

The Voyages of the Star Ships Equinox

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Ours is to seek out habitable planets for Earth's teeming millions.

A new hope for all mankind.

2110 Earth Years

Prolog: If you are to be a member of a deep space probe crew you will have made a decision that means you will spend much if not all of your life on a space ship. Such crewmembers are carefully screened and tested before being assigned as a crewmember. Crewmembers must be between the ages of 20 and 30 when they go into space. Crews are often selected because they are married couples and even have children. The entire family will be expected to go into space. There are a number of equal males and females on the original crews. It is assumed that crewmembers that are not already married will find a partner in the crew and that children will be born to the crewmembers. Some voyages will be so long that the original crewmembers will not survive and that their children or subsequent generations will continue the voyages. Consequently, on every deep spaceship a digital school is included to train the crewmember's children so that they may continue the voyage.

Every effort is made to ensure that crewmembers are psychologically stable and well trained professionals capable of guiding the spaceship to its destination. Trips to deep space are so long that plans must be made to ensure that generations will be the future crews. That means the crewmember's children and even grand children will complete the travel to deep space. We have identified that there are possibly thousands and even millions of Earth like planets in the Universe so it is reasonable to assume that life exists elsewhere.

The great scientist Stephen Hawking in the early part of the 21st Century urged mankind to seek other planets. We the crews of the Star Ships Equinox have ventured forth in space seeking other planets in our universe to settle. The people of Earth and of Mars in 2110 commissioned a fleet of Equinox Star Ships to explore the universe in search of habitable planets. The distance between stars is so great that travel must be made in generations. That is, some explorers may live their entire lives on board a space ship. The following are the logs of the adventures of these frontier space explorer's voyage

Star Ship Equinox

2110 Earth Time

Captain Saudi Faruk and his crew's mission are to explore the Universe searching for habitable planets. The joint space programs of Earth and Mars commissioned the Star Ship Equinox on February 9, 2109 Earth time. Its mission is to seek out resources in the universe that can benefit mankind. Earth's population has exceeded 15 billion while the Mars Colony has grown to a million people. Consequently, mankind is in desperate need of other habitable planets; therefore the main objective of space exploration is to find planets that Earth's population can colonize. It is not only seeking planets that could be habitable, but also societies that can exchange knowledge and trade with the peoples of Earth and Mars. First Officer Akira Totoki, Communications Officer Kirti Charen, Chief of Staff Commander Ivy Hadad, Counselor First Lieutenant Margaret Schram, Science Officer Major Anne Polselli, Chief linguist Commander Shea Murray, field linguist Lieutenant Francis Burdon, Chief Engineer Commander Kwuado Sanahene, Education Officer Captain Kerry Joels, and Medical Officer Commander Yaw Nsiah comprise Captain Faruk's senior council.

On Star Date 0106-1019-0202110 the Star Ship Equinox approached a small planet in the Orion constellation. Probes to planet OCX1009 indicated that there is vegetation and has other possible life forms.

Notes from Francis Burdon's diary: Star Date: 0106-1024-0202110 I have been shuttled down to the surface of planet OCX1009 with an exploratory crew. Councilor Schram and Science Officer Polselli are with me. However, I must do my job first before they can interact with the native populations. As the ship's field linguist I was amazed at the culture we found on planet OCX1009 in the Orion constellation. The humanoid population has evolved with neither sight nor sound as a part of their biological sensory abilities. While the distant sun warmed the planet sufficiently for life to develop it is in general, a dark planet. It was obvious that the humanoid inhabitants had developed a culture and were communicating with one another. My task was to determine how they communicated and how we could join in that communications. They had an organized a society. They had modified the planet with various constructions although most of the buildings were somewhat cave like in nature.

It was obvious to me that they primarily used a tactile system to communicate. But they also uttered sounds and there were several different scents associated with their symbolic communication systems. Their vocalizations were low pitched and could be felt on the skin if they were close enough to you. There was also a touching of one another when they came together. One of the most interesting discoveries I made was that these people could generate about a dozen different scents. For the most part these scents were pleasant. However there was one scent that was nauseous. I finally concluded that the scents set a general pattern for the overall

conversation. Scents allowed them to communicate over short distances. There was a scent for happiness, inquiry, sadness, anger etc. It was also apparent that the people's skin could pick up their low-pitched guttural vocalizations. But when detailed conversations were needed the creatures used a tactile sign language that was capable of complex descriptions and discussions.

As I became more adept at understanding the creatures I marveled at how they had adapted to their planet and their particular needs using the near senses available to them. They had appendages that were similar to human's hands and feet, but as I examined them more closely their feet were more like a second set of hands. As mentioned before it was a dark planet with just enough light sources from their sun for plants to grow. As I observed their artifacts it became obvious that they were designed to maximize the tactile nature of their world. Much of what they built were things that almost seemed as if they sculptured them. Because they had not developed distant senses of sight and sound they by necessity were bound together in close approximation to one another. At first I thought they might have a hive brain, but on closer examination I concluded that they were individuals. I wondered if they had developed senses that I was not able to detect. They did have a mechanism that allowed them to throw off about a dozen different body scents. Each person had a distinct smell that identified him or her as individuals. The smell not only identified them but also denoted the state of their being, that is, whether they were excited, happy, depressed etc.

It was clear that the people had a complex system of communications. They obviously exchanged ideas and experiences with one another. My task was to determine how they communicated and how they thought. What was the nature of their language and did they think in that language? Did they think in visual images, auditory images or tactile images? It was obvious to me that they must think in terms of tactile images, since they had no visual or auditory sensory systems. . How does tactile imagery differ from the visual and auditory images of humans? Most of my thoughts are in the form of auditory voice images, that is, a little voice in the back of my head talking with me even arguing with me. Since I am an amateur artist some of my mental images are in the form of visual patterns. I have never tried to sculpture but does a sculptress have tactile images? What is the nature of a society that has tactile images as its main thought patterns? How does such a culture differ from one that relies on auditory or visual images and thought patterns? Or does it even matter?

