. They designed a crowdsourced ecogame called "EarthQuest," a forerunner of the EQSim, to play with their children, so their children and grandchildren after them would grow up and know how to find and open the AReggs and use the hidden information to solve and address these local environmental mysteries.

To this day, as far as we know, only Vanguardians, descendants of the early Founders, know about and seek out AReggs.

EarthQuest Simulators

The Vanguardians' special power to generate social change relies on their ability to use the EarthQuest virtual reality and augmented reality simulators to train Vanguardians and Tchackers, explore future possibilities for solving social and ecological problems, study how social-ecological systems work, and store and retrieve critical information. This information includes research, big data with private citizen information, and other strategic Vanguardian information.

An **EarthQuest Simulator** (also called an **EQSim**) is an alternate reality experience, created by an artificial intelligence-generated simulation based on possible future scenarios. It is the most elaborate, detailed and sophisticated social networking collective

intelligence virtual reality "video game" ever created. It is used especially as a living MMORPG serious game scenario tester for solving wicked problems and developing innovative solutions through potential new laws, public policies, programs and decisions. The EQSim is a collective intelligence platform where thousands and sometimes tens of thousands of people work together to identify problems, co-generate solutions, and co-generate innovations. This happens in real-time, while Vanguardians enter into a virtual world (peopled by citizen volunteers using avatars), and actively engage problems and implement innovations.

The EQSim is constructed by and maintained with omni-quantum computers and builds on the framework from the "Sentient Worldwide Simulation" (SWS) virtual reality world created by the U.S. military in early 21st century. SWS accurately represented major world cities in a virtual reality digital world. The EQSim also integrates some of China's legacy HiPiHi virtual world. It is sometimes referred to as “The EarthQuest Simulator” and sometimes as “EarthQuest Simulators.” This is because, although it is technically one system, it is actually a network of many EarthQuest simulation ports using various levels of technology with a variety of capabilities. The EQSims always require connection to the legacy Internet.

An important feature of the EQSim is its inclusion of millions of players throughout the world who represent the public or civilians in these scenarios. Civilians are entered into the EQSim as MMORPG "players" (often also called "Questers") via their own living rooms in order to replicate complex socio-economic and political activity. Civilians may participate by using a persona: a holographic image of themselves, a realistic avatar, or a digitally constructed avatar. A majority of people have access to at least basic participation in the EQSim as players though their comms, using the legacy Internet. The EQSim does not and cannot run in the Fly. People also connect via VR headsets, headgear (including helmet, gloves and jumpsuit), and even a home- or office-based full immersion, studio-sized 3D holographic platform, chamber or pod. It is rumored that some biotech firms in the USMA are experimenting with neural implants that can link the brain directly into any virtual reality simulator.

Elaborate alternate scenarios are programmed into the EQSim, and players enter into the virtual reality (VR) space. Human Questers are plugged into the scenario to see how they respond and adapt, and the EQSim program conducts an analysis, evaluating behaviors, risks and impacts. In the simulations, Questers explore contemporary problems, especially climate disruption scenarios, natural disaster scenarios, and social conflict scenarios. Many Vanguardian Questers do “experiments” in the EQSim to help determine the best course of action in the real world. EQSim scenarios test prediction models and help to understand how these models can lead to a new balance between societies, economies and ecosystems. In the minds of many who are part of the EQSim team, the results of the EQSims will save the world.

Vanguardian Tchackers work with Vanguardians to run the cloud-based EQSim, connecting people in ecoregions throughout the Unum League, in Rose Communities, and even throughout the world through virtual reality and augmented reality technology mobilized for collective intelligence innovations. Tchackers assemble the VR/AR 3D scenes, foster the knowledge commons, and run peer-to-peer networks to get citizen volunteers involved using avatars. A major responsibility of Tchackers is constructing photorealistic 3D models of watersheds and communities under future climate disruption scenarios so that ecoregional leaders can access information to make sustainability decisions and to freely add to and share that information through the EQSim. Tchackers facilitate this peer-to-peer network and augmented reality remote connections with the public.

Another important use of the EQSim is the re-creation of historical periods in human history where simple low-tech innovations in human lifestyles and village life were widely implemented (but subsequently abandoned by modern high energy, high-technology industrial-digital culture). Hundreds of historians, archaeologists, anthropologists, conservation ecologists and interdisciplinary scholars participated with indigenous leaders holding traditional ecological knowledge to help create historically accurate 3D virtual villages and cities for the EQSim so that historical and traditional innovations can be harvested for adaptation in the contemporary world undergoing transition. For example, many of the current innovations for sustainable farming and organic food preservation came from the period just before World War II, with insights from tribes who maintained oral records of slow environmental changes throughout the ages.

Power is not brute force and money; power is in your spirit. Power is in your soul. It is what your ancestors, your old people gave you. Power is in the earth; it is in your relationship to the earth.
Winona LaDuke

Unfortunately, the Other Forces are continuously hacking into the Vanguardians' EQSim virtual worlds. They use a variety of techniques, especially artificial intelligence, in order to hack in and mine or harvest big data. Big data is often used to manipulate the masses of people through deceptive marketing and branding by unethical corporations, and by political demagogues seeking power. Other Forces also want to hack into the EQSim in order to shut the whole system down and cripple the Vanguardians' efforts to restore and promote the use of the legacy Internet, which cuts into corporate profits and undermines their political power.

Other Forces use artificial intelligence to invade the EQSim as viruses, which almost always appear as odd-looking and out-of-place avatars. Other Forces use mathematical algorithms to predict human behavior, assuming humans (homo economicus) are predictably individualistic, selfish, greedy, power hungry, and competitive, and so go looking for secret Vanguardian information in the EQSim. They always seek out power, wealth, military might, and high-tech fortresses as the logical places to store important data and information. So, the Vanguardians must store everything in unexpected, unpredictable places in unusual

formats. This means Vanguardian information is stored in code as deep stories and wisdom in the memories of marginalized and powerless human personas (avatars). The EQSim stores these deep stories and wisdom as narrative simulations using science fiction, fantasy, folklore, sagas, legends, religious parables, metaphorical poems, and historical fiction. Deep stories are a format that only fully alive humans can truly understand.

