Manifestations of the Fremont Calendar

Nal Morris

Our story begins quite some time ago with my first visit to Rochester Creek. We noticed the panel in Schaafsma's first publication "Rock Art of Utah" (See Fig.1). The panel fascinated us for several reasons, but the most overwhelming characteristic of the panel was its mural quality. We did not know how to find the site so we inquired at the small town of Emery, Utah, for directions. The people we asked could not tell us where it was when we showed them the photograph, but they did give us a clue. We were told that the small town of Moore near by used to be called Rochester. That small bit of information gave us the hint we needed. My father, brother, and I found the site by identifying the drainage that flowed out of Moore and followed it until it joined the Muddy River. There on a narrow jetty of rock between the two drainages was the panel. At that time in 1976, I had no way of knowing how this site was going to change my life.

A few years later I was residing in Paris, France. My father had given me a three-volume set of the *Philosophy of Symbolic Forms* by Ernst Cassirer before he passed away. On my long train ride on the SNCF to and from Paris each morning and evening, I poured over the volumes and regarded them as parting wisdom from my father. (Actually Cassirer is quite ponderous and I would never have read the work under other circumstances.) In my need to experience the vast open spaces of Utah, I turned in the only direction I could—upward to astronomy. While in Paris, I discovered that if I grabbed a quick dejeuner I could get on the metro right outside the office and get off at Hotel de Ville. A few more steps up the Rue de Rivoli and I was at the Maison de l'Astronomy. This was a small shop with items and books for the serious amateur astronomer. Here I found the parts and information needed to finish my Newtonian telescope and discovered Duffet-Smith's first edition *of Practical Astronomy with your Calculator*. I purchased the book for a few francs and became fascinated by the simplicity and practicality of his methods.

A couple of years later we were home again in Salt Lake City and I returned to my interest in Native American rock inscriptions. When the "sun dagger" was discovered at Majoba Butte, I became interested in exploring what was happening astronomically at my favorite site, Rochester Creek. Before research could begin in earnest, we needed field techniques and data analysis methods. The formulas and methods of Duffet-Smith rapidly evolved in an interactive computer model. Field techniques revolved around an army surplus theodolite with an inverted image that was calibrated in mills.

Why all this reminiscing? It is because each event played into the exploration as it led from one discovery to another. We started on the assumption that there was some kind of calendar device working at Rochester Creek. Our first approach listed several hypotheses by which calendar function could have been accomplished. Each hypothesis led to its own discovery even if that discovery was not what was expected. The hypotheses that concerns us here was the idea that the Indians could have placed some kind of gnomon in front of the panel that cast its shadow in such a way as to indicate a season or date. A quick examination of the panel suggested that there were only five markers or glyphs on the panel that could test calendric function. Across the top there were five marks with nothing between them. I surmised that if a calendar functioned with a shadow projected on these five markers the two extremes would have to indicate the solstices. After a computer profile of the horizon across the creek had been measured and recorded, I used the model to give me the sunrise azimuth of the summer and winter solstice. The next exercise was a simple problem in trigonometry. If the gnomon was placed at the intersection of the line azimuth running off to the winter solstice and the line azimuth running off to the summer solstice, then on these two dates the shadow must fall on their respective glyphic indicators. If a gnomon was in place, this must surely work, and represented no test or verification of the calendar function. The test of calendar function should come from a correct date reading at another event. The most obvious event would be equinox.

Between the solstice markers, but not midway, was a single, short line. This was assumed to be an equinoctial indicator. The model was employed to test this hypothesis. Yes, it was true. The same hypothetical gnomon that cast a shadow on the two solstitial marks at the solstices should also cast a shadow on an indicator at the equinox. With this much analysis indicating a working calendar function, we set out in September 1984 to test and observe in reality what looked so promising in theory.

I remember that it was quite brisk that morning. A pond of water in Rochester Creek below us had a skiff of ice on it. It is about a half-mile hike from the closest vehicle access to the panel. We carried with us the gnomon as designed from my telescope base. I had a machinist create an adapter for the base so that a six foot extension of pipe could be fitted on it to extend its height to about eight feet. It functioned much like a surveyor's tripod with a plumb bob that was suspended down through the center of the pipe to assure that the top of the pipe was precisely over the point as surveyed by the transit. The time of sunrise had been precisely calculated and more than enough time had been allowed to make the hike and setup the gnomon. All went smoothly on setup which left a good fifteen minutes to wait before the sunlight would work its way down the panel to where it would cast a shadow.

The brisk September morn only served to heighten my anxiety as we watched the eastern sky become brighter and brighter just below the ridge across Rochester Creek. Had I been careful enough with my calculations? Did that war surplus theodolite still function accurately enough to give the correct angles of elevation for the eastern horizon? As the first rays of sunlight cast a faint and then clear and strong shadow squarely over the equinoctial indicator, my emotions swung from relief to awe.

This little field test had in essence verified the gnomon calendar hypothesis. When the calendar worked it took into account many factors unique to the site geometry and topography. The equinoctial indicator was not centered between the two solstitial markers. The panel face was not facing due east but was aligned some fifteen degrees south of east. And the ridge was not level as it ran from north to south, varying between six and nine degrees of elevation. All these factors would influence the location of the equinoctial indicator. But now there remained in line with the equinoctial and solstitial markers two additional figures. What was their function and what dates did they indicate? The model was employed again and the two additional markers were looking like they indicated those dates that were midway between the solstice and the equinox or the equinox and the solstice. These dates have been termed the *cross quarters* and I usually abbreviate them "X1/4's."

The cross quarters are every bit as important to the Fremont calendar as the equinoxes and solstices. The five markers, as they function at Rochester Creek, divide the semester from solstice to solstice into four equal parts where each part is very nearly equal to forty-five (45) days (See Fig. 2). The year was experienced in two halves because that is the way the Fremont People observed it. Each complete year required two solar traverses of the horizon between the solstitial points. These traverses were divided into four equal parts by the five key positions of the sun. These five positions were defined on the horizon marking the angular traverse of the sun at forty-five day intervals between solstices. I have termed these 45 day periods *solar months*. There are eight solar months in a solar year but, if a solar month is 45 days, then a 2 to 3 relationship was established between solar months and lunar months. Two solar months equal three lunar months with near equivalence.