I slowly began to learn their tactile sign patterns that they used in communicating with their hands. There were also some of what I will call foot patterns, but as I noted before their feet were more like a second set of hands and I could not imitate their patterns. They were a pleasant and peaceful people. Since communications was on almost a one to one physical contact between communicators they had developed a very different kind of society. There was some multiple communications through scents, but general communications require touching one another. For some things they had almost a chain reaction in that a number of

people would be touching and the pattern of the communications would radiate out from the sender to all who were in physical contact with the group. I have seen this happen with perhaps a hundred people.

The people had no real need for clothes with respect to modesty, but did wear sort of a wrap around to protect them from cold weather. I eventually realized that these wrap arounds had distinct scents that could be identified with their owners. I eventually realized that each individual created his or her own identification scent. These were individual scents that identified the person without a doubt. Oddly enough the scents were strong enough that I could identify that Joe, Harry and Mary were in the room with me. When dialogue between two people began the scents sort of held them in contact with one another. As I mentioned earlier they could read their guttural low-pitched speech sounds through their skins. Once full physical contact was made with the listener all other communication systems were secondary. Contact was with their hands and eventually with what I am calling feet were also used to communicate.

They seemed to accept and welcome me as I began to slowly understand and use their tactile sign system. To say the least these early communication efforts were slow and simple on my part. They assigned one of their scientists to me and as far as I could tell his name was Kasha. Every time I came into their big room Kasha would suddenly appear next to me. When our communication system was good enough I asked him how he could appear next to me so quickly. He laughed and said everyone knows when you come you have a distinct and unusual scent. I asked him what if other people from my ship came would they smell like me? He said in his opinion no, but that they would have probably a similar scent, but very much their own family pattern. I then asked if each of his people had their own distinct scent. He said yes, people in the same family had similar scents but every individual had their own scent. When you met someone you could tell they were from the Jones family etc., but they would have a clear identifying scent of their own. I explored his idea further. Could you find Mr. Brown in the main room? Yes, you simply had to alert your olfactory nerves and you could sniff out Mr. Brown in the room, in fact, you could follow the recent movements he made in the room. I asked if the room wasn't too crowded with different smells. He said if it was a good friend, family member or colleague you probably had the scent stored in your memory and simply activated it when you began to search for Mr. Brown. I asked him more about the smell ability of the people. He said smells are like a sculpture there are many facets to them. In my study of the tactile language there are many things I am still a novice at that cause me to sometimes to misinterpret shades of meaning.

As far as I can tell the people of OCX1009 are complete vegetarians. I have seen some animals, but they skitter away and I have not been able to discuss this with Kasha. Every time I mention animals he shies away from the conversation and does not appear to understand my meanings. Kasha tells me that he knows there must be something in the sky that sends warmth and coolness. He and his people are aware of the daily changes in temperature. He understands that there are things like

seasons because he is very aware of the cold weather and uses his wrap around to keep warm. His worldview model is limited to his tactile sense and therefore somewhat restricted. Other than the fact that he knows when it rains or snows he has no concept of clouds, suns or stars. He is aware of a great unknown that is the sky, but in general it is a mystery to him and his people.

I learned that Kasha is perhaps the most distinguished scholar and professor on the planet. His wrap around robe is a special weave that allows anyone who touches him to instantly know of his high rank. I further found out that all wrap around robes carry a special touch element that defines the person's role in society. Studying the communications system is a daunting task because they seem to have a number of secondary inputs. I was interested in whether they had libraries and found out that yes they do have a place where they store knowledge and experiences. They use a form of clay tablets that have a raised code similar to Braille for their books. I say similar only in that there are raised characters that represent the tactile signs that they read with their fingertips. The guttural sounds that they make are used primarily as warning signals. When they use them all the people repeat them so that the message can be sent throughout the crowd. A sort of humming sound arises from the group. When they get going even I can feel the vibrations.

Today I expanded beyond my contact with Kasha. Up until now I had communicated only with Kasha and he has acted as an interpreter for me with others. Today I talked with his wife. It went well the scents set the stage for a pleasurable encounter and her touch in the tactile signs were soft and sensuous. Science Officer Polselli is anxious for me to explore their science. I have asked Kasha and he has said in time he will introduce us to their top scientists. Both Schram and Polselli want to communicate with the natives and I have been teaching them the tactile sign codes as I learn them. All my interactions with Kasha are video coded and reviewed by the ship's personnel so that we can become better informed on the planet's people and history. My boss, Commander Murray believes we have enough to begin a translator that can be used by crewmembers.

Chapter II: Star Ship Equinox II

In 2110 Earth time the Star Ship Equinox approached an Earth like planet in the Orion Constellation. It appeared very much like Earth with water and land with vegetation. Probes indicated that there were life forms and possibly humanoid species on the planet. Radio signals had been received from the planet and our team of linguist had been working on decoding them. Chief Linguist Shea Murray had determined that there was an apparent speech pattern and possibly music coming from these broadcasts. It is difficult to decode the apparent speech patterns by an audio signal only, however our experts were busy working on the patterns we had received. The computers had classified the speech sounds and determined that there were approximately 40 separate sounds that were combined into word like sequences.

