

CHAPTER XX

THE SEISMOLOGICAL OBSERVATORY OF SPRING HILL COLLEGE SPRING HILL, ALABAMA

By James B. Macelwane, S. J.

The early history of the Spring Hill Observatory from 1910 to 1926 is intimately bound up with the life work of Father Cyril Ruhlmann, S. J.

In a letter to Father Anthony J. Westland, S. J. (now Father Augustine of the Cistercians of the Strict Observance of LaTrappe), written only a few months before the close of his life, Father Ruhlmann said: "The Wiechert had been ordered before I came to Spring Hill in 1909 late August. It arrived in 1910. I had nothing to do with it and did not know what it was. The cases were not opened until I was asked to take up the physics class. Nobody had said a word about it before. I was told to set it up. What was it?....." We may insert a remark from another account in which Father Ruhlmann had said: "Reverend Father Odenbach of Cleveland, who had promoted the work in Jesuit Colleges in the United States and Canada, encouraged me to undertake the work at Spring Hill.....". Continuing the Westland letter, "Kunkel (Father Anthony Kunkel, S. J.) came up from New Orleans to help me. I set it up and during the Christmas vacation it made the first record, a violent earthquake in Tashkent, Turkestan (January 3, 1911).

I stuck a hole in the north room in Yenni Hall and built a concrete pier. For protection I had a glass case built over it."

In the other account mentioned above he wrote:

"The study of the observations of two Englishmen in India and of Omori in Japan aroused my interest in the science of seismology..... Before long I began to receive requests for reports of my records. Doctor (Otto) Klotz, Chief Astronomer of the Dominion of Canada, was most anxious to have my cooperation on account of the triangular (sic) position of my station. There were then very few working stations on this continent. He became my chief instructor and sent me every possible help for making the reports. Professor Doctor Zeissig of Hesse Darmstadt, Germany, was also of great help.

"In the beginning, the making of the reports implied very tedious calculations. But before long, Zeissig and Klotz, especially the latter, worked out and constantly improved a series of tables that changed the tedious labor into one of pleasure. It was he who proved the origin of the mysterious microseisms that had been so puzzling to all of us in the beginning. One day he went out of his way to pay me a visit at Spring Hill. He told me that his theory about microseisms was then reduced to absolute certainty. He had established on the coast of Maine an instrument that recorded the periods of the ocean waves. This instrument was synchronized with the seismographs in Ottawa. The microseisms of the two

instruments were absolutely synchronic. So at last the mystery was solved. These sets of small waves are set up whenever a high atmospheric wave rolls from the mainland over the sea. In my experience hurricanes in the Gulf produce the same effect."

Returning now to Father Ruhlmann's letter to Father Westland, we read that the Spindler and Hoyer clock which had been furnished with the seismograph gave Father Ruhlmann much trouble in timing the arrival of phases exactly to the second. This clock has a wooden pendulum bar which is much affected by changes in relative humidity. Father Ruhlmann says: "The variation of the clock gave me great trouble. Father (P. E.) Elfer (S. J.) encouraged me to make a compensation pendulum. I hesitated. He said, 'You can make it. I will help you.' He did. He studied the scientific end of it and I was the mechanic. I made the changes for the escapement connection. The barrel is a bored 3" steel shaft. Father Elfer's father paid for 20 pounds of mercury. We timed the pendulum's variation by the stars. Father Elfer rigged up a skeleton telescope at a south window with a large lens you must still have and an eyepiece of the ordinary telescope. He made a grid of five spider webs, illuminated them with a battery bulb; and night after night we took the passage of a star over the spider webs, he calling out the passage of the star from spider web to spider web and I marking down the seconds of the

clock. Then I made a crystal receiving set to get the time signals from Arlington. After watching and checking for three years, the clock scarcely varied a second per month. I got the geographical coordinates from the book of the Congressional publication: The Triangulation for Determining the Great Arc from Maine to New Orleans. An observation tower was close to us, at the end of the old street car line..... My soul was in the work and I kept it up until 1921 when a long term in the hospital caused the first serious interruption. That time somebody fooled with my pendulum and spoiled the work of three years. I never wanted to know who did it. I had also a little platform screwed to the shaft about one-third from the top. By adding or taking off one gram the timing is done in a microscopic way."

In his other manuscript, Father Ruhlmann added:

"As time went on I exchanged records with stations all over the world: France, Germany, Iceland, Spain, Java, Japan, China, Hawaii, Mexico and many stations in the United States and Canada. My work was interrupted several times by sickness. At last in 1926 I had to give up entirely. I am proud to say that the very last thing I did was to attempt to translate a beautiful record into a code message to be sent to Washington. I tried twice but had to give up and send the message to Father Macelwane in St. Louis. That was the end of my work in seismology which I loved so much."

