

STAR CLOCKS: MESCALERO APACHE CEREMONIAL TIMING

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ABSTRACT/RESUME

The Mescalero Apache have learned to time important ceremonies by the stars. Their intimate knowledge of the skies is exemplified by the girls' puberty ceremonial, here described.

Les Mescalero Apache ont appris à organiser des cérémonies importantes suivant le mouvement des étoiles. Leur connaissance intime des ciels est bien montrée à travers la cérémonie de la puberté des filles qui est décrite ici.

Introduction

In the summer of 1974 I began formal fieldwork on the Mescalero Apache Indian Reservation in southcentral New Mexico. The vagaries of United States history and the Indian wars resulted in Mescalero, Chiricahua, and Lipan Apaches all living together on this reservation, originally provided for the Mescalero only, in a preponderately mountainous area hovering a few minutes on either side of 33° north latitude. *Approximately* 2,500 people are listed on Tribal rolls. Usually about 80% live on the 720 square mile reservation. During that summer fifteen years ago, I watched a girls' puberty ceremonial.

Ten years earlier, in 1964, as a young housewife and mother with a baby on my hip, I watched my first ceremonial, accompanied by my Apachean counterpart, a young wife and mother. She and I were brought together by serendipity and, during our initial conversation, I inadvertently asked a question in a culturally appropriate way, thus indicating knowledge that I did not possess at that time. The naive but fortuitous question brought a response that gave me my first ethnoastronomical data, although the term was yet to be invented.

Dissertation fieldwork concerning children's free play brought my daughter and me to the reservation for a twelve month stay in 1974 and 1975. We were guests of the Tribe and I had Council permission for my work. Despite my focus on children's free play, the girls' puberty ceremonial kept intruding. I was told that I could not understand play without understanding dance, which I could not understand without understanding religion, which I could not understand without understanding the girls' puberty ceremonial, which I could not understand without speaking to a Singer of Ceremonies, which I should do by finding Bernard Second, which I did. Bernard became my primary consultant and, after appropriate discussions, his family adopted us. A few years later he became the Head Singer of the summer ceremonial that is open to visitors. It is to Bernard that I owe my deepest debt.¹ This paper contains my current understanding of one aspect of the Mescalero Apache Girls' Puberty Ceremonial, timing by the stars.

The Timing Problem

From a creation story as told to me by Bernard Second:

And then, He, the Power.... lined up all His creation, And then He told the Sun, He said, "You I have created so that you will be My representative. You will be that which man sees." And

then the Moon, He told the Moon, "You will be their eyesight at night." And the Stars, He said, "When they travel, by you they will know the directions to guide them."²

Celestial phenomena guide people, provide the base metaphor by which much of life is structured, allow reference points, and indicate the Creator's care for Creation. I knew from observing, from my place behind Bernard as he sings the four nights of the girls' ceremony, that he looks to the sky while singing and that sometimes after looking to the sky, he will leave out a song or stretch out another song. But where precisely was he looking, to what was he attending, and how did he decide whether to shrink or stretch the songs?

Each time I asked the questions, no matter how cleverly I worded them, the response was the same, "Pay attention!" The knowledge I sought was, and is, men's knowledge. Once I earn it, I may discuss it; but I cannot ask questions to learn. Direct questions are improper at Mescalero in most circumstances and particularly direct questions from a woman concerning men's business. The answers given to such questions, if any answers are given at all, will be either half truths or outright falsehoods. Men do not teach such powerful and controlling things to women. Oftentimes, my unspoken questions would, however, be answered metaphorically or with stories such as the fragment I quoted to you; from those psuedo-answers, and from observation, I was to glean the information I sought. Both stories and observations had me craning my neck at night, wishing I'd paid better attention in the one astronomy course I'd taken. Bernard did his best to teach me by taking me outside at all hours of the night in both ceremonial and non-ceremonial times, and asking me what time it was. For a long time, I had to look at my watch to respond; that would frustrate him and again invoke a sharp, "Pay attention!"

A few things were clear. While I might use my watch, watches were not supposed to be consulted when singing in the ceremonial tipi. Also, the ceremony begins on the first day at dawn but before sunrise, for the sun rises slowly over the mountains ringing the ceremonial mesa. On the last day of the ceremonial the sun must "wash over" the girls, in order for the sun to be in the proper place at the proper time on the last morning, someone has to have an exquisite sense of both timing and the dramatic, for the rituals to affect all things being proper begin around 8 p.m. of the previous night.