Our goal of course was to make enough sense out of this apparent speech that we could develop automated translators. As we approached the planet we had been examining the data we received for months. We determined that there appeared to be a humanoid society. Our probes indicated that there was agriculture and buildings on the planet. In addition, there was evidence of transportation systems both on land and water. There was no indication that they had developed airplanes or other air borne transportation systems. We had tried to contact them using radio signals but so far there was no response.

Our linguists had made some guesses and we had speculated on several greetings and simple phrases. We were of course able to evaluate the radio signals and estimate the vocal ranges of what we assumed was speech. We know that the so-called speech patterns had a 400 cps to 4000 cps range, which is comparable to human speech. Our experts had been able to group some "words" and assume that they were greetings since they always seemed to appear at the beginning of a series of signals. As the field linguists I had reviewed and practiced these "words" in anticipation of shuttling down to the surface of the planet. We have been orbiting the planet for a month and have selected a place for our shuttle to land where we will have access to the people and also where we will pose no threat to them. For a week we have dropped pamphlets in pictorial forms that indicate we will visit them.

Counselor Schram and Science Officer Polselli will join me in our first visit to the surface. In addition, there is a camera crew that will document all of our interactions with the inhabitants of this planet. Our shuttle circled the planet three times at low altitudes. We found villages, roads and agricultural fields, but no big cities. There were also rail tracks that appeared to go between villages that had some form of transportation. There was no evidence of aircraft. We broadcast a simple greeting that we assumed was in their language before we landed.

We selected a village and a field that resembled a park for our landing spot. There was a small crowd of perhaps fifteen individuals that greeted us. There were three

leaders in white robes that stepped forward and I greeted them with what we assumed was a friendly greeting which they in turn repeated. One of the leaders was apparently a female with long black hair and the other two were white bearded males. They were very much humanoid creatures with an olive complexion. The female seemed to be the spokesperson. I offered them our token gifts of peace and good will towards all. We offered them a replica of our solar system with Earth and the other planets in an animated globe. When you touched Earth it showed pictures of outstanding sights on Earth. I introduced the crew and myself. They were fascinated with the video camera and excited to see themselves in the monitor.

Within a few minutes we seemed to come to an understanding that we were friendly visitors. They appeared remarkably humanoid and very similar to us. I began to slowly start to understand their speech. The camera crew documented all my efforts to learn their language. The linguists on the ship would take the recordings and make translators for other members of the crew.

Their team leader's name was something like Anastasia. I gathered she was one of their chief scientists and the others were more like political leaders. At first only the three leaders interacted with us and the others stayed back a distance from the meeting. Eventually she indicated to the others that it was safe to join us. We began a slow dialogue with them starting with the globe of our solar system and the pictures of Earth. We could project our holographic images and that alone impressed them. Slowly we began to exchange words. Our experts on board the ship were recording all the video images and compiling a base for their language. It was agreed that I would stay on the planet with the camera crew building up a means to communicate with the natives.

They did have an internal combustion vehicle similar to our old Model T Ford. Counselor Schram and Science Officer Polselli went off with a group in the vehicle. Both had cell phones and cameras to record what they saw. There were cultivated fields and some domestic animals that look like pigs and cows. Counselor Schram and Science Officer Polselli spent a week with their hosts even without a full speaking vocabulary with gestures and picking up words they had a good idea of what they saw. Planet OCX1009 was about 3/4ths the size of old Earth. Its gravity was about the same. It had two oceans and two continents as well as both a North and South Pole ice cap, the atmosphere was breathable for humans and the weather cycles were comparable to Earth's. The population was about one million people. They had mastered metallurgy and had copper, iron, steel, and bronze. They had steam engines and internal combustion engines. They used coal and oil for fuel.

Counselor Schram had observed the culture of these beings and was able to make some decisions with respect to how they were organized. There seemed to be a great deal of equality among the sexes. Counselor Schram concluded that this was a matriarchal society. As noted earlier they had developed metallurgy, but there were no weapons apparent in the society. There were no swords, clubs or firearms. Their society was clustered together in small environment friendly villages that were tied together with steam-operated trains. They seemed to live in harmony with the

nature of their planet. They had just recently developed electric lights so much of the illumination at night was still candles and fire. They as mentioned before had developed radio signals and used them for information and cultural enrichment purposes.

I soon learned that they had a very well organized universal public school system. As long as a student was progressing in his or her studies they were free to pursue education through college and even in later life they if they chose could return to college for additional work. The central issue was that they were progressing towards their objective. There were some school programs that allowed the learner to enter the workforce early. In these cases there were still learning opportunities that were associated with the workplace.

Chapter III: Star Ship Equinox III

We approached a planet OCX1005 in the Orion Constellation that was one and half times the size of Earth. It had water and landmasses, vegetation and life forms. It had an atmosphere. Our probes had detected what appears to be verbal communications among the species on the planet.

The frequencies of the vocal patterns are between 2000 cps and 8000 cps and our evaluation indicates 1500 to 1600 word clusters. Our visual probes have indicated a wide range of animals and birds on this planet. There are ape like creatures, but no visible humanoids. There is a large bird like creature that appears to be the source of the communications. There is also evidence of constructed buildings on the planet. At first we thought they were cave dwellings since they are all near mountainsides. Upon closer examination we have found them to be constructed buildings with balconies.

The bird like creatures average about 150 pounds with a wingspan of perhaps twelve feet. They appear organized and they also appear to have engaged the ape like creatures in some form of work. Our initial impression is that they use the hands and arms of the ape like creatures to craft their buildings. The birds appear to be able to carry large loads of materials to and from the construction sites.