Deep stories are mostly unintelligible to the logical software algorithms of invading viruses. Once middle-aged adults are bound to their narratives of the dominant social paradigm, adults cannot understand the stories in the EQSim; if they hack in, everything looks "foolish." Other than Vanguardians, only children, youth, indigenous people, religious prophets (wise Elders), and powerless people "get it." Vanguardians are trained as servant leaders (martyrs or fools) in order to build the right paradigms for seeing and understanding, so they “get it.” So even when "other forces" make it in, they have never been able to "crack the code" to understand the deep stories.

Vanguardian information is accessed only through the avatar beggars, children, peasant farmers, "criminals" in jail, and other marginalized and powerless personas. Sometimes information is even stored piecemeal in groups of peasant villagers. In imaginative fantasy world settings, some valuable Vanguardian data is stored in the trees, wildlife, and nature fairies. In normal simulations, if avatars of marginalized persons are approached by a non-Vanguardian, they are almost always treated inhumanely, disrespectfully, and with some level of disdain. This immediately ensures no access to any information stored within. Vanguardian Questers know to establish trusting relationships with poor people and marginalized, and in this way are able to use their avatar personas to access the deep stories and wisdom hidden in the EQSim.

The Other Forces avatars (OFAs) always seek out the powerful, and search for the protected, highly secure vaults in the simulation, trying to break in to steal Vanguardian secrets and information. OFAs start battles (first person shooter apps) to break into what they believe are the Vanguardians' fortresses where data must be stored. OFAs use force, violence and bribery ("incentives") to make their way into the fortresses, overtake entire fortified cities, etc. But these places are simply Vanguardian decoys. OFAs occasionally win in these battles, and steal what they think are secret Vanguardian big data treasure troves, and send the information out of the EQSim to the real world, where Other Forces spend years trying to crack the additional codes, only to find dummy data. And so it goes.

Vanguardian Tchackers and early career Vanguardians are trained in the EQSims, near these decoy battle zones, learning to use their staffs, Martial Arts, and other skills against

the OFAs weapons. The Vanguardians often use a "trick"––a temporary one-use app work around that can disable OFA weapons for a few minutes––but this is easily and quickly overcome, to buy time in emergencies for Tchacker or Vanguardian avatars. In these battles, Vanguardians and Tchackers usually eventually lose against the OFAs. "Live Wire" battles are ones where OFAs successfully hack inside. Dud battles (AKA "placebos") have no OFA hacks and are used only for safe training.

When the general public are allowed to play in the EQSim, they are randomly assigned avatars, although players are convinced they are freely making a personal choice. Some public Quester avatars serve as soldiers battling OFAs and protecting fortresses, and some serve as normal citizens in the democratic town halls making or implementing the hypothetical test policy decisions to assist the Vanguardians.

The EarthQuest Simulator Arenas are the large scale, super-sophisticated simulation centers accessible only to Vanguardians. These full immersion holographic arenas allow large-space team play within simulated alternate climates and ecosystems that can change and simulate vastness as needed. They are designed with full climate control capabilities, and can realistically replicate all weather conditions, storm conditions, and natural disaster effects. Vanguardian Postulants, especially Tchackers, are also trained in the EQSim Arenas. Vanguardians who play remotely will usually use more secure avatars in order to protect their identity from possible OFAs.

There is yet another special feature in the EarthQuest Simulator that allows the creation of "hyper-real experiences." In order for a hyper-real simulation to work, particular simulations have been designed to be completely compatible with biophysical reality down to the most minute detail, in order to ensure accurately represent reality and the suspension of disbelief for the Quester. A Vanguardian Quester is sent into the hyper-real scenario, but is not aware of the fact that it is simply a simulated scenario. Everything that is simulated is thought to be real. Even dreams can be simulated. Of course, there are almost always quirks in the programming.

A Vanguardian is first given scenario Mission Briefs, and then enters into the hyper-real simulation through sleep and an induced dream sequence, which usually leads to them awakening within the simulation arena thinking it is reality. Vanguardians maintain all their knowledge and skills while in the simulation. While within the hyper-real simulation, a Vanguardian Quester can "connect" with the simulator controllers by “using” a comm to request information or can receive information. Special care must be taken during hyper-real simulations, since any form of (simulated) injury inflicted on a Vanguardian while in the simulator could potentially harm or even kill the Vanguardian in real life. This is because their physical bodies will be responding according to the simulation, resulting in psycho-somatic trauma and/or psychological trauma.

Vanguardians can even “sleep” while in the hyper-reality EarthQuest Simulator experience, and these times of sleep can become special windows of opportunity for “induced dreaming” influenced by the EarthQuest Simulator programmers and operators in order to direct a Vanguardian's behavior. These induced dreams require that any information be coded in mythic patterns according to the latest dream analysis

research. Vanguardians eventually come out of the hyper-real EQ scenarios, are de-programmed, and give assessment reports. Memories and learning follow them out of the scenario, as do some induced dreams, psychosomatic injuries, and psychological trauma.

My name is Bogani, and I am a Zulu originally from the coastal city of Maputo, Mozambique on the east of Africa. My family and I are environmental refugees. I am a first season postulant at the Bullard Southern Vanguardian Academy, and this is the ending of my first year as a Vanguardian Tchacker. I am now a member of the Upper Roanoke Watershed in Virginia. My parents were fishers in Mozambique, but we now run an aquaculture business in America. My mother, grandmother and sister are also herbal healers. Our teachers tell us that many communities no longer have the information they need to rebuild their lives and their homes. There are many sources of misinformation and dishonest news reports, and many do not know who to trust anymore. Because of this, I have been assigned to research and document accurate news and information about our world. This is what I have uncovered.

Transportation

Transportation issues are directly linked to energy and technology. Since earlier automobile technology relied on fossil fuels and internal combustion engines, air pollution, including carbon pollution, has been a major problem to be solved. In the USMA, technological advancements have allowed for a more efficient internal combustion engine using fossil gas as a fuel, with lowered carbon pollution emissions and other polluting emissions. Many cars still use wheels that move along the surfaces of roads, but hover cars and cycles are becoming more popular. Some wealthy people even still use restored classic gasoline engine cars, which are extraordinarily expensive to operate based on the cost of fossil fuels, but these are considered status symbols for those with excess wealth. Although the new automotive technologies are expensive, and only a portion of society can afford these new efficient and high-tech personal vehicles, leaders in the USMA consider the transportation problem solved.

