Miraculous Image of Our Lady of Guadalupe

Information obtained from Infallible Catholic

The image of Our Lady of Guadalupe has been the subject of numerous technical studies since 1751 and extensive scientific investigations in recent years, and none of the result offered any sound scientific explanation which, up to this very day, defies science and all human reasoning as it continuous to baffle scientists and even skeptics.

Below are only some of the findings that were drawn from the scientific investigations conducted on the image and the fabric itself which were commissioned by the authorized custodians of the Tilma in the Basilica, and in every case the investigators had direct and unobstructed access to it:

THE FABRIC

The "Tilma" (a kind of cloak worn by native Mexicans) of Juan Diego that bears the miraculous Image of Our Lady of Guadalupe is a coarse fabric made from the threads of the maguey cactus fiber which usually lasts no more than 20 to 30 years, and yet the fabric has maintained its structural integrity - without cracking or fading, or any sign of deterioration for nearly 500 years. It consists of two pieces of coarse cloth fibers of about 1.70 by 1.05 meters (69.99 by 41.3 inches) held together in the center by a seam of thread made of the same material and is typical of the cloaks used by the Nahuas in the 15th and 16th centuries called "*Ayates*." The seam is visible up the middle of the figure, turning aside from the face.

For centuries the Tilma was exposed to the rigors of all natural elements without any kind of protection against infrared and ultraviolet radiations from the tens of thousands of candles near it and the humid condition, dusty and salty air around the Basilica. Despite the constant contact of hands and kisses of thousands of pilgrims who venerated the Image and the continuous manual handling of the Tilma including the many different objects that touched it during the countless times it was subjected to scientific examinations, the Tilma remained in a state of perfect condition. No explanation was also offered by scientists as to why the Tilma is repellent to insects and dust. In 1789, Dr. José Ignácio Bartolache had two copies of the image painted on an identical piece of maguey cloth using the best techniques of that time and placed them in the same salty and humid environment around the Basilica. After several decades, the two replicas disintegrated. An attempt to "embellish" the Tilma was made which also proved futile: a crown was painted on Our Lady's head and angels in the clouds. However, unlike the Tilma, these additions have faded away and are no longer visible. The rays of the sun, for example, were coated with gold and the moon plated with silver, but these embellishments also worn away. In fact, the silver-plated moon turned black.

In August 7, 2009, researcher and physicist Dr. Aldofo Orozco told participants at the International Marian Congress on Our Lady of Guadalupe in Glendale, Arizona that there is no scientific explanation for the 478 years of high quality-preservation of the Tilma, or for the miracles of its preservation.

One of the most bizarre characteristics of the cloth is that the back side is rough and coarse, but the front side is as soft as the most pure silk, as was noted by painters and scientists in 1666, and confirmed one century later in 1751 by Mexican painter, Miguel Cabrera. But to the eye, it suggested a coarse weave of palm threads called "*pita*" or the rough fiber called "*cotense*", or a hemp and linen mixture: an ixtle - an agave fiber. An analysis of the fibers in 1946 concluded that the fibers came from the Agave plant, however, researchers could not figure out which of the 175 Agave species the Tilma was made from.

THE IMAGE OF OUR LADY

There is no explanation offered by NASA scientists on how the image was imprinted on the Tilma. There are no brush strokes, or sketch marks on it. The image also seems to increase in size and change colors owing to an unknown property of the surface and substance of which it is made. The colors actually float above the surface of the Tilma at a distance of *3/10th of a millimeter* (*1/100th of an inch*), without touching it. When examined less than 10 inches of the image, one can only see the maguey cloth; the colors totally disappear.

In 1936, biochemist Richard Kuhn, a Nobel Prize winner in chemistry, analyzed a sample of the fabric and ascertained that the pigments used were from no known source; whether natural, animal, mineral, or vegetable.

On May 7, 1979, Americans Dr. Philip Serna Callahan, a biophysicist at the University of Florida and an expert in infrared photography, and Jody B. Smith, a professor of aesthetics and philosophy at the College Pensacola, who are

both specializing in painting and members of NASA, photographed the image under infrared light and scanned at very high resolutions. After filtering and processing the digitized images to eliminate "noise" and enhance them, they discovered that portions of the face, hands, robe, and mantle had been painted in one step, with no sketches, or corrections, and no visible brush strokes or sizing used to render the surface smooth, no protective varnish covering the image to protect its surface. The Image changes in color slightly according to the angle of viewing, a phenomenon known as "*Iridescence*", a technique that cannot be reproduced with human hands. Scientists were unable to find any trace of paint residue or dye of any sort on the Image and yet the the colors maintain their luminosity and brilliance. What produced the colors on Juan Diego's cloak or how they were applied remains a total mystery of science. The quality of the pigments used for the pink dress, the blue veil, the face and the hands, or the permanence of the colors, or the vividness of the colors after several centuries, during which they ordinarily should have deteriorated, defy all scientific reasoning. The Image still retains its original colors, despite being unprotected by any covering during the first 100 years of exposure.