On the morning of the last day (the morning of the fifth day by Anglo counting but the completion of the fourth day in Apache reckoning), the Singers "pull the sun" (*Haigha*) up over the mountains so that it, as the

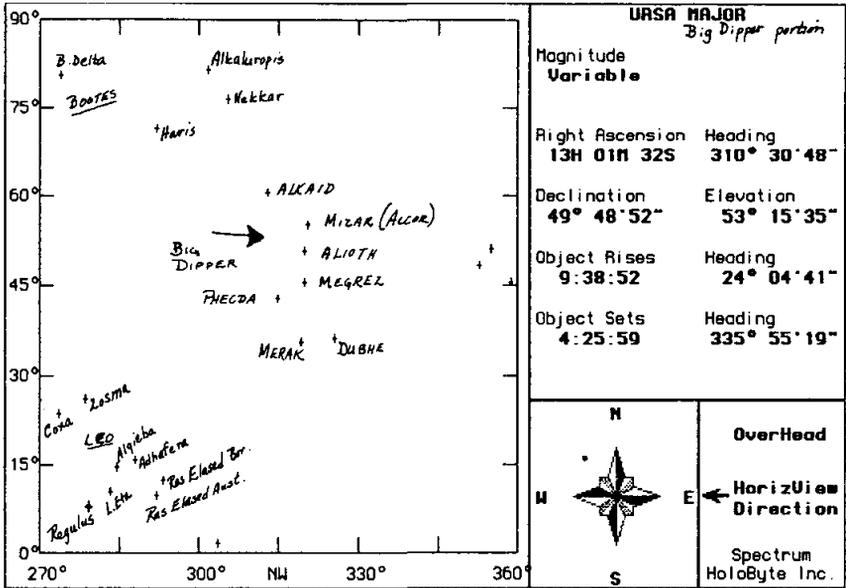


Figure 1: 10:02 p.m. MDT (7/6/84)

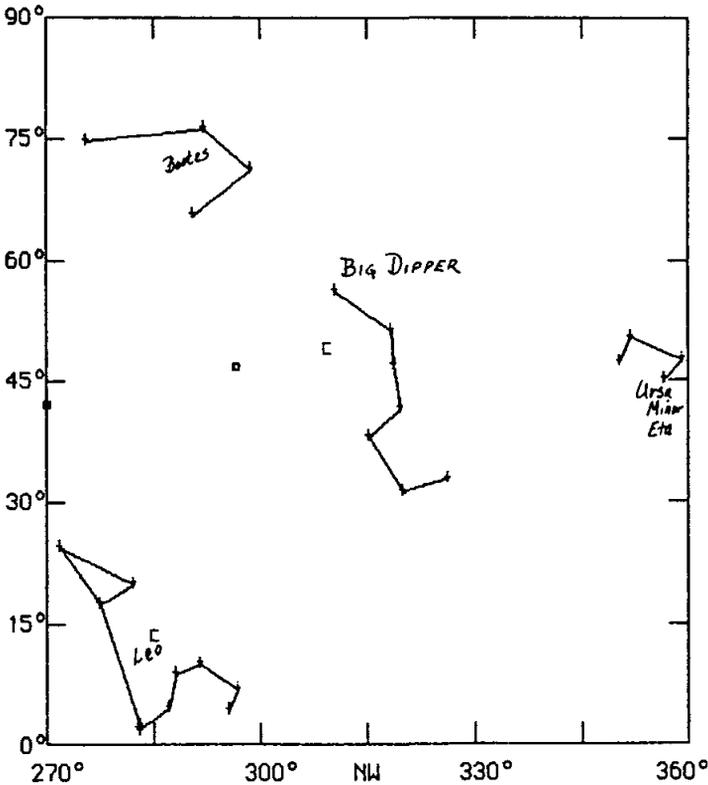


Figure 2: 10:30 p.m. MDT (7/6/84)

physical representative of the Creator, may bless the newly-painted girls by washing over them. In order for this to occur on time, there must be proper timing from the night before; for on this last night, songs are sung throughout the night, save for short rest periods. The full round of songs must be sung or the ceremonial is incomplete. If that full round is not properly timed, and some Singers never do seem to get it quite right, then everything will go askew and the sun will already be up, when it is pulled and is supposed to strike the sun symbols that have been painted carefully on the Singers' hands. When the ritual events are not timed properly to coincide with the appearance of the sun on the last morning, it will not wash properly over the girls; and they will not be able to run properly into its full morning rays. While such an improperly timed ceremonial is not a waste, it will not be considered to be one of the better ones. The problem is complicated indeed.