Maintaining high profit levels in the automotive manufacturing industry and the fuels and energy industry is the true transportation issue in the USMA. Those people who cannot afford to purchase a new high-tech vehicle move within walking distance of work or resort to use of public buses and trains until they can afford their own personal vehicle. Public buses and commuter trains are mostly high-technology and use diesel or biodiesel fuels or more efficient electric motors. Some outlying neighborhoods of mostly laborers rely on very old legacy diesel buses from the early 21st century for transportation. Some use horses or donkeys, but these are not allowed in cities. For many people, transportation choices are basically the same as they have always been, albeit more high-tech, convenient, luxurious and expensive.

In the ecoregions of the Unum League, the entire transportation system is being rethought and redesigned. Increased coastal storm activity, flooding and sea level rise continue to destroy bridges, roads and railroad tracks, and transportation infrastructure is always being relocated out of flood zones, and rebuilt using resilience design, technology and materials. For

everyone, the preferred (and lowest cost) method of transportation is via human power-walking, biking and boarding. Mass transit is also available through electric or hydrogen fuel cell trolleys, buses, and commuter trains. When necessary, especially for work, personal hydrogen fuel cell vehicles or electric vehicles are used. These vehicles are usually leased or rented from fleets, and only occasionally owned. New innovative designs for efficient, non-polluting, low-cost sustainable vehicles are rapidly being unveiled, including introduction of electric and hydrogen fuel cell hover cars, trolleys and cycles. Electronic auto traffic controllers also reduce accidents.

Solar-electric buses, trains and subways are the most common energy sources. Electric bikes and scooters are very common within urban areas. Horses or donkeys with carts are even allowed in some urban areas, but only where manure services are available for composting. Unum's rural areas use a hodge-podge of sustainable transportation alternatives, and horses, mules and donkeys are very common, as are efficient diesel biofuel tractors. Most rural communities are connected to urban areas by a commuter train line or a waterway. Sailboats are now common along coastal areas, canals, and rivers. Ownership of biofuel vehicles and electric biofuel hover cars is only an option for those with higher income, and the social pressure to simplify transportation options is a strong motivator to use this option as a last resort. Vanguardians have access to solar and hydrogen fuel cell hover cars and cycles, and this are considered a social necessity because of these vehicles' range, speed, and versatility on all terrains.

Urban, Rural and Offshore Redevelopment

In the USMA, climate disruption has resulted in unprecedented natural disasters that routinely now bring heat waves, droughts, wildfires, unseasonable arctic weather and temperatures, and unusually fierce and frequent rainstorms with overwhelming precipitation and subsequent flooding and mudslides. All of these routinely result in devastating disasters for cities and rural areas. The hardest hit are Mississippi River communities, tornado alley communities, and the Gulf Coast communities, especially the thrice restored and now depopulated industrial city of New Orleans. In characteristic American Heartland defiance and bravado, people rebuild homes, businesses and infrastructure as quickly as possible to prove that nature is not stronger than the human spirit. The overwhelming expense for rehabilitation, engineered fortifications and re-fortifications, and general disaster response and recovery are extremely draining on government budgets and taxpayer wallets, yet extremely profitable to private corporate contractors that provide services. Disaster response and recovery is extremely important to the USMA's very high and ever increasing Gross Domestic Product economic measures.

In the ecoregions of the Unum League, there is a very different approach to climate disruption and the resulting natural disasters. Since most former states that make up the Unum League were coastal states with highly populated and urban coastal areas, climate disruption has resulted in unparalleled risk and devastation, and yet brilliant creativity and innovation. There is now a very focused movement within Unum ecoregions to redesign cities for resilience to coastal storms

and adaptation to sea level rise and the myriad of other impacts of climate disruption. The challenge is to use disaster response resources to redesign and rebuild communities within the ecological limits and in harmony with natural forces. Rather than working against nature, the idea is to work with nature. For ecoregions, this is the key to building resilient and sustainable communities.

Massive global migrations and demographic changes from environmental refugees have resulted in growing coastal urban populations. This has necessitated the rapid re-development of urban housing, infrastructure, and services to accommodate so many new people from diverse cultures. Crime, corruption and ethnic conflict are still issues for ecoregional communities. Democracy tends to be slower and messier than autocracy.

Some smaller cities and urban areas are under the jurisdiction of the ecoregional government, and urban-rural interface planning is integrated throughout the watershed by that one ecoregional government. Some large metropolitan urban areas have annexed the surrounding watershed and have jurisdiction over the surrounding rural areas. Some larger cities have their own charters, and maintain home rule powers, and are not under the jurisdiction of a watershed-based ecoregional government. These "independent" cities must all enter into cooperative agreements with the surrounding ecoregional government to coordinate planning and economies within the greater watershed, and to ensure the smooth flow of goods and services-especially food and water-between rural communities and the city.

In general, there has been a retreat from the coastlines, abandoning and dismantling homes and other structures on land that has been reclaimed by the oceans. Some initial resilient urban development was built underground, over the water, and in the highlands and mountains. These developments are having various degrees of success, and these experimental communities are sharing their experience among ecoregions so that all can learn from and not repeat their mistakes.

Water-based settlement and development began with early initial experiments in bays and the Great Lakes, with many people attempting to escape and avoid land-based pollution and hazardous contamination that always occurs immediately after coastal flooding events. Many urban communities built homes, businesses and other structures on "stilts" and on anchored or floating platforms over rivers, lakes, Great Lakes, bays and the ocean. Many urban planners in coastal areas are now developing entire sections of cities on platforms over water in order to allow coastal ecological restoration of natural wetlands, salt marshes, marine habitats and barrier islands. Offshore cities are now being developed by corporations as deep-sea floating platforms with bioglass domes for storm and tsunami protection.

Much of the coastal area is now being ecologically restored as natural areas, which provide important protection from coastal storms and flooding. Marine wetlands, saltwater marshes, sand dunes and beaches, barrier islands, and marine habitats like coral reefs and sea grass beds are all being restored by communities. Ecological restoration is now a critical element of all urban development in the Unum ecoregions.

