

## REPLY

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Aveni's comments on my review essay do not increase his credibility. For example, in discussing the situation at Cuzco, why was it necessary to introduce "theodolite measurements from the established position of certain huacas" in order to deduce that the observation point referred to by the anonymous chronicler was on the Plaza de Armas? The chronicler referred to says specifically that the observation in question was made from a monument "in the middle of the plaza" (quoted by Zuidema in his comment above; cited by the same author on p. 257 of his article in the 1977 volume edited by Aveni). It was not I but Zuidema who argued that "all ceque lines are straight." What I said was "Some of the ceques may indeed have been straight lines," hardly the rigid position Aveni attributes to me. Aveni says "Our interpretation of the situation is uncomfortable for the contemporary Western mind to deal with." I could not agree more. The question is, would it have been more comfortable for the Incas?

Zuidema's comment is in part more valuable than the article I reviewed, because he presents some verifiable data that he says are the result of more recent research. It is unfortunate that more such specific evidence could not have been included in his 1977 "preliminary" statement. The significant information provided in his comment is the location of Huarhuaylla. I received a copy of this comment while I was in Cuzco and took the earliest opportunity to visit this hamlet. While Huarhuaylla itself is not visible from Cuzco, it provides, as Zuidema says, a point of reference for locating the sunset target point called Quiangalla. There is a ridge east of Huarhuaylla which forms the horizon for observers in Cuzco and a large area east and southeast of the city, and Quiangalla must have been located on this ridge. The entire ridge is so far north that no observer in the main plaza of Cuzco or at Coricancha would ever see the sun set there. Thus, there must have been more than one place in the Cuzco area from which sunset observations were made. Zuidema is right on this point, and I was wrong. The proof that observations were made from more than one point is a valuable contribution to our understanding of Inca astronomy. The reader will note, however, that this contribution depends on a topographic determination and not on astronomical expertise. Zuidema is also correct in pointing out that a

Quiangalla on the horizon ridge by Huarhuaylla is on a "straight line" down the Quebrada de Saphi to Coricancha. How "straight" the line is depends partly on the point on the ridge where one chooses to locate Quiangalla; there are no visible remains of observation markers.

Zuidema's suggestion, that the place where observations to Quiangalla were made was a Temple of the Sun called Chuquimarca, is ingenious. He elaborated on it in a paper he presented in Cuzco in 1980. Since it is not proper to comment in print on other people's unpublished material, I must reserve further remarks until he publishes his ideas on the *specific* locations of Quiangalla and Chuquimarca.

I continue to disagree with Zuidema's theories on the relationship of the ceques of Cuzco to Inca astronomy and the calendar, but a comment on a comment is not the appropriate place to discuss our differences on these subjects, differences that involve the interpretation of complex data. What is pertinent here is that I do not consider that Zuidema's speculations on the relation between lunar and solar observations provide any additional legitimacy to archaeoastronomy, as it is presently practiced in Mesoamerica and Peru.