Stonehenge 2020 – The Way Forward

David Dann

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INTRODUCTION – The Story Of The Development Of An Idea

'Stonehenge 2020 – The Way Forward' marks an end of the creation of a manuscript and a story that, for me personally, has been continuously evolving for most of my lifetime. This manuscript and the story contained within it began for me in the late 1960's / early 1970's, and has been 'on and off' since, up to this point. Much of the early years until the new millennium has been spent in 'digging' and 'learning' of background, method, exploration of locations, application of new technology, exploration of early ideas and discarding of early results as the detail became more refined and more based upon fact. Also there has been available, in more recent years, much more focussed and accurate background – thanks to the archaeologists.

Therefore this text is an 'evolution' over maybe the last twenty years since the beginning of this new millennium. It has been written in several main chunks – phases – as information and new conclusion has fallen into place. It may therefore, at times, appear to be repetitive. Or it may appear that later conclusion over-rides earlier to a degree. This is probably the inevitable result of producing a chunk of original work and then setting all to one side for a year or two before picking up again with the next section. I could attempt to re-write the whole manuscript from beginning to end, cut out much earlier work, and make the whole 'slicker' or smoother. But I feel that the development of it as of now, is part of the present day story of Stonehenge.

After all the original creation through to the final product was the work of many, many centuries, and many lifetimes for many people. And the whole is a very long story in terms of the growth and development of the human race. But yet I feel that Stonehenge in particular is a story that will not continue to develop forever. The Stonehenge story <u>will</u> come to an end when it is fully understood.

The beginning of the story – the idea – was long ago – ancient. Including the planning and the acquisition of essential knowledge of astronomy to create and build Stonehenge, followed by its long existence as a slumbering and slowly crumbling monument, has certainly covered more than five millennia from before 3,000 B.C. If the conclusion of its mystery is to be marked by a time when full understanding happens, then it looks as though that time is now dawning at last. Understanding of the purpose and the point of Stonehenge – 'decoding', 'decipherment' – whatever.

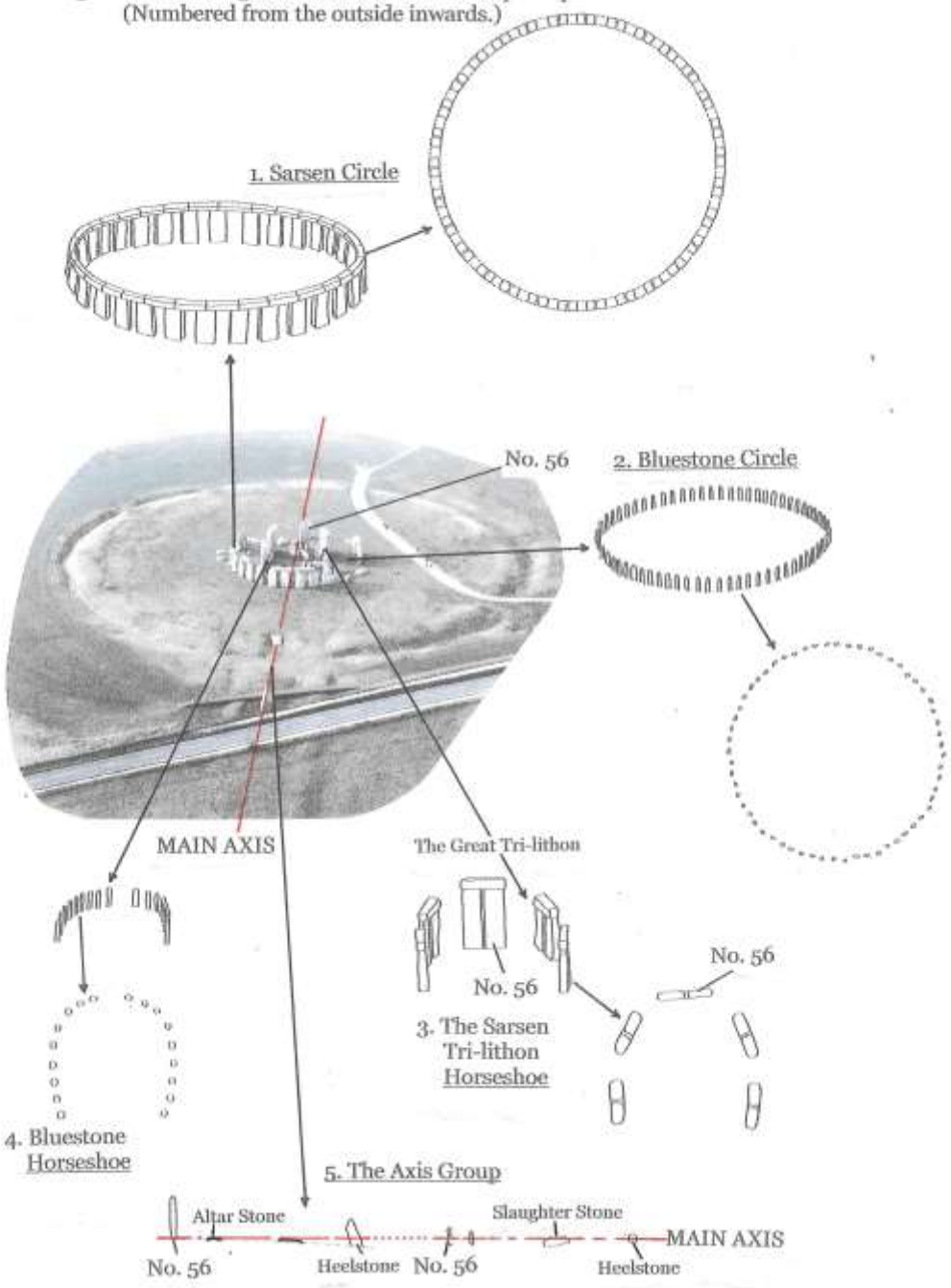
'Understanding' is now happening, is written, and is soon to enter into the general corpus of human knowledge. This must surely be significant! It is a <u>fact</u> that understanding of so much that has lain <u>unseen</u> within the monument <u>for so long</u> is now emerging from obscurity and will enter the domain of humanity - consciousness. Very soon now anybody and everybody will be able to know!

It is a fact that this knowledge of our origins and of advanced intelligence that has pushed and cajoled the human race into its present position, coupled with

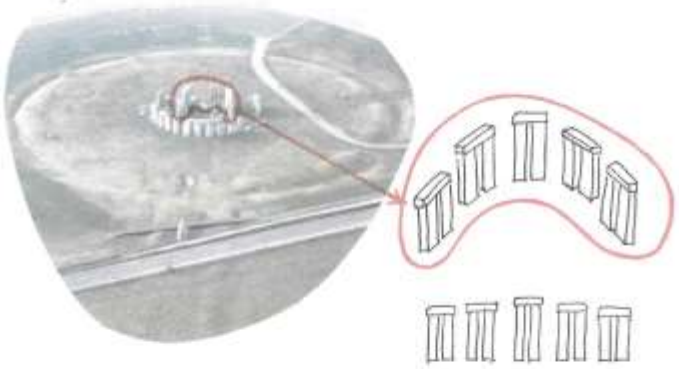
the knowledge of the source of this intelligence and where it may soon be contacted, is a very, very powerful concept. The effect on the human race, going forward, cannot fail to be very, very dramatic, and only for the good of all. Perhaps, in the very near future, the human race will finally be able to relax, collectively, with great relief, as the worries, fears, conflicts, insecurities and hatreds of millennia past are lifted and consigned to history. There is potential here for the whole of humanity to ' turn on a sixpence' from its normal, present day chaos, finally towards an ordered, civilized and humane future.

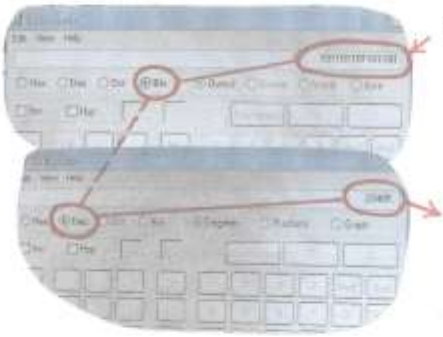
Big thoughts, big things – it's a big subject!

Fig. P.. Stonehenge – Broken down into the principle features.
(Numbered from the outside inwards.)



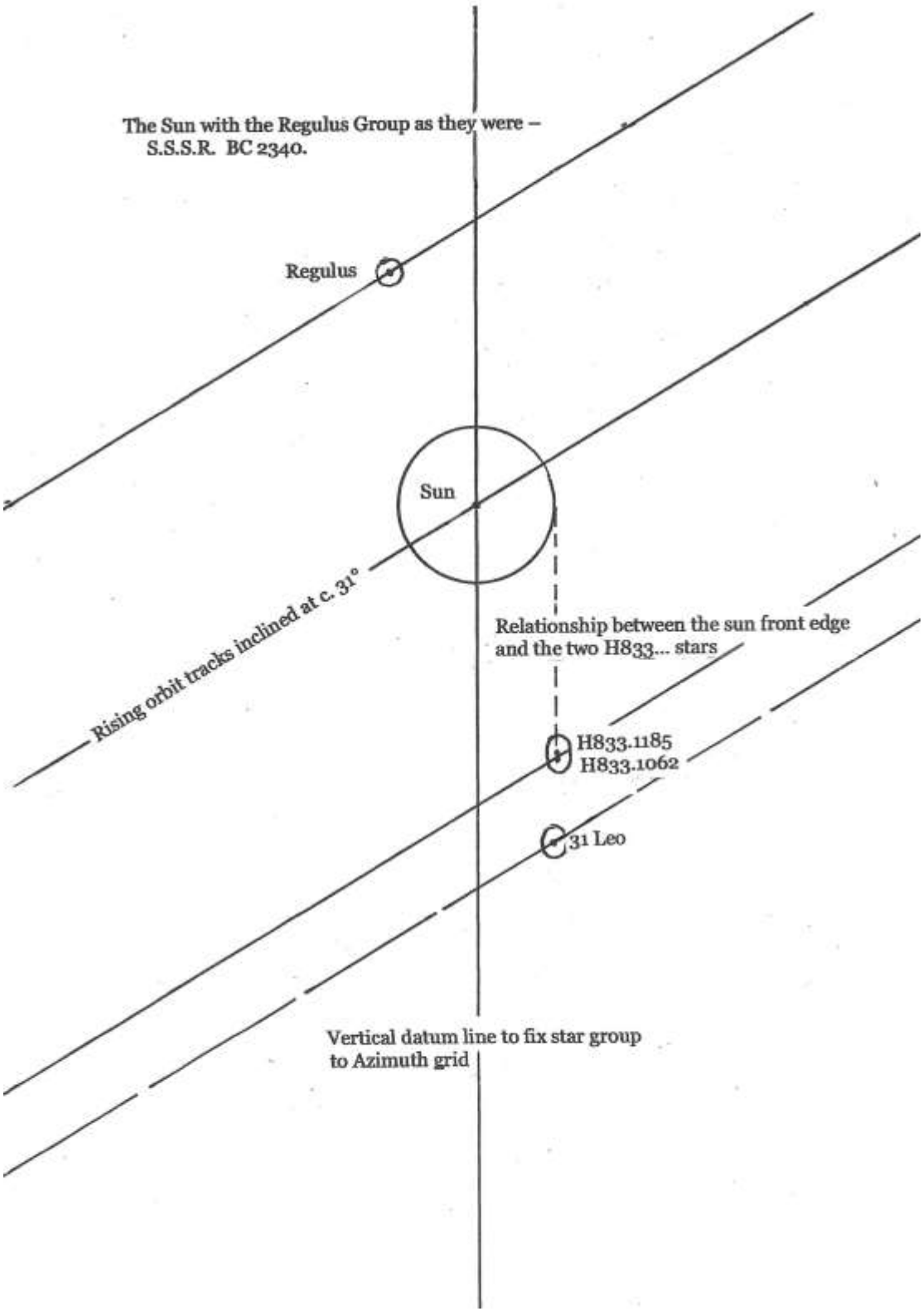
Stonehenge



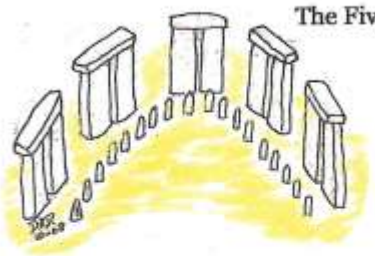


101 101 101 101 101

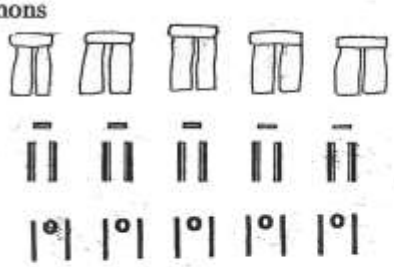
23405


The Sun with the Regulus Group as they were –
S.S.S.R. BC 2340.
Regulus
Sun
Rising orbit tracks inclined at c. 31°
Relationship between the sun front edge
and the two H833... stars
H833.1185
H833.1062
31 Leo
Vertical datum line to fix star group
to Azimuth grid

The Trilithon Binary at Stonehenge

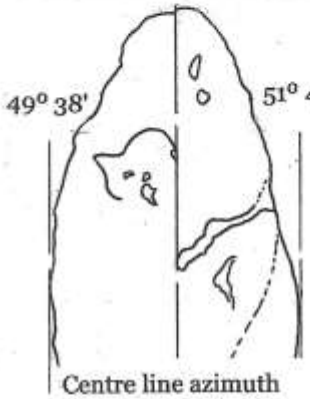


The Five Trilithons



101 101 101 101 101 = 2 3 4 0 5

The Picture on the Heelstone

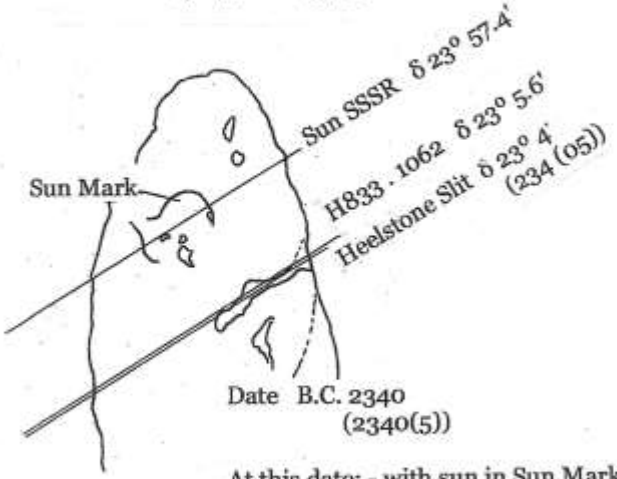


Centre line azimuth
50°43'
(50432 = 23405 reversed)

The 'TILT' of the sun. ('OBLIQUITY')

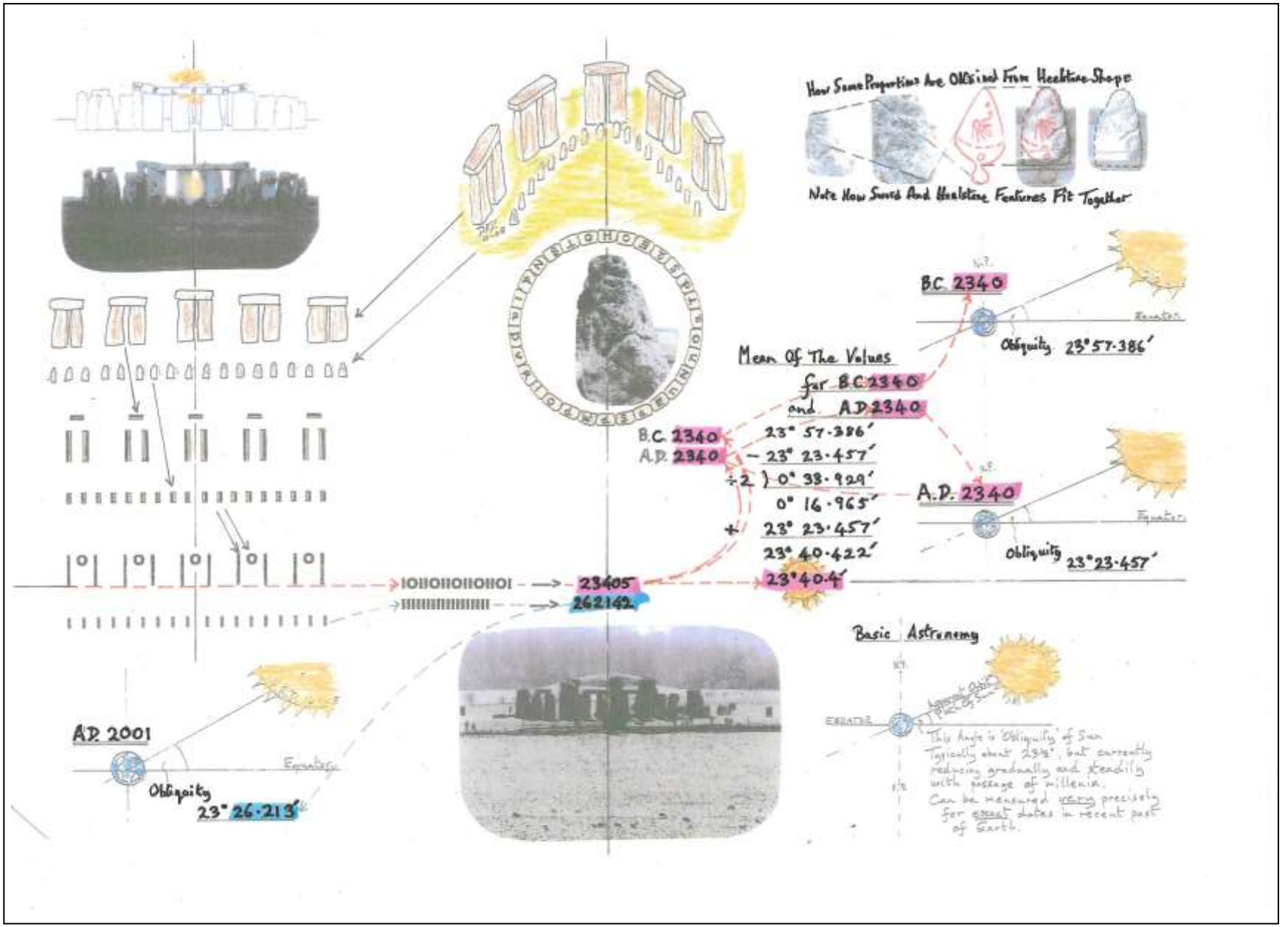
Sun δ:-

B.C. 2340	23° 57.4'
A.D. 2340	23° 23.48'
Mean	23° 40.42'
	(23 40 (5))