Along side the main panel at Rochester Creek there is a smaller panel. The side panel contains some interesting symbolic characters but the glyphic elements that concern us here were twenty-two (22) small circles and three (3) larger circles. Let the three larger circles represent the moons, i.e., lunations, that occur during a season. Let the 22 small circles represent what we call a solar week. Two solar weeks make up a solar month. Remember that equivalence or commensurateness is always important. Let us now use the circle glyphs to create an abacus-like counting device and see what happens. Let each circle represent a small stone. There are three larger stones and twenty-two smaller ones. These are kept in two pouches, the number of solar months in a quarter, as a very practical and portable counting device or system. Start with all the stones in one pouch. On the first day of the quarter as determined by observation at the main panel, one of the small stones is moved from the first pouch to the second. Each succeeding day another stone is moved to the second pouch until they are all gone. At this time a large stone is moved to the second pouch and all the small stones are returned to the first. Twenty-three days have passed. The next day the process starts over again by moving small stones to the second pouch, one each day until they are all gone from the first pouch. At the end of the second moving of all the small stones, another large stone is moved to the second pouch and all small stones are returned to the first pouch. Forty-six days passes and then the process starts over again for the third time. When all twenty-two small stones have been moved to the second pouch, the transfer of the third and last large stone is done and the twenty-two small stones are moved back into the first pouch. Sixty-nine days have passes and now the