The Solution

Constraints of time and space preclude an explanation of the full timing of the ceremonial and all the stars and constellations that are involved. I will instead focus on two important aspects of the timing sequences. These are, first, the timing of the last night's singing which is accomplished primarily through the star clock provided by the Big Dipper (*nakakus*; with cross-checks provided by other stars) and, second, the timing of the pulling of the sun which is dependent upon the *appearance* and movement of Morning Star (*suus bine*, Capella).³

At that time, in 1983, astronomers in the audience insisted that the Big Dipper does not set, as I claimed it did. By Western European reckoning, the Big Dipper is a circumpolar constellation that, by definition, rotates around the north celestial pole and does not set. However, this does not take into account variations in local horizons but rather assumes a flat horizon. This is so much canon in astronomy that star charts for the latitude of Mescalero aver that particular stars in the constellation "do not set." As we will see, the Big Dipper does set at Mescalero at the site of the ceremonial mesa.

Beginning with our family's camp area on the south side of the ceremonial mesa let us first scan the horizon beginning in the northwest with the Big Dipper's appearance at 10 p.m. Mountain Daylight Savings Time. The full sky panorama was accomplished by moving to the NNE at 10:04 p.m. to the ENE at 10:10 p.m.; to the SE at 10:13 p.m.; to the SSW at 10:18 p.m. (Spica was below the lowest tipi pole; Arcturus was a bright star above the poles; Saturn was in the 3 o'clock position to the moon; Mars was in the 5 o'clock position to the moon; and, of course, there was a full moon - each of these is important for timing, but will not be discussed here), and

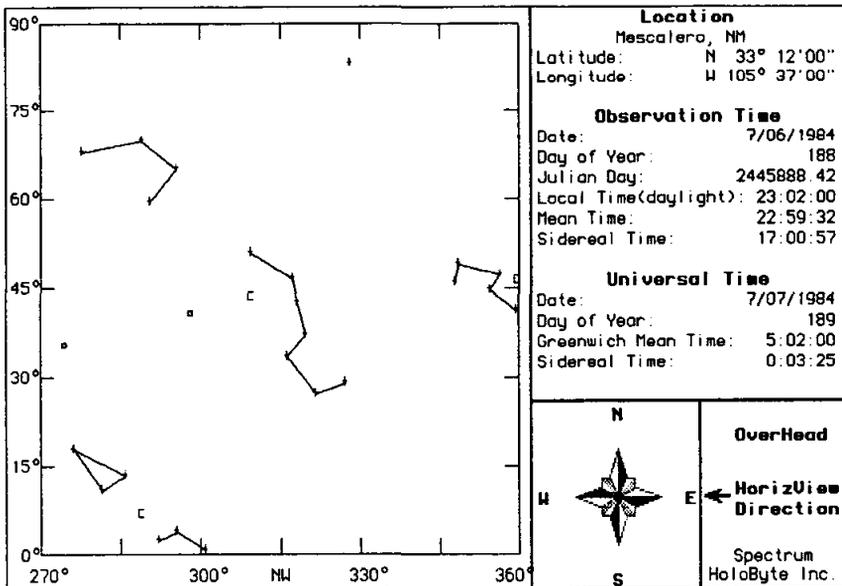


Figure 3: 11:02 p.m. MDT (7/6/84)