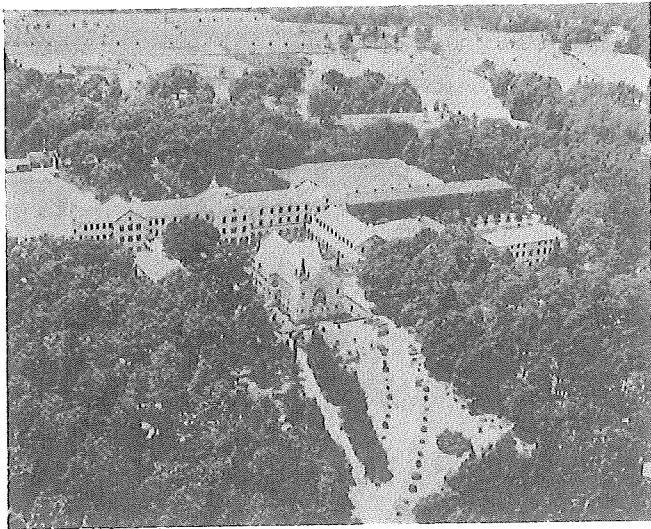


Reverend Louis J. Eisele, S. J., Present Director of the Spring Hill Observatory Checking
Father Ruhlmann's Compensated Clock

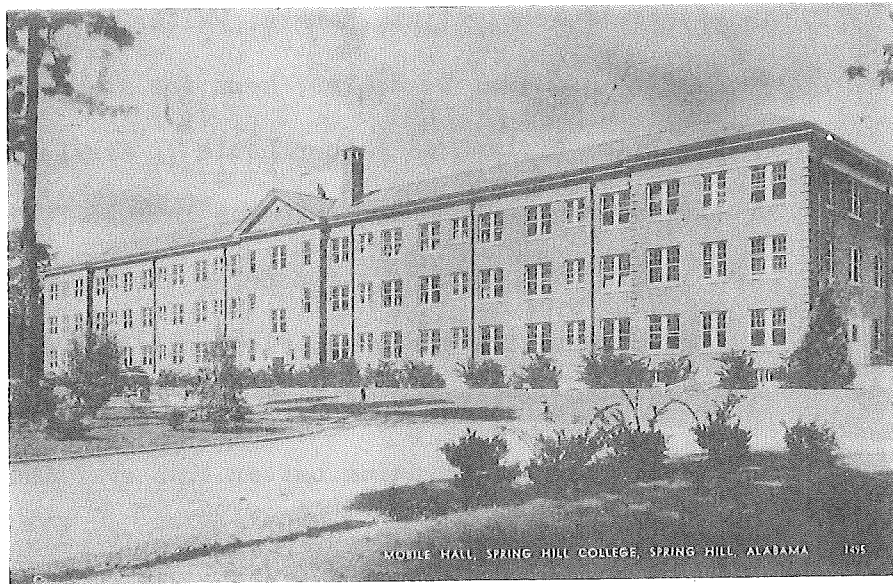
Some time previously the Wiechert seismograph had been removed from the physics laboratory in Yenni Hall to a subterranean vault under the Administration Building. During the year 1926 it was not in operation. In 1927 Father Karl A. Maring, S. J., was appointed Director of the Observatory. He moved the seismograph from the underground vault to its present location in a room just outside the physics laboratory in Yenni Hall. Father Maring remained in charge until the Fall of 1929 when he left for doctorate studies at Saint Louis University. He was succeeded in 1929 by Father Anthony J. Westland. The latter continued in charge until the autumn of 1935 when he departed for Saint Louis University to take up graduate studies in Geophysics.

The seismograph station seems to have been idle all the following years until the return of Father Westland in 1939. He now started a vigorous campaign to improve the station. He secured the loan of a Wood-Anderson seismograph from Xavier University, Cincinnati, and a Galitzin-Wilip recorder for one year from Saint Louis University in 1940. In the following year a Bosch photographic recorder was loaned by the United States Coast and Geodetic Survey and returned in 1943.

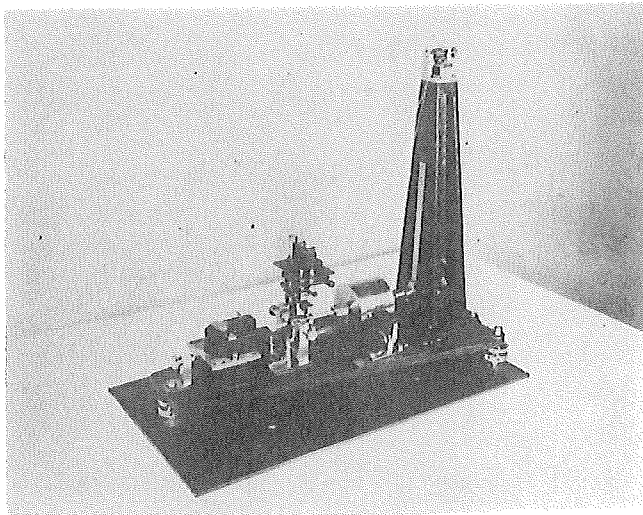
In 1941 the two McComb-Romberg seismographs and photographic recording drums which had been used by the Byrd



Airplane View of Spring Hill College Campus



Mobile Hall, Spring Hill College
Spring Hill, Alabama



McComb-Romberg Tilt Compensation
Seismograph

expedition in Antarctica were sent to Spring Hill by the Franklin Institute in Philadelphia and were set up and adjusted by personnel of the United States Coast and Geodetic Survey, in the underground vault beneath the Administration Building where the Wiechert seismograph had been.

When Father Westland was sent to El Paso, Texas, in 1944 he took the Wood-Anderson seismograph with him and set it up in Loretta Academy there. In the meantime a succession of Jesuit Scholastics, Messrs. Walter J. Rhein, Walter L. Furman, and Carl T. Miller, kept the station in operation until the arrival of Father Louis J. Eisele, S. J. in 1946 and during his temporary absence in 1946-1947.

Eisele remodeled the McComb-Romberg seismographs and recorders and readjusted the compensated pendulum in Father Ruhlmann's clock. Under his direction the station is now operating better than ever and is furnishing excellent observations.