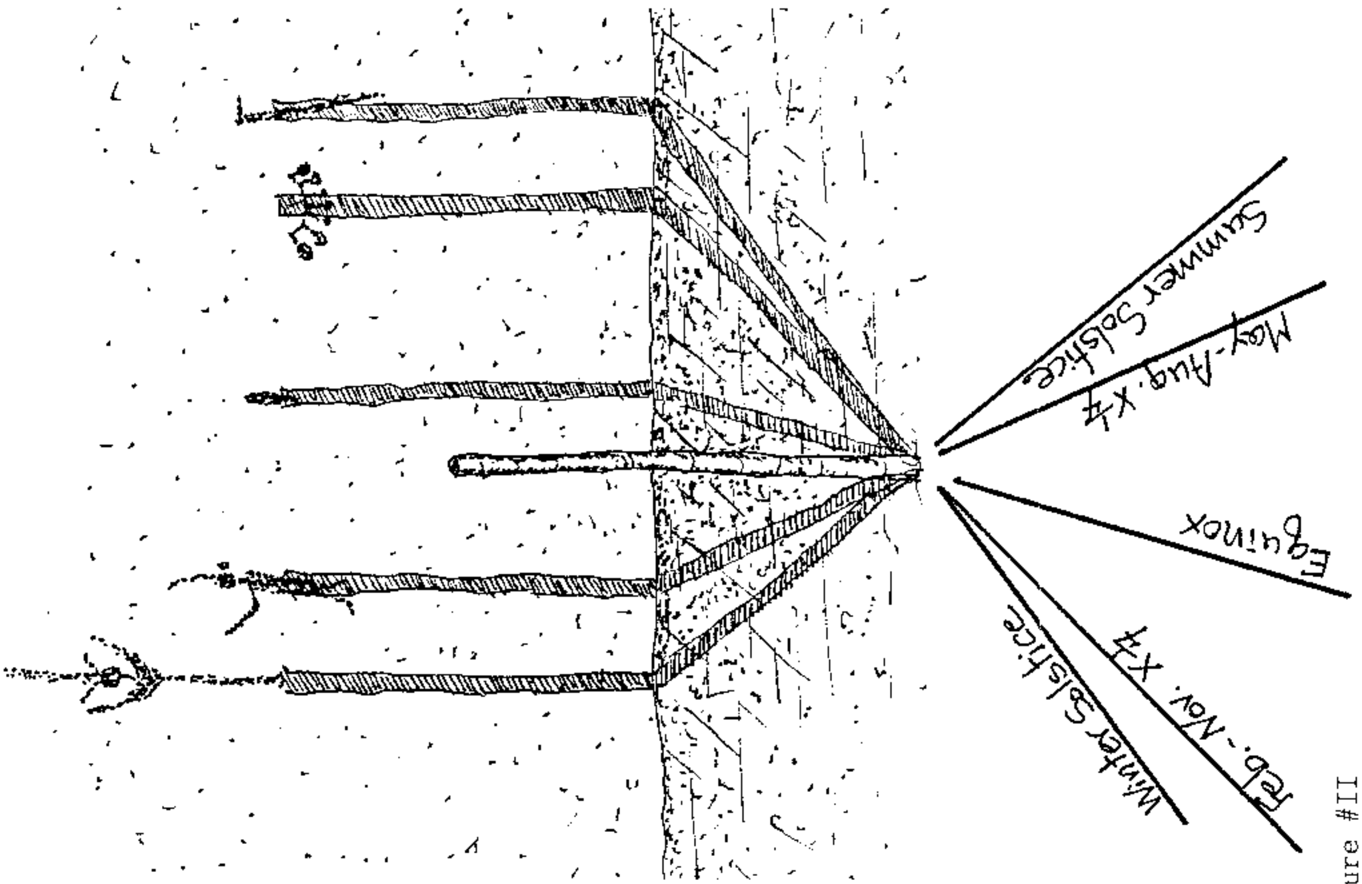


Figure #II

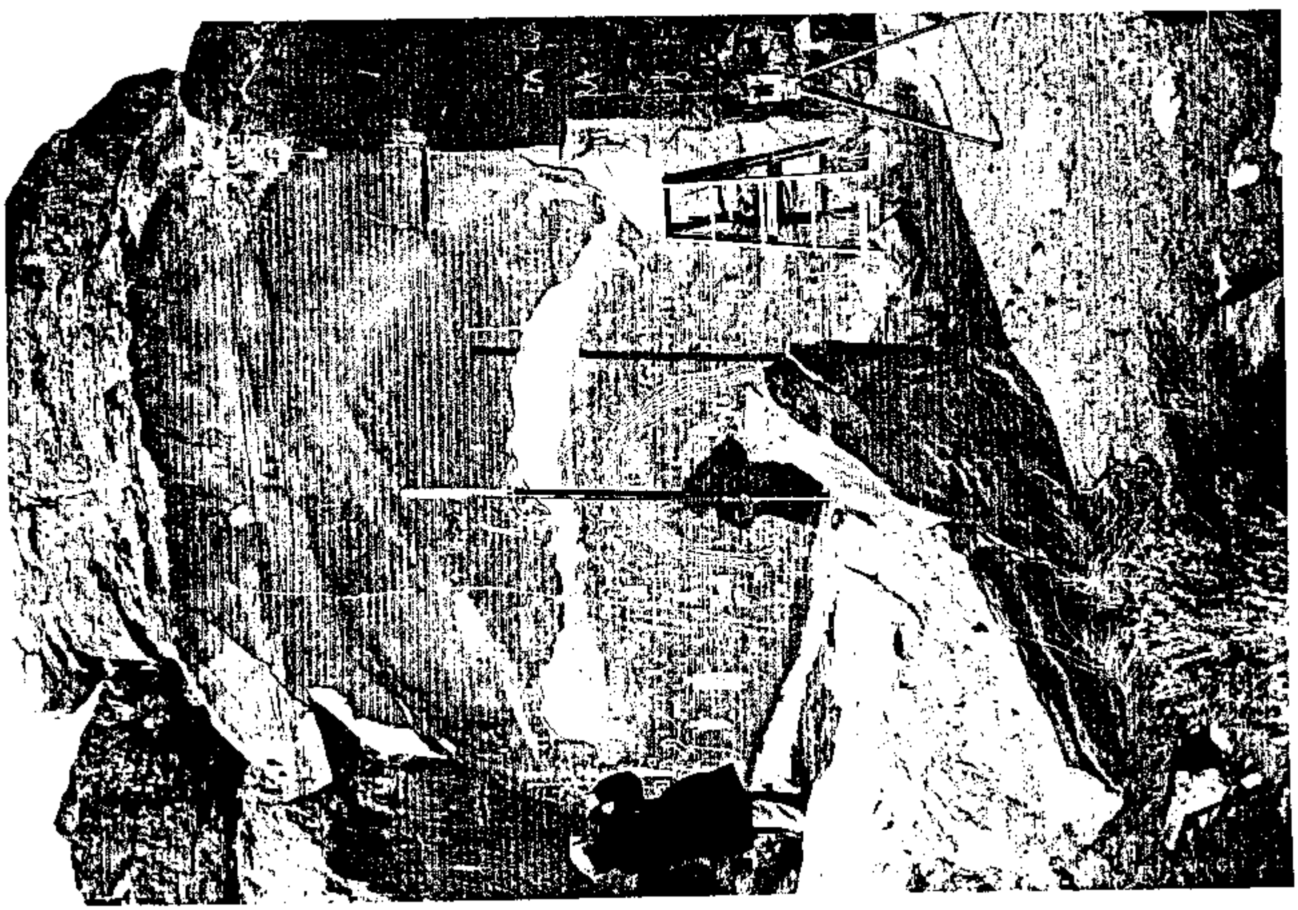


Figure #I

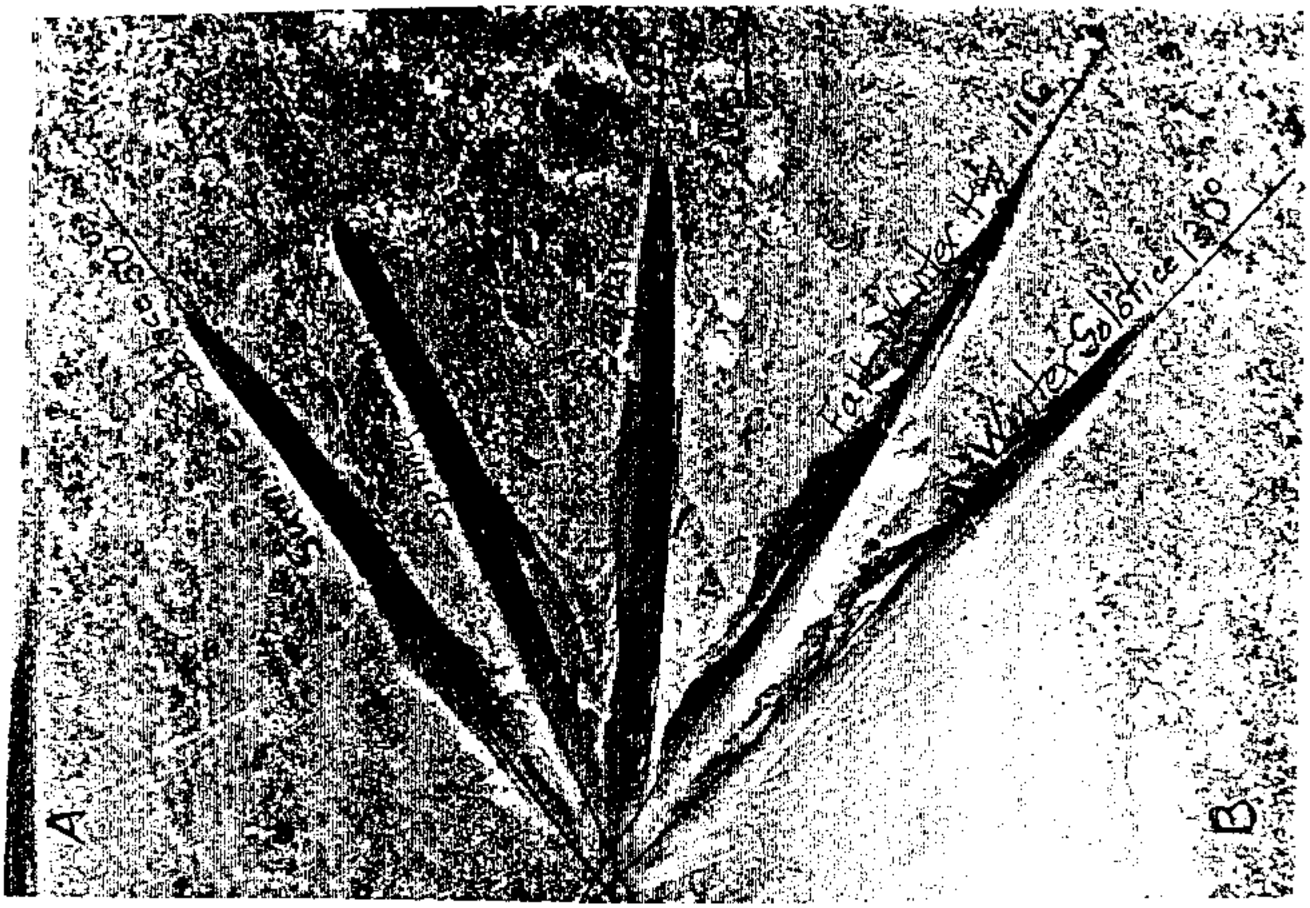


Figure #III

transfer of the twenty-two small stones starts over again for the last time until all twenty-two small stones are transferred into the second pouch. The first pouch is now empty and ninety-one days have past and one-quarter year or season has transpired. It is then time to observe another seasonal passage on the main panel as the shadow from the gnomon reaches another seasonal transition marker.

We have now discovered a working calendar at Rochester Creek. It works when depending on a fundamental scheme. This scheme is based on the natural division of the year into halves, then fourths, then eighths, and lastly sixteenths. Each division is an initial or successive division by two. This did not require some advanced arithmetic skill. Division by two could easily have been accomplished by a simple "one for you and one for me" method. The year was continuously divided by two until a calendar based on sixteen solar weeks of twenty-two or twenty-three days was derived.

In this analysis of Rochester Creek, a calendar has been proposed and observed (with the gnomon in place) that demonstrates a calendric system based on the solar horizon position or sunrise azimuth angle, key seasonal dates that include the cross quarters, and the number of days between key dates. In 1984 this was considered a quantum leap in understanding both rock art and modern archaeology's estimation of the technical skills of the Fremont People. While the calendar and numeric device worked perfectly, this alone was not considered proof enough to warrant such a leap forward. I personally felt that it was all too neat and systematically coherent to be just a misadventure of random probabilities. I felt that this same system should, therefore, be found at other sites.