At this date: - with sun in Sun Mark: - Coordinates of H833.1062
as is at bottom (start) of Heelstone slit: - δ 23° 5.6' (234 (05))
Azimuth 50° 43' (5043 (2))

(Text pages 100 – 103 for detailed description)


How Some Proportions Are Obtained From Heelstone Shape
Note How Sarsens And Heelstone Features Fit Together
B.C. 2340
Obliquity 23°57·386′
Mean Of The Values
for B.C 2340
and A.D 2340
B.C. 2340
A.D. 2340
23° 57·386′
− 23° 23·457′
÷2 } 0° 33·929′
0° 16·965′
+ 23° 23·457′
23° 40·422′
23°40·4′
A.D. 2340
Obliquity 23°23·457′
10101010101010101
23405
262142
A.D. 2001
Obliquity
23° 26·213′
Basic Astronomy
This Angle is 'Obliquity' of Sun
Typically about 23½°, but currently
reducing gradually and steadily
with passage of millenia.
Can be measured very precisely
for exact dates in recent past
of Earth.

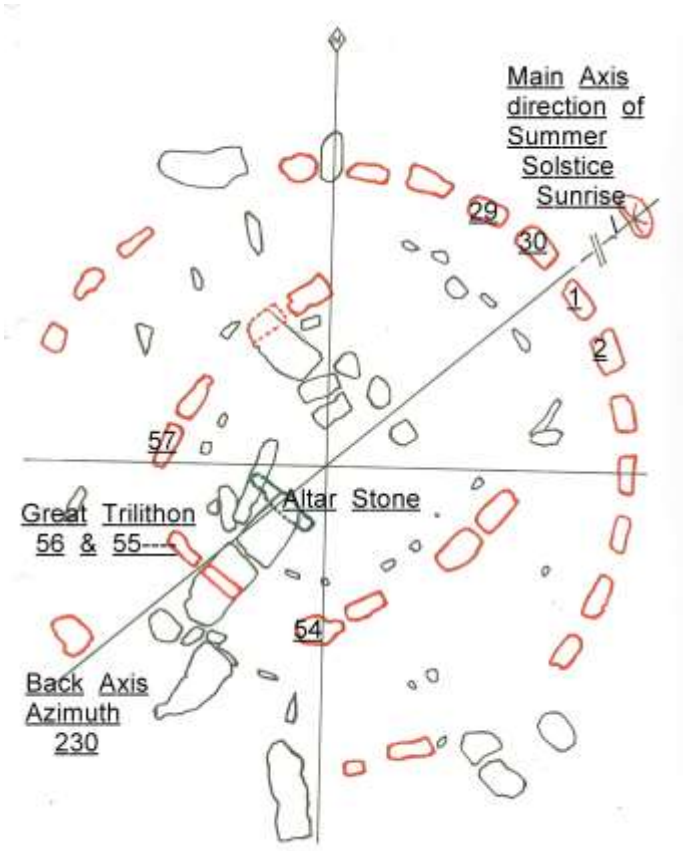
10

A 'Shadow' view of Stonehenge
Not the midwinter sunset but showing the dramatic effect of the combination of tall pillars, flat bare ground, and bright clear sunlight. All the ingredients for a Stonehenge 'Light Show' at sunset.

Dedicated to the men and women, boys and girls, who broke their backs, their limbs, their hearts, and almost broke their souls to build the foundations for our future. - My Friends.

STONEHENGE – The stone construction – The Starting Point

Stonehenge from above. The long shadows of a low winter sun just before mid-day. Comparing with the plan, below, the remains of the four concentric stone formations can be seen.



There are four significant major stone formations arranged concentrically, plus a small number of individual stones placed at various positions – possibly as markers or pointers for the major formations.

The frame of the four constructions was the outer circle of thirty upright rectangular shaped Sarsen pillars, topped with thirty approximately rectangularly shaped horizontal lintels to form a continuous ring with thirty archways.

This outer circle measures approximately 30 metres (100 feet) in diameter to the inside face of the circle. The top height of the ring of lintels above ground level is typically circa 4.9 metres (16 ft) and the top of the archways (beneath the lintels) is circa 4.1 metres (13½ ft). It has frequently been remarked upon how flat and level is the top surface of the Sarsen Circle lintel ring wherever it has survived sufficiently to see. Presumably the

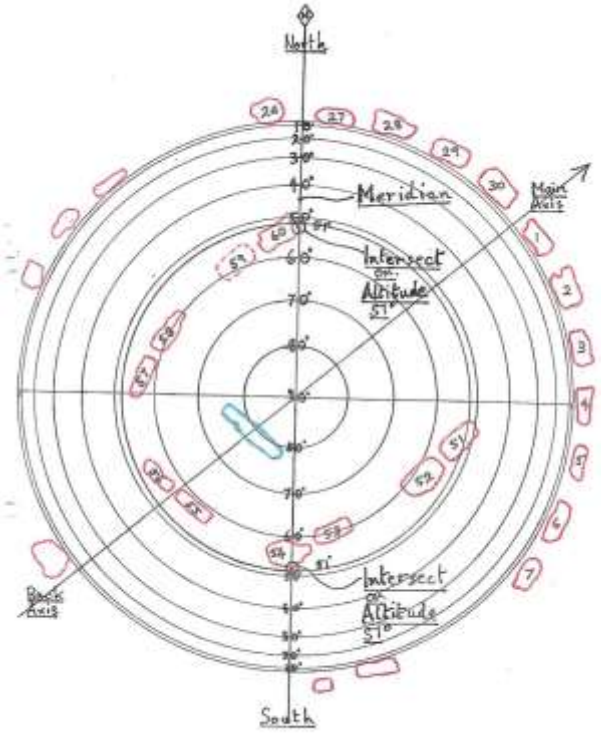
complete ring built very level despite the variable size and weight of each Sarsen upright and the ground across the site sloping slightly but steadily downhill from south to north. Typically the larger Sarsen uprights weigh in the region of 15 tons.

The design and construction of the Sarsen Circle was, in itself, a massive achievement in imagination, conception and construction to completion in an age of 'simple' knowledge and resources. Even in our own times modern engineers flinch at the proposition of carrying out such construction with only 'primitive' ropes, levers and human muscle power.

As the Sarsen Circle is a circle it has a centre. This point, easily indicated on any plan, has not been demonstrated to have been marked or emphasised in any way in the original construction. It may have been marked by a standing stone pillar or a stone buried flush to ground level that has subsequently been robbed away. Excavation might have confirmed this possibility but it seems never to have been an objective of archaeological excavation in modern times. This seems surprising as the centre point is the focal hub of the entire construction and it might have been worthwhile to have sought it.

As a circle the construction has AXES that cross the perimeter and pass through the centre: -

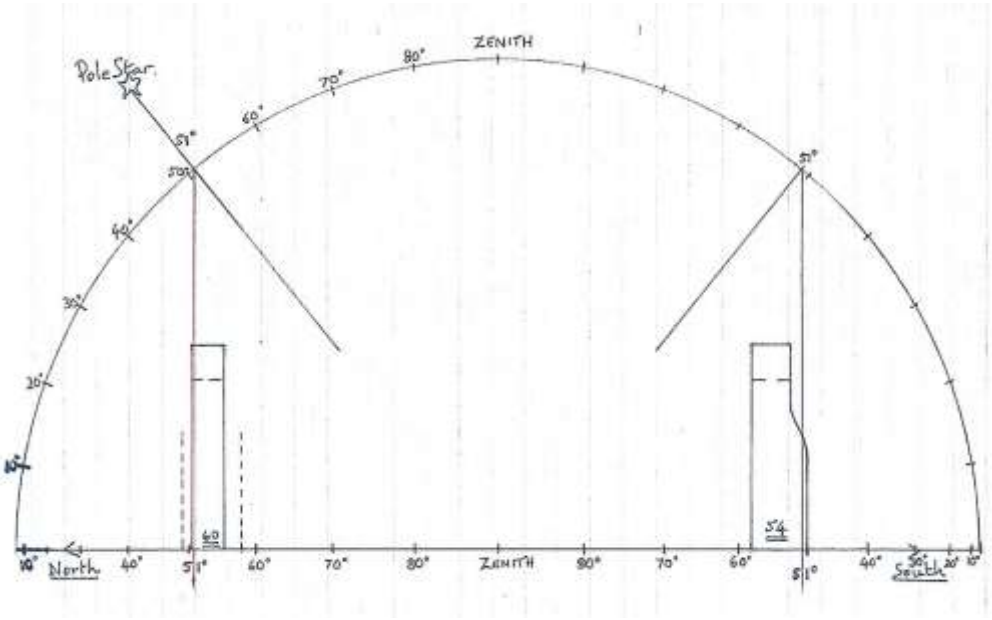
(a). <u>The first axis</u>, that is inferred is the 'North – South Axis', or the 'MERIDIAN'. As with the centre this is not generally represented on maps and plans as it fits across the construction, only usually by indicating N-S elsewhere in a blank corner of the page. As the Meridian is such a vital part of interpreting Stonehenge it can only be a symptom, on the majority of plans, of the lack of importance that has been given to this detail.



<u>Plan showing how the Meridian intersects Tri-lithon uprights 60 and 54, as they sit upon Altitude Grid circle 51°. Thus the Meridian is integrated into the Plan.</u>

A close approximation of the Meridian can fairly easily be seen in so far as it grazed the Eastern edge of Tri-lithon upright no. 60, passed through the geometrical centre and then towards south through the centre of Tri-lithon uopright no. 54 that has a very prominent and relatively high, pointed

bulge on its outer face precisely in the correct position. (I believe that the bulge is too much a part of this N-S axis to be accidental – co-incidence. Therefore I suggest that it should be regarded as intended.) The fact that this axis is represented but then deliberately obscured by deliberately erecting stone 54 with its south 'pointer' outwards and not visible from the inner area points to the fact that the N – S meridian, though perfectly well known, understood and identified in position, was never necessary to to the interpretation and 'reading' of the purpose of Stonehenge. But at the same time it is vital for any astronomical purposes as the base line for measurements of bearings on a flat surface around the Stonehenge perimeter – AZIMUTH bearing. (AZIMUTH is the horizontal angular measure of direction, in degrees, from North – conventionally in a CLOCKWISE direction. It is a measurement that is LOCAL TO THE SITE on Earth from whence it is made. If much of this seems pretty obvious it MUST be borne in mind as this text develops. AZIMUTH is one of the most important concepts to what is ahead in this interpretation of Stonehenge.)



The location on the Altitude Grid of Altitude 51° fits to the footprints of the two Tri-lithon uprights, nos. 60 and 54, as they stand astride the Meridian. Therefore the two uprights 'mark' Altitude 51° by their planned position. 51° is the altitude of the North Pole at the latitude of Stonehenge.

Further confirmation that direction North (and the Meridian – Axis) was known and understood is found within the layout plan of the stones. As I will show further on when I deal with the subject of the 'ALTITUDE CIRCLES' or 'ALTITUDE GRID' implicit within the basic design, Tri-lithon upright no. 60, the last and most northerly of the Tri-lithon Horseshoe, straddles the altitude line for ALTITUDE 51°. Altitude 51°(up from the flat horizon at 0°) is the altitude in the sky at which our NORTH STAR or POLESTAR (currently, in our epoch the star 'POLARIS'), is found. For the Northern Hemisphere the altitude of the Northstar at any point where it is visible, will correspond to the latitude of that place. Stonehenge is at latitude 51° N, thus the Northstar is at Altitude 51°.

Furthermore, not only does Tri-lithon upright No. 60 straddle the altitude line for the Northstar (and therefore Celestial North Point), but the last,outer, north-east edge of stone 60 (and therefore that same edge for the whole Tri-lithon also stands exactly on the North – South axis (Meridian) for Stonehenge. (It may well be argued that this whole alignment of Tri-lithon upright no.60 outer north corner – upright centre 'ridge' outer face of Tri-lithon no. 54 is purely fortuitous. It may once again be the case that the designer/builder had no knowledge of this aspect of cosmology and placed the Tri-lithon uprights randomly and was just plain lucky!)

It is worth pointing out that when a precise functional alignment of stones was intended, corners or edges of uprights were employed – a very precise method: but when a general aspect of essential knowledge was to be indicated, the particular stone straddles the vital point. We are pointed in specific and precise directions for certain information whilst other information forms part of the general background picture of a CELESTIAL HEMISPHERE from the horizon of the outer Sarsen Circle upwards.

(There is yet another detail of the N. –S. picture that is worth commenting on at this point. Though not fundamental to this particular interpretation of Stonehenge, it serves to illustrate just one more way in which every possible aspect of the construction was tied in to the Earth / Celestial system. The Tri-lithon upright no. 60 stands with its N. edge on Altitude Circle 51° (the altitude for the North pole). In addition this upright by virtue of its size, also stands on Altitude Circle 49°. This point, on the plan, can be linked by a straight line from the horizon point for Azimuth 49° (N.E. horizon) which is the point of rising of the summer solstice sun - through and perpendicular to the intersection of N. – S. meridian/ upright no.60 Altitude line 49° - to horizon point Azimuth 311° which is the point of setting of the summer solstice sun. This one alignment that encompasses solstice sun rising and setting, perpendicularity and symmetry about the N. – S. Meridian, and significant position on the Altitude Grid, has been used to determine the position of the beginning of the Tri-lithon Horseshoe at its Northern extremity. This is why the Horseshoe begins where it does! Nothing is wasted. Every opportunity is used to incorporate more information.

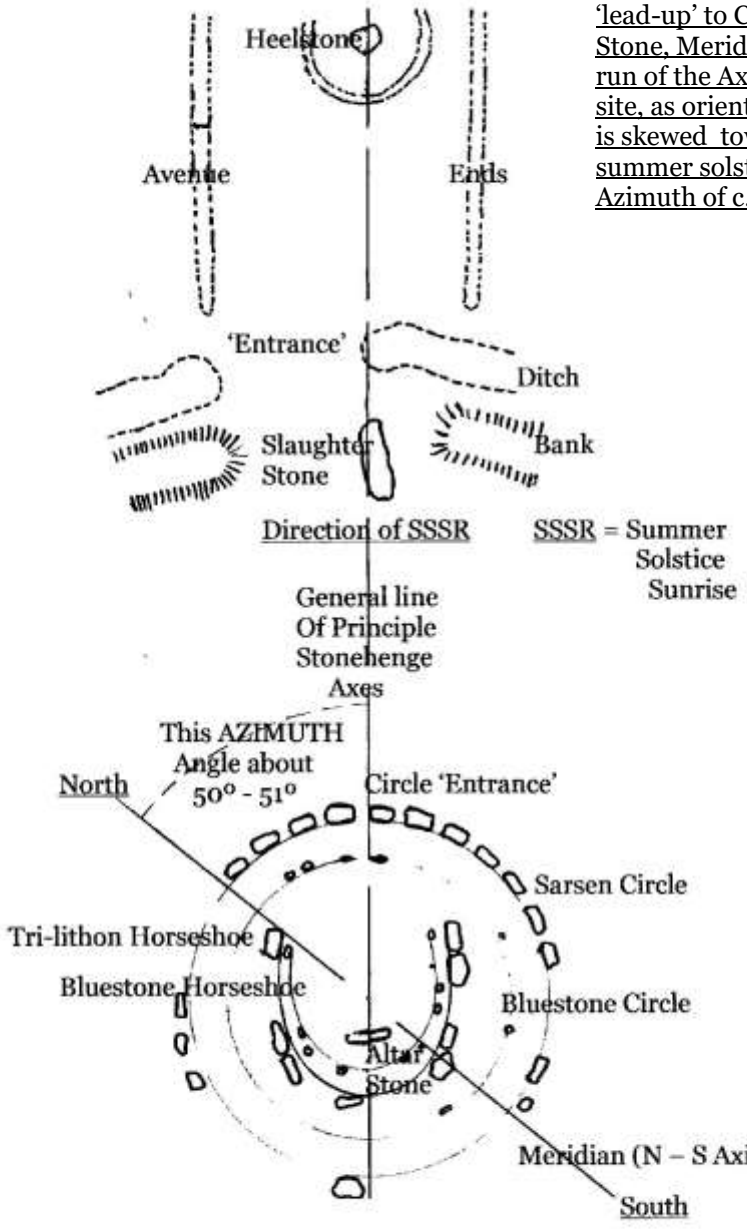
There are many setting of this type within Stonehenge. But it is not my purpose here to use such alignments to interpret the monument. This type of research is too contentious with the statisticians and detractors who find it very easy to argue down any new investigation of this type. I cite this as just one example of what can be found.)