Our linguistic team is working with the data we have acquired on the oral aural codes used by this species. It is characterized by sounds in the 2000 cps to 8000 cps frequency range. Our assumption is that there are 1500 to 1600 "word" clusters. Since we have been close enough to obtain video segments of the species in action the linguist have determined a few greetings that may be like "Hello, Goodbye" etc. Our field linguists have been studying the data and trying to develop enough information to make land fall and an initial contact with the species. The linguists have also made a recording of the natives to use if our people cannot imitate exactly the phrases we are assuming the meaning for.

This will be our first attempt at communicating with a different than humanoid species. It is exciting that they have developed an oral aural communication system. With a very different brain pattern and life experience we wonder what they will bring to our explorations. We have observed them enough to understand that they fly but return to their same nesting location daily. We have also observed that they some how control certain apes. Since the birds do not have arms and hands they use the apes' arms and hands in constructing their living quarters. The birds have clearly designed the structures. They some how communicate to the ape exactly how they want the buildings constructed. We have observed the birds using their speech to control the apes. Just how much the apes understand is not clear. We are fascinated by this symbiotic relationship.

The buildings are constructed out of something that appears to be cement and can be ten stories high. We have not been inside but they have balconies and doors. The doors almost always face the setting sun. We have seen the birds sitting or roosting on the balconies apparently preening themselves in the setting sun. The birds are magnificent beings with powerful wings that allow them to soar and float in the air drifts. The topknot of feathers is a bright red, their wings are sky blue, and their bodies a jet black. Whole families cluster together on their balconies in the setting sun. Now that we have video as well as audio recordings of their speech we are beginning to slowly decipher their language. As we have observed the birds and apes it appears as if the bird families have ape families as their live in servants. The apes do not have a complex communication system but the birds do and use it with the apes. The birds can command the apes to do things and the apes follow through. The apes give the birds a set of arms and hands. The birds are very strong and can carry large amounts of weight in their claws. They seem to carry buckets of materials that are used to make the cement like materials used in their houses. Some how they have constructed some metal buckets and they take them to the site where they obtain the cement type materials. The apes fill the buckets and then the birds return them to the building site where the apes mix and build with the stuff.

As we have observed the birds and apes it has become apparent that each bird family also houses an ape family. The symbiotic relationship between the birds and apes is amazing. They seem almost to be an extension of one another. The birds design and the apes carry out the design. In effect the apes give the birds arms and hands. The society does have some metal objects and again the birds find the metal and the apes shape it. It appears that the birds design and the apes carry out the design. The buckets are examples of the metal use on this planet.

Our field linguists are making some headway in communicating with the birds. It has been somewhat of a problem because the birds have a slightly different process of thinking based upon their orientation to the world that reflects an orientation of flying. We have been able to define perhaps 150 words and also rethink our original estimation of 500 to 600 words to more like 1500 to 2000 commonly used words. This larger number of words means that they have a more complex communication system than we originally thought. For example, Basic English has 1500 words, but a total word count of more than 500,000 words. The most significant development so far that we have observed is the building of the houses. Our limited conversations with the birds lead us to understand that they think of the apes as an extension of their family. The apes are closely tied to the birds but also seem to have the right to be with their own kind, but always return to the bird master's home. When the apes are together there is considerable chattering, but we do not see this as an organized communication system as it is with the birds.

There are flock leaders with the birds. They have indicated that they migrate to a warmer climate in the wintertime. The flock leader navigates to the new site. Whereas the apes and a select number of birds follow on foot with a number of birds

that lead them to the winter quarters. The birds fly in formation to the new site. The winter site is very much like the one where we are meeting them.

The big birds fly out each day and hunt for food. One of their favorite foods is fish so they apparently live near the oceans. They also seem to eat berries that grow wild on the planet. They soar above the water and actually dive in the water at times to catch fish.

The birds have a certain cultural organizations with leaders and certain ranks among themselves.

Chapter IV: Star Ship Equinox IV

We have been in contact with planet OCX1001 for several months now. They appear to be an advanced society. We have exchanged audio and video messages with them and our linguists have worked with their linguists to develop a translator. We know they have a very Earth like planet that orbits their sun in 413 days, they have a 22-hour day and there are oceans and landmasses with an atmosphere comparable to Earths. Most surprising of all is that they have life spans of 250 to 300 years. This is truly amazing since the OCX1001 year is 1.13 Earth years. Their gestation period for new babies is ten months somewhat longer than human babies. Their youth, that is, the time the child spends with the parents is about 25 years. They have a universal public education system that lasts as long as the individual is learning. Some pursue learning into their thirties and they can always return to learning even in the later part of their lives. They have not had a war for more than 2000 years. A prime objective is to balance their planet's natural resources and to keep them in a habitable condition avoiding global warming or cooling. They respond quickly and efficiently to natural disasters and have avoided man made disasters. Robots do much of the manual labor on the planet. They have an awesome computing capacity. They have a network of personal transportation systems. They have a planet wide government. They had a number of different languages but for 1000 years they have had a single language. The older languages are still an area that scholars study. In addition, there are plays that are sometimes acted out using the old languages. It is sort of like we would do Shakespeare plays in old English even if our daily language is different.

Population is held steady at about 2 billion people. While they do not limit the number of children a couple can have they closely monitor new births. On Earth our youth represent about one fifth of our population assuming an average life span of 85 years. With the considerably longer life span youth make up a smaller percentage of the total population. On OCX1001 youth account for at most one twelfth of the population. With longer life spans there are different cycles of life. There is of course youth, the education life, the work life, and retirement on Earth. On OCX1001 there are additional life experiences that include a period of life that is devoted to community pay back where people contribute to the common good of the community. There is also a time when there are no children in older age periods where people may become artists or pursue their wildest dreams. There is also a time when older people devote their days to imparting their wisdom to the youth. During this period they work in the schools as mentors and guides to the youth.