We investigated two sites before the ultimate proof was discovered.. The first was the Venus panel in Nine Mile Canyon. I will not go into great detail on this site but it demonstrated an important principle. The sunrise or sunset in a canyon low points was used as a separator to divide the year into separate parts that were not necessarily equal. In other words, a calendar could be devised to conform to the particular topography of its location. The Venus panel also demonstrated a calendar that was almost purely numeric. At this site the Fremont's skill with numbers went way beyond the skill demonstrated at Rochester Creek.

The second site along the road of discovery was found on the Freestone Ranch near

Vernal, Utah (See Fig. 3). This was a very simple glyph and, like the Venus panel, shifted the focus of the research from symbol figures to numbers and geometric form. Where previous rock art study seemed to revolve around "zoomorphic" and "anthropomorphic" figures, now what had been considered meaningless doodling was taking on meaning through numbers and geometric form. The Freestone Glyph was a simple flower looking object. It had been called the lotus blossom. It had been deeply carved into the rock with great precision, in fact, with such precision that some doubted its authenticity. Even so, the repatination was complete and certified its ancient origin. It was the pattern of the glyph that gave away its meaning. When the five positions of seasonal transition were identified at Rochester Creek they defined angles of solar traverse. These created a pattern through an angle of about sixty (60) degrees that was divided by four included angles in the sequence of small, large, large, small. The ratio of these is close to 10,20,20,10. Actually, the azimuths involved for level horizon sunrises are Summer Solstice:58.7, August X1/4:68.6, Autumnal Equinox:90.0, November X1/4:111.7, and Winter Solstice:121.3. The angles reproduced in the Freestone glyph follow the same pattern of small, large, large, small where the actual angles are 14,26,26,14 degrees. While these are different from those above, they are not far off for eye-balled angular measurement. The author of the glyph recorded the most important part of his perception, the relationship of the sunrise angles and their sequence that was his perception of the flow of time. This flow of time was linked in every way with his perception of space. Space became the vessel of time and numbers became its vehicle of representation.

In the spring of 1990, I led a trip to the petroglyphic site at Parowan Gap. We also visited a site near Cedar City called the Lion's Mouth. When returning that evening, we drove along the west face of the Red Hills as the sun was setting and I raced back to the camp to see if the sunset would be visible through the Gap Narrows. The numbers carved on the Zipper Glyph were definitely divided into two parts. The question in my mind was, "Will the date of sunset in the Gap Narrows divide the year in the same way the numbers on the Zipper Glyph were divided?" The numbers on the Venus panel divided the days and the lunations of the year into those occurring while the sunrises were north and south of the low point as seen looking down the Nine Mile Canyon.

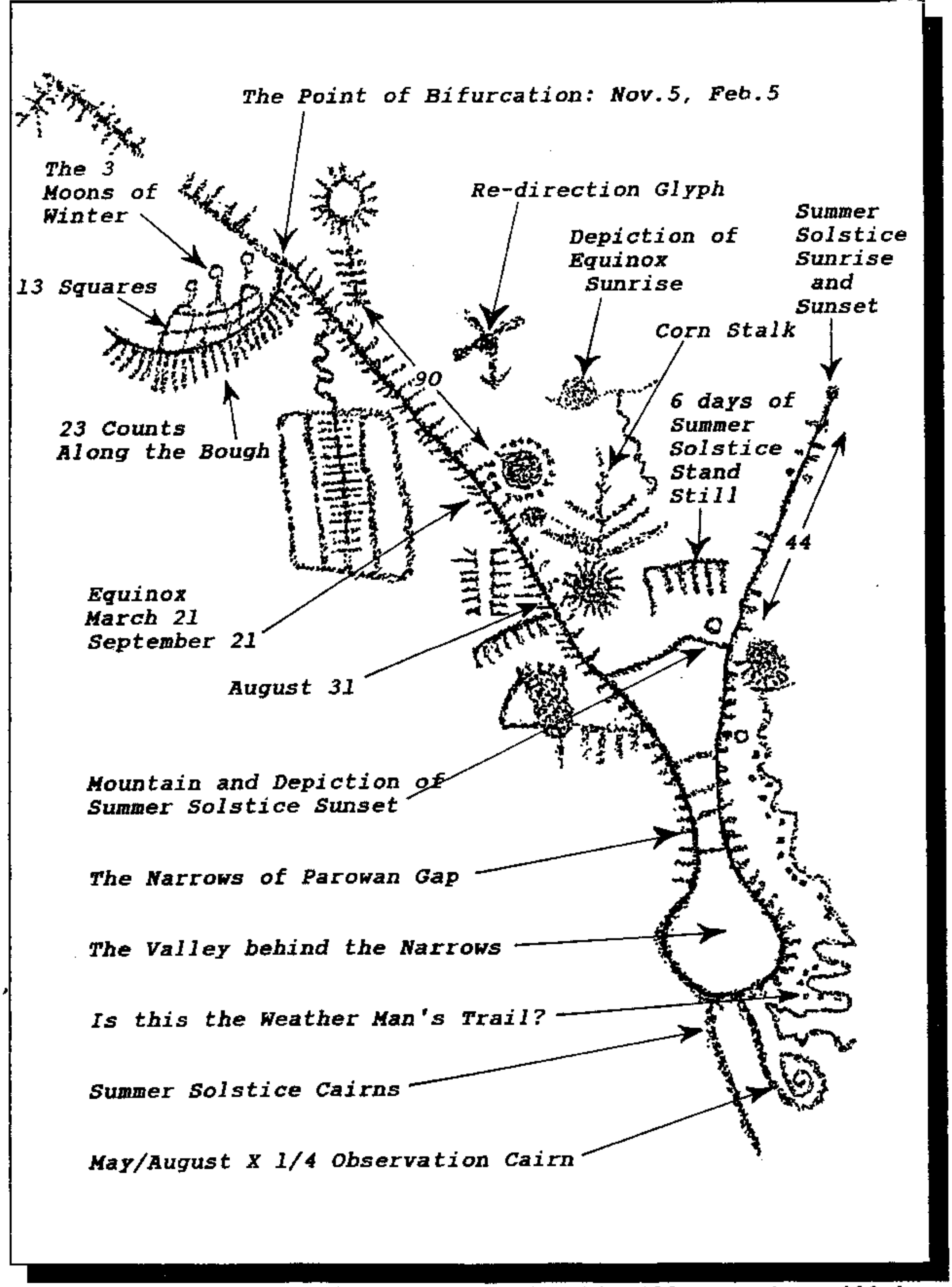


Figure IV *The Zipper Glyph Annotated: This illustration will be useful for Sections 5 through 12.*