In non-coastal urban areas, emphasis is placed on sustainable and resilient re-development within the ecological parameters of ecoregional watersheds. Resilience and redevelopment teams first focus on the critical functions and ecosystem services watersheds provide human communities: clean drinking water; habitat for fish, shellfish, and game; trees and vegetation for clean air, flood control and food; sunlight and wind for energy production; and healthy soil and wetlands for purifying wastewater. Then, based on these important ecological functions and services, re-designing and siting the placement of buildings and streets happens.

All urban and rural re-development now happens in context of the urban-rural interface in watersheds, including the water bodies, groundwater and offshore waters, along with the land and air. This goes from the rural highlands to the urban lowland coasts and shorelines to the offshore areas. This is known as sustainable blue-green development. The entire ecoregional community needs the strengths and resources of rural areas, urban areas, and offshore areas working together.

All ecoregions are developing blue-green housing and building codes to make sure all new structures and rehabbed structures are low energy, healthy and nontoxic, built of recycled and recyclable materials, conserve and reuse water, produce their own energy and food, are resilient to climate disruption risks, and are affordable. Neighborhoods are arranged to make walking possible, legacy industrial sites are cleaned up and repurposed for new clean tech-compliant small industry or business, and all underground urban creeks are restored ("daylighted") to flow naturally above ground.

All walkways and roads make use of permeable materials, so that rainwater can return to the underground aquifers and reduce urban flooding. Native fruit and nut trees are planted on all streets, in all parks, and in most yards and empty lots. Urban gardens are available on every block. Every building and structure is required to generate some amount of renewable energy and most choose solar or geothermal production. All homes and businesses must recycle and compost, and most contribute biosolids toward soil restoration and energy production.

The farming and homesteading movements have reshaped rural re-development. Many abandoned suburban communities have been dismantled (and useable building materials repurposed), to accommodate new rural homesteads and farms. These rural homesteaders and farmers are generally responsible for food production and processing, drinking water protection and delivery, forest and wildlife management, and outdoor recreation.

Energy intensive and expensive desalination plants for drinking water are now common throughout coastal areas. These are necessary to replace drinking water once supplied by surface water reservoirs and groundwater aquifers that have been contaminated by

pollution and salt water under sea level rise impacts and constant coastal flooding. New biotreatment plants for drinking water purification and sewage are also being developed and constructed for urban areas, but the expense of the technology makes these development projects slow. Many urban areas are completely overwhelmed with legacy toxic waste and hazardous waste sites from previous generations that never cleaned them up. To protect urban children, infants, and the elderly, detoxifying and neutralizing hazardous and toxic waste found in soils and water is a major effort and very expensive, and this generation of young people is having to absorb the costs. This is their inheritance.

Renewable wood and recycled wood materials, used with inert bioepoxies to increase strength, are used for many construction applications. Recycled plastics and bioplastics are also popular building materials. Bionanotech material sciences are also developing new building materials made from new manufacturing processes that mimic natural processes of reproduction and propagation. New materials are not so much manufactured as they are "grown." Exterior walls, roofs, and windows are now being produced in sheets that are partially living microorganisms. They are designed to be self-repairing, low cost, and resilient, and have pleasant side effects like pollution ingestion for cleaner air, increased sunlight and heat reflection or absorption, and odor elimination.

Bioglass bubbles or domes were first used in the USMA in experimental homes of corporate executives. These incorporated self-contained air, water, and energy systems that depended on mechanical and electronic systems, requiring extensive maintenance and upkeep and replacement of parts, materials, and systems. These early experiments spurred the movement to develop perpetual biomaterials using bionanotechnology.

Bioglass (in its various forms) is now a standard building material for homes and other structures. It makes use of graphene and Graphoenix bionanotechnology. It can be grown in various thicknesses, and because of its incredible structural strength, is often used as a transparent storm shield over large geographic areas. It can repair itself to take care of cracks and scratches. To repair large holes, a transplanted bioglass "plug" can be inserted, and the bioglass structure will "heal." Bioglass geodesic domes are now considered a best management practice for protecting critical infrastructure (power plants, communications, transportation hubs, hospitals, public buildings, etc.) from the ravages of storms and other natural disasters. Some forms of bioglass must be fed nutrients and ensured exposure to sunlight, else it will begin to break down and decompose. Some types of air pollution and soil pollution can kill bioglass and destroy the domes.

The most advanced bioglass material is grown in the USMA using genetically modified microscopic life bound to graphene nanotubes like miniature microcoral reefs. By flexing minutely and thickening via rapid migration (microlocomotion) where needed, bioglass has enhanced ability to resist

breaking and shattering. This form of bioglass feeds on air pollutants, generates more oxygen as waste, can take on various tints with various subspecies (and even slowly change colors over the period of a few weeks in preparation for holidays or can darken for sun protection during summers). Bioglass can also be interwoven with solar cells to generate extra energy. Unfortunately, this particular advanced bioglass material has been patented, and is not generally made affordable throughout the Unum League. It is made affordable only to corporations.

Economy

Recovering from global economic collapse dominates the attention of all communities in the USMA and Unum League. The costs of responding to the combined effects of the "Unholy Trinity"—climate disruption with ecological decline, the fossil fuel energy crunch from peak oil and the carbon bubble, and the eruption of pandemics—are still being borne by all taxpayers and consumers. Peak phosphorus forced a rapid decline in cheap phosphorus used for agricultural fertilizer, crippling the agriculture industry's ability to generate enormous centralized industrial food supplies. Conflicts over food, drinking water, forests, coastal waters, and other natural resources frequently lead to riots and uprisings by desperate and hungry people, especially within the USMA and in poorly governed ecoregions in the Unum League. Riots often turned into short military skirmishes against USMA forces and corporate militia forces in overseas export locations. Along with widespread poverty-related crime, the costs of a widening socio-economic divide in some places and widespread subsistence living off the land and seas are adding to the economic costs and challenges to local communities. One of the unpredictable costs continues to be ongoing mass migrations of environmental refugees and climate refugees into strong cities and ecoregions. The Unum League and the USMA each have a different economic strategy to address these issues and to move their communities toward economic resilience and prosperity.

