Where The Gods Meet
Quetzalcoatl and the creation of mankind
For all of those who passed on the myths and legends of ancient civilization.

To all people who supported me in different ways.

To my family

To my country
Where The Gods Meet

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The story that I want to adapt is the creation of mankind according to the Nahualt culture (ancient Mexicans). I want to create it using 3D computer animation because I think is well suited to the story. I am a big fan of science fiction, so I decided to incorporate some personal concepts to the original story. I am planning on sending a copy of my thesis to the Mexican government, hoping to awake the interest in Mexicans to find out more about their own past. I lived there, and I am positive that 80% of the population is not interested in any ancient myth of their own culture. I think that a good way of bringing people to their culture is to use different media channels to distribute messages about cultural topics, in this case short animations of the most popular myths and legends. The religious aspect is one of the parts I want to highlight, as religion was a very important aspect in ancient Mexican civilizations.

The opening scene is a flashing siren. After that siren, the main character appears with his back to the screen, so we don't know what he looks like. He is wearing a white suit that resembles an astronaut suit. He is transported on a moving walk-way to the end of a hall where he opens a set of sliding glass doors. He jumps to the outside, where we can see the other side of the construction. We feel something is going on but we don't know what is it yet. Once he is on the other side of the hall, we notice a high-tech
looking environment. He does not seem to be familiar with the surroundings. He turns in both directions before he starts running to his left. Our curiosity starts to build up little by little. He gets to other sliding glass doors and he opens them. He enters a fog-like tunnel and he bows respectfully as if to a God. He is lifted inside the tunnel. The camera follows him on his way up. For first time we see in what kind on building he is in. It is a pyramid that has several levels like the one he was in. In its center is a tunnel where we can see the character being transported to the top of the pyramid. After traveling along with the character on the elevator, we know that the trip was short and in straight line to the top. He shakes his head after the quick lifting. The character is now in a different setting. He knows what he is doing, as he approaches an altar and kneels down. He knows where he is and what surrounds him after taking a look around. He doesn’t know what is going to happen. He appears so small in comparison to the God on the altar. We sense that something is about to happen.

The altar is for the guardian god of the sacred bones, the bones of former mankind. These bones are the objective of the character. He wants to steal the bones and then start a new mankind. The altar is formed by a center column where the guardian god exists, and a ceramic vase where the bones are kept. After standing up on
his feet again, the character proceeds to steal the bones. We feel somewhat confused in this part. Our character seems to be very respectful of religious customs, although he is doing something that can be considered a sacrilege. Then we realize that the character is also a god (with some help from the voice over). After taking the bones, he is distracted looking at the bones. We don't realize what is going to happen next. The guardian god comes alive and starts chasing him. The guardian god flies across the space. Meanwhile, the character stops in front of the serpent-like figure. We feel anguish and impotency as the guardian god is just about to reach him. As the character searches for a escape, the serpent-like god comes alive and swallows him. The character then is protected from the guardian God in its womb, and then he is transported to the new Earth. The character has the sacred bones with him, and is able to re-create mankind for the 5th time. During the trip to the new Earth a human face appears slowly, and suddenly starts spinning around. Next, the bones are also spinning until they transform onto a human being. The human being wakes up and listens to a message, and then is taken out to the new Earth where he is going to live. Our camera zooms out and we see the magnitude of the land, with some valleys and mountains. We know it is empty, but we know is just the beginning.
1. Opening titles. Letters explode and spread in different directions.

2. Flashing siren. Sound effect goes on and off in sync with the light.

3. Main character exits tunnel and enters a different room. Glass doors open and close.

4. Character hesitates which direction to take, as he looks in both directions. He runs ahead.

5. He stops in front of another set of glass doors. Slowly he enters.

6. He faces a tube that looks like fog. Before entering, he bows as this is a god.
7. Inside the tube, he is lifted rapidly. Sequence of short cuts from different angles follow his trip.