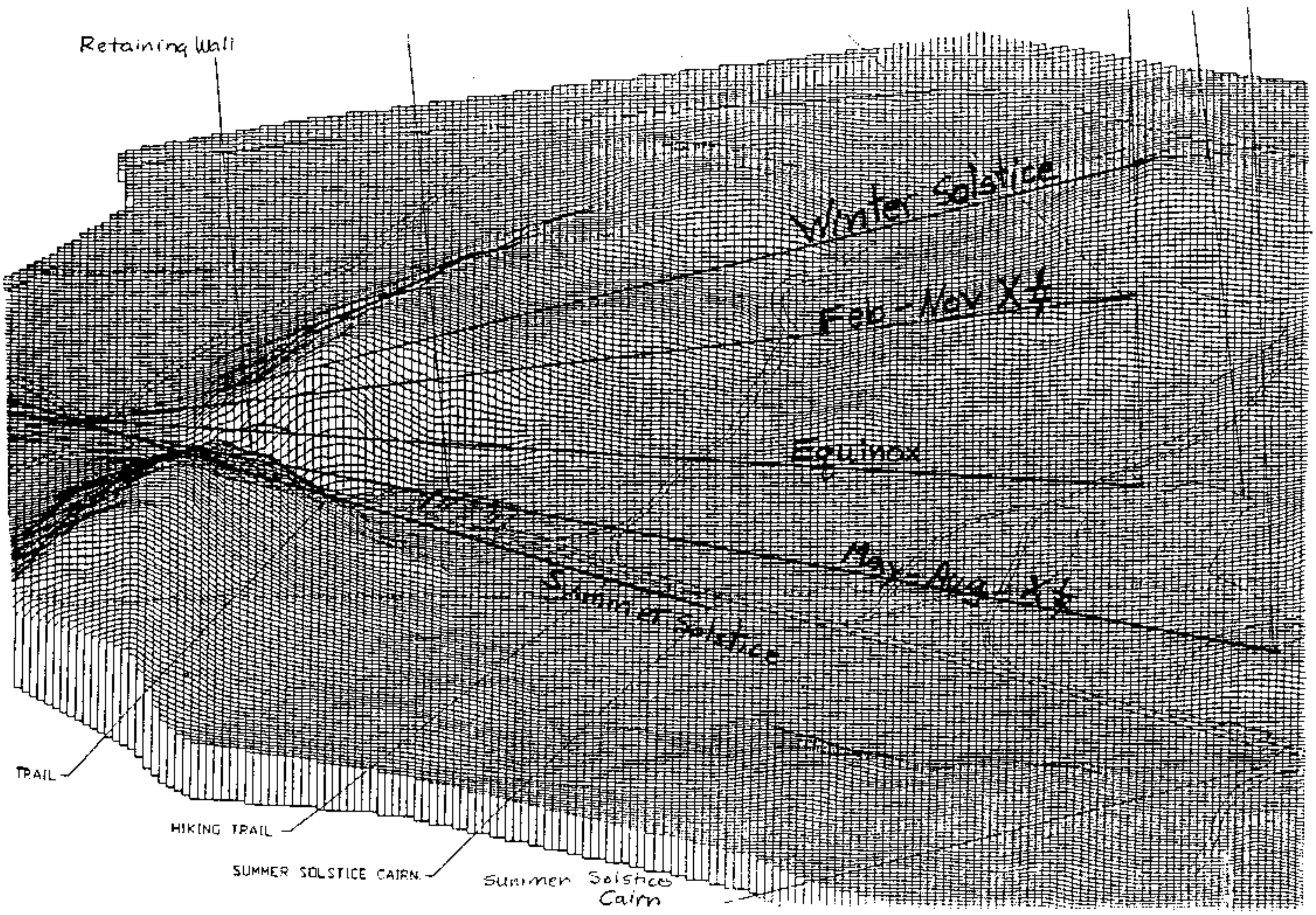

Retaining Wall
Winter Solstice
Feb-Nov X¼
Equinox
May-Aug X¼
Summer Solstice
TRAIL
HIKING TRAIL
SUMMER SOLSTICE CAIRN
Summer Solstice Cairn

Figure #V

The sunset that evening in March did not shine through the narrows but the question lingered. Consequently, I stopped there on my next visit to the area to take azimuth and elevation pairs to determine the first sunset that would be visible from the basin just east of the narrows. As I worked, it looked increasingly as the date would be sometime in the first week of May. This indicated that they were most likely designating the May-August cross quarter dates. The number of tick marks on the right-hand side of the Zipper Glyph are about forty-four (See Fig. 4). This strongly pointed at the X1/4, but more evidence was needed. We needed to find some ground feature that indicated a place of observation that correlated with the numbers on the panel and the date and the azimuth of observation. Concentrating on the X1/4, I determined the azimuth of X1/4 sunset in the narrows, and walked backward (east) in the basin. There, about 500 yards east of the narrows, was a small hill. On top of this hill is a cairn. The cairn consists of about eight head-size stones well settled into the earth. A survey of the western horizon from this cairn and the computer model indicated that sunset on the right-hand side of the narrows would be on May 6th. From this date to summer solstice is forty-four days.

Now we have a sunset azimuth, a cairn, and a day count that all indicate the cross quarter date in May and August. These dates are about forty-five days before and after the summer solstice. It would seem likely then that the summer solstice would also be designated by the Zipper Glyph. I then determined the azimuth of the summer solstice sunset as seen through the narrows from the basin. In like manner to the May-August X1/4 cairn, I searched along this azimuth for summer solstice cairns. One morning Garth Norman, Clifford Rayl, and I searched a considerable area without results. About two o'clock that afternoon I loaded up the trailer and was about to started home when something caught my eye. Because it was spring before the grass got tall, I noticed two large cairns just about 150 yards back from the narrows in the settlement basin just south of the road. I stopped and walked over to the cairns and sighted back to the west through the narrows. There, in the center of the gap, was the hill top in the Mud Spring Hills where I determined that the summer solstice sunset should occur.

With two cairns now located it was speculated there would be a whole family of cairns found in the basin to indicate the sunsets of the equinoxes, Feb.-Nov. X1/4, and winter solstice. These we found using the same techniques explained above. When all five date markers had been located, Parowan Gap became fully linked to Roch ester Creek (See Fig. 5). While the glyphic representations looked very different and date observations used two different methods (i.e. gnomon and shadow vs. window and observation position), the dates identified by the two sites were precisely the same. At both sites there was a day counting scheme to divide the year into forty-day solar months.

When trying to make a new and fairly basic step forward, there can never be too much proof. So now that we had a good understanding of the Fremont calendar, we went looking for yet another site for confirmation. A sister site to Parowan Gap is Grapevine Canyon near Laughlin, NV. The Grapevine Canyon site is found at the mouth of an east facing narrow canyon. On both sides where the canyon narrows there are hundreds of petroglyphs. At this site we have located three calendars. The first and the third calendars have an ingenious way of being both lunar and solar calendar simultaneously. They start at a very fundamental level and proceed to the more complex. All three are based on the Fremont calendar as discovered at Rochester Creek and verified at Parowan Gap.