(b) The Two Heelstone Axes

It has long been generally accepted that the apparent primary function of Stonehenge is to point at, and presumably celebrate, the sun rising above the North-East horizon of Durrington Down at sunrise at mid-summer solstice. (From hereon in this text Summer Solstice Sun-Rise will be referred to as 'SSSR'.) This is and always has been the most obvious Celestial occurrence each year at Stonehenge. Each year the event draws large crowds to watch

and celebrate it in diverse ways as the sun – hopefully if weather at dawn permits - rises at the point marked by the distant outlier stone known as the 'HEELSTONE'.

The HEELSTONE is a single, rough-hewn and roughly pointed Sarsen pillar erected approximately to the N-E of Stonehenge at circa. Azimuth 50°, whence the summer solstice sun rises. The stone stands at circa. 80 metres from the Stonehenge centre, down-hill slightly, and to a height of c. 4.9 metres (15 ft.). Consequently, according to the height and position of the observer, its pointed top is very close to, or just clears the distant skyline as a clear and unambiguous horizon marker. Once again it seems clear that it was the intention of the Stonehenge designer to achieve this visual effect.



General layout of the site showing Heelstone, Entrance, 'lead-up' to Circles and Altar Stone, Meridian, and general run of the Axes. The whole site, as oriented about its axes, is skewed towards the Mid-summer solstice rising at an Azimuth of c. 50° - 51°

From the Heelstone back towards Stonehenge there is a causeway crossing the perimeter ditch that surrounds Stonehenge – (the perimeter ditch 'entrance'). Continuing through this entrance and moving back towards Stonehenge we arrive at the outer SARSEN CIRCLE – the first, and outermost, of the four individual, concentric stone formations that are Stonehenge. Arriving at this circle there is an apparent entrance here that is demonstrated by a wider than average gap between the two Sarsen uprights – nos. 1 and 30 - between which passes the sunrise axis from centre to Heelstone. Within the Sarsen Circle is the remains of formation number two that was, originally, a circle of smaller Welsh stones but is now very badly damaged and has been much robbed away over the millennia. Even so the 'entrance' appears to be emphasised, again, by a wider gap than average between the stones each side of the Heelstone Axis.

Within this second circle stand, concentrically, the two 'famous' Horseshoe features, the first being formed by the spectacular and massive Sarsen 'TRI-LITHONS', the second and innermost feature being a horseshoe formation of smaller Welsh stones again. These two horseshoe formations have their structural orientation, axes, and 'entrances' towards the Heelstone. The whole effect seems designed to 'welcome' into the monument the summer sun (and anything else that may be in that direction!).

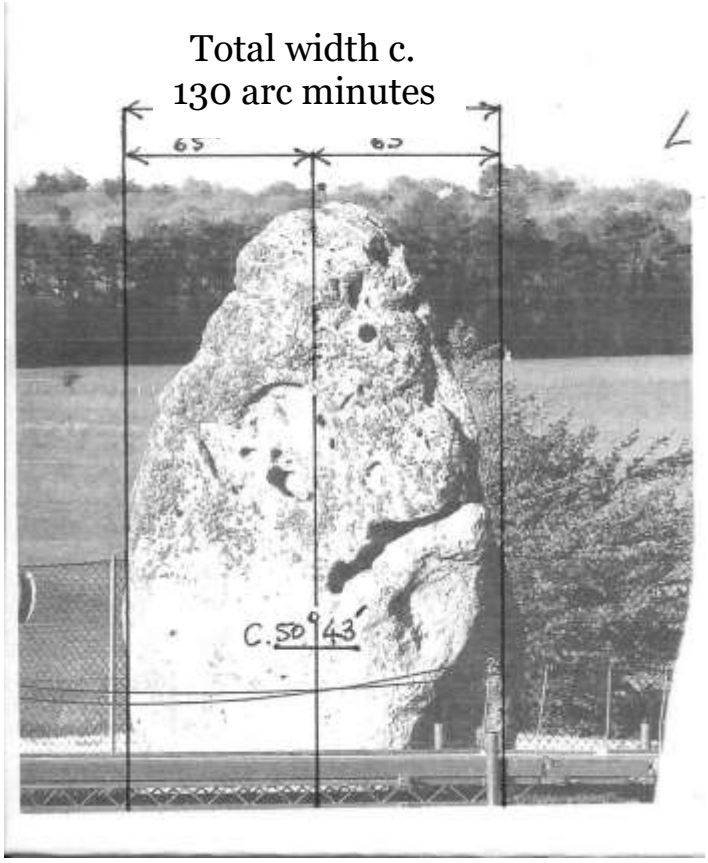
(There has been a suggestion, in recent times, that this apparent 'main' entrance is actually the 'back' entrance of Stonehenge, and that the main focus was actually in the exactly opposite direction towards the South-West at azimuth 230º - towards Mid-Winter SunSET. Unfortunately there is not and probably never has been any obvious ceremonial 'Entrance' effect / Heelstone type marker / other means of marking this 'back' direction, and we must assume that the designer meant Stonehenge to celebrate the obvious. We enter dangerous territory if we try to ascribe to them obscure, devious, hidden motives for hiding the reasons for their construction behind a 'mask' of the obvious. We require more to hold on to than only an unsubstantiated idea.)

The Matter of the Heelstone Axis, or Axes, is complex. If we begin to dig deeper and more searchingly we find that the general, imprecise, and casually referred to 'Axis' of the casual or untrained eye is actually, precisely, two Axes within one. One is immediately obvious and understood, the other is less obvious at first but clear and simple enough once demonstrated.

(A). The Summer Solstice Sunrise Heelstone Axis (SSSR Heelstone)

The Heelstone SSSR Axis is the most well known. For centuries it has been recognised that the mid-summer sun rises above the Heelstone at Stonehenge. Generations of archaeologists have pointed to the fact that the Heelstone stands visible centrally through the entrance archway of the Sarsen Circle (stones 1 and 30). Neither of these statements are exactly correct. (NEED TO INSERT HERE –STUFF ABOUT 'CLASSIC VIEW' FROM EARLIER WORK)

As measured from the geometrical centre of Stonehenge (at the point where Heelstone Axis and N-S Axis intersect) the Heelstone can be measured to have angular width. The value of this angular width is circa. 130 arc minutes (or



2°10´). The range of the Heelstone width is from 49°38´ to 51°48´. Therefore the 'mean' (or 'average') of the width of the Heelstone is 65 arc minutes (1°05´) . This gives an azimuth value for the centre of the Heelstone of 49°38´ + 1°05´ = 50°43´.

The value for SSSR azimuth for B.C. dates is easily obtained from modern astronomical computer software. It is necessary initially to assign a date for the function that the Stonehenge designer intended. I have very much to say on this detail further on in this text. A date is necessary because the apparent orbit of the sun about Earth is slowly changing, albeit at a steady and measurable rate, with the passage of time. Consequently the sun, in our modern epoch, now rises at a slightly further East, or higher azimuth value, than it did when Stonehenge was built. Our computer programme can quickly give us the correct azimuth value for a date B.C. once we have agreed upon such date. Initially however the date that we have is the result of very many decades of hard work and deduction by archaeologists who have successfully built up, over the last century or so, a very detailed picture of construction sequences and absolute dating for many aspects of our British pre-history. The dating that has now been achieved for the construction of the major Sarsen structures of Stonehenge is a period of about 100 years or so starting at some time after B.C. 2500.

As this text develops it will become apparent that this date can be refined within this suggested timeframe. For the purpose of astronomical computation the date that I will be using for the intended completion function (and inauguration?) of Stonehenge is B.C. 2340. (The target date for 'project completion' by designer/builders.)

The date of B.C. gives a SSSR azimuth value for Stonehenge of 49°38´ at zero altitude. It is a fact that Celestial events at zero altitude appear always higher (and therefore earlier) than the actual precise calculation specifies. Atmospheric refraction of light at zero altitude can vary slightly due to variation in atmospheric conditions, but for the latitude of Stonehenge at mid-summer a value of 0°30´ is a fair value. Therefore SSSR will appear to happen a few minutes earlier than it actually is happening, slightly higher and

consequently slightly N.W. of its actual true position at the horizon. By a very fortuitous occurrence (accidental?) the Stonehenge horizon at Durrington Down has an elevation, as seen from Stonehenge, of circa. 0°30´- sufficient to largely negate the effect of refraction and cause SSSR to physically appear almost at the correct astronomical time and place. Therefore the calculated azimuth value for sunrise, for B.C. 2340 of 49°38´is very close to the actual observed occurrence. It is also the azimuth value of the N.W. (left hand) extreme edge of the Heelstone as measured from geometric centre.

The Heelstone showing how the left-hand (North-West) flank pointed to the pre-historic Summer Solstice Sunrise, c. B.C. 2340, viewed from the centre of Stonehenge. The exact Azimuth bearing of the sunrise for this date was 49° 38´, which is precisely the outer extremity of this flank. This Azimuth also takes the line of vision down the 'Avenue'.

This very important detail of sightlines against the EDGE of stones will be a recurring theme and principle within this text. For the moment it is very important to point out that, where sightlines are involved passing stones, then the sharp edge of any particular stone does give a very accurate alignment.

From the foregoing it can be seen that N.W. (left hand) edge of the Heelstone provided the most obvious sightline for Stonehenge at SSSR B.C.2340. This is also the azimuth that gives a sightline into and away down the Stonehenge 'Avenue' towards Stonehenge Bottom and the Long Cursus across the valley. Because it and the rising Solstice sun have always been so obvious this azimuth, view and sightline have come to be regarded as THE axis and purpose of Stonehenge. The sunrise was the 'Main Event'.

(B). The Stellar Heelstone

We can dig further. There is a second clear alignment and AXIS that can be demonstrated within the dimension and planning of Stonehenge. It is more important than the Summer Solstice Axis of part (A). This second axis uses the other, N.E., edge of the Heelstone as viewed from the centre of Stonehenge and is a very long and therefore precise alignment.

The Round Barrow 'Amesbury G 15' stands away from Stonehenge in an approximately South-West direction, in the grass field beyond the main A303 road. In our era it is the only Round Barrow within this large field. (There is no evidence that there were ever any other barrows within this area and close

to G15, which is slightly unusual in itself because so many barrows within sight of Stonehenge congregate together as members of 'Barrow Cemeteries' built in local groups or 'strings'.) It is a very large barrow , both in area and height, quite distinctive in the landscape. Indeed it is considerably larger than the nearby famous 'Bush Barrow', burial site of a famous hoard of 'Wessex gold' warrior ornament and weapons, or its neighbours.

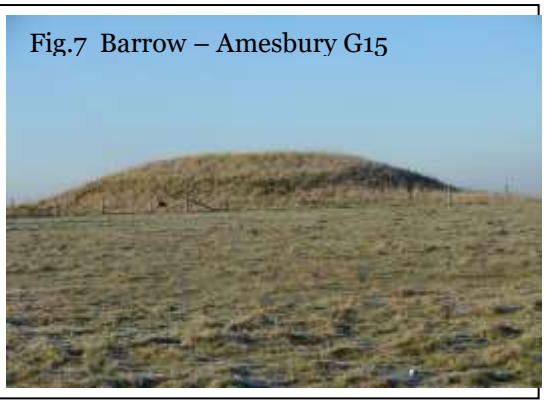
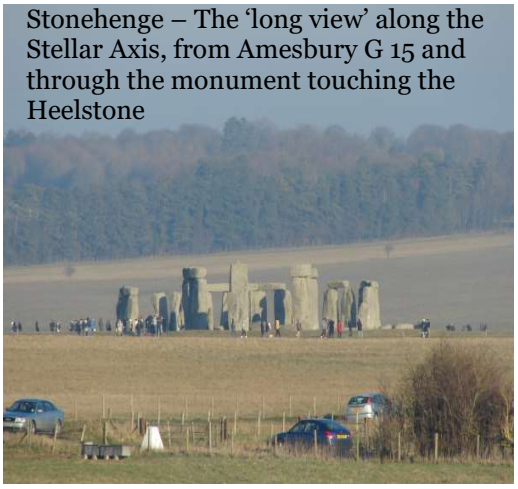


Fig.7 Barrow – Amesbury G15

The distance from Stonehenge centre to G15 is circa. 960 metres (1050 yards). From Barrow G15 the 'Stellar Alignment' or Axis reaches and passes through Stonehenge very precisely towards the 'Long Cursus' and the area at the skyline of Durrington Down that is close to the sunrise point of the summer solstice axis of part (A) above. From Stonehenge to the top of Durrington Down the distance is circa. 1900 metres (2100 yards). Sadly Durrington Down is presently obscured beneath semi-mature woodland and the ground surface has long been un-seeable. Also the army has been established along the top of Durrington Down for many years and there is evidence, in the form of ancient heaps of concrete around the area in question, that they have probably 'worked' a lot of the ground surface at various times. Therefore there currently seems little chance of finding any significant evidence of pre-historic land-marks indicating earlier existence of sightlines from Stonehenge. Even so it would be a very worthwhile exercise at some time in the near future and well within the resources of English Heritage / The National Trust if an 'alleyway' could be established up the hill, through the area of woodland along the distant view from Stonehenge to the top of Durrington Down, to demonstrate the total potential sightlines of Stonehenge as originally created.

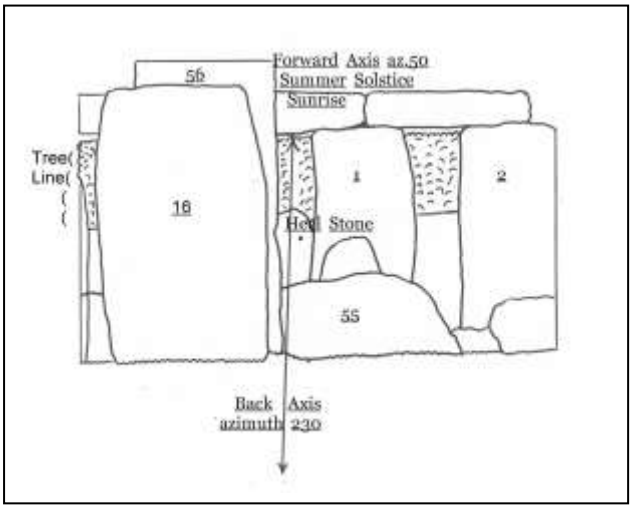

Fig.8. G15 – 'Welcoming Committee'


Stonehenge – The 'long view' along the Stellar Axis, from Amesbury G 15 and through the monument touching the Heelstone

The establishment of such a vista (that would work both ways – from Stonehenge to the distant skyline, and also (very importantly) - back from the skyline, down the hill, through the centre of Stonehenge, and beyond to Amesbury G15 – a distance of circa. 2860 metres (3150 yards, or more than 1¾ miles) would be well worthy of the importance and significance of our most famous pre-historic construction and well suited

Closing in along the Back Axis, and Main Stellar Axis. View from within the boundary fence.

Almost up to the Sarsen Circle, slightly offset to the left-hand of the Back/ Main Stellar Axis. The Heelstone can now be seen through the monument. (Because this sight-line is fractionally offset we cannot quite see the Heelstone 'notch'.)



to its status as a World Heritage Site. The 'avenue' down through the woodland, providing such a completely new, to our era, view of distant Stonehenge and through to Amesbury G15 would be a grand preparation for the proposed 'hiding' of the A303 that may happen sooner rather than later. The whole Stonehenge site and its setting would become far bigger and more impressive within its setting of 'wide open spaces' and, who can say, such an impressively enlarged site, extended sightlines and vistas could become the final catalyst that would provoke the current ruling power within Central Government to give the go-ahead and provide the funding to finally 'bury' the A303, sooner rather than later!

From the top of Barrow Amesbury G15 one can, through good binoculars or a powerful camera lens, see the sight-line clearly as it passes through Stonehenge. As it enters the Sarsen Circle it grazes the East edge of Sarsen upright no. 16. Then it grazes the Eastern edge of Great Tri-lithon upright no. 56. (In ancient times this would have been THROUGH THE VERY NARROW SLIT of the Great Tri-lithon archway of 2 uprights 56 and 55 with the top lintel high in place above. A very important alignment that demanded perhaps the greatest effort of all within the construction of the Stonehenge 'project', because of the

tremendous precision that was required here combined with the size and weight of this particular group of stones, the largest of which weighed in excess of 40 tonnes.)

