



Solar Illumination talk at Concepción  
August 15<sup>th</sup> 2019

by George Dawson

Good evening, welcome to Mission Concepción. Thank you for being here to celebrate the Feast of the Assumption of Mary and to marvel at the dual illumination. My name is George Dawson and I was asked to provide a few words about the illumination.

The climax of the illumination occurs at 6:30. I will end my remarks at 6:25 so we can observe it in prayerful silence. Mass will be at 7:00

In 2003 at this moment in time I was sitting in a pew as you are and saw my first illumination. Cloud cover permitting, I hope we can all share that experience tonight.

This illumination has repeated for 264 years. Tonight, we will see exactly what the friars and the people of this mission saw. No doubt about it. With one difference. In 1755 there were no pews in the church. You stood or sat on the wooden floor,

Can I prove that we see what was seen in 1755? Yes, I can. The United States government operates a world class observatory that offers a number of free astronomy related computer programs. One program will calculate the position of the sun in the sky – where is it relative to the horizon and how high in the sky it is -minute by minute, beginning with the first day of January in the year 1700. I compared August 15 1755 and today's date and got an identical result.

In 1755 up the road from us was the Villa San Fernando, a small town on the frontier of Spanish Texas. A lot has changed since then.

But the one constant all this time has been the sun in this church. A church that was designed to catch the sun; to bring sunlight into the church on days of religious significance, of seasonal significance and of astronomical significance. This is sacred geometry to highlight altars, tabernacles, statues and architectural features.

Why was this done? When the Spanish came to the New World, they found native peoples for whom the sun was extremely important. The sun held a major role in the native's world view, in their religion, in their concept of time. It was an organizing force of their lives. And some of these New World people created their own unique sun illuminations.

To assist in the conversion of the native people, the Franciscan missionaries used the sun as a celestial metaphor for Christ the Messiah and as such for the Son of God and as Light of the World. They brought the powerful image of the sun into New World Catholic worship and symbolism.

Over the front door of this church is a carving of a chalice being elevated by two angels with the consecrated host emerging from the chalice. The host is depicted as a sun burst.

There is a face frescoed in the ceiling of the convento, the one-story building attached to this church. It is not the “Eye of God”, nor is it a Spanish Medallion. It is the “Solar Christ.” The Helio Cristo. A Spanish face with a native skin color superimposed on a stylized design of the sun. It was a major symbol of the Franciscan missionaries and is believed to be the only example left in the U.S.

Tonight, we will see the Assumption double illumination, as Father Garcia named it. The sun comes through the round window in the west wall and travels on the floor crossing under the center of the dome at 6:30 PM. At the same time the sun, through another window in the dome, illuminates the painting of Mary over the main altar.

And tonight I will also tell you about the Last Judgment illumination and the Resurrection illumination that happen here on days other than today.

Concepción is the only one of the five original stone mission churches in this river valley that was completed as designed and has never collapsed. Further, it is the only Spanish Colonial church in the Western Hemisphere that has never collapsed. Between here and the tip of South America it is unique. You are truly in original walls, original spaces, and with the original 1755 color palate and designs recreated on the walls, vault and dome in 2010.

The sun enters the church, as sunset approaches, through the round oculus window in the west wall. It initially is visible around the third row of pews on the north side of the main aisle. But is hard to see the shape until it moves out of the pews and on to the floor.

The illumination moves towards the east and slightly to the south on a line that takes it under the center of the 54-foot-high dome. Then it continues on the same line to the east wall of the church above the right “wing” of the altar taking about 45 minutes.

The sun on the floor has a circular shape, bright at the center fading out to blurred edges. I was surprised the first time I saw the illumination. I had expected it to be evenly bright with crisp edges. I must have watched too much Batman on tv with my kids.

The blurry edges are actually the shadow of the sides of the round window frame through which the sun passes

At the same time the sun through the oculus is on the floor, the sun is also coming through the west window of the dome directly over my head. Behind me you see the east window in the dome. The west window is just like that only over my head.

It is a rectangular window and you will see the light on the wall to the left of the altar. The light will move up and to the right and exactly when the round oculus window light crosses under the dome, the light from the west dome window will shine on Mary. At that instant we have the double illumination. The sun through the dome window will then continue to move upward and to the right on the wall.