8. Zooms out. A pyramidal building is shown. He is still going up through the tunnel.

9. The lift ends at the top of the pyramid. He shakes his head as if he is recovering from the trip.

10. He looks around to recognize the new setting. Zoom in to the character.

11. Point of view of the character. The serpent god is to his right. He looks up and then down to his left.

12. Point of view. The guardian god's altar is to his left. He approaches slowly.
Storyboard


14. Point of view. He looks to the god, and then he stands up. Travelling to the altar.

15. Close up of vase with the sacred bones. Glow in the outside of the base.

16. After looking to the god, he proceeds to steal the bones. Glow becomes more noticeable.

17. Close up of top of the vase. His hand comes out with the sacred bones. Glow stops.

18. After looking at the bones for a few seconds, he sees the guardian god come alive.
19. The guardian god chases him. Objects in the altar start moving.

20. The serpent god swallows him. Things in the building reflect the guardian god's anger.

21. Close up from the inside of serpent god. Control panel as in a spaceship are turned on.

22. Serpent god starts moving. The guardian god seems more desperate.

23. Serpent god exits the pyramid from the top. The guardian god disintegrates in the air.

24. Bird view. Serpent god takes off leaving the town behind. Some buildings start to sink.

26. Zoom in to the planet Earth. Atmosphere and surface is visible.

27. Dissolve to human head. Head spins and travels from opposite sides of the screen.

28. The sacred bones rotate as the human head. Human being is created. Zoom in to his face.

29. The human being looks up and sees blue sky.

30. A message from the gods is heard from him. He moves his eyes and eyebrows as he listens.
31. Zoom out. The human being looks up again and starts to move.

32. He tries to stand on his feet with some difficulty. The base seems to be made out of glass.

33. He is on his feet and looking up. As he extends his arm, the base starts to lift him.

34. He looks outside and encounters a world to reproduce and take care of.

35. Close titles. Picture of statues that resembled our main character.
Introduction

The characters and the sets were the first two parts built. The main characters were two articulated human-like figures. One of them was “Quetzalcoatl,” the god in charge of starting the new mankind; and the other one was the first human being. They both had different looks, as the settings for each one of them were different. The sets were formed of the interior and exterior shots of the pyramid, as well as the landscape were the pyramids existed. Secondary elements were created to support the actions of the main characters, such as the guardian god, the serpent god, the sacred bones, the altar, etc.

I designed the characters to closely resemble the original elements. The human figures presented the traditional hair styles and facial features. Quetzalcoatl was designed based on existing statues on top of a pyramid of important ruins in central Mexico. These statues are known as the “Atlants,” and their appearance resembles a space suit. I also wanted to keep a simple and clean design for aesthetics, as well as for optimizing rendering times. I know that some people won’t be familiar with the look of this characters, although I wanted them to understand the story anyway. People that are familiar with the Mexican culture will find a close resemblance with the ancient statues, getting a clearer message than the general audience.

It was my first experience animating and modeling a 3D character. Animating a human figure was a good learning experience because of
the complexity of its motion and the multiple joints. I had to learn how to attach, in hierarchy, all the different members of the body. Some of the body movements had to be practiced on real actors to convey and assure accuracy to the animated characters. Many hours were invested in the animation process. I had to observe real people's movements, and even sometimes I had to perform the movements to have a better idea of the motion or the effect wanted.

The pyramids were designed following the same patterns as the pyramids in central Mexico. The pyramid was formed basically of two bodies: the base and the top. It presented narrow steps on one of its sides. The base and the top were separated by a landing or rest area in between the two bodies, just like the real pyramids.

I used Crystal Graphics Topas as the main software, and I utilized a Gateway 2000 and a Panasonic Optical Disk Recorder as the main hardware. Some of my notes are particularly about these elements. Other systems may have different situations than the ones I encountered.