The sightline passes through the centre of Stonehenge and then out through the other side of the Sarsen Circle grazing the West edge of Sarsen upright no. 1. Then it passes the east edge of the Heelstone, close to but not quite at, the full width of this stone but very close to the significant visual 'NOTCH' that occurs halfway up this East edge.

In actual fine detail, the Heelstone East edge and Sarsen Circle upright no. 1 West edge each slope slightly from the bottom upwards. The actual, on-site effect of these two edges, as seen on this long alignment, is to form a clear 'V' notch, almost at the point of the other 'notch' in the side of the Heelstone. The modern analogy is with the 'V' notch of the fore-sight of a rifle. The whole effect as a means to emphasise the importance of this alignment is very effective.

Finally the sightline continues across the valley and, as a level line, makes landfall on the long 'CURSUS' below the side of Durrington Down. Unfortunately there is not visible any mark such as a stone pillar or small stone circle to mark this point.

(A) The Summer Solstice Alignment Axis
View from Cursus (N.W.) into Stonehenge along the 'Avenue'. (The 'Avenue' is shown as the two parallel 'lines' across the grass field.) The Heelstone can be seen next to the bush, nearly central to the Avenue. It can be seen that the sightline passes to the Right-hand (N.W.) edge of the Heelstone and on to the centre of Stonehenge. Barrow Amesbury G 15 is visible in the right-hand background.

It is a very long view to be certain of this sightline from Amesbury G15 without some form of binocular or magnifying camera lens which demonstrates , firstly, how far-seeing were the builders, and secondly how exceedingly and astonishingly accurate they were in the placing of the great Sarsens along this alignment. A very small error sideways in either direction in the placing of any of the significant Sarsens used here (including the two biggest Sarsens of all, nos. 55 and 56 of the Great Tri-lithon archway) would have completely ruined the effect. And would have possibly eliminated the information that is still now implicit within this alignment, and that has survived for many millennia

until its be rediscovery. We owe these people so much. They gave so much for our future.

This second 'STELLAR' axis of Stonehenge does not align with the 'AVENUE' that leads up to the Stonehenge entrance from the valley of Stonehenge Bottom.

(B) The Main Stellar Axis from the Cursus.
Barrow G 15 frames perfectly the monument and especially fits to the profile of the tops of the Tri-lithon Horseshoe. The Main Stellar Axis passes to the left-hand (S.E.) of the Heelstone (partially obscured by the bush), and grazes the edge of central Tri-lithon upright no. 56 before continuing to the centre of G 15. The two views, this one and the previous view along the Avenue, demonstrate very clearly the difference in alignments purely down to the apparently insignificant width of the Heelstone, when stretched out across the landscape.

The two different Axes are very clearly viewed from the Cursus, across the valley below Durrington Down. It is very easy to see how the SSSR axis, to the North-West edge of the Heelstone aligns with the Avenue that can usually be seen fairly easily from this direction. This alignment of Avenue and Heelstone edge to Stonehenge centre is the most obvious feature. There do not seem to be any other obvious features within the landscape.

The back-view for the STELLAR alignment can also be seen from the Cursus and looking into Stonehenge, from a viewpoint on the Cursus a short distance East of the SSSR viewpoint. From the Cursus one can align the four upright Sarsens that I have just previously described. (Heelstone (east edge) – Sarsen Circle entrance upright no.1 (west edge)– Great Tri-lithon upright no.56 (east edge) – Sarsen Circle upright no. 16 (east edge). (The large thorn bush on the roadside of the Devizes road spoils the effect slightly – how perverse that there should be one single solitary bush exactly in this spot to visually interfere with this alignment.) The visual effect that underlines this alignment spectacularly is the apparent great bulk of Round Barrow Amesbury G15 'rearing up' precisely behind Stonehenge. It is perfectly placed on the STELLAR alignment that I am already trying to describe above. And the size is absolutely correct to frame the Horseshoe of Tri-lithons. –Another fortuitous co-incidence? Undoubtedly not. And if we can accept that this barrow was built in this position and to the size that it is to confirm, frame, demonstrate the long STELLAR Axis, then again we have extracted more very important information from Stonehenge.

Pre-historic 'target practise'. The Main Stellar Axis originates atop Barrow Amesbury G 15 (here just in front of the distant woodland), and 'fires' exactly through Stonehenge to graze the N.E. flank of the Heelstone at the 'Notch', half way up. A distance of just below one kilometre.

Personally it is my opinion that this is one of the very best views of Stonehenge, it is certainly one of the most important. The view should be printed at poster size and distributed widely as a monument to the ingenuity, perseverance and precision of the builders, and as an example to our modern race of what can be achieved with a 'can do' attitude. Stonehenge may be dwarfed in physical size by many other ancient monuments around the world, but it is my own long-held opinion that this particular view encapsulates and unlocks an enormous amount of knowledge.

The Azimuth value of the long STELLAR AXIS, viewed from the centre of Stonehenge, is circa. 51°50´, as near as can be ascertained at this stage. Taking the two separate Heelstone outer flank azimuth values as:-

N.W. (SSSR Axis) flank	49° 38´
N.E. (STELLAR Axis) flank	51° 50´
Gives a mean (average) value of	50° 44´ for the two

axes (and is close to the centre line of the Heelstone.)
The azimuth value of 50° 44´is very close to a value of 50° 43´ and this second value should be kept firmly in one's mind as I will return to it in a most important context further on in this text.
The azimuth value of 50° 43´ will be shown to be of the greatest significance.

It is worthwhile commenting here on the problem and method of obtaining reasonably accurate values for the Stonehenge AZIMUTHS of these two Stonehenge AXES. Various methods have been used over several years.

The first problem that one comes up against is the difficult access to the central area. Early visits in the 1960's to the central area were unfettered and unobstructed. One parked in a pot-holed lay-by next to the Devizes road, paid one's shilling or whatever and, once through the iron swing gate, could wander at will across a peaceful, near-empty site, even climbing on the easier stones for photos. In those far off days Stonehenge belonged to the birds, the wind, and the common man.

During the 1970's the human race discovered Stonehenge and the complicated barrier / tunnel, car park, shop, etc. set-up arose as the monument became perceived more to be a money generating complex. At the same time access to the central area became severely restricted, only by prior booking at very early or late times of day if there was a slot (not too easy in the summertime). Also it meant advance booking, initially by phone / post – which meant advance planning and taking a chance with the weather. 'Cause and effect' – Popularise the monument – sell it hard to the tourist hordes – by weight of numbers they trample the ground – so we have to keep them away - but at the same time we need their money!

But, since then the 'Empire Builders', the Accountants, and the tourist 'Industry' have cranked themselves up into 'Full-on' mode. Now Stonehenge is a distant dot in the landscape as the 'Experts' and our 'Heritage Guardians' shuffle millions of half disinterested tourists through their 'essential Stonehenge experience' on their rushed sight-seeing schedules. And charge the common man a stupid price in the process! The opinion of one who has known Stonehenge for longer than I care to reflect is that the 'New Stonehenge' is horrible – ghastly – a sad reflection on the minds and outlook of the new generation of 'owners' – of the modern, cynical, 'make everything work for the money' generation! At the same time access to the monument is more 'complicated' for the passing traveller wishing to stop by on their journey for a quick re-visit to pay homage to an old friend, or check out some small detail raised during their studies. I count myself lucky to have been able to work in that rare slot in time during the 20th century when access was reasonably possible and new knowledge was flaring up, before commercialism became the raison d être of everything.

It becomes apparent, very early on in Stonehenge studies, that a considerable degree of accuracy is needed for any measurements obtained. Some aspects of Stonehenge measurement have been well measured and published. They are freely available, especially scale plans and drawings. There is very little work known concerning the position of Stonehenge within its landscape relating to angle and bearing linked to the Earth and its position within the Cosmos., horizontally or vertically. By this I mean that it is well nigh impossible to find information concerning the relationship of Stonehenge to our Earth Polar Axis or Celestial Equator. Astronomy can supply information about observational aspects of just about any Celestial object or phenomena to several decimal places but try to get an accurate fix on Stonehenge? – not so simple. The reason is probably that Stonehenge has traditionally been the domain and provenance of the archaeological fraternity certainly since the advent of modern science. Enthusiastic and helpful as archaeologists generally are I have never heard of one who will embrace and understand astronomy. Consequently it is normal for attempts by enthusiasts to demonstrate astronomical links within Stonehenge to be quickly 'attacked', buried, even rubbished by its 'guardians' of knowledge. This is so sad. Encouragement, even to the point of some archaeologist taking up the hobby of star-gazing, would be so encouraging – and progressive. It might even progress Stonehenge studies. All knowledge must be good. Any knowledge must be good. Perhaps ignorance is bliss!

As with all measurement, accuracy is needed to measure, justify, explain the two AXES described previously that are present and pass against the two edges of the Heelstone. It is not possible to stand at the centre point of Stonehenge, point a magnetic compass, and obtain a result that is satisfactory for further investigation..

Early attempts were made by measurement off of Ordnance Survey maps / officially published site plans. It is probably possible to get to about 1º of accuracy but this is of little use for modern astronomy, and when trying to relate to the possible ancient astronomical information implicit in the design. One major problem, if attempting to derive necessary bearings for an axis is that there are no distant marks obvious on Durrington Down. Rather the whole flank of the Down is heavily wooded with a very consistent cover of semi-mature beech trees.

Another attempt was by use of 'Google-Earth' that came about in the 1990's. The satellite produced imagery that became available was quite useful as the 'photos' also contained geographical indicators for latitude and longitude. But visual resolution was not high and was hardly up to defining individual stones let alone their precise edges.

Pocket sized 'Garmin' type satellite navigation devices then became available, deriving their information, once more, from the Earth satellite system that was now in place. They could be used to fix points on the land surface to within about 1 metre or so. Their usefulness, again, was compromised, for the amateur, by the difficulty of access generally around the stones of Stonehenge. Unless one actually knows, by regular acquaintance, 'somebody in charge' at Stonehenge or is a recognised 'archaeological expert', one always comes up against this further man-made barrier. Notwithstanding this, the satellite navigation device did permit of fixing points that are further out in the landscape.

The final means that was able to confirm, or otherwise, bearings for the two Axes obtained by other methods, was to mark and time the shadow of certain upright stones, timed by satellite clock, and then relate this back to astronomy data available as computer software that can relate precise timing at precise geographical location to common astronomical events. (The procedure employs certain Stonehenge uprights as a giant sun-dial combined with modern, precise, digital position / time data. What could be more ironically appropriate than good old pre-historic Stonehenge as part of a modern, digital, scientific instrument?) This procedure had to be carried out close to mid-winter when the sun was reasonably low in early afternoon, but the sky needed to be clear so that clear-cut shadow could be obtained. (Therefore it needed dry and frosty weather in February / March.) For each of the two Heelstone Axes alignments required, a flat white screen / tall narrow vertical marker stick was set up exactly on the relevant alignment of Axis / Great Tri-lithon upright no. 56 inner (S.E.) edge at a distance beyond the Heelstone, in the grass field on the opposite side of the Devizes road from the monument.

The Main Stellar Axis. Alignment of edge of Tri-lithon upright no.56 – Heelstone N.E. edge. The Heelstone target 'Notch' can just be distinguished as the rough area in the flank-2nd full line of fence mesh from the top.

Preparing to catch shadows. The tall pole is a gnomon to mark the progress of the sun. The rear of the white screen is in this view, but the whole is indistinct from this side because the camera is facing the sun to show this view of the set-up.

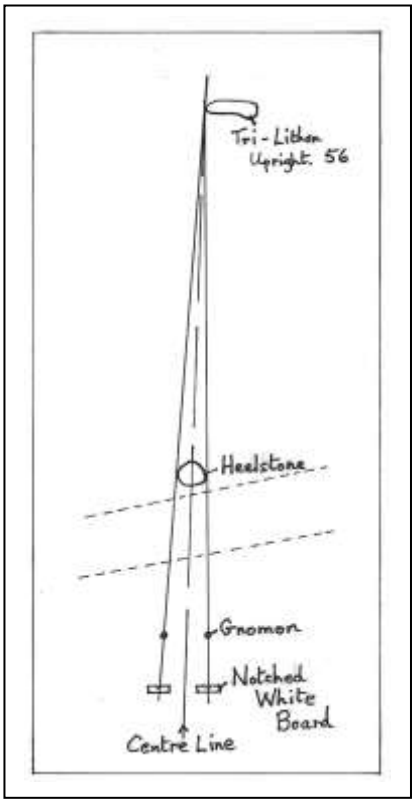
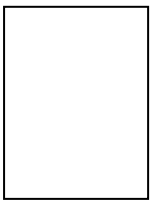


Diagram of the set-up. Very simple and using Stonehenge to locate itself by its own shadow. Is this a copy of practises happening here more than 4500 years ago?

The setting of each marker was initially fixed visually on each Axis : - Heelstone N.W. edge / N,E. edge ('Mouth of slit' feature) – vertical E. (inner) edge of Great Tri-lithon upright no. 56. (These two Axes already defined earlier in my text as SOLAR AXIS / STELLAR AXIS). As the afternoon sun descended towards, and then, ultimately, behind the Great Tri-lithon, its long shadow was cast that moved steadily on to each vertical white screen and then aligned with the vertical marker stick shadow. By careful satellite timing, as the shadow crossed each screen and reached the previously visually positioned Axis alignment vertical marker, it was possible, with care, to record the time, which was actually the time of LAST CONTACT of the solar disc.



Knowing date / time / geographical position it was then a straightforward exercise to obtain the Azimuth bearings for these two axes from astronomy software and correct them from 'last contact' of solar disc to 'mid-disc'. The results, as given, were for 'Back Axis' (i.e. S.W. direction) and easily converted to N.E. (Durrington Down horizon direction). Results obtained were:-

<u>Heelstone Axes Azimuths</u>

N.W. Edge (SOLAR axis)	Azimuth	49° 38´
N.E. Edge (STELLAR axis)	Azimuth	51° 34´
Mean of the two values		50° 36´

Some comments can be made:-

(i) The results use the shadow edge or LAST edge of what would have been the Great Tri-lithon archway. The archway would have had width of a few arc minutes and so this might give these azimuth values a slight variability.

(ii) The N.E. edge used, continues to slope outwards as it approaches ground level and therefore there is slightly more width at ground level than at the point actually used at the 'Mouth' of the 'Slit' that is visible on the inner face. (In total the extra width is c. 0° 10´.) Therefore the value for the Stellar Axis would be c. 51° 44´, and the mean, or average, value for the two azimuths would be 50° 41´.

(iii) The mean (average) value obtained is the value for the CENTRE LINE of the Heelstone. As can be seen from all of the above, the truth lies somewhere between 50° 36´ and 50° 41´. This is a very 'fine' difference, hardly even detectable in surveying. The values for this group of azimuths, as here recounted, are also of vital importance further on in this text and <u>should, here, be well remembered.</u>

(iv) 49° 38´ is PRECISELY the azimuth of rising for the sun at SSSR BC 2340. From this fact of the correctness of the position of the Heelstone with its N.W. flank exactly marking this solar event, we can confirm that it is the FLANKS of the Heelstone that are significant. And we can also deduce that it is the FLANKING

EDGES of other stones that are of significance. It also confirms that this particular date, or very close, is very important to Stonehenge.

(v) Using the falling shadow of the Tri-lithon upright in early afternoon when the sun is at low altitude for a limited season on either side of the winter solstice has raised yet another possibility that may have been exploited at the time when the monument was newly built and in better shape. On bright, sunny afternoons and with a low sun, at a time when the central Great Tri-lithon archway was complete, there would have been an impressive shadow effect containing a very bright and long-reaching shaft of sunlight that swept steadily across the central zone of Stonehenge and, when the sun was very low, reaching out forwards to the Heelstone and beyond. For a few moments, each day in midwinter, the face of the Heelstone would have been very brightly lit whilst the surrounding area was in the relative darkness of shadow. How this actually looked and what it actually meant to the Stonehenge people is speculative, but it is difficult to believe that it was of no significance and completely ignored. (Later in this text this detail has certain relevance to the question of the finished form of the central Bluestone Horseshoe.)

These Heelstone Azimuth results also correlated reasonably closely with results obtained from 'Google- Earth' and 'Garmin' satellite tracker device.

It is time to break off from this part of the subject for the moment and move on to a new area.