Unum Ecoregional Economies

The ecoregional governments of the Unum League are transitioning their economies from perpetual economic growth for wealth accumulation to universal participation in the economy, meeting everyone's basic economic needs, and increasing economic productivity, especially through co-op entrepreneurship and small business ownership. Intentionally redesigned local fair-market economies have shifted focus to producing the services and products needed for people and communities to successfully transition to sustainability, resilience to natural disasters, net-zero carbon emissions, and adaptation to climate disruption. Ecoregional government regulations now require the local fair-market economies to work within the boundaries of ecological limits and fairness, and innovative small business entrepreneurs and entrepreneurial worker co-ops have been unleashed to creatively provide solutions to truly needed products and services. Economic productivity and innovation have exploded, along with nearly full employment in most communities. The most successful and sustainable ecoregions tend to attract the most creative people who want to be part of the transition. Unum local fair-market economies are called "economic democracies" by their supporters.

Taxes are extremely high to pay off the debts of previous generations and the cost of

responding to climate disruption and its ripple effects. Consumer money is spent more on food and services than on manufactured goods, and people tend to live much more simply. Overconsumption is frowned upon under new social norms, and efficiency and sustainability are valued and rewarded within social networks. Everyone is required to grow food in home vegetable gardens, or in some other way produce food, in order to keep personal and family living costs down, restore soils, and contribute toward ensuring an adequate supply of local food by selling any surplus within the ecoregion. Phosphorus fertilizers are no longer readily available, so recycling of animal and human waste and scrap foods has become a regular way of life for all communities. Some communities even harvest phosphorus from legacy sewage sludge dump sites. Most ecoregions also require the domestic generation of renewable energy, usually solar, wind, biofuel, or geothermal, and to sell surplus energy generated back to the local microgrid. Most people run small businesses, and those who do work outside the home typically work 20-25 hours a week. This provides the schedule flexibility and ample time for most people to be engaged in producing food, raising and educating children, and serving in their local communities.

Entrepreneurship education and consumer education are major efforts to help people succeed economically and to make wise and sustainable buying choices. Entrepreneurs must be certified, and businesses must be licensed. Businesses that mislead consumers are boycotted. Typical economic policy goals of many ecoregional governments have set a minimum per capita "target salary" of Ų$15,000 (Uni's - pronounced YOO'-neez), even though earning more is acceptable. For the few highly driven by financial goals, excessive wealth can be—and sometimes is—amassed illegally via the black market.

Legacy manufacturing plants have been renovated, and now use low-impact biomanufacturing techniques, including 3D printing, because of pollution and hazardous wastes concerns. "Remanufacturing plants," very common throughout Unum areas, use recycled and reclaimed materials, and have zero emission bioprocesses. Bioplastic recycling and salvage mining are very big cooperative industries throughout the ecoregions. Zero emissions remanufacturing within the ecoregions produces mostly high quality, low-technology, sustainable, fair trade goods for domestic use and for export. Some specialized high-technology goods, especially nanotechnology and bionanotechnology—including Graphoenix—are manufactured in Unum areas, but most of these goods are imported from corporate monopolies in the USMA as needed.

Ecoregions have also focused attention on developing sustainable ocean-based economies, including seafood, marine renewable energy, and tall sailing ship boatbuilding. Ecoregions continue to lead in the building of commercial sailing ships for water-borne commerce and transportation. International demand for sustainable, fair-trade goods from the Unum League remains high.

Although the U.S. dollar is still an official currency, most local ecoregions accept local community currencies as a second official currency. Since printed money in U.S. dollars is often in short supply, most local ecoregions have adopted the Uni (symbolized as Ų$) as the primary currency along with a local community currency, which can be used just like dollars within a local ecoregion. Each ecoregion has its own custom version and

look for the printed Uni, but these are often accepted by or easily traded with neighboring ecoregions. Many people earn Unis or their local community currency by volunteering within the community, by selling surplus renewable energy to the microgrid, or by selling surplus homegrown food, natural phosphorus fertilizer or fuels.

Although small businesses are a common economic institution, the worker co-op tradition is still strong throughout the Unum League, and often are the way to expand small businesses to scale or increase economic efficiencies. For many people, sharing resources through a co-op network often ensures access to the essential material goods needed for survival. Co-ops are also a major reason why the Genuine Regenerative Prosperity and Happiness Indicator (GRPHI) for Unum League ecoregions is very high.

USMA Free-Market Economy

The USMA focuses on restoring and promoting what they call a free-market economy, but what most others outside the USMA call a corporate capitalism economy. They promote a corporate capitalism economy by empowering private corporations as economic leaders, deregulating the economy, and minimizing the role and reach of government to interfere with market decisions. This is believed to be the best way to promote economic freedom and the best way to ensure democratic liberties. State governments are limited in power to mostly enforcing fair business laws and are severely restricted in their taxing authority.

The USMA strives to be the world leader in capital, finance, high-technology, and military arms manufacturing, and clearly is a dominant player in all these areas.

Manufacturing, especially high-tech and bionanotechnology, is dominated by USMA corporations, and most manufactured goods are produced domestically with either automated production bots or with the abundant migrant laborers and environmental refugees who live in shanty towns outside of every city in the USMA. Immigrants are allowed to contract with corporate employers as indentured laborers, with some legal protections, which also helps to keep labor costs and prices of manufactured products lower.

Ongoing midwestern megadroughts have been severe, impacting water availability, food crops and energy supplies. This has ushered in the long anticipated and now ongoing "water wars" over drinking water, agriculture water and industrial water. Private water brokers control most water rights and sell them or lease them to the highest bidder. As a result, water prices are exorbitant in most parts of the USMA, as are food and energy prices, and high costs are the cause of what Fly news reports call "considerable conflict." Nonetheless, the water industry is extremely profitable. Vast tracts of natural resource properties are owned by private corporations, especially for access to clean water, forests, phosphorus for agricultural fertilizer, fish and game, and arable soil for food production.

Traditional fossil fuel energy based on extraction of oil, tar sands oil, shale oil, coal and fossil gas are still important for the USMA economy, even though the global fossil fuel market has long since collapsed, and the powerful fossil fuel corporations of the early 21st century disintegrated after the Carbon Bubble burst. Fossil fuel corporations have added renewable energy to their portfolios to become centralized renewable energy

corporations. They are now the energy giants—and overall economic giants—in the USMA, although some still control fossil fuel energy subsidiaries.