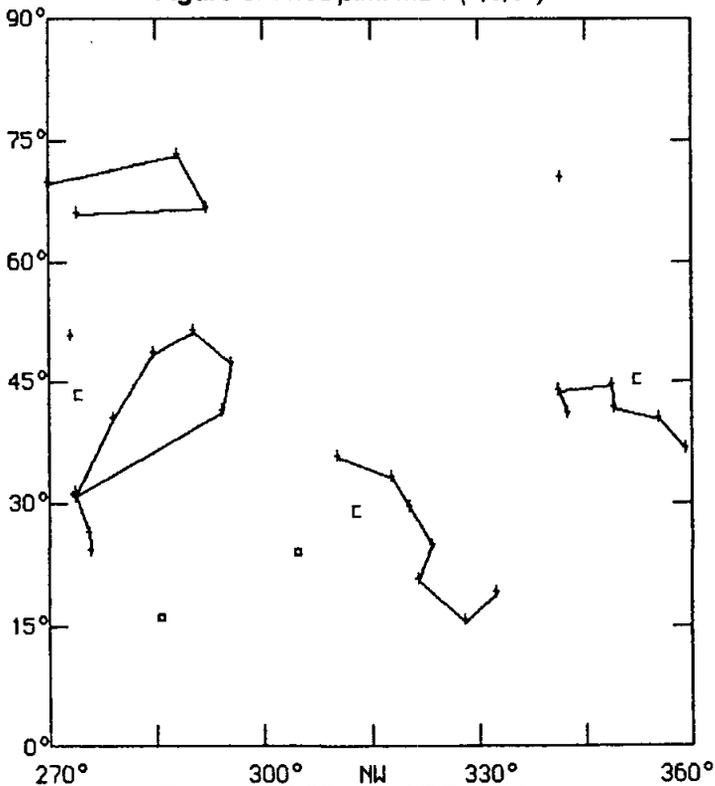


Figure 4: 12:36 a.m. MDT (7/7/84)

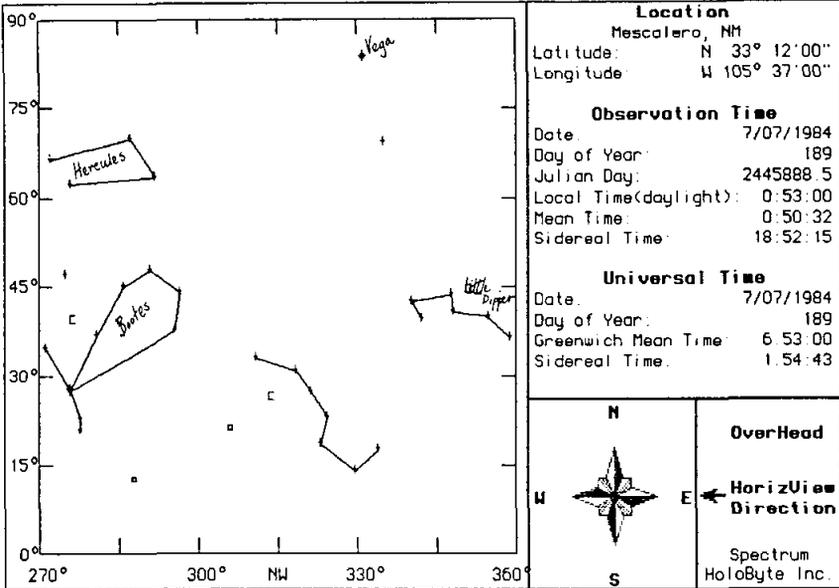


Figure 5: 12:53 a.m. MDT (7/7/84)