Couples fall in love, have children and are expected to stay married at least until the children leave home. Some people stay married to the same person during their entire life times. Once the children leave home some couples may have grown apart and find other significant others to spend their lives with. Still others may prefer to live in a community center often with people that have the same interest in science, art or other specialties. Some people like to live with people their same age whereas others prefer a cross section of people.

The people of OCX1001 have mastered space and explored their solar system, but have not ventured further from their own system. They still use rocket thrusters whereas we have advanced to ion thrusters, which have allowed us to venture further into space. In this one sense we are more advanced than they are. They have space telescopes that have brought them pictures of the universe.

In talking with their historians we discovered that they did have an ancient period in their history where there were wars and violence. About 3000 years ago they realized they were destroying their planet and that if they did not stop the violence there would be global warming and eventually destruction of all life, as they knew it. They were wise enough to beat their swords into plowshares and to expend their energies in protecting the natural resources of the planet. Slowly they evolved to using a central worldwide language.

There were strident religious groups that almost split their world apart, but in the Convention of Kalamari the various religions came together and ironed out their common elements and were some how able to consolidate the religions, which exist today. Their spiritual groups do not retain any violent elements and are more in line with the scientific facts of their world. Religions are present today, but if any segment tends to become violent, such as, the Christian Crusades or the Muslim Jihad the people rectify these false teachings. The planet has learned to live in peace and to protect the precious natural resources it has.

The concept of a 250 to 300 year life span is interesting. Our pictures of life on this planet indicate that the people are health and physically fit. They seem to exercise and play sports and look comparable to Earth people in their thirties and forties regardless of their age. Dr. Zook who is our main contact looks to be about 40 but tells us he is 209 years old. He tells us that he eats a diet that has been scientifically developed for him and that he likes to exercise and walk around his neighborhood about four or five miles each day. He was married and has three children one boy and two girls all who followed him in the scientific world. His wife the mother of the children died in a freak accident. He sees his children frequently. His second wife and he split up after thirty years of living together. His current wife is a linguist like him and they share some very common interests and goals. She has one son who is an artist.

It became obvious that the daily tasks of life on this planet are not labor intense because robots and computers conduct them all. Therefore, individuals have much more time to think about the true meaning of life and explore its meaning. As part of the collective wisdom each person seems to meditate each day. There are spiritual gurus that help people think and meditate. Dr. Zook tells us that once the robots and computers took over so much of the daily physical activities people had a hard time adjusting to life without the daily grind of physical work. In fact, when work shifted from manual labor to mental labor it was a difficult adjustment for some people. There are still people who are super craftsmen, but they are more like artist than essential members of society. For example, there are still skilled furniture makers that are excellent in using and shaping fine woods. As said before this is

more an art form than a practical activity since robots produce the day-to-day needs of people. Poets, authors, artists, musicians and scientists make up a large portion of the population. There are physicians, but medical robots and machines conduct most of the routine medical exams, operations and other treatments serving the needs of the people. There are political leaders, but much of the business of government is conducted through the participation of the total population. Each citizen can decide to participate in the discussions and issues and vote on the outcomes.

There are people who design and organize the robots and the computer programs that manage the robots. This is the major work of the working population. Most work of all kinds is conducted from the person's home. They do come together from time to time to share knowledge and to get to know one another better. Togetherness is more for the social interactions of the population. There are competitive sports, theater, musicals and other times when people come together. There is no longer a need for private cars since everyone is entitled to use the public transportation systems, which have both individual vehicles and group vehicles. The computer control of these systems has reduced accidents and death and injuries to zero. You can even order off road vehicles to explore the wildernesses. On Earth there was a time when worldwide there were more than a100, 000 annual highway deaths and 6, 000,000 annual injuries as a result of private automobiles. Long distance trains and airplanes are available to the population. The population on OCX1001 is highly intellectual and scholarly.

Economics is a critical issue in this society. It is a form of capitalism, but since the robots and computers generate most of the work the collective wealth is a right of all the people. There are no huge differences in individual monetary rewards. There is a base amount of money that each individual is entitled to and they can earn above and beyond that amount by the specific work they do. Scientists, authors, poets, actors, athletes and musicians are the most common well-paid jobs. However no one makes more than four times the basic salary that every citizen is entitled to based upon the robot generated manufacturing and agricultural efforts.

Crime is not completely nonexistent but very rare. It is in the nature of all creatures for some to go against the grain and here to we find a few misfits that act out against the majority. Most crime is of a personal nature, that is, the abuse of one individual against another. They are quick to respond to such anti social behaviors and work to rehabilitate the person involved.

The people of planet OCX1001 have many adventures they can engage in that are open to all citizens. They have cruise ships that provide a wide range of historical information as well as activities and sports. Whole families can book passage on these ships.

Documentary: Interview with a NASA astronaut.

Host: When you were in elementary school were you interested in science?

Astronaut Afua: Yes, in second grade I actually won a statewide science contest.

Host: What was your idea?

Afua: I created a spill free system for finger-paints.

Host: Did you win a medal?

Afua: I won fifty dollars and a certificate. I was thrilled.

Host: Were you always interested in science and mathematics?

Afua: I found them the most interesting and challenging things offered in school.

Host: What are you doing now?

Afua: I am an Astronaut scientist for NASA.

Host: Does that mean you fly in shuttles or spaceships?

Afua: I have flown on several missions, but that is not my main function.

Host: What do you do everyday as a NASA scientist?

Afua: My specialty is growing food in space. What do astronauts need and how can a garden grow in space?

Host: Is there soil on the Moon or Mars where mankind is now establishing colonies?

Afua: The native soil does not in and of itself allow us to grow food, but we can create green houses that are capable of growing food. In other words we can add supplements to the soil, create a green house cover and have a garden on either Mars or the Moon. Recycling human and other wastes makes it possible for us to create a new growing environment.