An extreme socio-economic divide exists in the USMA, and official unemployment rates are high. Unofficial rates of non-included unemployed workers are even higher. The dwindling number of the remaining middle class or professional class families in the USMA tend to live precariously from paycheck to paycheck and most have very high levels of debt for homes, vehicles, higher education, and health care. The annual increases in the costs of living and frequent disaster recovery expenses tend to reduce the numbers in the professional class each year. Nonetheless, the USMA has had a consistently increasing Gross Domestic Product (GDP) and slow but steady economic growth for several successive years.

PRUNs - Economic Production Units in the USMA

In the USMA, tax reform innovation has created innovative Economic Production Units (PRUNs pronounced proonz). These privatized entrepreneurial economic governance institutions are a cross between a homeowner's association, guild and country club. PRUN members privately own everything (land, etc.), and PRUNs charge "membership fees" and various "user fees." Entrepreneurial people form PRUNs and organize themselves in very creative ways based on various ideological models. As a privatized, self-governing entity, each PRUN is expected to produce some amount of economic activity, construct a desirable living and working community, assume responsibility for all desired services for members, and provide private governance. PRUNs assume some "social responsibility" for less productive older, injured, or ill members, and assume responsibility for infrastructure and the ecosystem. In exchange for assuming this responsibility, state governments charter PRUNS as "limited sovereignty institutions," and eliminate all income tax, estate tax, business tax, sales tax, and property tax for all members. If PRUNs fail in any of their governance or economic responsibilities (usually intentionally in order to reduce costs and maximize profits), they are heavily taxed retroactively and the PRUN is disbanded.

PRUN's offer a variety of benefits and services to their members, and usually get members to relocate and sign a length of time contract. Generally, everything within a PRUN is available to members on a fee for service (market) system. Many individuals relocate from communities and families in order to join (or form) a prosperous and highly regarded PRUN. Membership in such a PRUN can bring extreme wealth, status and status. PRUNs compete with each other to attract productive people. The most powerful, competitive, and wealthy PRUNs are near cities. Once PRUNs are financially successful, they are forcibly taken over by large corporations.

It does happen that corporations, with Constitutional rights of "personhood," form themselves into their own PRUNs, liquidate economic activity on plots of land and redistribute wealth to the top, then dissolve, creating ghost towns of no man's land and hordes of refugees. This is illegal, but somewhat unenforceable. Some PRUN's also form "Paper PRUNs" in adjacent areas. They promise high services, attract people out of their own PRUNs, then leadership quits and leaves members hanging with no leadership or economic resources. This is also illegal.

However, there are some PRUNs forming around watersheds, and creating new models of ecosocial sustainability with a modified co-op model borrowed from Unum ecoregions. They are often ostracized within USMA as "un-American," or idealists, but they are tolerated in the name of "freedom" and because they have been successful in taking unproductive people and training them into productive people (at a high cost). These PRUNs often have a lower economic output level. They are often adjacent to Rose Communities.

As everything is in the midst of transition for these new forms of PRUN governance, there is still tremendous chaos, conflict, corruption, and hope. Alliances of economics, politics, and ideology are unfolding as PRUNs scramble to identify the best methods of non-intrusive, resilient, prosperous economic governance.

The Five Anthropocene Prophesies

Hindu Prophecy of Kalki-Satya

In the Hindu prophecy of Kalki-Satya, it has been told that the contemporary age is the Dark Age, the Kali Yuga. It is the age where humans have reached their lowest point in moral virtue, consciousness and spirituality. In the age of the Kali Yuga, human values have eroded, and truth has been replaced by falsehoods and deceit. It was prophesied that in these times, Kalki, the final form of Vishnu, will return to the Earth. Kalki's return will usher in the Satya Yuga, the spiritual journey back to cosmic order, truth and goodness, or dharma.

According to the Vishnu Purana, this Dark Age will be recognized when

"...one's status will be determined only by how much property one owns;

people will be devoted to nothing except the blind pursuit of wealth;

passion of the moment will drive relations between male and female;

false testimony will be the only way to convince judges in court;

women will be treated as objects to be used;

and the Earth will be plundered of all its treasures.

The leaders will rule over the peoples of the earth with violence,

and they will seize the wealth of the people.

Farmers and small merchants will lose their land and businesses

and become servants of the leaders.

All the people will eventually become servants of the leaders.

Their lives will be short, and their appetites will be insatiable;

they will be strangers to piety.

The leaders will convince the people of dire crises

to justify robbing the people of their savings and stealing the goods they own.

The rule of law will slowly ebb until the word of the leaders becomes the only law.

The extravagance of priestly vestments will replace the wisdom, goodness and spirit of the priest.

Acts of devotion will be rare and unfruitful.

Everyone will be terrified of death and hoard possessions in fear of disasters.

They will turn selfish, and the only focus of their lives will be the pursuit of their own pleasure."

In the Dark Age it is said that the Kalki appears at first riding a white horse through the fire and flames, but then is able to take any form at will. Most believe Kalki has already arrived and has begun the transformation of the world to goodness by calling forth a wave of the Truthseekers throughout the Earth. This new generation of Truthseekers will hear the voice of Kalki if they listen to their spirits deep within. The new generation of Truthseekers will bring hope wherever they go throughout the Earth.

The Celtic Prophesy of King Arthur

In the ancient Celtic European tradition and legends, King Arthur (Art) was taken away to the otherworld of Tír na nÓg (Avalon) by three fairy women of the magical race, the Tuatha Dé Danann. King Arthur is to stay in the otherworld until he is needed, at which point he will be "reborn" into this world through use of a cauldron or chalice. He will call forth a new generation of noble knights or warriors and gather and unite the people to restore goodness and righteousness, and fight off those who are oppressors.