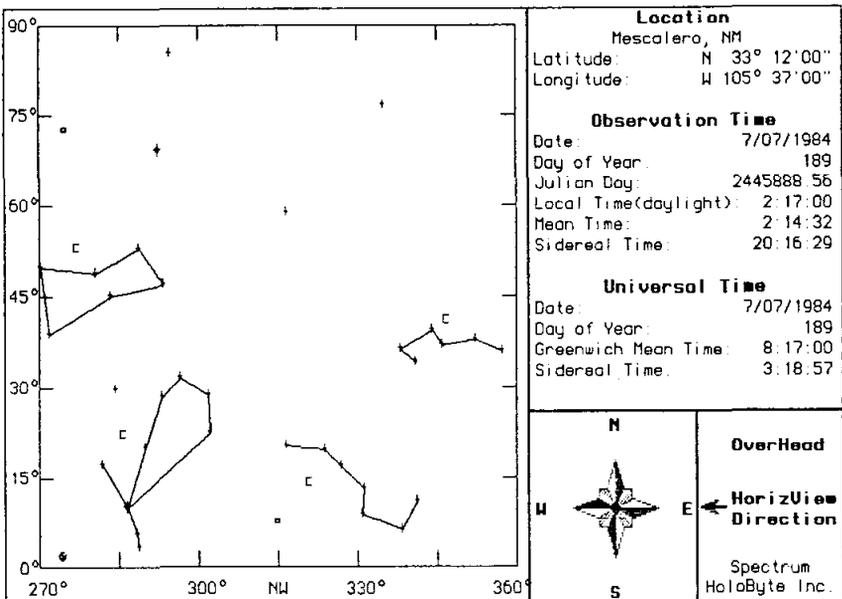


Figure 6: 2:17a.m. MDT (7/7/84)

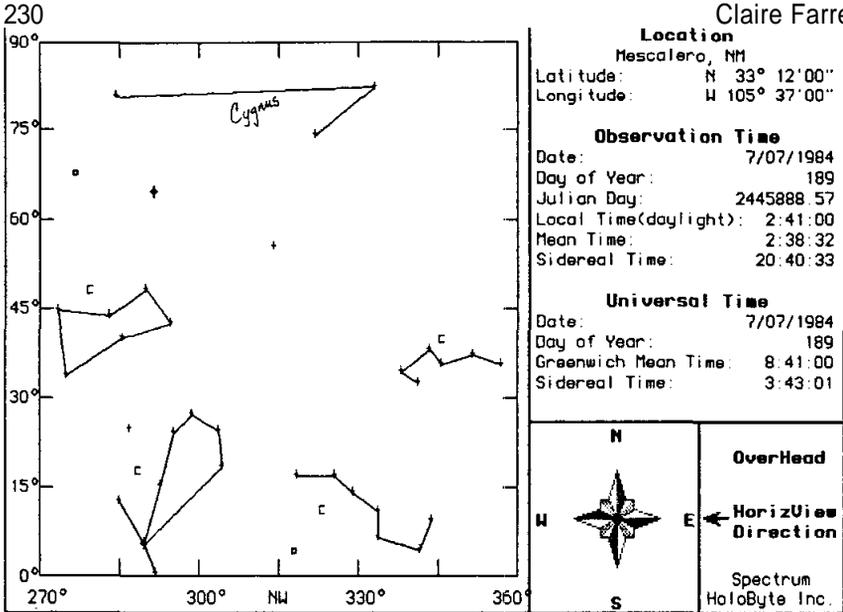


Figure 7:2:41 a.m. MDT (7/7/84)

finally to the WSW at 10:20 p.m. (Then the moon was off the left; Spica appears red below the lowest tipi pole; and Arcturus was still a bright star above the poles). Due west was not in this sequence, as by 10 p.m., the Singers no longer are timing by western sky stars.

In the sequence of figures which follows, showing the Big Dipper's rotation and setting, we should be aware of the timing aspects of Alkaid⁴, the first star in handle of the Dipper. Alkaid is one of the "check" stars because of its regular motion; in that year (1984) it was 550 above the horizon at 11 p.m.; 45° above the horizon at midnight; 35° above the horizon at 1 a.m.; and 25° above the horizon at 2 a.m.: in other words Alkaid provides an accurate clock by moving 10°/hour throughout the critical part of the last night's timing.⁵ The Big Dipper (Figure 1) orientation sequence is slightly west of north and begins at 10:02 p.m. Twenty-eight minutes later, at 10:30 p.m. (Figure 2) the Dipper has already shifted its position. The next two Figures (3 and 4) show the rotation and "falling into the mountain", as it is called, of the Big Dipper between 11:02 p.m. and 12:36 a.m. By 12:53 a.m. (Figure 5) Merak is no longer visible, having slipped behind the mountain. Two and a quarter hours later, at 2:17 a.m. (Figure 6) three handle stars and the upper right of the Dipper's bowl are visible (Merak, Phad [or Phedca], and Megrez have set). By 2:41 a.m. (Figure 7) the bowl stars are gone and the handle is on the horizon (visible Alkaid, Mizar/Alcor, Alioth; invisible Merak, Phedca/Phad, Megrez, and Dubhe). Finally, at 4:42 a.m. (Figure 8) the Dipper has set; however, by this time, attention has shifted to another part of the sky.