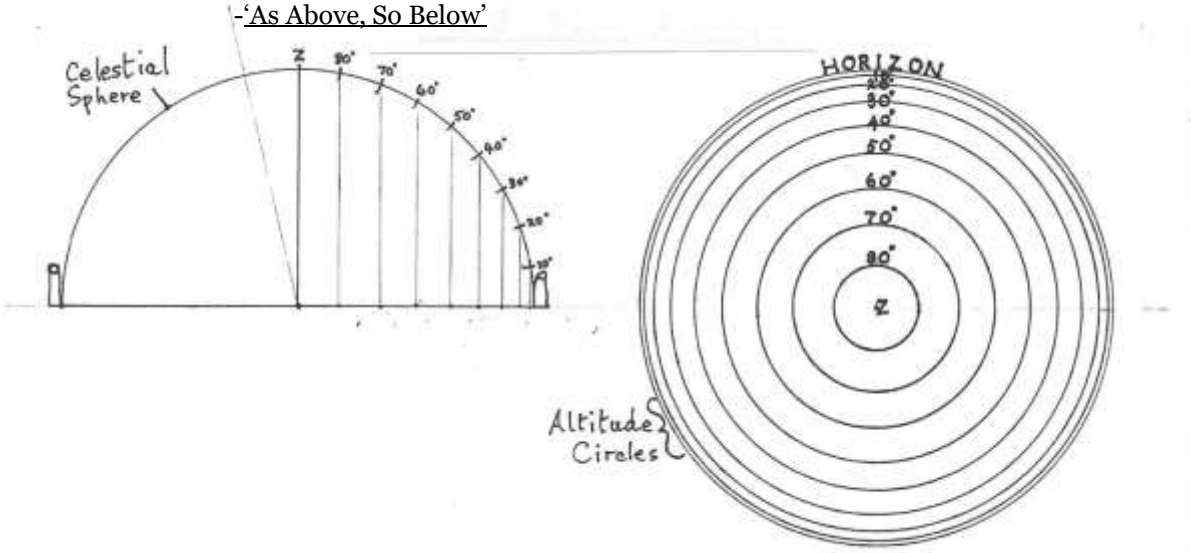
ALTITUDE: CIRCLES, GRIDS AND ANGLES.

THE OUTERMOST SARSEN CIRCLE of uprights with horizontal lintels on top that forms a ring of archways.

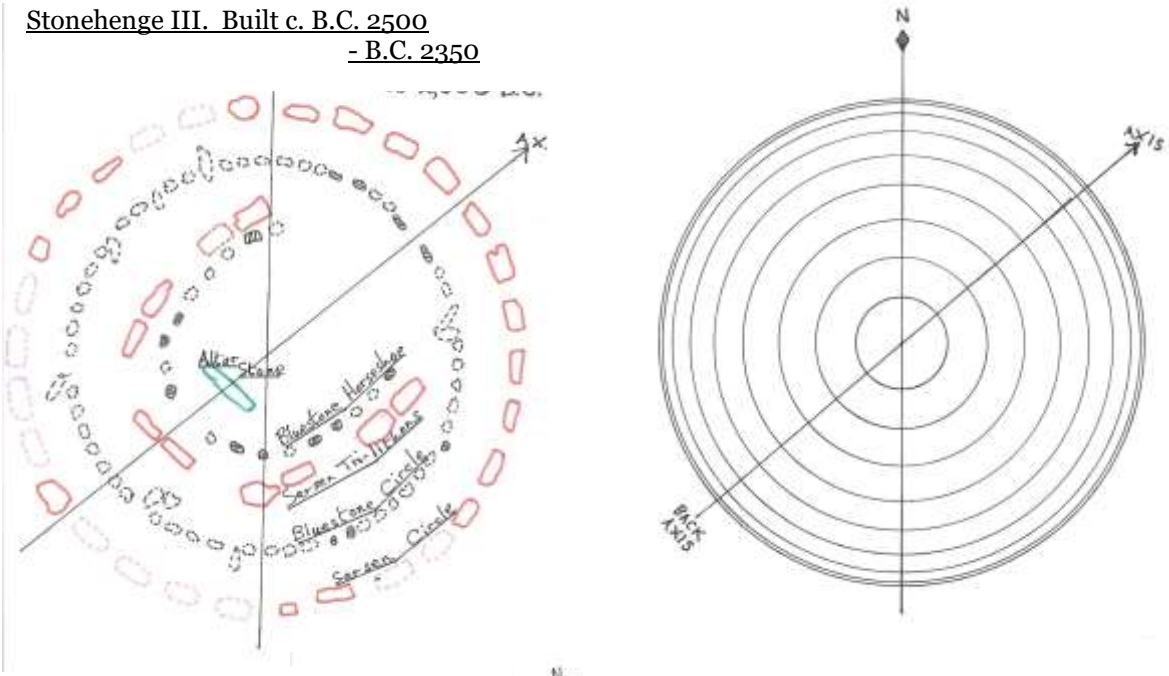
My first proposition is that a primary objective of the designer was that this circle should be seen as the boundary of the visible Cosmos – the Celestial Hemisphere visible from their horizon, and that it could contain representation of any cosmic events to which they had particular interest, or that were of special significance. To them the Sarsen Circle was the boundary of the Cosmos and the zone where Cosmos came to Earth and joined up with the visible world in which they dwelt.

Stonehenge was never conceived primarily as an astronomical observatory. Although the plan and structure contain information relating to many astronomical events it was never intended as a means to discover new knowledge. The knowledge that is implicit in the various aspects of its design was known – had been obtained – elsewhere and over long periods of observation before ever the planning and construction was started. Consequently we can go forward with interpretation on the basis that we are 'reading' a 'book', or deciphering a record of knowledge already achieved. As cosmological knowledge is universal and constant through time we need only apply data that is easily available to all of us. We just need to 'wear' the correct eyes.

The Celestial Hemisphere. On the left, angles of Altitude measured from the centre (Earth). On the right those Altitudes as they impinge on the Earth's surface below- The 'ALTITUDE GRID'
-'As Above, So Below'

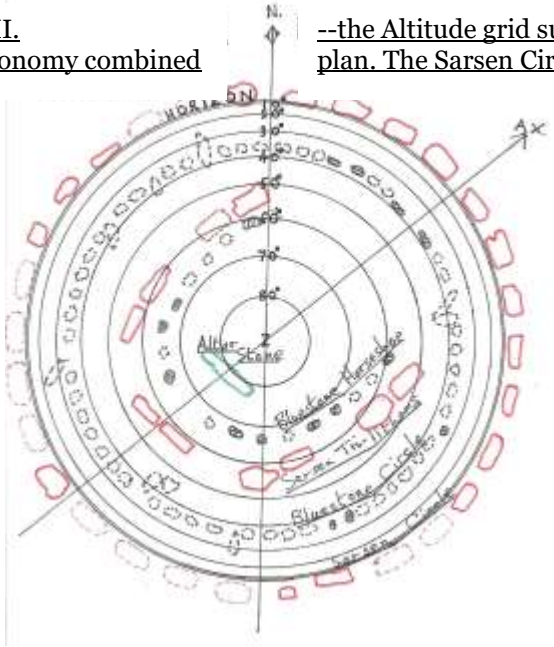


Stonehenge III. Built c. B.C. 2500
- B.C. 2350



Stonehenge III.
Plan and Astronomy combined

--the Altitude grid super-imposed over the plan. The Sarsen Circle is zero horizon (0°)



As the Sarsen Circle represents 'GROUND ZERO', the LOCAL HORIZON it must represent is ALTITUDE 0°.

As this is a representation of our local Stonehenge CELESTIAL HEMISPHERE the centre point of Stonehenge must represent ALTITUDE 90° - the ZENITH.

Now the complete Stonehenge plan, from Sarsen Circle to geometrical centre, can be marked out with concentric ALTITUDE CIRCLES – an 'ALTITUDE GRID'. This is very easy as the illustration shows. Any point on the Stonehenge plan can now be ascribed an ALTITUDE VALUE.

As we have the N –S Axis (-MERIDIAN) indicated, then any point on the plan can also be ascribed an AZIMUTH value. (Degrees of angle measured from the meridian in a clockwise direction.)

Therefore we now have two co-ordinates for any point – horizontal and vertical (AZIMUTH and ALTITUDE) – so long as we know the observation location on the land surface. Obviously, in this case, it is the location of Stonehenge.

To explore ancient skies we also need to allocate a specific date in the past, because the sky pattern is slowly changing with the passage of time. This aspect will be specifically dealt with as the narrative develops. It has taken an enormous amount of effort by archaeologists and latterly other related scientific disciplines over many decades, for the likely time-slot for the construction of Stonehenge to be narrowed down to a fairly specific date. Only recently has it really become possible for other work such as astronomical research to be pursued with some confidence based upon this dating. – There may be another route to the dating.

The uprights of the Sarsen Circle have thickness and it could be argued that one could use either inner or outer face of the Circle to define the 0° Altitude line. It has always appeared to me that the INNER faces are far more carefully aligned, smoothed, and make a cleaner circle than the OUTER faces. Therefore I have based my altitude grid with the inner face as 0°.

The noticeably level and flat top surface of the ring of lintels has frequently been commented upon. With a height to lintel top above ground level at centre of c. 4.9 metres, and distance from centre of c. 15 metres, this gives an altitude over the top of the lintels of c. 18°. It is a fact that few stars and other celestial objects are visible at horizon level as they rise and set because of atmospheric moisture combined with the distance and comparative obscurity of many. A false horizon some way above ground level makes it more possible to clearly define rising / setting, and eliminates low level fuzziness and light pollution. (Yes, even in the Neolithic / Bronze Ages people would have lit fires after dark.) This goes to explain why the ring of Sarsen Circle lintels was built so obsessively level.

Having established an enclosed Celestial Altitude Grid, fixed points marking any important Celestial activity could the be marked permanently on the ground surface at the Altitude / Azimuth point that they occupied on the Celestial hemisphere above. The obvious way and the only way that has survived through millennia to come down to our epoch, and that we can now interpret, is to mark positions with stone. (But this does not mean that all stones present within the Sarsen Circle mark Celestial objects important to the builders. There are actually very, very few such positions. This is good because it makes the interpretation much easier and we also have context and Axes to bring into the picture.)

The most obvious first place to look for significant altitude position marking is within the Sarsen Tri-lithon Horseshoe.

Traditionally Stonehenge has always been linked to sun and moon. Sun is clearly the more important of these two and therefore presents a good starting point.

It is well known that the sun rises each day, somewhere to the east of the meridian, ascends towards the south point of the sky where it CULMINATES, or reaches its highest daily point, due south, at noon. It then descends in a westerly direction throughout the afternoon to set below the westerly horizon. With a more or less level horizon, then the setting point will be equal and opposite across the meridian from the easterly rising point. This is the daily cycle of the sun.

If one travels north or south on the Earth surface, away from Equatorial regions, there is also a SEASONALITY about the sun. For our Stonehenge site that is at 51° 10.7´ North of the Equator, we are roughly half way up the globe from Equator to North Pole and there is a clearly defined seasonality in our year; i.e. a clear difference between horizon positions of sun-rise, sun-set, and maximum daily height (CULMINATION) between summer and winter. All due to the tilt of the Earth on its POLAR AXIS OF ROTATION.

Sunrise and sunset appear to alter their positions steadily along the horizon from day to day as the year proceeds, whilst continuing to be equal and opposite. Sunrise, with which we are here primarily concerned, proceeds from a maximum south position of about 40° SOUTH of due east at midwinter, to a maximum north position of about 40° NORTH of east at midsummer. These angular bearings can be more correctly written as AZIMUTH bearings, measuring both sun positions as degrees from North (Azimuth 0°) in a clockwise direction. We obtain the azimuth values:-

Azimuth of RISING at MIDSUMMER 50° #
Azimuth of RISING at MIDWINTER 130°
Azimuth of CULMINATION 180°
Azimuth of SETTING at MIDWINTER 230° #
Azimuth of SETTING at MIDSUMMER 310°

This is all very straightforward and generally well known. The two azimuth values with which this text will be seen to be primarily concerned, and that need to be remembered and carried forward, are highlighted with the # symbol.

Once again, relying on tradition to guide us for a first starting point, we are immediately interested in MIDSUMMER SUNRISE. It is correctly termed SUMMER SOLSTICE SUN RISE and, in this text, is abbreviated to SSSR. The solstice is the mid-point of the season and the extreme high-point of the sun's annual cycle. For the northern hemisphere location of Stonehenge, SSSR marks the extreme NORTHERLY point of the sun's rising along the NORTH-EAST horizon. The seasonal variation in risings and settings, and the implicit variations in seasonal weather, light level, warmth, etc. have always been of great significance to rural people whose lives have always been dominated by the presence of the sun.

It is simple reasoning to deduce that the people of the Stonehenge era were particularly interested in SSSR because it is to the azimuth direction of 50° that they oriented the whole monument, and constructed the Stonehenge AVENUE. This feature approaches Stonehenge from the valley of Stonehenge Bottom, from a direction broadly at azimuth 50°, and reaches the monument at the only obvious entrance, once again encompassing azimuth 50°. It is at the top of the Avenue, again at azimuth c. 50°, that the Heelstone was erected and now stands unmoved since its original erection. The two inner Horseshoe features, (Sarsen Tri-lithon Horseshoe and inner Bluestone Horseshoe) are both oriented to straddle and be bisected by the 50° - 230°Stonehenge Axis, with their apparent entrances towards the Heelstone and Azimuth 50°.

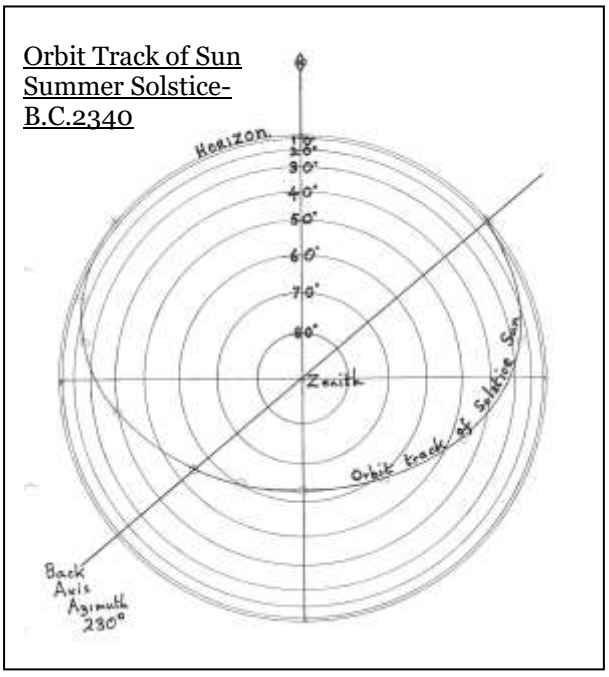
We can investigate the mid-summer sun further.

With modern computer software it is easy to track the course of the sun from rising to setting. The programme is easily re-set to demonstrate the passage of the sun for an ancient date within the epoch of the Late Neolithic / Early Bronze Age. Archaeological research has now confirmed that the start of the construction date for the Sarsen formations of Stonehenge was circa. B.C. 2500 – 2400. Further it appears that construction proceeded very quickly considering the enormous amount of work that was required. It is probable that the Sarsen formations were constructed within about one hundred years. This gives a completion date of circa. B.C. 2400 – 2300. It is a reasonable assumption that such an enormous project would have been more likely to have a major ceremony at completion rather than at commencement. (How many of those involved must have declared it their hope to survive and live to see completion and be there on the day to take part? – Quite an atmosphere!) Therefore we can assume a very major completion ceremony some time c. B.C. 2400 – 2300.

It is possible that there was some major solar / stellar event of the greatest possible perceived significance that was due and had been foreseen years earlier. Such an event would provide the motivation for construction to begin, and would help to maintain it through to completion. It might also explain the urgency of construction if there was indeed a completion date due in time for the event. If such an event was foreseen as far in advance as the actual achieved planning and construction time-table suggests (200 years perhaps) then we must be looking for a suitable celestial candidate

On the basis of this current dating evidence it is possible to allocate a tentative date for a grand inauguration event at Stonehenge, assuming that it would be close after construction completion. This would be the long-anticipated Celestial event. A specific date is necessary because most visible Cosmic events, including the process of the sun through its annual seasonal cycle, are subject to gradual change over time. In the case of the sun, the apparent tilt of its orbit path (the 'ECLIPTIC') through the sky, (correctly referred to as 'OBLIQUITY OF THE ECLIPTIC') is gradually reducing. This causes the time of the sun above the horizon to gradually become less as the horizon points of rising and setting move very slowly and very slightly towards each other. In other words the azimuths of rising (or setting) are very gradually moving south (or north) with the passage of time. (Since Stonehenge was completed the azimuth of rising has moved south by about 0° 40´, which is just more than one solar diameter, or half of one degree, over the intervening approximately 4,400 years.) The rising azimuth in B.C. 2500 – 2300 was slightly further north than it now is in our current epoch. The change in azimuth between these two dates, though seemingly so tiny, becomes of the greatest importance when we wish to reconstruct ancient skies, and also will serve as a very precise time clock over very long time periods. It is another principle that will be of the greatest importance to the understanding of Stonehenge further ahead in this text and should be assimilated and remembered now.