### **Let's move on to the Last Judgment Illumination**

The sun has now been in the church for more than a week. Gradually moving to where tonight it passes under the center of the dome. Over the next two weeks it will follow the same path but because the sun is lower in the sky each day it is moving closer to the main altar each day. It will move 23 feet closer and on August 29<sup>th</sup> the sun through the round window will climb altar steps and move across tabernacle.

This illumination that happens in August will happen again in April. Not enough time to explain the astronomy behind this but believe me and I have the pictures to prove it. Sun crosses the tabernacle on August 29<sup>th</sup> and again on April 13<sup>th</sup>. These two days are unique. The sun rises at the same time on both days and sets at the same time on both days. And they cross over the tabernacle at the same time each day (7:02 PM).

These are the only two identical days of the year.

What is its significance? Here is what I think it means.

We know the friars at this time had an Apocalyptic point of view. The world was going to end not immediately- but not thousands of years in the future either.

We see this belief reflected in the two small side chapels at the back of the church. One was named for the Archangel Gabriel and the other for the Archangel Michael. Gabriel sounds the trumpet signaling the end of the world. Michael is at the gates of heaven admitting the saints and keeping out the devil and his fallen angels.

The graveyard was in front of the church. You are to be reminded of your mortality entering and leaving the church. Are you prepared for the Last Judgment?

Why this illumination? My personal answer: So, what is a day like after the end of the world? 1) No days. It is infinity 2) one very long day 3) all days are the same. I believe the friars, by selecting these dates, are reminding us of the end of the world and the Last Judgment and urging us to be prepared.

I am told this is the only known illumination -world wide - using these two days.

### **Resurrection Illumination**

In early December the sun comes through the rectangular south window of the dome and into the north arm of the transept. Cornice to cornice. Works its way to the floor and then up and across the face of the side altar and up to the opposite cornice. It takes three hours and 22 minutes.

On December 21<sup>st</sup> it crosses over the altar tabernacle marking the midwinter solstice. Why this day? Which is often called the shortest day of the year.

The midwinter solstice celebrates the end of winter, the end of the dark times, the coming of Spring, coming of light, the coming of the sun, of Christ, of Resurrection and Salvation.

In early December the sun crosses the face of the north altar below the tabernacle on the Feast of the Immaculate Conception, December 8<sup>th</sup> and the Feast of the Virgin of Guadalupe, December 12<sup>th</sup>.

The Assumption and Last Judgment illuminations through the West windows happen in the evening. The December illuminations on the north altar happen around lunchtime between 12:40 and 12:47 PM. The church is open then, so you can drop by and see the illumination. You should be here before noon.

### **Now let me shift to the sun in churches elsewhere.**

Today there are twenty-two missions founded by Franciscans in California. These churches were founded 38 to 92 years after Concepcion.

Professor Ruben Mendoza is an archeologist, and a pre-Columbian scholar at California State University in Monterrey Bay. He is the super star of illuminations. Thus far he has identified some sixteen illuminations in the California mission.

In total he has found about sixty churches in CA and NM oriented to create "solstice, equinox and feast day solar illuminations of main altar tabernacles."

### **Our Mission Espada**

At Espada the church was laid out by the same master mason, Antonio Tello, who started Concepcion. Except it is reversed with the door is at the east end and the altar at the west end. (Difference of 1.7 degrees) It is a sunrise illumination using the only window over the door in the east wall.

At dawn on October 4<sup>th</sup>, the Feast day of St. Francis, the sun rising over the San Antonio river enters through the one window in the east wall and the statue of St. Francis over the altar begins to glow with sunlight, for 33 minutes.

In the past our local Franciscans have held a sunrise service open to the public. You might check with the parish later in the year to see if there will be a service this October

**Mission San Juan** confident no illuminations. The existing church, is the third church started there and was fitted into available space in the compound which determined its orientation to the sun.

**Mission San Jose** again, I was unable to come up with anything that fit the orientation of the church. I am satisfied there are no illuminations.

That was a lot in a short period of time. Thank you for being here tonight.