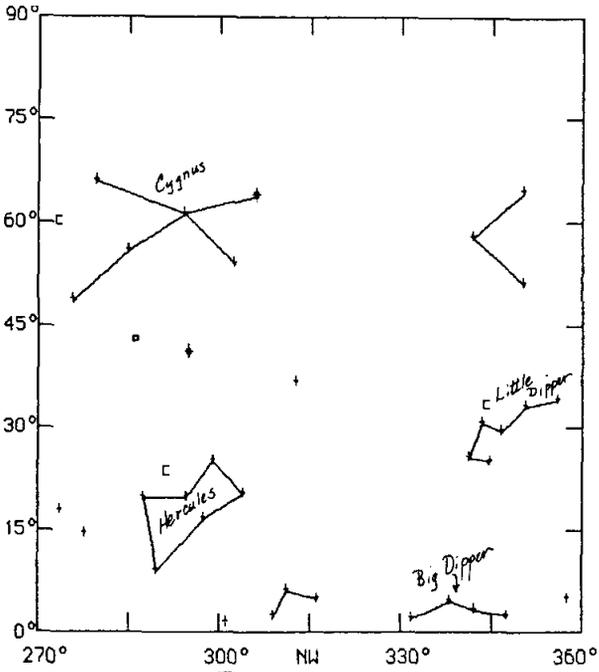


Figure 8:4:42 a.m. MDT (7/7/84)

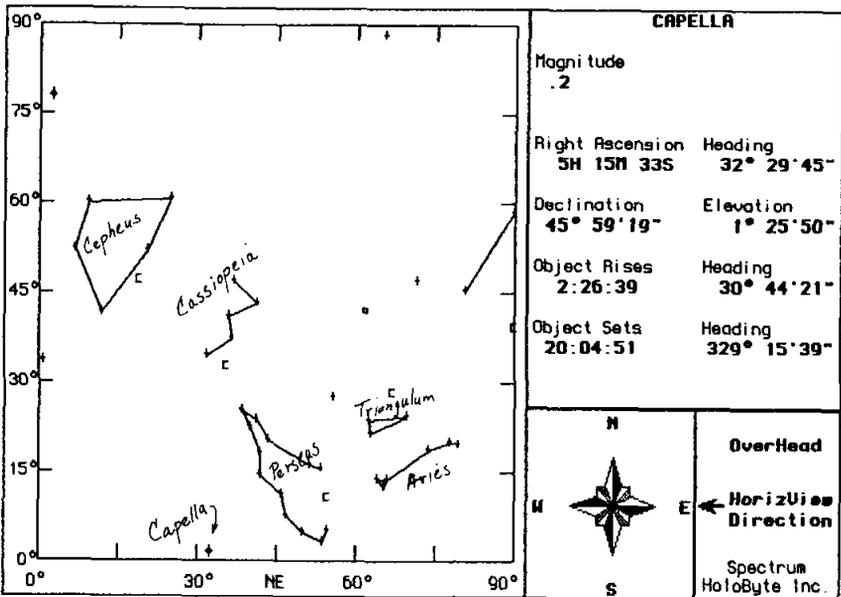


Figure 9:2:28:30 a.m. MDT (7/7/84)

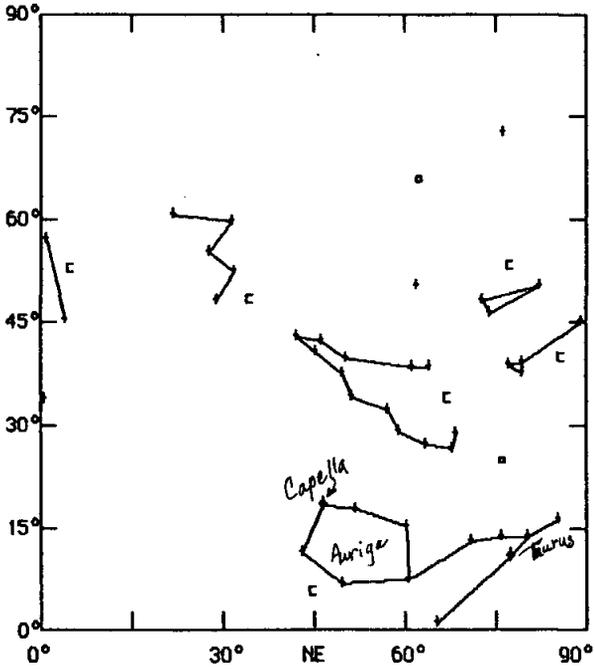


Figure 10:4:45 a.m. MDT (7/7/84)