It is not my intention to go against any historical happenings, or to start a new concept. I just wanted to portray a personal adaptation of the legend, where gods and aliens were of the same nature, as well as to mix ancient settings with modern actions, such as space travels.
The opening scene started with one of the main characters. The first step of his creation was the modeling of the head, and then the rest of the body. All body parts were linked to assure their correct movement and translation through the animation. It is important to designate a top node in the hierarchy of the different attachments. In Topas, this top node is called "master." Every joint was the master for the subordinate part. For instance, the elbow was the master of the forearm; the shoulder was the master of arm, etc. I decided to have the main master be the waist, as it was a key part of the design of the body for proper movement. I found this to be true after trying several variations, using a different master each time. Using the waist as the main master allowed me to create a smoother animation. The waist worked as the center of motion for movements like sitting, running, jumping, bending, etc.

After the main character was completed, I started to model the settings inside the pyramid. I encountered other problems very soon. First of all, I had to experiment with creating solid objects, and then drilling them to make them hollow. After that, I placed some lamps inside the drilled areas to get light inside the modeled building. I wanted to have lights inside of the halls where the main character was going to move. I was able to set the lights, but I had difficulty getting the cone of light effect that I wanted. I was looking for a
high-tech look with spotlights all around, to create a more dramatic feeling when the character passed by the lights. I discovered that using different kinds of materials I could get some transparency effects that would simulate a cone of light. I had to put a lamp inside the cone, so the light would reflect on the inside walls of the cone, using glass from the materials palette. After I was pleased with the final result of the lamp, I duplicated it to generate as many lamps as I needed.

In order to create the halls, I had to create polygons and then extrude, bevel and drill them. I also used different materials from the materials palette to create different atmospheres inside of the pyramid. Some of these materials were gold for the walls, green marble for the guardian god, stone for the serpent god and glass for the hallways.

Once I had the halls ready, I started to work my way to the top of the pyramid. I needed some sort of elevator to transport the character to the top of the pyramid, where his task was going to be done. I decided to use a fog-like tunnel that was mapped with some statues of other gods. The character bowed before he entered the tunnel, as one of the strong aspects of religion that I wanted to keep. Next thing I had to finish was the top of the pyramid. The
main gods were on the top level. The guardian god was seated on an altar, watching the sacred bones. The serpent god was across the altar. I had to get some photographs of the actual statues from books in order to build these models accurately. The guardian god had a skeleton look, seated with his arms crossed. He also had big eyes and a big mouth very similar to a skull. The serpent god was a combination of a serpent head, and some additional designs that resembled a jaguar. The gods faced each other from opposite sides of the pyramid.

The serpent god was designed so it could swallow the main character when he escaped from the guardian god. Inside the serpent god were control panels as in a spaceship. The interplanetary travels were a reality in my adaptation of the story.

The main objective of the character was to steal the sacred bones of former mankind. These bones were in a vase guarded in the altar by the guardian god. This vase was mapped with a procedural map to create the marble look. The vase was also generated in a way that the bones could be placed inside it. For doing this, I created a polygon that was lathed using its center as the axis.

The guardian god was also mapped with the same procedural map.
as the vase, to assure a relationship. The hierarchy of the guardian god was simple, as the only parts that he moved were his arms. Everything was attached to the main body. His legs were folded in front of him. His torso was made out of ribs. His neck joined the head to his torso. The head also had some movement, as it rotated. I wanted to create a mean look on his face to accentuate our reaction of rejection and sympathy for the main character.

Finally, after building the different gods and some settings, I had to build the town. I created a pyramid using polygons mapped with different materials. In this particular case I used gold, as I mentioned before. I decided to group the pyramid and then duplicated it in different sizes to create the town. I also wanted to simulate some sort of energy generator, and I built a couple of spheres that had fire inside so they glowed. I used the procedural maps of fire and glow from the procedural palette. For the floor or surface of the planet that the town existed on, I used lava to give it a different look, as if the planet were close to an end and everything was being destroyed by high temperatures.