In April 1996, over spring break, the family wanted a short trip and I offered to take them to Laughlin, NV. There are water sports there, several casinos and Grapevine Canyon. But alas, Mom's and Dad's influence had prevailed, and there was little interest in the water sports or the casinos. Therefore, by splitting up into two teams, we were able to do several surveys up and down Grapevine Canyon. One afternoon while studying the glyphs at the mouth of the canyon, I met a small Indian boy playing over the rocks. He said that his grandfather had come up from southern Arizona to visit the site. He asked me if I had seen the cave. I said, "No, what cave?" He said that it was right here where we were standing. I looked and right there behind some thorn bushes was a crack in the rock. He scampered inside and disappeared. It took a little while longer to squeeze myself through the crack but sure enough it opened up and split into two small chambers. He was delighted to show it to me and proudly explained that this was where his people had come from. He continued with some sketchy pieces of the Southwest creation myth. I observed that the mouth of the cave opened to a low point on the eastern horizon. The field survey and computer model that had their rough beginnings at Rochester Creek would soon reveal with detailed accuracy that this was an equinox cave. We returned there to observe the equinox in September and the first rays of the sun shown into the cave to flood light on a really great astral deity (See Fig. 6). Cassirer was right here like he was at Parowan Gap: "Light bursting forth into darkness" to mark a new birth or beginning (Cassirer 55). Grapevine Canyon is truly an equinox site.

The first of the three calendars is the most basic (See Fig. 7). It resembles a block letter "I" with the added feature of a horizontal bar through the center. Let each sideward and outward projecting bar represent a lunation so that there are three lunations indicated on both the right and left sides. Let the inward projecting bars created by the negative space of the outward projecting bars represent the forty-five days solar months. Now let us look at the whole symbol. It has been our experience that the half years from solstice to solstice and/or from equinox to equinox were separate entities of time. In fact, they may have been the twins. Remember the twins were sired by the sun. Let the calendar represent the semester between either equinox and the succeeding equinox. Then this little calendar device tells us that there are three moons up to the solstice and three moons back. It also tells us that there are two solar months of forty-five days up to the solstice and two solar months back. It also states that three lunar months equal two solar months, i.e., 3X30=2X45. Thus in this one very simple device, we find the Fremont's fundamental scheme of calendrics based on numbers and commensurateness.

Now let us move on to the second calendar taking a hint from the first (See Fig. 8). We said that the box-like projections represent time. In the second calendar there are eight of these boxes, four on the right and four on the left. This then becomes a full year solar calendar where the interior boxes represent the eight solar months of forty-five days in a whole year. The whole calendar is then enclosed in a double lined box, where the enclosing box represents completeness because the whole year is represented. (Space is the vessel of time.) In this calendar there are some interesting interior lines. These lines pull the interior boxes together from side to side. They function in a rather ingenious way. If one reads the calendar up one side and down the other, then we follow the flow of time through eight solar months as the sun passes through the five-key solar positions. These five positions may be indicated at the bottom of the box. Let us say that it is winter solstice and we start at the bottom moving up the left side and down the right. When we get to the top, it is summer solstice and four forty-five days solar months have passed. Now we move from the left side of the box to the right and start counting down the four solar months back to the winter solstice and back to the place of beginning. But something else is happening that must be both explained and represented by the device. While time proceeds normally, the sun at summer solstice has really just reversed itself and is now starting to traverse the same sector of the horizon that it just covered in the previous forty-five days. This calendar device relates these two pieces of time with a horizontal line connecting the two topmost boxes which serves to say that while time has moved on, the space of these two solar months is now being traversed again in the opposite direction. In like manner the next two boxes (moving down) are connected as well as the next two. Now let us look at the head of the calendar because this device has been slightly anthropomorphized. (The anthropomorization of the calendar is a vast subject that is much too extensive for the scope of this report.)

The head of the calendar is again a box. Inside the box are four dots. Let each dot represent the four solar months of the semester between solstices. On top of the box (its head) are horns or antennae. This project from the head, top right and top left, to create a panorama of sight that represents the observer's view of the angle of solar traverse across the horizon. This angle is divided in the center which is quickly taken to represent the position of equinox. Here again, the numeric are interesting. There are three antennae, four dots, four sides to the box head and two interior angles. As the sun passes from left to right, it passes through four solar months and two seasons at three key positions. When the sun returns to the point of origin, the year is completed and four seasons have passed. Now let us proceed to the bottom of the main box or torso of the calendar.

At the bottom of the main box or torso, there is a small lobe like projection extending upward interiorly. Let this projection represent womb or phallus. At the end of the eight forty-five days solar months, there will be five or six days left over before the sun will be found in its correct solstitial position. This then becomes the womb of the year or the time of (or space for) rebirth and new beginning. The number of these days is indicated by the five lines underneath. The year is what the box is that this rectangle is attached to. This requires more research but let us go on to the third calendar.

The third calendar now brings us back to Rochester Creek to our point of beginning (See

Fig. 9). In order to understand this calendar we will need to consider two points. The first is the set of twelve wavy lines, and as verified at other sites, I take to represent twelve lunations, six lunar traverses of the horizon that transpire during one solar traverse between solstices. At Grapevine Canyon that technique is used again, and the twelve wavy lines in this calendar are incorporated here in four groups of three so there are three moons per season.

The second point to review is the two-pouch calendar from Rochester Creek. It turned out there that the three large and twenty-two small circles could function well as a numerical device to count the days between quarters and cross quarters. This calendar device implies that there was some kind of solar week of twenty-two or twenty-three days that divided the year into sixteenths. The solar week was arrived at by the fourth division of the year by two. Thus the year was divided into quarters and each quarter was divided into quarters again. This was four squared or doubles the magic of fourness. (The solar week is also found at Parowan Gap with good numerical representation and arithmetic correlation.) However, the solar week also fulfilled a more practical function. Calendaring the year is done for the very needful purpose of dividing the year into smaller portions that are more useful in daily existence. The month and the week do this for us. These are always changing in any given year so that the end of one year and the beginning of the next cannot conveniently be predicted using the lunations of the moon. Therefore, the author of this third calendar created a kind of reconciliation device. This third calendar divides the year into lunar months, solar months, and solar weeks. (Please remember that the terms solar month and solar week are used here for lack of better terms.)

Now, look at the calendar. Down the left side is a column of eight boxes. Let these represent the eight forty-five days solar months per year. But down this column every other horizontal line is extended on across the calendar and serves to divide the calendar into four seasons of ninety days each. Down the center of the calendar is consequently a column of four larger rectangles. Each of these is divided into four segments by three vertical wavy lines. Let each wavy line represent one traverse of the horizon by the moon as explained above and thereby indicating that during each season there are three lunations. The last column on the right becomes more complex. It is divided irregularly and split down the center in places. This additional vertical split divides the rectangles on the left so that the corresponding rectangles on the right are only half that size. I, therefore, apply the principle that time is represented by space and thus a box of half the space equals half the time. Thus, we have divided the forty-day solar month in half and created the solar week of twenty-two or twenty-three days. However, the division in this column is not total and it looks as only some of the solar months were divided into this shorter period of time. Why does the calendar split some solar months and not others? I do not know. But the calendar has not yet taught us all that it has to say.