Host: How did you get your job at NASA? I understand that you are head of a unit does that make you a team leader?

Afua: Most of the jobs at NASA require astronauts to work together in teams. Teamwork is most important if space travelers are to remain healthy and safe.

Host: Are you not just a glorified NASA space farmer?

Afua: I guess you could frame my job that way, But I think of it as one of the most critical jobs in space exploration. Unless we can ensure that space bodies can grow food for humans we are not likely to inhabit other planets in space.

Host: Do you expect to go to another planet in the future?

Afua: Yes

Host: Will you leave your family behind? Do you have any children?

Afua: Yes, I have a teenaged son and daughter.

Host: What will happen to them?

Afua: NASA has a policy that entire families will be in the crew that explores and inhabits distant planets. Therefore my husband and children will go with me.

Host: But doesn't this mean that there will be a lot of non-scientist going along for the joy ride. How can NASA justify this?

Afua: NASA envisions that every person on board will be trained to fulfill some essential role on the spacecraft.

Host: Why not just leave them and come back to them?

AFUA: The first space travelers will probably not live long enough to return to Earth therefore whole families may be the first explorers to new planets.

Host: Why waste money on space when there are so many needs on Earth?

AFUA: Earth is over populated, polluted and endangered. As Stephen Hawking told us years ago we must find other planets to inhabit.

Host: But shouldn't we concentrate on making Earth better?

AFUA: That is one solution, but moving into space is another. Space is there and someone will venture forth into it. I hope I am one of those pioneers.

Host: Thank you.

Chapter V: Star Ship Equinox V

We located another Earth like planet in the Orion Constellation. We are surprised since we really did not expect to see Earth like planets in this section of the Universe because of the superstars in this area. Nevertheless we found OCX1002 that has a humanoid population and conditions very much like Earth. It orbits its sun in 336 days and has a 26-hour day. About six months ago we made our original contact with the planet via radio signals. Our linguists and their linguist have worked out a workable translator so we will be able to communicate at a relatively high level when we finally land on their planet.

The planet is well developed with a population around 10 billion people. It is a highly polluted planet. Unfortunately, there are still warring states that add to the pollution and damage to the planet. They have developed nuclear weapons, but so far have not used them in actual wars. They do have a beginning space program and have ventured to their nearest satellite a Moon. Actually they have two Moons orbiting their planet. They have only visited the larger of their two Moons. They use fossil fuels of coal and oil, which tends to pollute their atmosphere. They have not developed what we call clean green fuels. We can provide them with guides to reduce atmospheric pollution. Some sections of the planet actually have the entire population wearing masks to protect them from the polluted atmosphere. Their agricultural development is reasonable, but their diet is not as healthy as it could be.

While we have not made planet fall as yet we have had several positive interactions with their scientists and our on board experts. We have been able to discuss with them a wide range of alternative scientific programs that they can enact. First is a reduction of the fossil fuels to reduce the contamination of their atmosphere. They have already limited private cars and required the uses of buses, trains and trucks.

They have a space program, but they use rockets rather than Ion thrusters to power it. We believe we can show them how to modernize that program. Their electric supplies are very wasteful and polluting. We are suggesting they use something like the Bloom boxes originally developed by NASA. Bloom Box seems to operate using a solid-oxide fuel cell technology originally developed by scientist at NASA to power things like interplanetary probes. The idea is to push hydrocarbons into a series of plates stacked on top of each other in modules of various sizes, coated with green and black "inks" ...and the result is [reliable](#) electrical output. The hydrocarbons themselves come from something like a natural gas line. On Earth this often comes from a landfill. The boxes themselves don't make any sound, emit any odors or exhaust, and don't vibrate. Bloom produces a world where everyday homes can be taken off the electrical grid and have all their electrical needs met with a box in their back yard the size of a small trashcan. Modified large Bloom boxes are the electric power that drives the ion thrusters on star ships like the Equinox according to Chief Engineer Kwaudo Sanahene.

Even before we have made planet fall the ship scientist and the planet scientists are working together to help the planet develop a more green-based energy program.

The planet people have not explored wind power or solar power much less the technologies inherent in the Bloom boxes. In addition, our agricultural experts have made contact with their counterparts and believe they can help the people produce more and better crops. Unfortunately, the planet is still suffering from very established and small political subdivisions that are reluctant to give up any power for the collective good.

Counselor Schram has been in touch with leaders discussing how teams of leaders can work together to bring about a more sustainable world. This will not be an easy task, but one that is essential if they are to preserve the planet. As we know no planet can survive intact if a nuclear war breaks out and this planet is so divided that there is a high possibility of such a disaster. They do have sort of a United Nations, but it is mostly dysfunctional. However, it has responded to some natural disasters and is a platform that Councilor Schram feels she might be able to use to bring the nations together.

Our assumptions at this time are that there are six racial groups on the planet. All of course have common humanoid constitutions and are only very slightly different. However, as we know from the history of Mother Earth these surface differences can cause racial strife and discord. The underdog is a group that have sort of pointed shaped ears and a greenish brown complexion that the other groups seem to look down upon. There is no overt discrimination of this group, but they are often shoved to the back in our discussions even though from our viewpoint they are as cogent as all the others.

Commander Shea Murray, our Chief Linguist has developed a series of pictographic sentences that he is using to develop a translator between English and the planet's language. Both English and Arabic are the official languages of Star Ship Equinox. For example, the pictographic sentence may be "A man caught a fish in the mountain lake." The pictographic sentences is then rendered in English and when clicked upon read aloud. The linguists on the planet OCX1002 then render the same information in their language both in the written and auditory formats. As this system using pictographs, print and auditory speech evolves our people are able to develop a translator between English and the dominant language of OCX1002.