The bluish-green color of Our Lady's mantle is unique. It seems to be made of an unearthly shade that as yet no artist has been able exactly to duplicate. Moreover, scientists argued that a painter would be incredibly foolish to choose an Indian's tilma to work on and even more to paint right over the center seam of the cloak. And had the Virgin not turned ever so slightly to the right, the stitch would have divided her face. Just as astonishing is the fact that only the seam still holds the Tilma together. The law of gravity does not allow a single flimsy cotton thread to bind two heavier materials of cloth for more than ten years, much less four hundred and fifty. In addition, the coarse weave of the Tilma was utilized in such a precise manner as to give depth to the face of the Image.

According to the specialists of Kodak Corporation in Mexico, the Image is smooth and bears more resemblance to a color photograph than anything else. The Image has consistently defied exact reproduction, whether by brush or camera.
All who have scientifically examined the image of Our Lady over the centuries confess that its properties are absolutely unique and so inexplicable in human terms that the image can only be supernatural:

Our Lady's height in the Image measures four feet eight inches tall, from head to toe, and is represented as a young woman of *18* to *20* year old. The face is that of a "*mestiza*" - a mixture of Spanish and Indians race brought about by intermarriage.

Callahan and Smith further discovered that the Tilma maintains a constant temperature of *36.6º* to *37º*, (*98.6 Fahrenheit*) the same as the body of a living person.

Carlos Fernandez del Castillo, a gynecologist, examined the image and has determined that the gynecological measurements of Our Lady's physical dimensions indicated a woman who is pregnant entirely consistent with the stage of pregnancy on December 9th for Jesus birth to occur on Christmas day. A stethoscope was placed below the black band at the waist of Our Lady (a sign that she is pregnant) and heard rhythmic repeating heartbeats at *115 beats per minute*, the same as that of a baby in the maternal womb.

On December 22, 1981, at the Observatory Laplace Mexico City, Father Mario Rojas and Dr. Juan Hernández Illescas, a medical doctor and amateur astronomer, performed an astronomical study of the Image and analyzed the stellar arrangement that appear in the Mantle of Our Lady. They surprisingly discovered that the stars stunningly and accurately map out the various constellations of the Mexican sky. Even more remarkable is the "star map" on the mantle is in the reverse (the cardinal axis rotated 90 degrees counterclockwise): providing a view of the constellations from beyond them, as would be seen looking through them towards the earth. The constellations are consistent with what astronomers believe was in the sky above Mexico City on the day the apparition occurred - in the winter-morning solstice of December 12, 1531, Saturday, at 10:26AM.

Our Lady's cloak has 46 stars: 22 on her right side, and 24 on her left side. These 46 stars are the most brilliant stars that surround the horizon of the Mexican Valley which have been identified. The main constellations of the Northern sky can be seen on the right of the mantle. On the left, the Southern ones which can be seen from the Tepeyac in winter at dawn. The East is situated in the upper part and the West in the lower part. The Mantle is

opened and there are other groups of stars which are not marked in the Image, but they are present in the sky. The Boreal Crown is located above the Virgin's head; Virgo is on her chest, in the region of her hands. Leo on Her womb, precisely above the sign of Nahui Ollin, with his main star Regulo, the small king. Gemini, the twins, is found in the region of the knees and Orion is located where the Angel is.

It has also been found that by imposing a topographical map of central Mexico on the Our Lady's dress, the mountains, rivers, and principal lakes coincide with the decoration on the dress.