Legends say that the Tuatha Dé Danann, an enchanted people, came to Ireland from four great cities, Falias, Gorias, Finias, and Murias, where they had mastered the sciences, enchantment arts, and skilled craftsmanship from great sages and masters. The Tuatha Dé Danann brought with them important magical treasures, including: the Lia Fail or Stone of Destiny, which roared only when a noble and true monarch stood upon it at the moment they were crowned; the Claíomh Solais or Sword of Nuada, which could always successfully defend the people against any oppressor; and the Cauldron of Dagda, which provided an endless supply of food to feed the hungry in times of need. King Arthur would use all three of these treasures of the Tuatha Dé Danann when he returns. According to the prophetic legend,

"Seven years before the Day of the End Time,

The sea itself shall rise up and cover the islands in one great flood,

But the one island of Iona of Columcille will rise up on that day."

The Lia Fail or Stone of Destiny had been kept at Iona for generations. The Irish Celtic prophet, Columcille, was founder and abbot of Iona monastery, and slept with his head on the Stone of Destiny, which gave him prophetic visions. He wrote the following prophecy concerning the latter ages of the world that would usher in the return of King Arthur:

"There will come a time when the people will regret the days they have lived to see.

Scholars and learned people will be ignored.

The days will be marked with falsehood and deceit.

Holy places and hallowed halls will be plundered for their valuables.

Sacred relics will be snatched by robbers.

The pursuit of knowledge and learning will be oppressed and the time of ignorance will ensue.

Powerful leaders will oppress the poor with crooked laws and corrupt judgments,

and the Elders and the infirm will regret the days they have lived to see.

Every family will be stricken with strife and war.

Neighborliness will be no more, and contempt for others will be the prevailing thought.

The trees of the orchards and forests will bear no fruit.

Cold and hunger, malice, hatred and foul weather will be the norm

Only by the fallen leaves will the people know summer has turned to winter.

People will fly in the air without wings, and will migrate from country to country under the ground.

The impoundments will be filled with strayed cattle

The jails will be filled with strayed men.

All the milk throughout the land will be churned only once.

The people will fall to diseases and remedies will no longer heal.

People in every land will resort to wickedness

Rich and poor will feel compelled to steal from one another.

Maidens will not hope for a future and wedding feasts will have no guests.

This is how people will live in the coming age."

It is in these times that the next generation of young people will rise up to usher in an age of chivalry and justice, in memory of King Arthur and in preparation for his return. They will show themselves worthy to join the Round Table of Knighthood, and will await the return of their King.

Jewish Prophesy of the Noahic Covenant

According to ancient Jewish tradition and found within the Hebrew sacred writings, there was a wise Elder and prophet named Noah whose people faced the threat of an imminent coastal flooding catastrophe that would destroy all life on the earth. The times were bad, and people had become selfish and uncaring, and allowed their hearts to turn to evil and wickedness. The earth was filled with corruption and lawlessness. As a prophet, Noah warned the people of this great danger, and the need to prepare themselves for great ecological devastation. Noah inspired only a handful of young people committed to justice: his three young sons, Shem, Ham, and Japheth and their young wives. Noah together with his wife, also a wise Elder, and these six young people, took on the role as stewards of biodiversity and stewards of Creation. They knew that humans who were unprepared would not be able to survive a flood-ravaged ecosystem. They worked together to carry out a strategy to preserve and protect biodiversity in their coastal ecosystem and all life on earth by building a large floating wildlife sanctuary. They called this the "ark." They boarded mating pairs of all the local wildlife and stored various plants—with their seeds—within the ark. As the floodwaters rose, they bound their own fate—the fate of the human race—with the fate of Creation by boarding the ark themselves. For forty days and forty nights, heavy rains poured down everywhere and flooded the earth. These young people and their wise Elders lived together with all the wildlife on the floating wildlife sanctuary.

When the floodwaters eventually receded, the ark's wildlife were released back into the natural world to re-populate the ecosystems

in all their biological diversity. The three young human couples set out to rebuild a whole new world together, with the guidance of their Elders, Noah and his wife. They recognized that humans must be responsible stewards for Creation, especially because humans cannot exist if Creation is threatened. To commit themselves to stewardship, they all entered into a sacred covenant, among humans, nature, and G_d. The sign of that everlasting "Noahic Covenant" is the rainbow and would be there in the sky to remind all future generations of their responsibility to be good stewards of Creation. This is a prophesy because it assumes that these circumstances of corrupt human societies will repeat again in the future, and whenever it does, the next generation will also be called forth as stewards of Creation under the sign of the rainbow by following in the footsteps of the very first young men and women of the Noahic Covenant.

Native American Anishinaabe Prophecy of the Seven Fires

According to Native American Anishinaabe tribal traditions, there is a Prophecy of the Seven Fires. Each fire represents a prophetical age of Turtle Island (North America) in which a prophet or prophets came to the people to deliver key spiritual teachings to guide the people into the future. The Prophets revealed the First Fire through the Sixth Fire, which have already come to pass:

"In the time of the First Fire, the Anishinaabe nation will rise up and follow the sacred shell of the Midewiwin Lodge. The Midewiwin Lodge will serve as a rallying point for the people and its traditional ways will be the source of much strength. The Sacred Megis will lead the way to the chosen ground of the Anishinaabe. You are to look for a turtle shaped island that is linked to the purification of the earth. You will find such an island at the beginning and end of your journey. There will be seven stopping places along the way. You will know the chosen ground has been reached when you come to a land where food grows on water. If you do not move, you will be destroyed."

"You will know the Second Fire because at this time the nation will be camped by a large body of water. In this time the direction of the Sacred Shell will be lost. The Midewiwin will diminish in strength. A girl will be born to point the way back to the traditional ways. She will show the direction to the stepping stones to the future of the Anishinaabe people."

"In the Third Fire the Anishinaabe will find the path to their chosen ground, a land in the west to which they must move their families. This will be the land where food grows upon the waters."

The first prophet of the Fourth Fire said, "You will know the future of our people by the face of the light skinned race wears. If they come wearing the face of brotherhood, then there will come a time of wonderful change for generations to come. They will bring new knowledge and articles that can be joined with the knowledge of this country. In this way, two nations will join to make a mighty nation. This new nation will be joined by two more so that four will for the mightiest nation of all. You will know the face of the brotherhood if the light skinned race comes carrying no weapons, if they come bearing only their knowledge and a handshake."