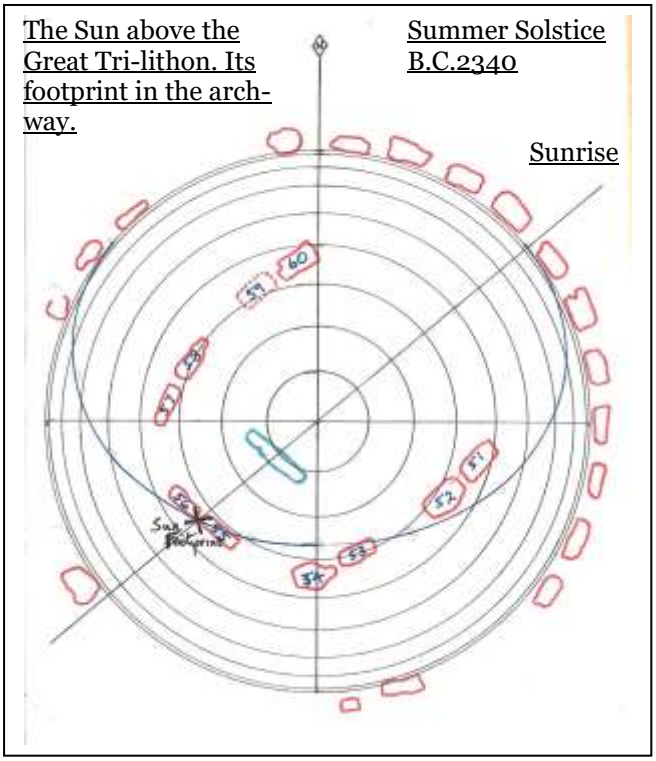
For this currently developing text I have selected the date for the Stonehenge completion ceremony (inauguration), (the 'ORIGINAL TARGET DATE') as :- SSSR B.C. 2340. Reasons for this choice will become more apparent further forward.



I can now reconstruct the orbit of the sun at SSSR B.C. 2340. The computer supplies a table of co-ordinates for Altitude and Azimuth for this date. These can now be plotted on to the Stonehenge plan that already has an Altitude Grid (ALTITUDE CIRCLES) in place, and a plot of the solar orbit can be reconstructed. Any relationship between solar orbit and stone layout should become apparent.

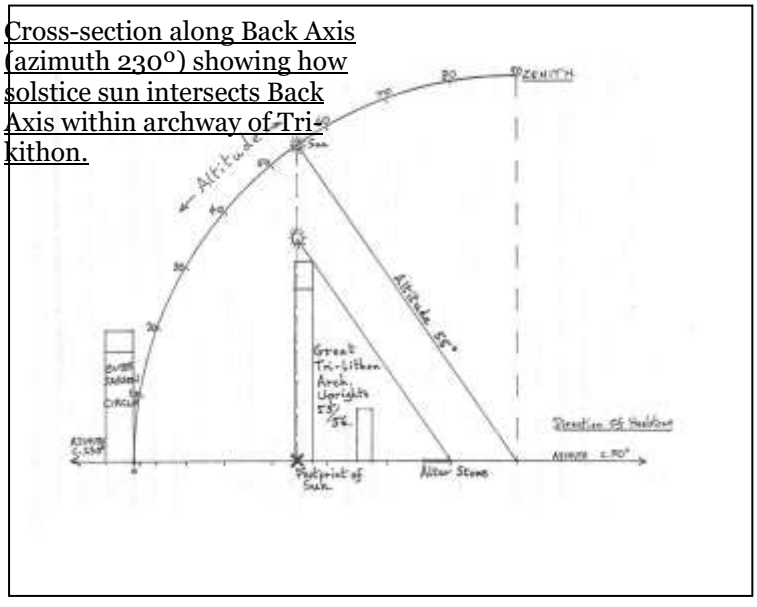
The point co-ordinates of the sun that are of immediate interest are;- Altitude 55° / Azimuth 230°. This is the moment in the day when the sun crosses the 'BACK AXIS' of Stonehenge in the early afternoon. (The BACK AXIS is the reverse direction of the main forward Axis. 50° + 180° = 230°). It is immediately apparent that the sun is exactly above the archway of the central Great Tri-lithon of the horseshoe of Tri-lithons. In other words the

FOOTPRINT of the sun, in its path across the Back Axis, is directly between the two uprights of the Great Tri-lithon. Furthermore the sightline of the sun, as it crosses the archway, because of the completed built height of the Tri-Lithon arch, falls very neatly on the northern most edge of the ALTAR STONE. (Another neat effect of sunlight and shadow at a significant central feature of Stonehenge. Was the Altar Stone positioned to 'sanctify' the light of the sun as it crossed the central axis, or was the archway height of the Great Tri-lithon selected such that the sun shadow at summer solstice would cross the Altar Stone that was actually there as a marker for a different purpose? Perhaps it was just a lucky co-incidence!)



Sun is above Tri-lithon Archway on Intersection of Orbit Track / Back Axis / Altitude Grid line for sun's altitude at this point on its orbit of 55°. Therefore all of these features are designed into the structure, and the placing, of Archway.

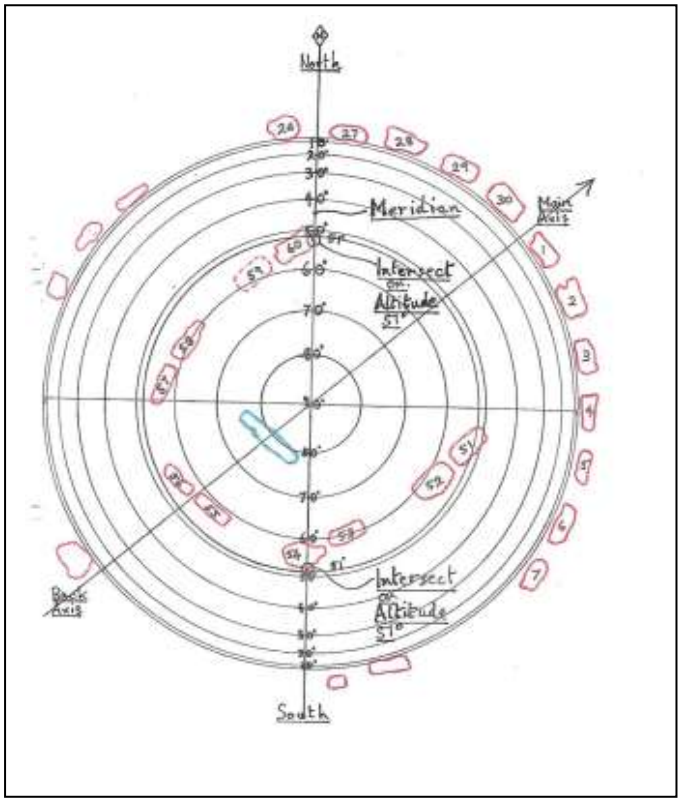
If we can assume that the position of the Great Tri-lithon in this situation was intended, then it again leads us to conclude that the mid-summer sun was a primary feature and motivation for the construction. It also underlines the value of plotting the orbit of any Cosmic item of interest upon this altitude plan of Stonehenge and, at the same time, opens up a completely new line of study to interpret the monument.



Cross-section along Back Axis (azimuth 230°) showing how solstice sun intersects Back Axis within archway of Tri-kithon.

This is the most notable point of intersection of the orbit track of the sun with the Tri-lithons, but as astronomers investigating the paths of Cosmic objects through the sky above us, we must bear in mind very clearly, at this point, that the part of the sky that the sun occupies by daylight at this moment will be unchanged but equal and opposite to the sun six months later, as

the sun progresses day-by-day through the Celestial sky throughout its annual cycle. Day-time will become night-time and night-time become day-time. As usual this is another fundamental and very important point to remember as the narrative develops.
The passage of the sun into the interior area of the Tri-lithon Horseshoe is noteworthy as it neatly clips the corners of uprights 52 and 53 of the first and second Tri-lithons. This fact may have decided the exact ground position where these two uprights would stand and consequently helped to fill out the final shape and dimensions of the Horseshoe. Indeed the shape of stone 52 with an exterior 'bulge' seems to 'reach out' to make contact with the orbit path. Perhaps this was the reason that stone 52 is how it is and where it is.

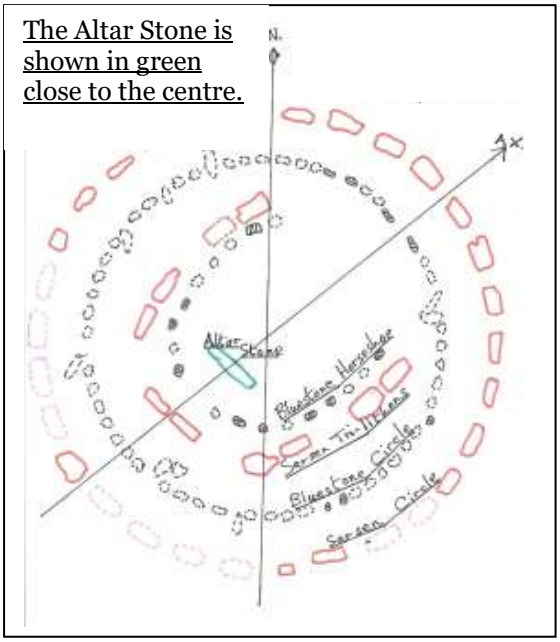


Tri-lithon uprights nos. 54 (S.) and 60 (N.) standing upon / marking, the intersection of N – S Meridian / Grid Circle altitude 51°, this being the altitude above horizon at which the Celestial North Pole is found.

The other obvious placing of any Tri-lithon uprights upon an altitude circle is the previously described, stone no.60, the most northerly upright and the last stone of the final fifth Tri-lithon. Here an altitude circle for 51° passes through the northerly outer vertical edge of this stone at the point where the N. – S. axis (Meridian) for Stonehenge passes through the monument. Altitude 51° is the altitude above horizon level at which is found the POLESTAR, or NORTH STAR, as seen from Stonehenge. So there we have Polestar altitude and Stonehenge Meridian intersection marked very closely by the north edge of the North Tri-lithon. Hard to believe that this was accidental – unintended. It will be remembered that I previously noted that the 'bump' on the outside of upright no. 54, that is opposite to upright no. 60 across the centre, sits astride, and appears to point out the south direction of the N. – S. Axis, and also touches the altitude circle for 51°. Though this is obviously not pointing to a South point or specific 'South Star', it gives neat symmetry to the whole layout and emphasises the significance of the 51° altitude circle and the knowledge that the builders incorporated into their representation of the Cosmic sky. It confirms that this is another correct way to interpret Stonehenge.

ALTAR STONE. The next stone feature that appears to be located directly to fit into the scheme of the altitude circle grid is the 'Altar Stone'. This stone

lays prone and straddles the Back Axis (Azimuth 230°) almost (but not quite) symmetrical and perpendicular to the Axis. Its position is between the geometrical centre and the central zone of the two Horseshoe formations, including the central archway of the Great Tri-lithon, formed by the two great uprights nos. 55 and 56.



It is an unusual stone for Stonehenge in that its geological composition means that it is the one single stone of this form known at the monument. Geologically it is described as a MICACEOUS SANDSTONE This implies a sandstone formation with very many inclusions of tiny, 'sparkly' particles of mica throughout. The stone is described as a Fine-grained rectangular block of Sandstone, carefully shaped and measuring circa. 4.9 m. x 1 m. x 0.5m.(16ft. x 3.5ft. x 1.75ft.). It consists of a fine-grained, pale-green sandstone with many tiny fragments of mica that glisten brightly on the surface where recently fractured., and it may also contain minute fragments of garnet. The derivation of this type of rock remains unproven in our time but it is believed that the most likely origin is within the geologic SENNI BED formation. These beds form part of the layered strata of central South Wales and are found to outcrop in a limited number of places on the edges of the Brecon Beacons close to the massive Red Sandstone strata that outcrop to form the high faces of the Beacons, particularly along the Northern and Western flanks.
The type of rock of the Altar Stone is unique amongst the other 'Welsh Bluestones' that were used to form the pillars of the Bluestone Circle and Bluestone Horseshoe of Stonehenge. Archaeologists find a 'litter' of fragments of Bluestones across the site of Stonehenge when they excavate, but almost no fragments of the Altar Stone are ever found. This despite the fact that the Altar Stone is some 4.8 metres (16 ft.) long and has been tooled and dressed to shape. The conclusion is that this stone was worked to the necessary shape and size elsewhere, before it came to Stonehenge.

It is known that the location of the source of the Bluestones (there were at least 80 used in the building of Stonehenge – possibly more) was the far south-west of Wales within the Prescelly Hills. But as the origin of the Altar Stone was not here but rather, east of the Prescellys, in Mid- South Wales, then obviously the location of this type of rock was perfectly well known to the builders, as distinct from the Bluestones. What is more important is that there must have been a very definite reason why they felt it essential to find, quarry and extract, move overland, and bring to Stonehenge, this different type of rock, needing to create a workable overland route for just the one.

Within the completed Stonehenge there were two distinct types of Welsh rock as well as the larger and harder Sarsen sandstone that originated further north near Avebury in Wiltshire.

'Bluestone' chips from the Prescelly Hills, Wales

The well known 'Bluestones' were largely of a form of 'spotted' dolerite (rhyolite), and mostly contained many inclusions of tiny white spots of quartz. The Altar Stone contained many flakes of mica. Both types of rock exhibited this 'spotted' effect best on freshly worked surfaces. Both types were clearly considered to be of especial value to justify the labour of moving them so far from South Wales to Stonehenge. It has long seemed to me that the most obvious reason for these Welsh rocks to be so special to the Stonehenge people was this feature of the myriad white, 'sparkly' spots and flakes within the rock matrix. This was the closest natural material that spoke to the builders of a star-studded night sky. For people who spent the greater part of their night lives beneath the glory of the star filled heavens, free of light pollution, these stars could have seemed like the magic of stars come to Earth. If they did indeed regard these sparkly stones in this light then it was the best possible way to create a stone monument that contained and encompassed the Cosmic sky above with its myriad countless numbers of tiny white spots of stars. These people were attempting to build – paint – a picture, in rock, of that which was above them on any star-lit night of the year. Of that which, unsurpassed in natural beauty, held them in awe and was of the greatest possible importance.

The choice of rock cries out that here is a structure inspired by, linked and dedicated to the night sky –the 'Heavens'. A structure that will contain knowledge and information implicit within it telling of celestial features of which we also can read if we can only 'adopt' their eyes – see as they would see. Those who would 'read' Stonehenge must cease their study of the ground beneath and raise their eyes to the stars and the heavens above. Archaeology has unravelled so far. Now astronomy can complete the story.

The Altar Stone lies almost perpendicularly and almost symmetrically across the central Back Axis of Azimuth 230°, buried almost flush to ground level. As stated earlier it is circa. 4.9m long x 1m wide x 0 .75m deep – tooled and worked to fairly rectangular shape. All accounts of Stonehenge of which I am aware state that, in modern times, it lies buried flush with ground level since the upright Sarsen pillar no. 55 and top lintel 156 of the central Great Tri-lithon archway fell across it in antiquity and 'pressed' it into the ground. Furthermore it is suggested that the Altar Stone originally stood upright, probably on the line of the Back Axis, and was knocked into its present position when the Tri-lithon stones hit it as they fell.

There are several reasons why this explanation of how it came to be in this prone position is unsatisfactory. Firstly it is not possible to force a large, wide rock into this ground purely by pressure – to 'press' it or 'drive' it in. The natural soil at Stonehenge is a very thin layer of chalky loam overlaying solid chalk rock. The chalk loam itself is very unyielding to pressure from above. Indeed it makes excellent trackways to walk or drive over for most of the year, so unyielding is it. A moment's consideration of the ground pressure per unit area exerted beneath the long and wide Altar Stone by the weight above compared to the same situation for the long, narrow, vertically upright and heavier Sarsen pillars, shows that they are exerting beneath themselves infinitely greater ground pressure. But there is no evidence whatever that any of the uprights have sunk into the ground at all over the 4400 years since they were erected. Below the chalky loam is pure solid chalk rock that is a form of rock in its own right. Indeed, from personal experience I can confirm that it is almost totally impossible to drive a pointed wooden post into this type of rock with a series of heavy blows, let alone attempt to drive a wide flat object in by pressure alone.

Any attempt to drive or press a brittle rock into this ground would result in the rock disintegrating but still not penetrating to any significant depth. It seems obvious to me that if the Altar Stone had been laying on the top of the ground surface when the Great Tri-lithon upright no. 55 had fallen across it, then the most likely result would have been to break the Altar Stone into many pieces. In point of fact because the Altar Stone is yet unbroken this serves to confirm that it had been intentionally buried during the construction of Stonehenge. The intention and action of burying it, during the original pre-historic construction, to its present day level, is <u>confirmed</u> by its current situation. And because it <u>was</u> buried, this saved it from destruction by the falling Tri-lithon upright. (That the Altar Stone <u>is</u> still complete, intact and unbroken has been confirmed by modern day excavation.) Interestingly Sarsen Tri-lithon upright no.55 <u>did</u> break into two across the middle presumably because of the shock of the impact, but the Altar Stone is undamaged.