OUR LADY'S EYES

Scientists from the NASA Research Centre have conducted extensive tests on the fabric and image and have discovered no scientific explanation, since the picture is neither painted, dyed, or woven. Digital enlargements of the Image were made and it was discovered that the reflection of Bishop Juan de Zumárraga looking in astonishment could clearly be seen in the pupil of Our Lady's eyes. Further study of the photographic enlargements and rigorous investigations of Our Lady's eyes (*only about 1/3rd inch in size*), have revealed not only the minuscule human image of a bearded man clearly identifiable in the eyes that no artist could have painted, but all the optical imaging qualities of a normal human eye, such as light reflection, image positioning, and distortion on the cornea which are impossible to obtain on a flat surface. When the eye of Our Lady is exposed to light, the retina contracts, and when the light is withdrawn, it returns to a dilated state, just as happens with a living eye. **Our Lady's eyes have been ophthalmologically determined to be alive on the Tilma!**

In 1929, Alfonso Marcué González, the Basilica's official photographer, took black and white photographs of the Image and after careful examination of the photographic negative, found a clear image of a bearded man reflected in the right eye of the Virgin. He immediately informed the authorities of the Basilica who sworn him to complete silence about the discovery, which he complied.

More than 20 years later, on May 29, 1951, Jose Carlos Salinas Chavez, while examining a good photograph of the face, rediscovers the same image of a bearded man reflected in the right eye of the Virgin, in the same place which it could be projected in an alive eye. Since then, many people had the opportunity to examine closely the eyes of the Virgin on the Tilma, including more than 20 physicians, ophthalmologists.

The first one was on March 27, 1956, when Dr. Javier Torroella Bueno, MDS, a prestigious ophthalmologist, discovered the presence of the triple reflection (Samson-Purkinje effect) in the eyes of the Virgin - a characteristic of all live human eyes wherein the images are located exactly where they are supposed to be according to such effect, and also that the distortion of the images agree with the curvature of the cornea. In July of the same year, another noted ophthalmologist, Dr. Rafael Torrija Lavoignet, similarly examined the eyes of the Image with an ophthalmoscope in great detail and discovered that the eyes have the three refractive characteristics of a human eye. He also found human figure in the corneas of both eyes, with the location and distortion of a normal human eye and specially noted a unique appearance of the eyes: they look strangely "alive" when examined. By 1976, some twenty doctors had confirmed, orally and in writing, the "unexplainable presence" of a man with a beard in the cornea and lenses of the Virgin's eyes.

In 1979, Dr. José Aste Tonsmann, PhD, a Peruvian ophthalmologist and an expert at IBM in the digital processing of images, and who for over 20 years studied the Tilma, digitally enlarged the Image of Our Lady's eyes by *2,500 times* the actual size under extremely high resolution and had found not only a single figure, but images of all the witnesses present when the Tilma was first revealed before de Zumárraga in 1531, plus a small family group of mother, father, and a group of children, in the center of Our Lady's eyes, 13 persons in all. The size of that scene is about *1/100th of an inch*. The Iris of the eye magnified, and through mathematical and optical procedures, Dr. Tonsmann was able to identify highly detailed images of at least 13 people imprinted in the eyes who are all present in both eyes: "the Indian", "bishop Zumárraga", the "translator", "Juan Diego showing the tilma" and below said images, "the family", but different in proportions, as would happen when human eyes reflect the objects before them. There are two scenes: the first contains the Bishop Zumárraga gawking at Juan Diego opening his Tilma and discover the image of Mary; the second scene, much smaller than the previous one, is located in the center of the eye and contains a typical family picture of Native Americans: a couple with several children around. The two

scenes are repeated in both eyes with amazing accuracy, including the size difference caused by the greater proximity of an eye to the other, against the objects portrayed.

Dr. Tonsmann used digital technology similar to that used in the images received from satellites and space probes in transmitting visual information. The image of Bishop Zumárraga in the eyes of Our Lady was also digitally enlarged *1,000 times* than the actual size to be able to see what is reflected in his eyes. The eye of the Bishop contains the image of Juan Diego opening his Tilma before the bishop. The size of this image? A quarter of a micron, which is *¼ of a millionth of a millimeter*!

In summary, the Our Lady's eyes bear a kind of instant picture of what actually occurred at the moment the image was unveiled in front of the bishop and other witnesses on December 9, 1531.

The figures are not visible to the human eye, except for one: that of the Spaniard, which is the largest. Nobody could have painted such tiny silhouettes. In the center of the pupils on a much smaller scale you can see another "scene", totally independent of the first. This is an Indian family composed by a woman, a man and some children. In the right eye, there are other people standing behind the woman. Below are the descriptions of each of the 13 figures as found in the eyes of Our Lady:

Figure (1) An full-length Indian seated on the ground with head lightly lifted as if looking up, sign of attention and reverence. He has a kind of hoop in his ear and sandals in his feet.

Figure (2) A white bearded elderly man with a bald patch, prominent straight nose, deep-set eyes that are looking down, believed to be Bishop Zumárraga as he appears at Miguel Cabrera's 18th century painting.