A diagonal line runs across this calendar. The line starts at the lower left and runs up the calendar and crosses the top of the calendar near center. Along this line is a large solidly pecked out bulge. This bulge is nearly circular and rests over the second horizontal line from the top. The line proceeds through the top of the calendar and up to a very wide "U" broadened to the width of the calendar. The "U" has two interior vertical lines to the left side. The diagonal line meets and stops about at the center of the "U." Let the "U" represent the traverse of the sun between its two extremes, the solstices. Let the point where the diagonal line meets the wide "U" represent the place of equinox sunrise. Let the tilt of the line represent the sun's angle of assent as it crosses the horizon, and let the near-circular bulge in this line represent the place of the sun in the calendar at the equinox. Still the question remains, which equinox? A site farther up the canyon leads me to believe that their year began at the winter solstice. Therefore, it is the winter solstice at the top and bottom of the calendar. Let time run down the calendar. Working down the center, then the second line from the top is the vernal equinox. The third line down is the summer solstice. The forth line down is the autumnal equinox, and it is the time between the autumnal equinox and the winter solstice that is calendared more closely and the solar weeks are observed and counted. This is consistent with the Parowan Gap panel where the day count becomes repeated utilization of the twenty-three leaves on the downward bowed bow. This calendar is different than the Zipper Glyph at Parowan Gap because it was not used in reverse. In other words, the time from summer solstice to winter solstice was calendared differently from the time of winter solstice to summer solstice because we started the calendar over again from the top rather than just working our way back up from the bottom.

Conclusion

In the monograph above, I have addressed the Fremont calendar as a single concept encoded in multiple ways. It should be apparent that the Fremont calendar is a simple concept of calendaring the year by repeated divisions by two. This technique was continued to the fourth division creating in places a solar week of twenty-two or twenty-three days. However, it is most often seen as a division of the semester into four parts of forty-five days each. Therefore, the semester between either solstice and the succeeding solstice became a basic calendar until that carried equal importance to the year itself. The Fremont calendar itself is not seen in one unique glyphic representation. It, therefore, has alluded many researches. After all, if the Zipper Glyph from Parowan Gap, the five petal glyph from Freestone Ranch, the panel at Rochester Creek, and any of the Grapevine Canyon calendars just explained were viewed side by side, a person would be reluctant to say that they are the same. thing let alone the same calendar. Each glyphic author took the concept of the calendar and encoded it in a way that was unique to that tribe or band which also utilized the unique topography of the particular site. This is very different from our culture and its way of recording technology. It really is the philosophy of Ernst Cassirer that turns the key. By analyzing the coming of light and the utilization of space and numbers to record time, each of the different manifestations of the Fremont calendar can be seen to represent the same conceptualization of time.

Reference

Cassirer, Ernst. "The Philosophy of Symbolic Forms." *Mythical Thought* Vol 2, New Haven, CT: Yale University Press, 1955.