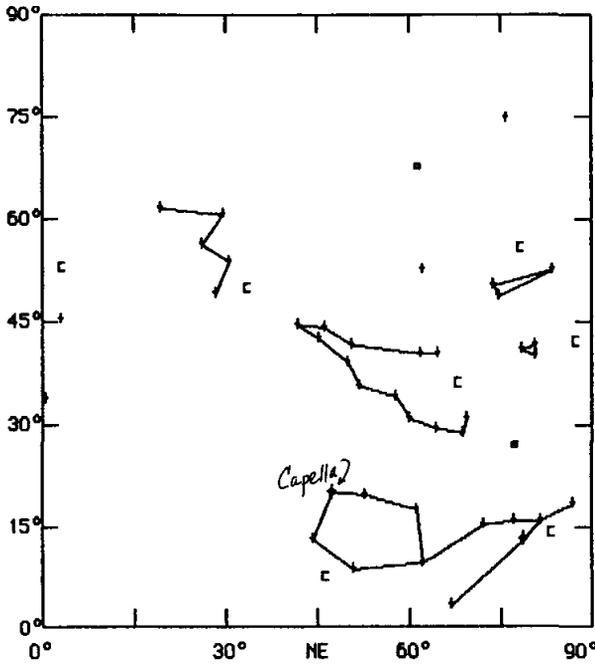


Figure 11: 4:56 a.m. MDT (7/7/84)

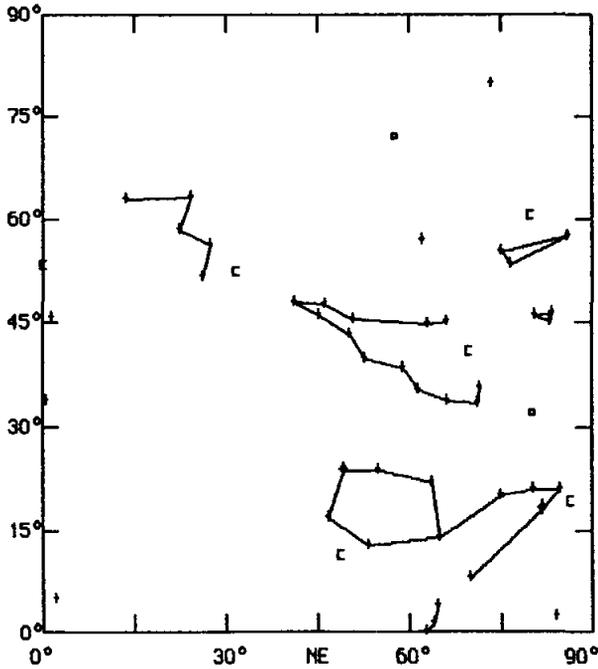


Figure 14:5:20 a.m. MDT (7/7/84)

As early as 1:45 a.m. and as late as 3 a.m., a long rest break is called. Before the girls reassemble in the ceremonial tipi, they will be bathed and have their hair washed in preparation for the final morning's activities. But at 3:30 a.m., no matter when the rest break began, the sky watch moves from the northeast and north sky to the east as timing switches to *suus bine*, the morning star.

Capella is the Western European name for *suus bine*, the morning star. According to the star charts it rose at 2:38:30 a.m. in 1984; but, because of the horizon, it is not immediately visible, taking about half an hour to clear the eastern mountains (Figure 9) by 4:45 a.m. (Figure 10) morning star (Capella) is on the light pole as it is viewed from the east end of the ceremonial girls' camp area. Now the Singers begin checking to be sure the girls will be ready on time as the sky seems to brighten with each passing minute. Capella and its companions, Auriga Eta and Auriga Iota, (The Three Who Went Together, *tanaska* in fast speech or *taanashka?da* in slow speech but also pronounced *tainashka?da*; these have a more pronounced alignment in winter than in summer), are well up at 4:56 a.m. (Figure 11) Capella is at its most significant point above the horizon, 20° or "two hand spans" as seen from the east end of the cooking arbor. If the ceremonial does not recommence immediately, the sun cannot be pulled properly, for there are

only ninety minutes before the sun will shine fully into the ceremonial tipi when Capella is in this position.