The suggestion that the Altar Stone was intended to, and did, originally stand as a central pillar of the Bluestone Horseshoe to be knocked into its present position by the falling upright no. 55 is also unlikely to be correct. A pillar that had fallen or been pushed over would have one end – the original base – close to the hole in which it had stood. This is not so for the Altar Stone if it had occupied a central position. Furthermore, if the Altar Stone had been pushed over by no. 55 it would lie on the ground aligned away from that pillar. Again this is not so because the Altar Stone and no.55 lay almost at right angles to each other. And no. 55 is actually in contact with the Altar Stone close to its <u>centre</u>, which could only be achieved if the Altar Stone <u>was already flat</u>. It is very difficult to even conceive of a situation whereby a vertical pillar could be pushed over from one direction, its base jump into the air, and the whole pillar rotate in the horizontal plane through 90°before coming back to the ground and then disappearing below ground level into solid chalk rock to a depth of 0.75m (1.75ft.), on a line almost symmetrical and perpendicular to the direction from which had come the original applied force. (We shall see, time and time again that the solution to Stonehenge is continually obtained by considering these little obscure details that others have spent so many years

skating past and completely ignoring. For sure the devil really does lie in the detail!) One more thought on this matter – If the Altar Stone had stood as a pillar but off-centre such that no. 55 could have knocked it into its present position, then the falling no. 55 would probably have missed it anyway.

I can suggest one more reason why the Altar Stone did not ever stand as a pillar close to, or on the central Back Axis of Stonehenge. At 4.9 m long and allowing for some part in the ground, it might have achieved as much as 3.5 m (11.5ft) or more above ground. This would have successfully blocked any view or sightline through the archway of the Great Tri-lithon – a complete self-defeat of one of the main purposes of Stonehenge if any value is ascribed to the importance of the sightline towards the setting winter solstice sun or any other related Celestial events.

Therefore it has to be concluded that the Altar Stone currently occupies exactly the position for which it was intended. We should be grateful that Tri-lithon upright no. 55 fell in the way that it did in antiquity and made such an efficient way of 'pinning' the Altar stone to the ground. This prevented later subsequent interference over the succeeding millennia by those looking to Stonehenge as a quarry for road and house building material. Another fortuitous happening!

We can now return to the theme of stones located within the ground / altitude plan of Stonehenge so as to correspond with a significant stellar situation in the Cosmic sky above, correct for the selected time and date. We need to consider the position of any item of interest on the ground plan as related to our super-imposed grid of Altitude circles. At the same time any Celestial events must relate back to SSSR B.C.2340

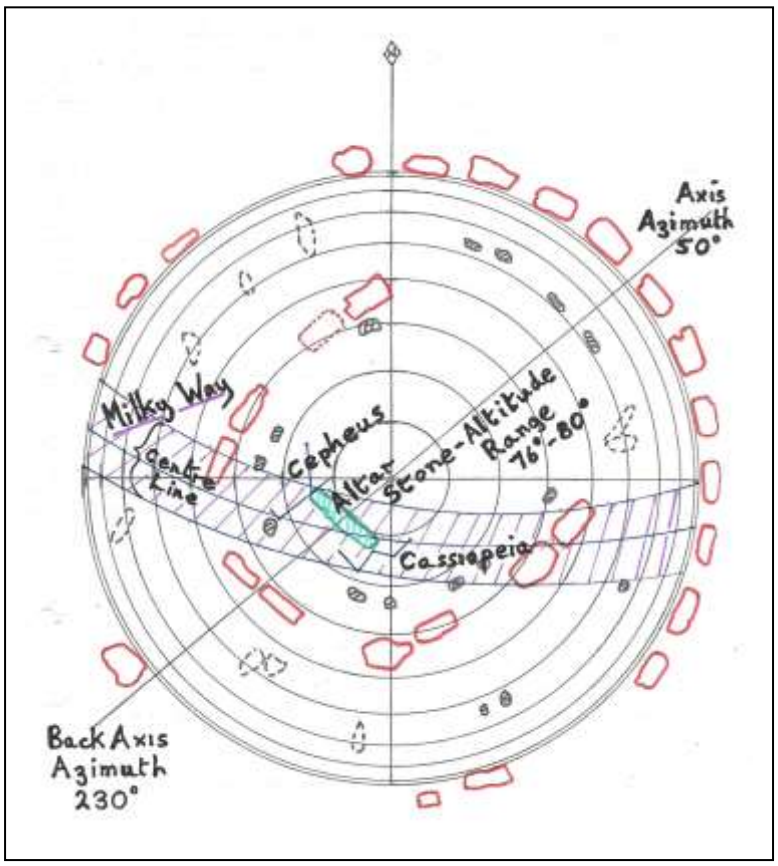
The position of the Altar Stone provides an altitude range of circa. 76.2° to 79.6° (mean value 77.9°), across the Back Axis (Azimuth 230°).

The apex of the inner Bluestone Horseshoe was constructed between the Altar Stone and the Archway of the Great Tri-lithon . In our modern times the Bluestone Horseshoe is badly damaged and many of the stones are broken or missing. However sufficient remains to reconstruct the original form of the Horseshoe. This inner end of the Horseshoe (when completed) contained circa. nine upright pillars, arranged as the part circumference of a circle that symmetrically straddled the Back Axis. This curved, circular part of the Horseshoe crosses the back Axis at a point of our Altitude Grid that is altitude 65°.

According to the account of the archaeologist R.J.Atkinson, excavator of Stonehenge in mid twentieth century, the stones of the Bluestone Horseshoe were all, without exception, dressed and shaped very carefully, and finished to polished surfaces. This would have created a very noteworthy effect as these stones are all of the 'SPOTTED' variety, with very many tiny white crystals of quartz / mica within their matrix. The effect would have been to create the same effect at the line of the Bluestone pillars as that at the prostrate and flush-buried Altar Stone. Therefore a zone had been created between Bluestone Horseshoe and Altar Stone and straddling the Back Axis that, again,

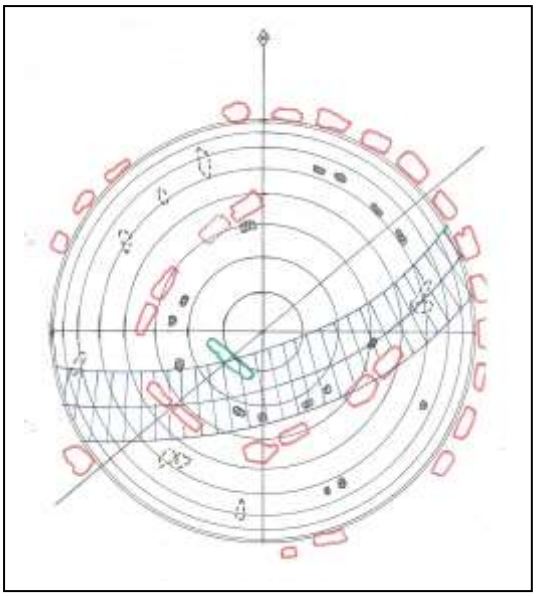
painted a picture of myriad white 'DOTS' within a dark 'Celestial' background. (Altitude range of this zone is 65° to c. 80°.)

At the instant of SSSR, B.C. 2340, the Milky Way in the Cosmic sky straddled Back Axis Azimuth 230° and was largely within the zone of altitude 60° to 77° (and within the bulk represented by the prostrate Altar Stone, up to altitude 80°). It is difficult to be precise about the shape, form, and co-ordinates of the Milky Way, which is, by definition, a fairly nebulous phenomena, visually some parts being intensely densely laden with points of light, whilst other parts are less visually dense. Modern star charts provide a fairly uniform, 'standardized' version of the area of the Milky Way, but in ancient times there would only have been visual means that would have to be identified by different observers at different times. It would have been a matter of opinion of a particular observer at a particular time. There is, however, within the Milky Way (c. constellation Cassiopea) and straddling azimuth 230° at SSSR B.C. 2340, a particularly intense mass of stars that fits very neatly on to the actual Altar Stone area between altitudes 76.5° and 79.6°

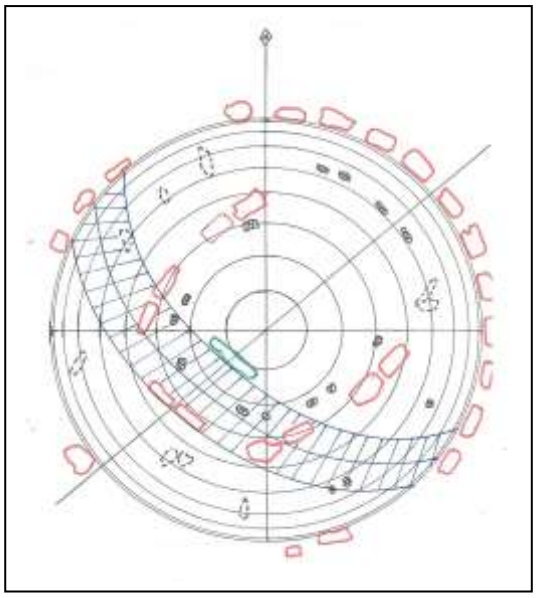


SSSR. B.C.2340. At the moment of sunrise the Milky Way straddled the Back Axis. There was an intensely dense area of stars above the Altar Stone in the area between the constellations Cassiopeia and Cepheus. The area of Stonehenge from Altar Stone to Bluestone Horseshoe is especially noteworthy for the use, during construction, of 'speckly' quartz and micaceous 'spotted' stones that reflect a myriad of light spots, just as the Milky Way.

Therefore the zone of Stonehenge straddling the Back Axis at azimuth 230°, and front edge of Altar Stone and inner face of Bluestone Horseshoe, exactly at the correct time and date, encompasses the brighter, visually stronger part of the Milky Way within the Cosmic sky. That part of the Milky Way between altitudes 60° and 65.5° on modern star charts that would fall outside of the Stonehenge zone (outside of the inner face of the Bluestone Horseshoe) is less visually strong and may well have been of less significance to the builders. Especially if there were other concerns elsewhere that more strongly influenced their choice of the precise location of the stone features.

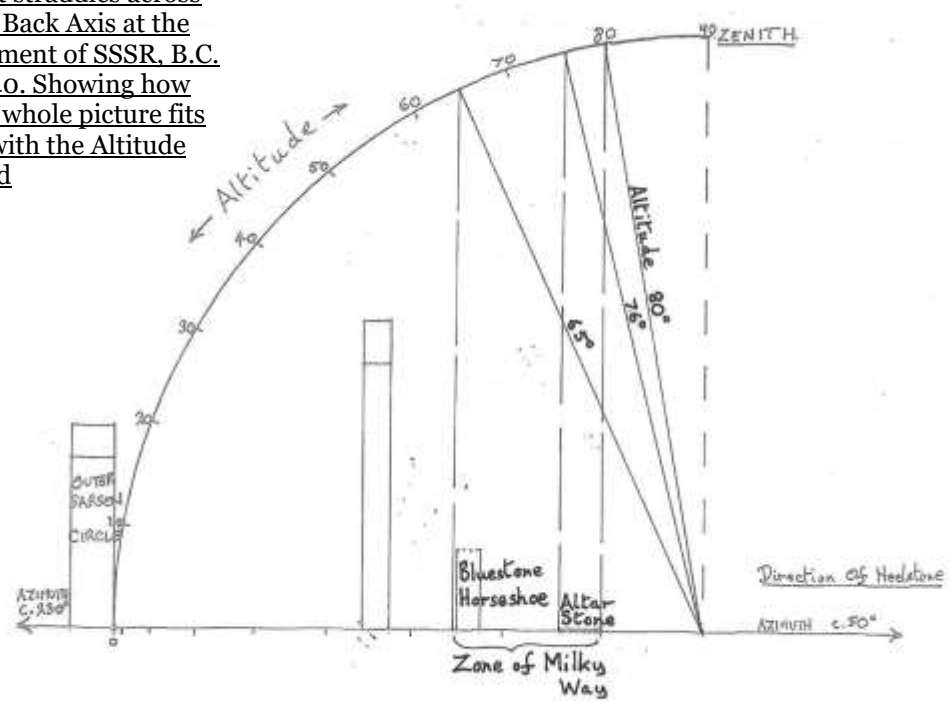


The Milky Way across the plan 3 hours before Summer Solstice Sunrise



3 hours after SSSR. The Milky Way is moving away.

Zone of the Milky Way as it straddles across the Back Axis at the moment of SSSR, B.C. 2340. Showing how the whole picture fits in with the Altitude Grid

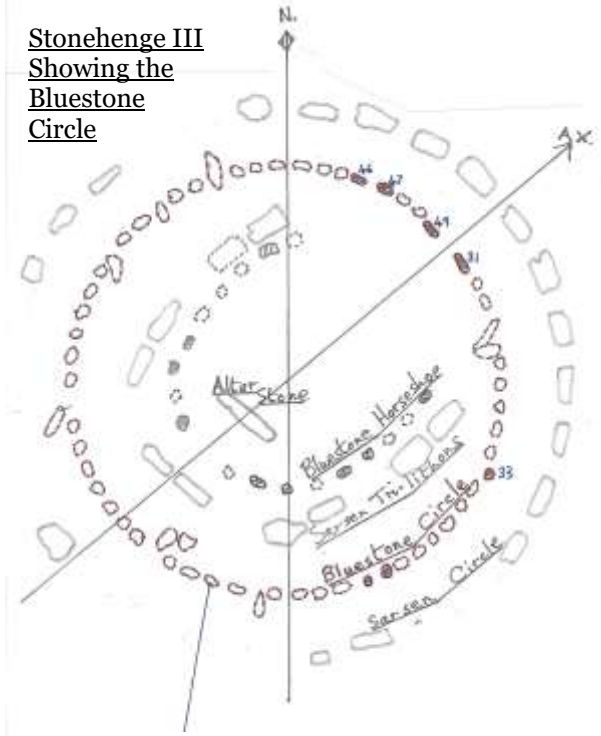


The whole effect of this section relating to 'spotty' stones, the Milky Way, and the corresponding Back Axis zone on the Stonehenge altitude grid has been, further, to fill out the picture that the builders were creating of the 'Cosmic' sky above. To create a GENERAL BACKGROUND PICTURE and to SET THE CONTEXT. On to this broad 'tapestry' they would then depict, very precisely,

the particular celestial events that were their whole main focus – the whole point of Stonehenge.

The Bluestone Circle

Now we have the reason for the choice of stone used as Altar Stone and Bluestone Horseshoe and for their location within the Stonehenge plan. There is still the matter of the Bluestone Circle. The battered and depleted remains of this circle is found inside of the Outer, perimeter Sarsen Circle. (It will be remembered that the Outer Sarsen Circle forms the outer 'frame' of Stonehenge and represents the horizon, or 'Ground Zero' on the Altitude Grid). When originally complete it formed a circle, inside the perimeter, of upright 'Welsh' stones, many of them Bluestones, but also using various other types of rock, all believed to be derived from the Prescelly Hills of S.W. Wales.



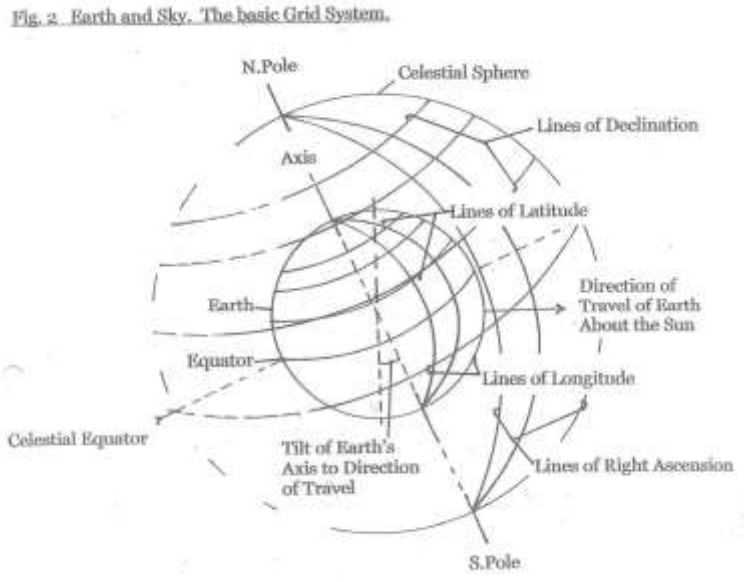
Stonehenge III Showing the Bluestone Circle

The Bluestone Circle – 'restored'. The plan shows a 61 upright circle approximately on the footprint of the original completed formation.In modern times much of the circle has been destroyed. Few of the original stones are visible above ground, although excavation has revealed the presence of many stumps, etc. Notable survivors include nos. 46,47,49, and 31 within the Entrance that have allowed the circle plan to be reconstructed. The shape of the top of 49 is also of importance.

The estimated total of uprights of the complete circle according to the excavator, R.J. Atkinson, was of sixty stones, give or take one stone each way, i.e. 59, 60, or 61. (There is no evidence that there were ever any horizontals, prone or as lintels, intended within this circle. Only uprights.) The final circle was somewhat irregular in form ('raggedy') giving the impression that it was done in a rush, and was possibly less well supervised than the rest of the construction. Generally the stones were unshaped and unpolished, although, being Welsh Bluestone, nevertheless being still capable of continuing to paint the picture of a Cosmic sky laden with myriad stars. Most current archaeologists, writers and commentators accept the view that there had been at the Stonehenge site since before the start of the Sarsen construction c. B.C. 2500, the full total of more than 80 Welsh stones, although many may have been stacked to one side whilst the Sarsen build was proceeding.