I started the animation when all the models were ready. My main problem was the interaction of the different elements when they were together. The character sometimes would go thru the walls or
the floor. Topas in not able to stop the models before intersecting another solid body (collision detection). The models seemed to pass through other solid objects. The best thing to do in order to avoid this problem is to check every movement from different camera angles. Sometimes it is good to observe the wire frame of a real time preview from a non-perspective side view. It is important to be familiar with the kind of cameras that Topas offers. The director’s camera is great to observe the animation from a distant angle, just to make sure that everything happens in the right settings. The scene’s camera is the actual view that will be rendered. This view can sometimes be tricky, especially when a deep perspective or a wide angle view is used. I found it very helpful to render the scripts from non-perspective camera views, and correct the problems in the same views using the director’s camera. For the final rendering the scene’s camera was used. This problem was more obvious in scenes were the character made a quick movement, like in the one when he jumped from one setting to another, his foot would go through the floor, or when he was running in the halls. Another similar situation that I faced was when the character grabbed the bones from the vase. The bones were not attached to the character, otherwise they would have moved along with the character. The problem happened when the character tried to get the bones out of the vase because the bones would go though his
hands, or they just wouldn't come out at all. What I had to do was to stop the rendering at the moment that he touched the bones, and then do some modifications to the model, attaching the bones to the hand. Then I re-started the rendering to solve the majority of the problem. After I discovered this technique, I used it for other similar situations that I encountered. One of these situations was the character inside the serpent god. The serpent god would travel in space, and so would all its elements. As the astronaut was not a master nor a subordinate of the serpent god, he had to be included as part of the same group. The group was made up of the serpent god and all its elements, the astronaut, and the bones. The bones had to be detached in this part, as he needed to move his hand with some freedom to punch some buttons inside the serpent god's control panels. When the character was swallowed by the serpent god, the guardian god was defeated and destroyed when they exited the pyramid. Before leaving the settings, the serpent god flew around town very rapidly, and then took off with some sound effects. The serpent god vanished in the distance, in a black sky. I found a way to accentuate the distance effect. Using two key frames I exaggerated the size of the element to travel in space in both of the key frames. In the first key frame, the size would be noticeably larger, and in the second key frame the size would be very small. The effect of depth in the scene was more successful.
The second part of the project started with the travelling to the new Earth. I wanted to use a sequence of graphics that would suggest a time transition. As we do not have a flat bed scanner hooked to the Gateway 2000, I had to use the video camera available in the lab, utilizing TIPS as the acquisition software. I imported some images successfully into Topas, and I was able to complete most of my mapping. I was not very happy with the image quality from the video camera, so I decided to continue trying different options. The next thing I did was to try a flat bed scanner. There was only one problem, I needed a computer PC compatible with a 44MB bernoulli. I couldn't find any computer with these characteristics, so I decided to use a Macintosh computer for the scanning and stored the images on a PC formatted floppy disk. I used Apple File Exchange to transfer the data. I had to use some compression as the files were over 2MB using high resolution. Once I had my images in the Gateway 2000, I checked the quality of the scanned images. I was afraid that because of the compression, some graphics would be corrupted, or the quality of the file would be affected. Fortunately, everything was fine. It was a slow process, considering all the steps that had to be followed. The idea of interchanging information between Mac and IBM, led me to a different requirement. This time, the need was to process images from a PC to a Mac. I wanted to apply some filters available in Photoshop to my
Targa files from Topas, and then send them back to PC format to be used as backgrounds or special effects. This process was time consuming, although I had good results and I felt good when I was done.

Basically the only thing that took place in this part was the transition between the escape from the guardian god, and the creation of the mankind. One of the transition effects that relates to time is the dissolve. Topas can’t dissolve like a switcher control for editing. I created the dissolve effect making some object transparent, as other objects became opaque. All of these changes can be done in the materials palette once the animation has started.