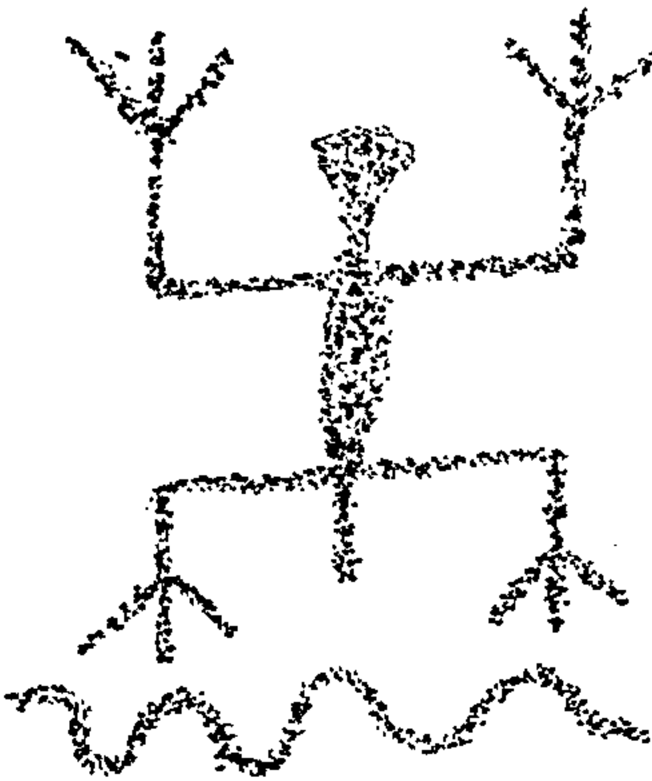


Figure #VI

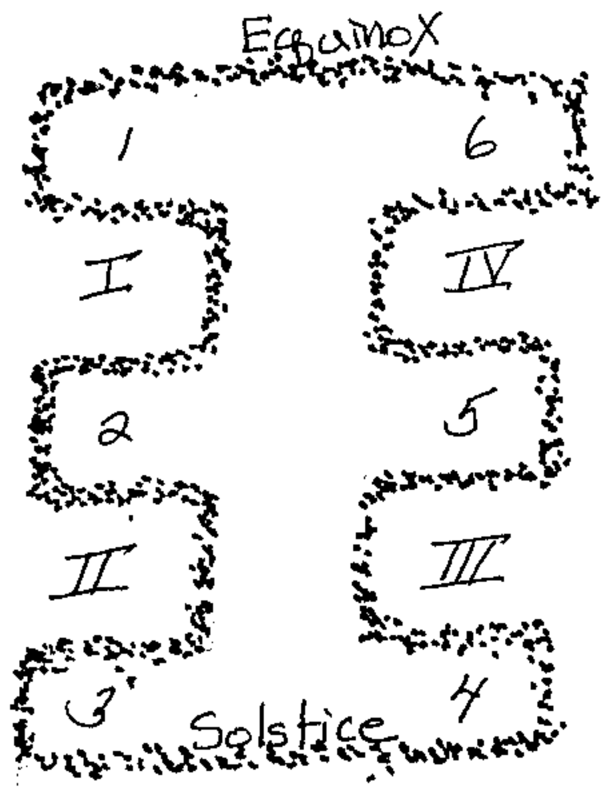


Figure #VII

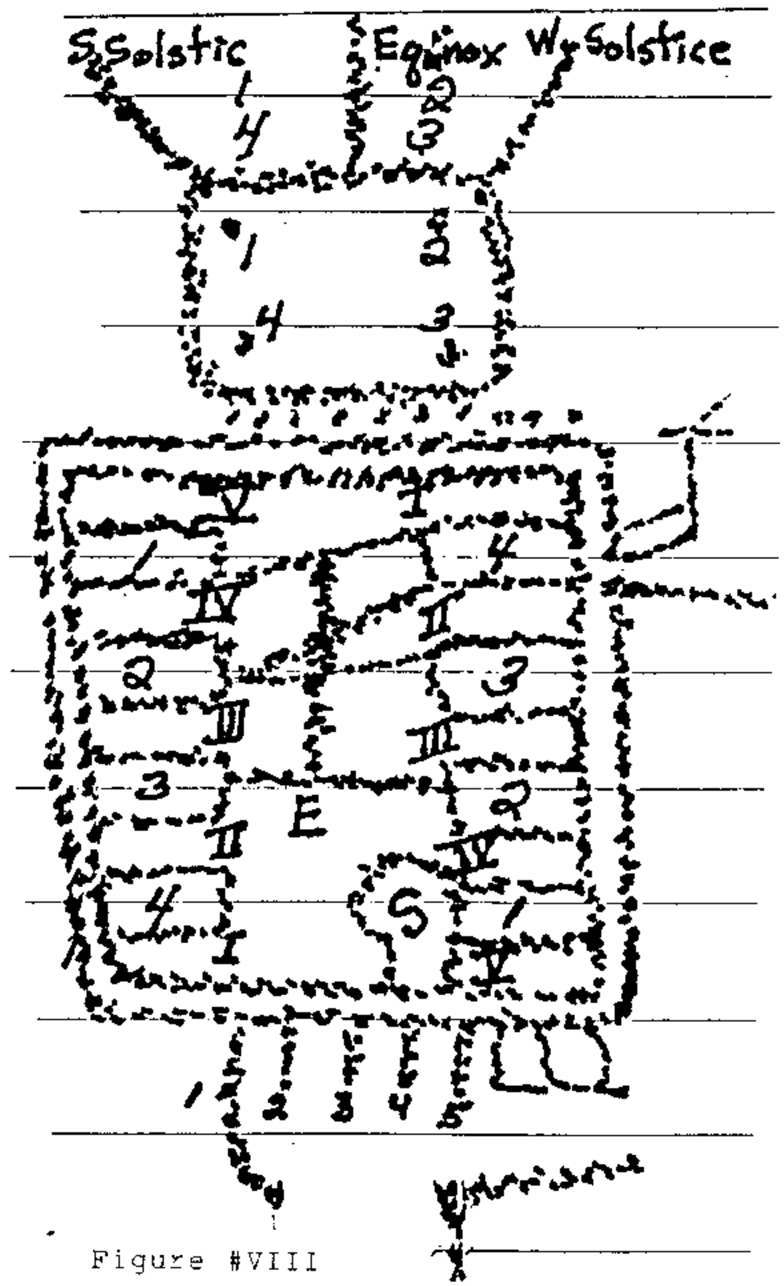
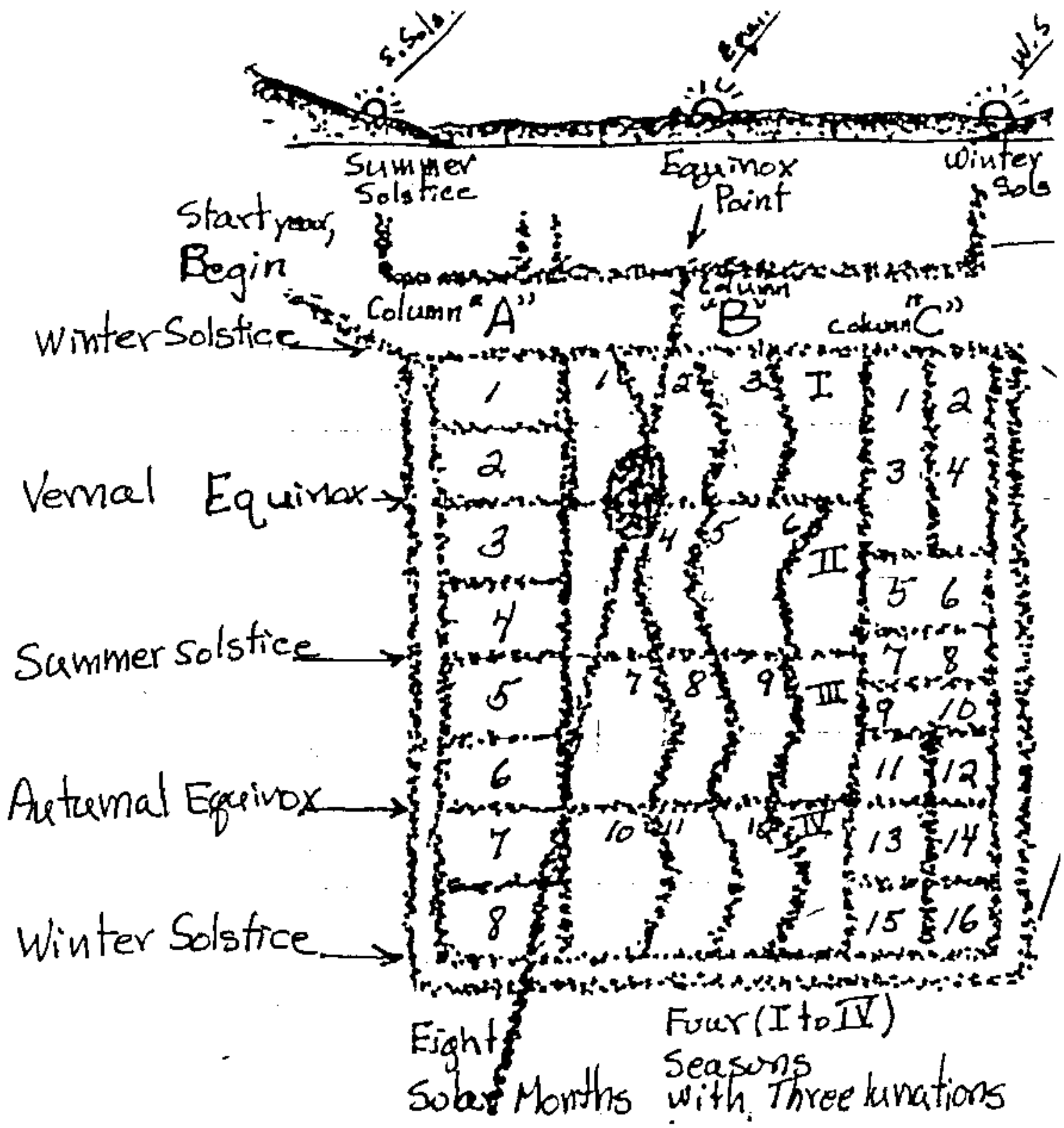


Figure #VIII



S.Sols
Equi
W.S
Summer Solstice
Equinox Point
Winter Sols
Start year, Begin
Winter Solstice
Column "A"
Column "B"
Column "C"
Vernal Equinox
Summer solstice
Autumnal Equinox
Winter Solstice
I
II
III
IV
Eight Solar Months
Four (I to IV) Seasons with Three lunations

Figure #IX