Figure (3) A young man whose features show amazement, seemingly speaking to Bishop Zumárraga. Since the bishop did not speak Nahuatl, it is believed that this young man was an interpreter named Juan Gonzalez, a Spanish born between 1500 and 1510.

Figure (4) Juan Diego, a middle-aged man, with indigenous aspect, with light beard and mustache, hook nose and half-opened lips, and wearing a coned hat - a kind of hat commonly worn by indigenous people working in the fields at that time. He has a Tilma tied around his neck, seemingly extending his right arm and unfolding his own Tilma before the bishop.

Figure (5) A black woman. Behind Saint Juan Diego, appears a woman of dark complexion, possibly a slave who was in the bishop's service. Father Mariano Cuevas wrote in "Church History in Mexico" that Zumárraga said in his will that he released the slave. She was called Maria.

Figure (6) In both corneas, there appears an unknown man with Spanish features who looks on pensively, stroking his beard with his hand. He is looking to the place where Juan Diego is unfolding his Tilma.

Here is a mystery inside the mystery composed by **Figures 7, 8, 9, 10, 11, 12** and **13**. In the center of both eyes, there appears a group of denominated indigenous family. These images (**Figures 7, 8, 9, 10, 11, 12** and **13**) have different sizes compared to the other figures. However, these people have the same proportion and are part of a different scene:

Figure (7) A young woman with delicate features seemingly looking down. She has her hair wove with flowers. Over her back is a baby in a "*rebozo*" **Figure(8)** - a long woolen or linen scarf covering the head and shoulders (also used as a sling for holding a baby; traditionally worn by Latin-American women).

In a lower level, and to the right, there is a man with a hat **Figure (9)** and a couple of children, a boy **Figure (10)** and a girl **Figure (11)**. Two other figures, a middle-aged man **Figure (12)** and a middle-aged women **Figure**

(13) who stood behind the young mother **Figure (7)**.

Dr. Tonsmann, in his book, "El Secreto de sus Ojos" (The Secret of Her Eyes), complete with details and photographs of his last studies of the eyes of Our Lady on the Tilma, and perhaps one of the most fascinating aspects of the studies, concluded that Our Lady of Guadalupe not only left us her miraculous Image as proof of her apparition but some important messages which were hidden in the eyes on the Image until our times, when new technologies have allow them to be discovered, when they are most necessary.

In 1991, an analysis made by outstanding ophthalmologists, identified normal microscopic network of veins and artery circulation in the free edge of Our Lady's eyelids and the cornea. According to the ophthalmologists who examined the eyes, no painter would have been able to humanly reproduce such precise microscopic details.

Miracles Attributed to the Image of Our Lady of Guadalupe
While the above findings are miracles in itself, the following are some of the recorded miracles attributed to the Image of Our Lady of Guadalupe:

