

Alexander Calder's Flying Saucers



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One of Alexander Calder's largest artworks can be found in Venezuela, at the University of Caracas. It is the result of a unique collaboration between an architect, an acoustician and an artist. The university's great fan-shaped auditorium, designed by Carlos Villanueva in 1953, proved to be acoustically problematic and the engineer therefore proposed a solution with interior claddings. This was rejected, however, because it would radically change the shape of the hall. Finally, Alexander Calder was approached. He came up with an innovative installation consisting of 30 reflectors shaped as flying saucers and suspended from the ceiling.

By Jørgen Petersen

ONE of Alexander Calder's largest stables can be found at the University of Caracas. Most people will no doubt assume that this gigantic spatial installation is merely a visual adornment. It has, however, an auditory function as well, providing the right conditions for sound perception of speech and music in this great hall, which seats 2,600 people. Its conception is an interesting example of a collaboration between an architect, an artist and an acoustician.

In 1950, the architect Carlos R. Villanueva (1900-1975) designed a proposal for the university's great auditorium, conceived as a fan-shaped space with a vaulted plastered ceiling suspended from the supporting roof structure. Villanueva asked the American acoustician Robert B. Newman to evaluate the project.

Newman had great hesitations about the acoustic qualities of the space; the vaulted ceiling would result in a very uneven sound distribution pattern with echo-like sound concentration in some places and "dead spots" in others.

Newman recommended that the project should be revised with interior cladding of walls and ceiling that would radically change the shape of the hall. Villanueva didn't like the idea of this, and Newman suggested that the problems should instead be solved with the use of flat and rectangular reflectors attached to the ceiling and walls in such a way that you could still discern the actual shape of the surfaces behind them.

But Carlos Villanueva wasn't enthusiastic about the rectangular reflectors either. He therefore asked Alexander Calder to join in collaboration about an artistic design

of the required acoustical elements. Calder accepted the challenge and created, through this unconventional collaboration, his largest stable so far.

"The Flying Saucers", which he called it, comprises in all 30 individual elements. These are made of two layers of plywood mounted on a 10-20 cm frame structure which is attached to steel wires. Together, the reflective panels cover an area of approximately 600 m².

Although such a large multi-purpose space will rarely be high on the music-acoustical rankings, Aula Magna was in fact very well received in musical circles. After a concert tour with the New York Philharmonics, the conductor Leonard Bernstein declared that: "This hall is the best I have performed in during my tour in South America."

The reverberation time during concerts with an audience in the hall is said to be approximately 1.7 s at the frequency range of 500-1,000 Hz. For conferences, where speech perception is of paramount importance, the hall is "toned down" by attaching 25 mm fibre-glass mats to the backs of some of the reflective panels, thereby attaining a more appropriate reverberation time of 1.3 s.

Calder greatly admired Villanueva for his courage in believing in the flying saucers. He is quoted for saying: "What I did by suggesting them is nothing compared to his courage!" "None of my mobiles have had a more extraordinary and grandiose setting. This is one of the most important pieces in my oeuvre."

Aula Magna is a remarkable example of how collaboration between architect, acoustician and artist can result in a building which is of high artistic quality—both visually and auditorily.

< Interior view of the auditorium and the stage with Alexander Calder's "Flying Saucers", Photo by Paolo Casparini (Fundación Villanueva Collection).

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Jørgen Petersen (b. 1926), MSc in Engineering Acoustics, is joint owner of Consulting Engineers Johs. Jørgensen A/S. He was an associate professor in acoustics at the Royal Danish Academy of Fine Arts, School of Architecture, from 1963 to 1996. He contributed to the acoustics in Laugardalshallen, Reykjavik, the concert hall at Louisiana Museum of Modern Art, The Royal Danish Theatre and Tête Défense, Paris, among others. Jørgen Petersen is also the author of several books about acoustics.