The second prophet of the Fourth Fire said, "Beware if the light skinned race comes wearing the face of death. You must be careful

because the face of brotherhood and the face of death look very much alike. If they come carrying a weapon ... beware. If they come in suffering ... They could fool you. Their hearts may be filled with greed for the riches of this land. If they are indeed your brothers, let them prove it. Do not accept them in total trust. You shall know that the face they wear is one of death if the rivers run with poison and fish become unfit to eat. You shall know them by these many things."

"In the time of the Fifth Fire there will come a time of great struggle that will grip the lives of all native people. At the waning of this Fire there will come among the people one who holds a promise of great joy and salvation. If the people accept this promise of a new way and abandon the old teachings, then the struggle of the Fifth Fire will be with the people for many generations. The promise that comes will prove to be a false promise. All those who accept this promise will cause the near destruction of the people."

"In the time of the Sixth Fire it will be evident that the promise of the Fifth Fire came in in a false way. Those deceived by this promise will take their children away from the teachings of the Elders. Grandsons and granddaughters will turn against the Elders. In this way the Elders will lose their reason for living ... they will lose their purpose in life. At this time a new sickness will come among the people. The balance of many people will be disturbed. The cup of life will almost become the cup of grief."

It is the Seventh Fire that now concerns our future.

During the time of the Sixth Fire, the traditional stories say that there was a gathering of the leaders at the Midewiwin Lodge. They feared the wise ways and traditions would be threatened. They hid the sacred bundles and scrolls in a hollowed-out Ironwood log and buried the log in a hole in the cliff where it could remain hidden and safe. When the time is right, a boy will have a dream telling the hidden place of the sacred bundles and scrolls in the Ironwood log, and the boy will lead his people back to the wise ways and traditions.

"In the time of the Seventh Fire New People will emerge. They will retrace their steps to find what was left by the trail. Their steps will take them to the Elders who they will ask to guide them on their journey. But many of the Elders will have fallen asleep. They will awaken to this new time with nothing to offer. Some of the Elders will be silent because no one will ask anything of them. The New People will have to be careful in how they approach the Elders. The task of the New People will not be easy.

If the New People will remain strong in their quest the Water Drum of the Midewiwin Lodge will again sound its voice. There will be a rebirth of the Anishinaabe Nation and a rekindling of old flames. The Sacred Fire will again be lit.

It is this time that the light skinned race will be given a choice between two roads. One road will be green and lush, and very inviting. The other road will be black and charred, and walking it will cut their feet. In the prophecy, the people decide to take neither road, but instead to turn back, to remember and reclaim the wisdom of those who came before them. If they choose the right road, then the Seventh Fire will light the Eighth and final Fire, an eternal fire of peace, love, brotherhood and sisterhood. If the light skinned race makes the wrong choice of the roads, then the destruction which they brought with them in coming to this country

will come back at them and cause much suffering and death to all the Earth's people."

(From Edward Benton-Banai, *The Mishomis Book - The Voice of the Ojibway* (St. Paul: Red School House Publishers, 1988)).

The Tibetan Buddhist Prophecy of the Shambhala Warriors

According to a Tibetan Buddhist Prophecy, there is ancient Kingdom of Shambhala hidden somewhere on the Earth. It is only able to be seen by those with the proper mindset and consciousness to see it. Within the Kingdom of Shambhala, there live a line of wise and enlightened kings who serve as guardians of the kingdom, and guardians of the deep wisdom of the ages that so often gets lost and forgotten by people of the world outside. According to the prophesy, there will come a time when barbarian rulers without wisdom will come to power under an ideology of materialism, greed, corruption, oppression, fear and violence. Under their empire of domination, they will create terrible weapons of destruction that will threaten the very survival of life on earth and the entire human race. It is at this time that the Kingdom of Shambhala will appear.

The barbarian rulers of the empire will attack the Kingdom of Shambhala with their terrible weapons of destruction. The Shambhala Warriors will arise and will go on a great journey to gather at the gates of the Kingdom of Shambhala. They will train together as peacemakers, healers and change makers to prepare for a great battle of goodness over corruption. They will then march against the halls of power in a final battle and will dismantle the terrible weapons of destruction. The barbarian empire will fall, and peace, order and wisdom will be restored on the earth.

About the Creator of EarthQuest

Ríobart É. (Rob) Breen is the creator and developer of EarthQuest, the environmental sustainability and climate change scenario and simulation game that uses GIS story maps and digital media to educate and engage youth leaders. Rob has been playing and creating role-playing games since he was eleven. He began developing the prototype for EarthQuest in 1999 and the latest version was developed mostly using a palmtop device during commutes to work by city bus. Rob began his early career as a youth development worker, environmental educator and youth conservation corps director. He is now the founding director of the Institute for Transformational and Ecosystem-based Climate Adaptation (ITECA) at the University at Albany, where he is also a lecturer in the Biodiversity, Conservation and Policy Program, teaching conservation policy and climate change adaptation to the next generation of environmental leaders. Rob also serves as a fellow with the ecoregional Anam Circle think tank, which works with ITECA to empower youth and adults from disadvantaged communities as they adapt to unfolding climate change impacts. Previously, Rob led the climate change adaption team at the New York State Department of Environmental Conservation's Office of Climate Change and served as an environmental policy analyst in the Ocean and Great Lakes Program with the New York State Coastal Management Program. He was also an assistant professor in the environmental studies program at Siena College, and in Arizona, directed youth conservation corps programs that engaged young people in addressing climate-influenced western wildfires by restoring forests, streams and wildlife habitats. Rob earned his Bachelor's Degree in art and social science education from the State University of New York at Geneseo and earned a Master's Degree and Ph.D. in environmental and natural resources policy and administration from Northern Arizona University. Rob lives with his wicked cool family on a regenerative homestead and small goat farm in upstate New York, where they gather with friends, extended family and community members around the bonfire and woodstove for storytelling, singing and playing traditional instrumental music; eating homecooked meals from homegrown foods; healing common maladies with medicinal herbs; and raising children to become the next generation of wise elders. All of these experiences have been the inspiration for the Vanguardian Adventures of EarthQuest.

Do you have some feedback on the EarthQuest Game or on this Beta Edition of the *EarthQuest Players Handbook*? We would love to hear your comments and suggestions. Contact us at EarthQuest@anamcduan.org or share your thoughts and pictures on social media with the hashtag **#EarthQuestGame**.