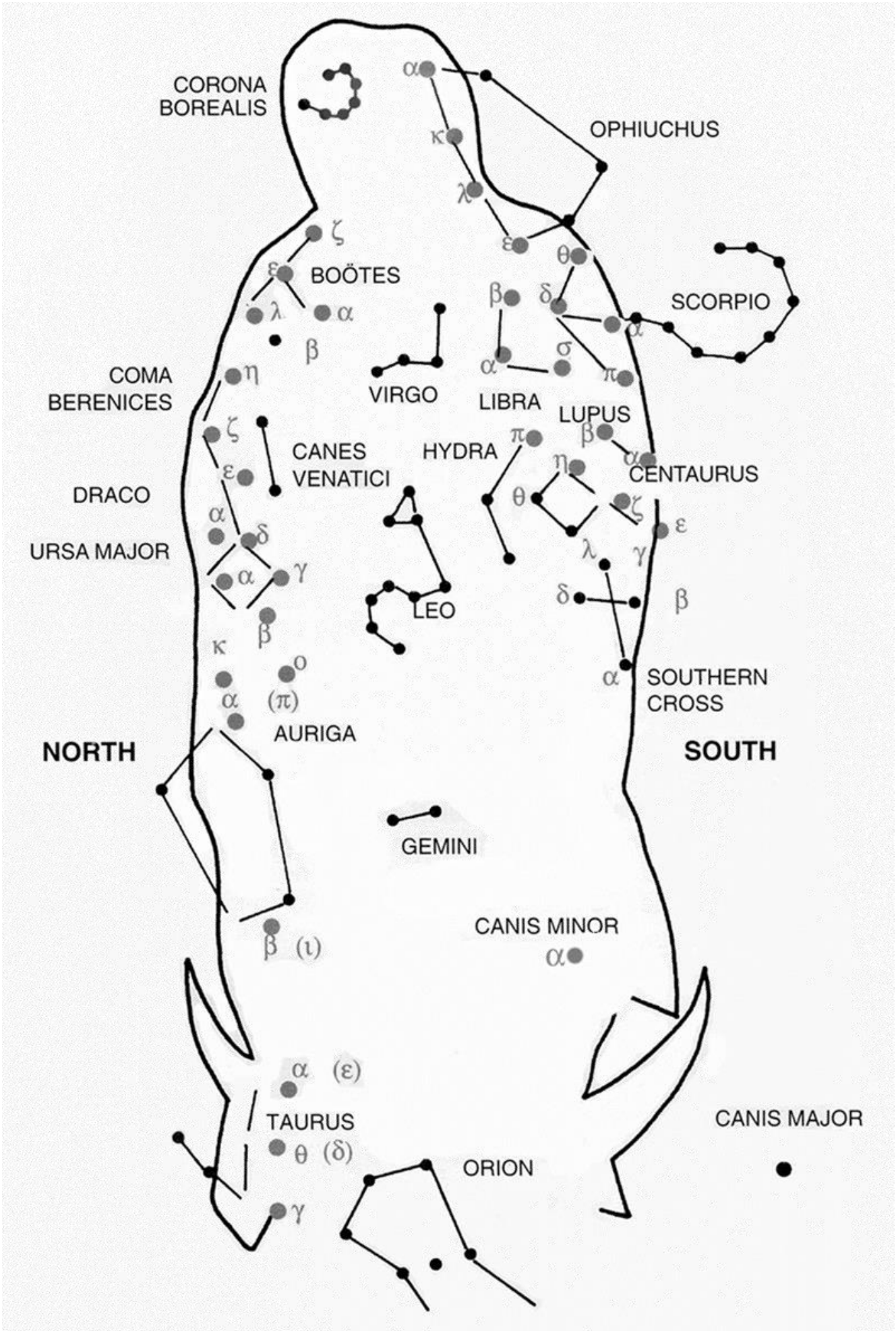
Only a few days after the miracle, on December 26, 1531, while the Indians were celebrating the swiftly completed construction of the chapel, and as was the custom of the Chichimecas playing with bows and arrows and dancing. While some celebrants fired arrows into the air in jubilation, one of them shot an arrow, and accidentally pierced the throat of an Indian who was walking with a group carrying the Tilma to the hill of Tepeyac. The Indian was killed instantly when the arrow pierced his neck. The corpse was carried into the chapel and laid beneath the sacred image. The crowd prayed aloud to Our Lady of Guadalupe for a miracle. Minutes later, after having extracted the arrow right in front of the mantle, the man regained consciousness and rose, completely healed. Only the scar remained visible until the day he died. Following this impressive feat, 9 million Indians converted to Christianity. Spaniards and Mexicans who were mortal enemies embraced one another with joyous affection.

In 1785, a worker, while attempting to clean the glass covering of the Tilma, accidentally spilled a 50% nitric acid solvent on the upper right side of the Tilma that did considerable damage. During the period of 30 days, without any special treatment, the affected fabric re-constituted itself miraculously.

On November 14, 1921, a bomb with 29 sticks of dynamite was planted by Luciano Perez, a Spanish anarchist, in a flower arrangement on the altar under the Tilma which exploded and broke the marble altar rail, the marble floor and widows 150 meters from the explosion, but unexpectedly, neither the Tilma nor the normal glass that protected the image was damaged or broken. The only damage near the Tilma was a heavy brass crucifix twisted by the blast. Since 1993, the Tilma is protected by a bullet-proof glass in the Basilica of Guadalupe.

Recently on July 31, 1997, Father Xavier Escalada, S.J., presented to the public an extraordinary evidenciary document in a sheet of parchment which contains written records of the Apparition of Our Lady of Guadalupe to Juan Diego which occurred on four separate occasions in December 1531 on the hill of Tepeyac north of central Mexico City. The parchment first came to light in 1995, and in 2002 was named *"Codex 1548"* or *"Codex Escalada"* in honour of Fr. Xavier Escalada S.J. who brought it to public attention and who published it in 1997.

For the full account of the apparition, please click the **Apparition of Our Lady of Guadalupe to Juan Diego** as it appeared in the Codex Escalada.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