In order to begin developing a translator for communicating with the people of OCX1002 our Chief Linguist Shea Murray developed some pictographic lessons.

These lessons were short stories that when you clicked on the words they were said aloud and then the words morphed into animated actions. For example:

This is a man.

The Man's name is Henry.

Henry caught a fish in the lake.

Henry built a fire.

Henry cooked the fish over the fire.

This is a woman.

Her name is Gloria.

Gloria has a baby.

Henry shared his fish with Gloria.

When the user clicks on the words the stories are read aloud and the words morph into animated actions that correspond to the meaning within the sentences. Linguist Murray expects the OCX1002 linguists to follow these stories and to replace the English words with their local counterparts.

Our mission is so long that none of us expect to return to Mother Earth. We send information back to Earth, but our voyages are so distant that there is little possibility that we can return. Consequently, we selected whole families as a part of the crew. We have children and expect to have new children born aboard the Equinox. We have a holodeck classroom where all members of the crew and their children can learn. We have a teacher who works with any crewmember or their children to design and plan learning experiences in the holodeck. We expect to educate the young to take over the operation of the star ship when we the original crew pass on to the next reward in life. One interesting holodeck experience is the framing of the United States constitution. The holodeck creates a wide range of environments. One example is the framing of the American constitution where students can activate the dialogue among the framers of the U. S. Constitution. One student can be Thomas Jefferson another John Adams etc. As the discussion emerges by these founding fathers students can activate the different roles though actors who are playing the part. The speeches and language are the exact words of the founding fathers.

If a child is a musician the holodeck allows them to play with some of Earth's best-known orchestras and bands. The ship is equipped with some of the best science lessons known to Earth. Einstein teaches one exciting physics course. While there are some dialogue lessons most are interactive simulations that often require teamwork by the learners. Foremost in the schooling of our children is the development of the skills and knowledge that allows them to eventually take over and operate the Star Ship Equinox. We encourage our married crewmembers to procreate. Our children are our future. Even the very young come with their parents to the holodeck for lessons. The holodeck has simulations of all of the hometowns of the crewmembers. Such simulations allow the user to actually walk through their hometowns.

In technical areas the learner can actually examine and if need be to repair parts of the star ship. Such simulations are designed to react as they would in a real crisis. If a student makes a mistake and the repair results in damage rather than a fix the program guides the student through the steps needed to correct the problem. There

is a food preparation lesson that uses some of Earth's very best chefs. The ship's library has much of the best literature of the Earth's past. The books are fed to the individual's Ipad. The extensive library of the ship contains the Earth's best collection of books. Any child or crewmember can access the library materials. All crewmembers are ready to teach learners. If a young person is interested in engineering then they can call upon Kwaudo to tutor them. In the holodeck you can see some of Earth's best plays. For serious students of drama you can actually take part in the plays. The plays are projected in holographic formats and you interact with the other performers using your character to role-play.

There are available many high school and college level courses from the ship's library. These are interactive to the extent possible and crewmember tutors are available for direct interactions. At the high school level for example the programs suggest that students work in teams in the calculus class. The system knows and organizes such team activities. If there are no other students seeking a calculus course then the program will ask a couple of crew members to join you and be part of your team. All crewmembers are eager for the young people to learn and contribute to the constant development of the on board well being of the Star Ship Equinox.

The family living quarters on board the Star Ship Equinox are small apartments with separate rooms for children and their parents. Each family also has a small plot in the food growing area of the ship and even the smallest child is expected to do some work in the assigned family area. This is not so much a necessity, because the robots grow all the food needed for the crew. The psychologists have indicated that working in the agricultural area gives the crew a sense of well-being. Rembrandt, Picasso, Vincent van Gogh, and Bill Malden conduct Art lessons followed by galleries of their work. Art curators' discuss their work. Library materials can be accessed in the family living quarters as well as throughout the ship.

Unfortunately Jason Miller one of our chief navigators died today. He was 87 years old and had been a favorite of all his fellow crewmembers. He lived alone his wife having died a few years ago on Earth. Captain Faruck scheduled a service to remember him for the evening hour, Captain Faruck: We all knew our brother Miller as a friendly smile always willing to lend a helping hand. One of his favorite activities was to tell stories to the little ones. He had a cheerful greeting for all who came his way. As a navigator he charted our voyage to the stars, but more over he help each of us chart a better path in our individual lives. Death is a part of life as well as birth. May Jason chart the star pathways for the future of mankind. May he always journey though the darkness of space bringing a glow of warmth to the universe. Would anyone like to share a thought with us at this time?

Mary Lou six years old: I loved Jason he always told us little kids stories of his home in Nebraska. As a boy he went hunting and fishing with his father. He was a nice man.

Roberts: his fellow navigators will miss him. He always knew where we were going and how to chart the best route to our destination. All will miss him.

Captain Faruck: We are all somewhat better for having walked a mile or two with out friend Jason Miller. Now we return his body to the father in heaven that created him as we send his body to space to forever navigate through the stars. With that Jason's body was jettisoned into the dark space outside the Equinox. The fickle finger of fate, the roll of the dice may set the course of a given life. Some are high achievers others are good hard workers all make an impact on our daily efforts. We on Star Ship Equinox are the chosen few privileged to challenge tomorrow to seek out the unknown, ours is the honor above all else to go where no man has ventured before. May peace and good will follow all our footsteps. May we always remember the good that Jason Miller brought into our lives.