Another model that I had to build for this part was the Earth. What I did was to create the continents and the surface of the planet in a painting program. After the file was complete, it was exported into Topas as a surface map for an sphere. To create the atmosphere, I made a second larger sphere and mapped clouds on it. The transparency of the atmosphere was set high, so the surface of the Earth underneath was visible. The Earth and the atmosphere shared the same spinning axis. Different velocities were used to create a more dramatic effect. I used black backgrounds in this sequence to give a better idea of solitude in a vast universe.
The final project was the creation of a human being, and his placement on the new Earth. As a base model, I used the same body as the main character. I made modifications to some of his parts to make him look more natural. Topas can’t support adding skin between polygons, so the only way to create models was to use polygons and to attach them with human-life forms as joints. Actually, the idea of using polygons to create organic shapes was an interesting one. The results of different combinations gave me a unique style on my characters. I must admit that the most difficult part was the face. The eyes were an important part of my model, as he would blink and turn his eyes in different directions. Again, the master of the model was the waist, although for head movements, the master was the neck.

One of the most important parts of any animation was to visualize the previews in real time. Once the models were completed, the animation was produced in sequence. When the script was finished, a preview had to be rendered to check all the movements of the different elements of the animation. It was important to render the previews from different camera angles, as some angles can see potential mistakes than the others probably won’t. In order to save some time, I noticed that using boxes instead of the real shape of the object was twice as fast as the regular preview render time.
After the preview, it is also important to render a flipbook. I found that the best thing to do when rendering flipbooks, was to avoid the numeric frames. The reason is that the space of the numeric frame sometimes covers some action of the animation, causing a blind spot in it. If I needed reference of the numeric frame, I would use the frame number from the real time preview.

The rendering time was one of the most crucial factors in the animation production. The more complex the scene, the longer it took to render. My scenes were quite complex in some cases, and in others they were very simple. The average rendering time was approximately of 15 minutes for final High-Res images. A good way to avoid long rendering times, was to optimize the use of lights and textures, as well as procedural maps and shadows. It was a waste of time to do full rendering to a flipbook, as some changes would occur. One of the best things to do is to accumulate all the animation scripts into a batch, and then try to render them all at once during the breaks at the end of the quarter. In my case, I had selected to work on the Topas computer on the weekends, so I could start my rendering in a Friday, and it would be done by Monday. I don't recommend stopping the rendering if the batch is running, as for some reason it always skipped about one to two frames when it was restarted. As a result, a slight jump is created in between the two frames where the rendering was stopped.
The final rendering was recorded to an optical disk. When all the different scenes were rendered, then all the scenes were recorded to 3/4” videotape, and edited in the same format. Another thing that was also possible to do was to edit directly from the optical disk to the videotape, in that way one copy generation is skipped. I did this in a couple of my most complicated scenes because I wanted to keep the details in the different elements of the scene. It was important to keep in mind the different editing techniques in order to get the wanted effect for the audience. I used techniques such as collage, continuos motion cuts, screen directions and combination of close ups to wide angles.

For my soundtrack I used a Mexican musician who specializes in ancient Mexican music. I contacted him and asked him if I could use it. He was very interested and excited that I had chosen him for my soundtrack. After I obtained all the permissions for the music, I decided to ask one of my friends that owns a radio station to help me with the mixing of the soundtracks, the voice over, and the sound effects. The most important part in this process was to match the sound with the video. The scenes were timed, as were the sound effects. As we didn’t have a 3/4” VCR available in the recording studio, I wrote down almost second by second of my animation to make sure we had all the times in sequence for the
soundtrack. The soundtrack was laid down first to have a base from which to work on, and then the sound effects and the voice over were done simultaneously. This process took several tries to get it done the way I wanted it. This process could have been done in “cold,” meaning to record the elements separately and then mixed them in the final soundtrack. The lack of tape recorders didn’t allow me to do it in this way.

When I had the soundtrack all ready in a reel, I proceeded to dump it onto one of the audio tracks of the videotape. The videotape has two tracks for audio, but I decided to use just one, as it is a requirement in most of the different animation contests to have the soundtrack in just one channel. As everything was very well calculated time wise, I only needed to do the dubbing of the soundtrack once. All the different sound effects matched the image on the screen. I kept this 3/4” video as my master, and then I made copies in super VHS for distribution.
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