Things seem to move quickly now as the coming sunrise obliterates stars, in just over a quarter of an hour (Figures 12, 13, and 14). At this time the Singers are in the Holy Lodge painting the sun symbols on their hands. Even though it becomes daylight, the sun still does not actually shine on the ceremonial arena for almost an hour. Finally the sun should be fully pulled by the conjoint efforts of the Singers so it may strike their sun-symbol painted hands, thus renewing the covenant between Creator and Creation, and so it may wash over the girls in blessing. When all is timed properly, it is a spectacular event.

Conclusion

It is all in the stars; there is no need for the whiteman's watch. Arcturus sets approximately one hour before timing begins with the Big Dipper. Alkaid ticks off hours by degrees, while, between 10:30 p.m. and 4:30 a.m., the Big Dipper does its timely disappearing act. By the time Capella is first visible, roughly at 3:00 a.m., all the night's songs should be finished and a rest break called. Capella's 4 a.m. position makes it imperative that the paint be prepared so the Singers may begin painting their hands, if they have not already begun to do so. Then, as the stars fade and the sun once more fulfills the promise of the Creator, the girls will be painted, the crowd will be blessed, the girls will complete the last of their runs to the east and around the ceremonial basket, and the public portions of the ceremonial will be over for another year, although private aspects will continue for another four days.

Bik?egudindé said the stars were travel guides: " ... by you they will know the directions to guide them." And travel guides they are, whether the terrain is physical space or the metaphysical space wherein lies the girl's puberty ceremonial.

NOTES

1. I should also like to acknowledge the assistance of Gene Ammarell of the Fiske Planetarium at the University of Colorado, Boulder, who accompanied me to the field in 1984 under the auspices of an American Council of Learned Societies grant. Earlier grants for fieldwork came from the Mescalero Apache Tribe, the Whitney M. Young, Jr. Memorial Foundation, Inc., the Research Board of the University of Illinois, and the Phillips Fund of the American Philosophical Society. Initial writing

time while working out some of the ideas which appear herein was provided by a Weatherhead Resident Fellowship at the School of American Research in Santa Fe, NM. Finally, Dr. Ray A. *Williamson*, astronomer (Office of Technology Assessment of the United States Congress), accompanied me to Mescalero at his own expense in 1986. Grateful acknowledgement is tendered to each and all.

2. It should be noted that using the masculine pronoun for Creator is necessitated by English. In Mescalero Apache Creator is *Bik?egudindé*, According To Whom There is Life; there is no ascription of gender or sexuality to Creator. Creator, rather, is both male and female and is neither male nor female. Creator is beyond our comprehension, not only in sexual aspects but also in all aspects.
3. In order, moving from the handle of the Dipper *and* tracing around the bottom of the bowl, the stars and their magnitudes are as follows: Alkaid(1.9) [called Benetnasch in The Seasonal Star Charts - Hubbard Scientific Co. 1972, no author. Eta Ursae Majoris]; Mizar [Zeta UMa] (2.4) with its smaller, almost invisible to the naked eye, companion Alcor [80 UMa]; Alioth (1.7) [Epsilon UMa]; Megrez [Delta UMa] (3.4); Phecda [Phad in Hubbard - Gamma UMa] (2.5); Merak [Beta UMa] (2.4); Dubhe [Alpha UMa] (2.) Magnitudes from the Peterson Field Guide; primary names from Tellstar, a copyrighted Mac program from Spectrum Holobyte with secondary names and Greek designations from Hubbard.
4. Similarly, Phecda (Phad) and Merak disappear about 20 minutes apart and about 40 minutes later Alkaid (Benetnasch, Eta UMa) will set. This activity is presaged in the west southwest by Arcturus which sets one hour before the first Dipper star disappears; Arcturus is the second brightest star in the Northern Hemisphere (Sirius = -1.46; Arcturus = -0.04; Vega = +0.03; and Capella = +0.08 - from the Peterson Field Guide to the Stars and planets by Donald H. Menzel and Jay M. Pasachoff, 2rid ed., rev., 1983, Boston, MA: Houghton-Mifflin).