CHAPTER VI: Star Ship Equinox VI

We have located an Earth like planet in the Orion Constellation. It has landmasses and oceans and a breathable atmosphere. There are animals on the planet, but as far as we can tell no humanoids. In fact, the dominant creatures seem to be like Earth's dinosaurs. For the most part they appear to be vegetarians. ON Earth **Dinosaurs** are a diverse group of [reptiles](#). They were the dominant [terrestrial vertebrates](#) for over 160 million years, from the late [Triassic period](#) (about 230 million years ago) until the end of the [Cretaceous period](#) (about 65 million years ago), when the [Cretaceous–Tertiary extinction event](#) caused the extinction of most dinosaur species, except for some [birds](#). The [fossil record](#) on Earth indicates that birds [evolved](#) from [theropod](#) dinosaurs during the [Jurassic period](#), and most [paleontologists](#) regard them as the only group of dinosaurs to have survived until the present day.

From all indications this planet is very much like early Earth and we have a chance to study the real live dinosaurs. At this time we do not anticipate that we will make landfall on the planet, but that we will send shuttlecraft to observe the dinosaurs. From all indications the various dancers live in a relatively peaceful harmony. Occasionally two of the really big guys will get in a fight, but for the most part they are busy eating. To keep them alive they must consume tons of food each day.

Captain Faruck in selecting the crew to study the planet discovered that two teen-agers born on the Equinox were perhaps the most knowledgeable crewmembers on dinosaurs. From a very early age Andrew Harvey Long and Althea Alt had been fascinated by dinosaurs and had spent hours on the educational holodeck studying these creatures. They had been able to create the animals and habitat and observe their behavior. They would join the senior crewmembers in the shuttle. Alethea was studying to be a chef on the ship and Andrew Harvey was studying to be a navigator.

Both teenagers were excited because among other things this would be the first time either of them had been off the Equinox. They were born on board and are being educated to take their places on the ship's crew. Andrew is being trained as a navigator and Althea is being trained as a chef. They have known one another almost from the day they were born. They both have holographic cameras with long-range lens so they can record their observations from the shuttle. Alethea will take still shots and Andrew will make movies of the dinosaurs they observe. From the time their mothers read storybooks to them they have been interested in dinosaurs. They of course would like to land and be very close to these creatures. Captain Faruck has determined that no one should land on this planet at this time. They will however fly low enough to get very good documentation of the dinosaurs and the habitat in which they live. Andrew of course will have a running commentary as he takes movies of the site. Alethea has a voice writer capability on her camera for still pictures. As they orbit the planet they have detected that there is still some volcanic action. There is also a high degree of swamplands and some of the dinosaurs seem to like the swamps as their habitat.

Alethea has identified several different species of giant birds with wingspans that exceeded twenty feet. These birds have incredible glide paths. While they have feathers their skin is very leathery especially on their wings. The feathers are multicolored and

very bright. She is extremely interested in the birds since on Earth the remaining vestige of dinosaurs is the modern bird. There are many smaller birds than the twenty-foot wingspan bird. The big birds are fascinating since they have mastered the wind drafts and almost hang motionless in mid air. They are very colorful and beautiful birds.

Andrew was busy looking for the really big fellows. He found a herd of brontosaurus type creatures and was busy photographing them. He was interested in the fact that they seemed to be in family clusters the big male the mother and several smaller youngsters. The adults seemed to be teaching the youngsters how to gather and prepare their food. A couple of the younger ones got into a tussling match pushing and butting one another. There did not seem to be any enemy of the brontosaurus so they had no concerns in that they dominated any section of land they occupied.

Andrew and Alethea wanted to find the nesting places of the dinosaurs but the shuttle pilot was not interested in getting too low because he felt these big animals could easily stomp on the shuttle if it landed. While there were large dinosaurs there were also some small ones. Althea in particular got a number of excellent pictures of these smaller animals. From this first visit Andrew and Alethea felt that these creatures were living in violence free balance. There were no examples of dinosaurs attacking one another. There was some push and general horseplay but no battles to the death of one of the contestants. There seemed to be plenty for all the creatures to eat. The big dinosaurs ate a ton of food or more each day so it was interesting to see how things balanced out. Andrew and Alethea were surprised that the dinosaurs were multicolored. The brontosaurus type creature was a bright red and orange color. Another creature was bright blue and green. These were basically skin colors and not feathers. In fact, looking down on a field was like looking at a rainbow.

Chapter VII: Star Ship Equinox IX

We located an Earth like planet on the Orion Constellation that had an advanced humanoid culture. The planet was almost exactly the same size as Earth was covered with oceans and large landmasses. It orbited its sun in 300 days. Its days were equivalent of 27 of Earth's hours. Its atmosphere and meteorological conditions were comparable to Earths. They had developed fossil fuels and had established a broad system of transportation including aviation. They had not developed space travel.

However they had a planet wide problem of scarce potable pure water. It seriously impacted them with respect to drinking and cooking food and the general life maintenance on the planet. They had not developed systems for purifying their water supplies. At first the experts on the Equinox felt it would be a simple problem to solve, but upon further deliberations they found it a perplexing problem. The people tended to boil their water before they used it, but they had developed no large-scale purification system. There were several options from filter to chemical systems. Filtering water through sand and charcoal seemed like a reasonable system to implement. However, the people considered water holy and that to alter it would break with their religious beliefs. The culture was one built upon a reverence for water and water in its unchanged conditions was considered holy. Therefore, our suggestions not only fell on deaf ears, but also unintentionally caused a major conflict and discord between the natives and us.

This posed a major conundrum for Counselor Schram and Science Officer Polselli. To put it mildly we were blindsided in an area where we did not expect it. That of course is a known danger when you are dealing with different cultures. We had to explore and discover a whole new concept with respect to water.

What does water mean to these people above and beyond its practical uses. ?