Excavation appears to confirm that, generally, the Sarsen structures were built before the Bluestone structure. (Which seems logical anyway.) Therefore one is led towards the possibility that the Sarsen and probably the Bluestone Horseshoe parts were completed before the build 'deadline', but that the later and less impressive Bluestone Circle was either built in a tremendous rush in order to 'beat the deadline', or was not completed until after the deadline and consequently its construction lacked the urgency and importance, and was not treated so seriously (carefully). Therefore, although the role of the Bluestone Circle within the 'picture' of the Cosmos, was still very useful, it was not so essential for understanding of the monument. It added 'detail' to the picture. But it was possible to interpret the picture even if this circle had not been built. Possibly the stones were stacked to one side for many years as being of unplanned function, but 'late in the day' a sudden use was conceived for them, and hence the rushed build.

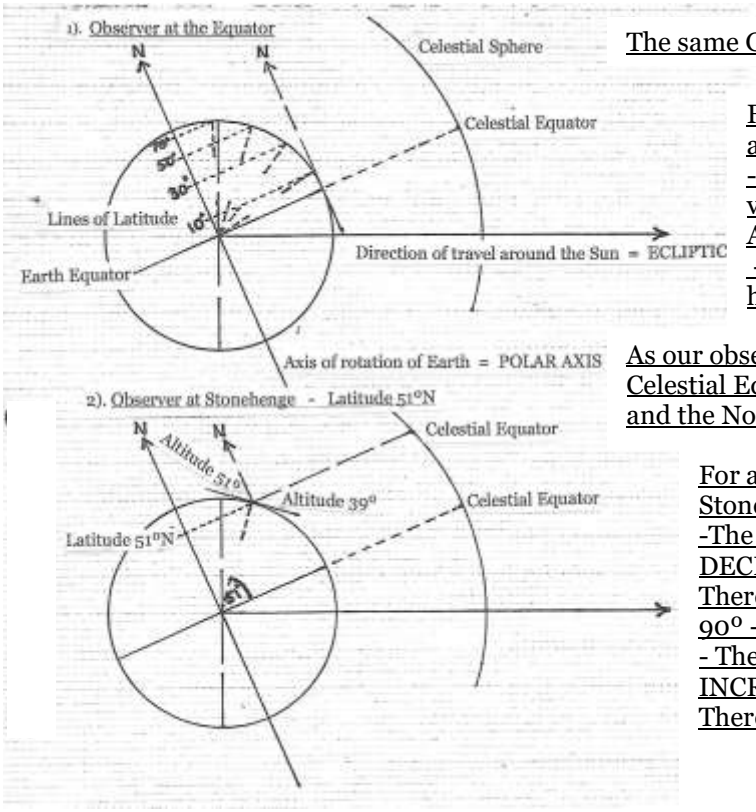
Even if the construction <u>was</u> late and rushed it was still possible, by careful siting, to build into it more information. It seems reasonable to assume that the area of the Bluestone Circle inside of the 'Entrance' to the circle, c. azimuth 50°, in the N.E. quarter might offer the best guide to any intended altitude value given by the Circle position. This is the part that can be marked from the centre most accurately because there are no other stones in the way. (If this line of reasoning is correct it sheds a small amount of light on to the question of who was in charge of surveying at this late stage and why did they have such a problem laying out the circle correctly in the other parts of the monument where the monument centre point was out of view. Where was the chief architect – dead – of old age? What was the level of training, if any, for the 'apprentice'?)



<u>The Basic Grid System by which the sky is measured and mapped. It may look complicated but is basically an outward projection on to the Celestial Sphere of the system of Latitude and Longitude used for the Earth surface.</u>

The Bluestone Circle, within the Entrance area, stands upon Altitude Circle line c. 38° to 39°. Once again Stonehenge has give another significant Cosmic co-ordinate, this time for the 'CELESTIAL EQUATOR'. This now requires explanation!

Mapping the Cosmic sky involves 'constructing' a 'lattice work' of a



The same Grid System simplified.

For an observer standing at the Equator:-
- The Celestial Equator is vertically overhead at ALTITUDE 90°.
- The N. Pole is at the flat horizon-ALTITUDE 0°

As our observer travels north the Celestial Equator lowers in the sky and the North Pole ascends.

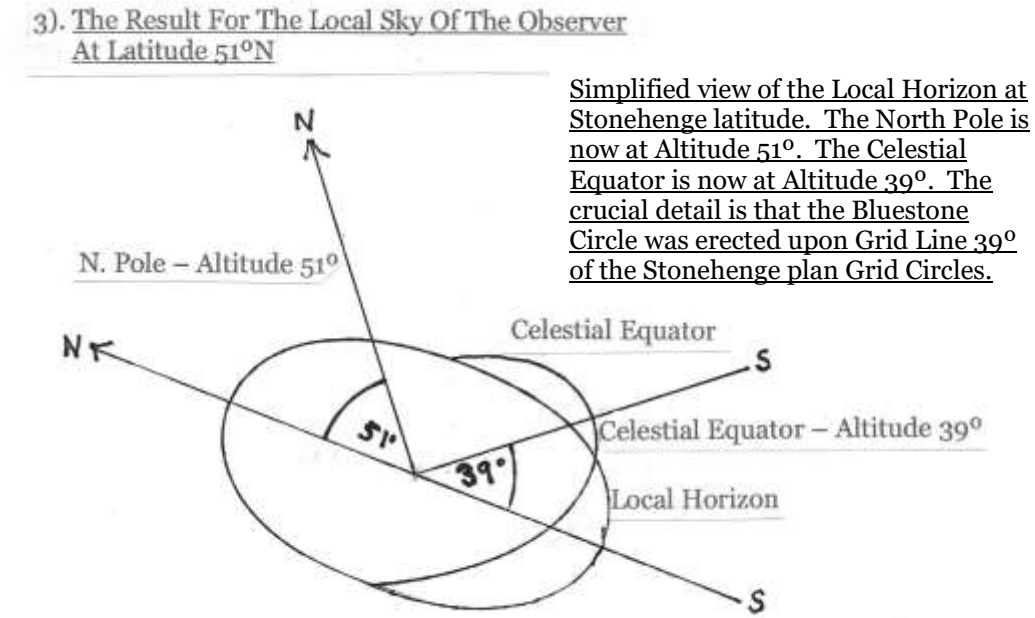
For an observer standing at Stonehenge – Lat. 51°N
-The Celestial Equator has now DECREASED by 51°.
Therefore
90° - 51° = ALTITUDE 39°.
- The North Pole has now INCREASED by 51°.
Therefore 0° + 51° = ALTITUDE 51°

grid of 'latitude' and 'longitude' lines upon the sky, that is the outward projection on to the sky of the same system with which the surface of the Earth has been mapped in modern times. The system applied to the Earth surface enables any place on the surface of the Earth to be described and located by its point co-ordinates. Astronomers have projected the same system on to the Cosmic sky so that any point thereon can also be described by its point co-ordinates. The details of the spacing, units of measurement, etc. can be filled according to the whim of the astronomer, but these are all dependent upon a very few FIXED points that form the foundation of any system. The fixed points of our Cosmic sky location scheme from planet Earth are the two Poles, North and South, that locate the two ends of the rotation axis about which the Earth rotates, and, mid-way between the two Poles, and perpendicular to the Polar Axis, the Celestial Equator. (This obviously being the outward projection of our Earthly Equator.)

Our Earth Equator is mid-way (perpendicular) to the Polar Axis and projects outwards to give the Celestial Equator – the starting point for the grid system that provides the means of locating Celestial objects (stars, planets, sun, moon, whatever). Therefore at one point on the surface of the Earth the Celestial Equator will be directly overhead and perpendicular to the Earth surface, this point is at the Earth Equator. Because the Celestial Equator is vertically overhead and the Polar Axis is perpendicular to the Celestial Equator, then the Polar Axis is effectively level with a flat horizon although continuing to point to N, in one direction and South in the opposite.

As soon as one begins to travel North or South away from the Equator, the Celestial Equator overhead will begin to appear to move downwards in the sky, away from its perpendicular position. The Celestial Equator is always above the Earth Equator and therefore is equivalent to the Earth LATITUDE of 0°. Conversely, because it is vertically overhead at the Equator it has an ALTITUDE of 90°. These opposite values apply to this same Celestial position when at this special case at the Equator. The Polar Axis, because we are beginning to move towards North, will appear to start to rise away from ALTITUDE 0°. The whole system of Celestial Equator / Polar Axis that we have now constructed outwards from Earth in order to record Celestial points, appears to begin to TILT at a rate tied to the speed and distance that we travel North and away from the Earth Equator. The position of the Pole in the Sky rises and the position of the Equator lowers. If we measure the changed angle values of these two from different points, north, then we get the ALTITUDE values.

Therefore as one travels away from the Equator then these number values begin to change. Travelling North to latitude 25°, for example, of the Earth surface now means that a Celestial object vertically above is at equivalent of Earth latitude 25°N. But the Celestial Equator that was vertically above us at the Equator has now become lower in the sky behind us by the amount of 25°. Therefore the ALTITUDE of the celestial Equator is now 90°- 25° = 65° (Towards South because we are travelling away from South and towards



North.) The Altitude value is the LOCAL value that depends upon our viewing location. (Conversely, as can be seen from above, the North Pole value has increased by a value identical to our Earth latitude value to ALTITUDE 25°.) The two new values at latitude 25°, are ; - Celestial Equator Altitude 65° and North Pole Altitude 25°. (Notice that the two values added together always equal 90° because these two places of the sky are perpendicular to one another – if we know one value then we can automatically deduce the other.

But also remember that the North pole is a single point in the sky, whilst the Celestial Equator is a 'ring' encircling the Earth, outwards from the Earth Equator, but steadily tilting, nonetheless, as we travel further north.)

If we continue North to the site of Stonehenge we have reached Earth surface latitude of about 51°N. However, as we travelled north the Earth based Celestial Equator continued to move lower in our sky. By the time we reached Stonehenge the Equator position had lowered by 51°. Therefore the new ALTITUDE value for the Celestial Equator as seen from Stonehenge is 90° - 51° = 39°. (More accurate values are; - Stonehenge latitude - 51° 11´. Therefore Celestial Equator Altitude - 38° 49´.) Because the Equator appears to have 'tilted' by this amount it only attains this altitude at one direction in the sky – opposite to North, i.e. South. Therefore we now have this relatively sophisticated 'picture' within the Celestial Hemisphere above, of a 'tilted' sky with North pole towards North and at Altitude (above horizon) 51°11´, and Celestial Equator as an encircling ring 'tilted' to a maximum Altitude (above horizon) of 38°11´ towards South.

(One final detail is that the 'tilted' encircling ring of the Celestial Equator makes 'contact with' and passes below the horizon to encircle the other side of the Earth, at due East and due West points.)

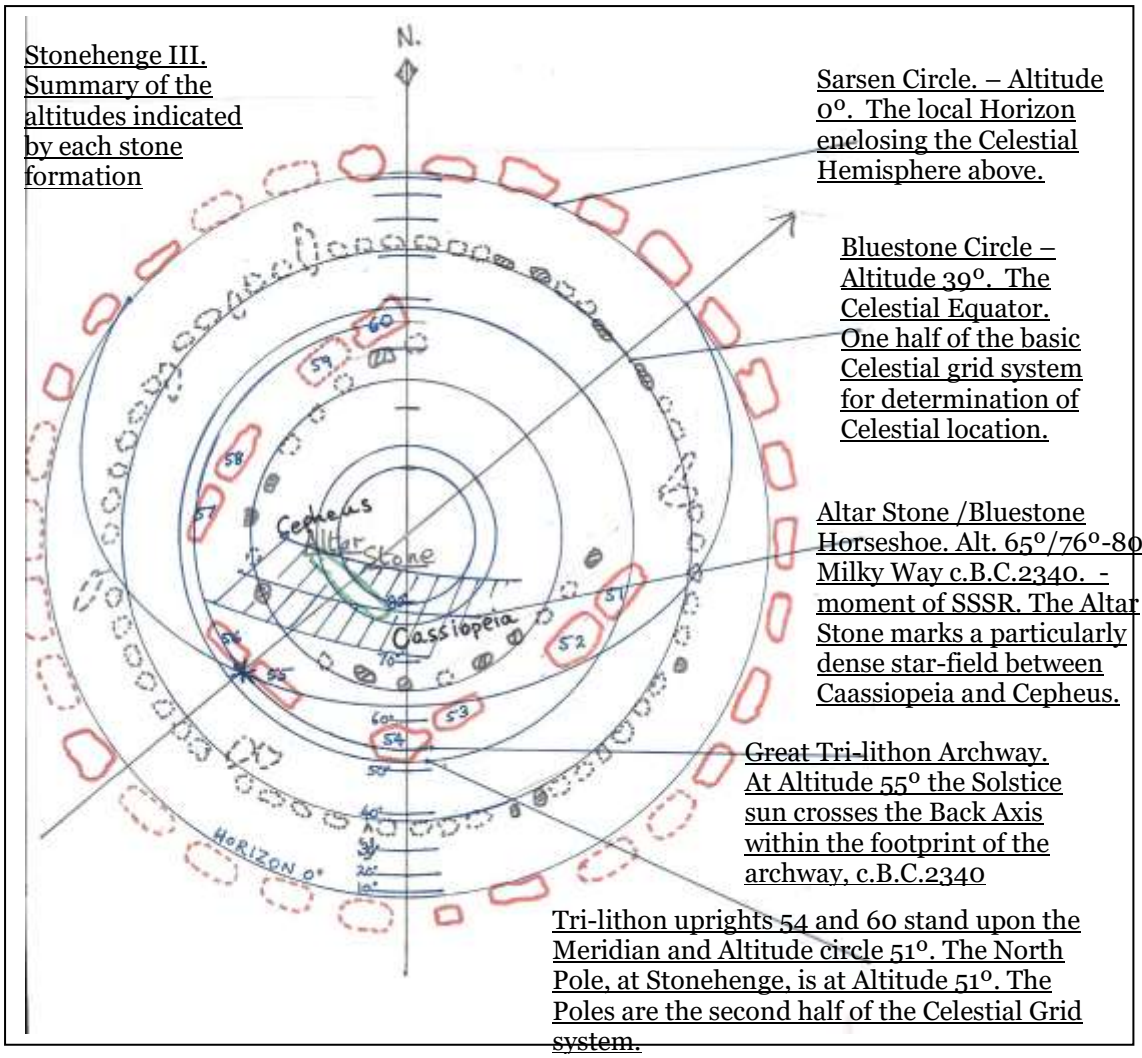
<u>SUMMARY Of Stone Group Positions Related To Representation Of Altitude Grid Within The Plan Of Stonehenge</u>

A fairly sophisticated three-dimensional 'picture' of the system of Earth/Poles/ Celestial Equator is now beginning to emerge from the information within the various stone formations: -
(i). The perimeter, or horizon, with altitude 0°, is represented by the outer Sarsen Circle. The top circle of lintels, here, also produces a real viewing horizon, above ground level to eliminate the observational 'dead zone' caused by the atmosphere close to ground level. The Sarsen Circle is at 'Ground Zero' and encompasses the whole Celestial hemisphere above an observer at the Stonehenge location.

(ii). The Bluestone Circle stands, at its most likely significant portion within site of the centre point, upon the altitude grid circle of 38° to 39°. The altitude value for the Celestial Equator at its maximum value towards South is 38° 49´. Therefore the position of the Bluestone Circle has been selected to represent the Celestial Equator.

(iii). The Tri-lithon Horseshoe upright stones nos. 54 and 60 touch altitude line c. 51° at the point where it intersects with the N. S. axis through the monument. The fact that this happens at altitude line 51°, which is the altitude of the N. pole at this location is evidence that the builders knew, understood, and could represent knowledge of the Polar Axis system with monumental architecture.

(iv). The representation of the Milky Way with the 'graphic' use of 'spotty' stones at the correct altitude range straddling the Back Axis at azimuth 230°



is correct for SSSR B.C. 2340. It serves to confirm, yet again, the system of altitude grid lines that is employed within the Stonehenge design. It confirms that the builders had other, stellar, interest as well as the solar and lunar interest that other modern writers have attempted to demonstrate. It confirms that they were able to correctly represent a stellar phenomena (Milky Way) within the monument in the correct position for time of day regardless of the fact that SSSR is daylight when the night sky would not be visible. Therefore they had a correct understanding of the annual cyclic relationship between sun and stars.

(v). The principle event of mid-summer, the passage of the sun at its annual highest altitude, is clearly demonstrated within the plan of Stonehenge by the fact that the 'footprint' of the solstice sun falls within the Archway of the Great Tri-lithon as the sun crosses the Back Axis. This was achieved by erecting the Great Tri-lithon exactly on the correct grid circle line, and yet again demonstrates this fundamental Grid feature that was designed into the plan of Stonehenge. The fact that the sun (and possibly the ECLIPTIC and this adjacent REGION OF THE ECLIPTIC) is apparently the only specific target within this aspect of the design suggests that we will not need to be looking for any other 'targets' of interest elsewhere within the Sky. This Great Tri-lithon / 'Mid summer' connection appears to encompass the unique and central event for which Stonehenge was constructed.

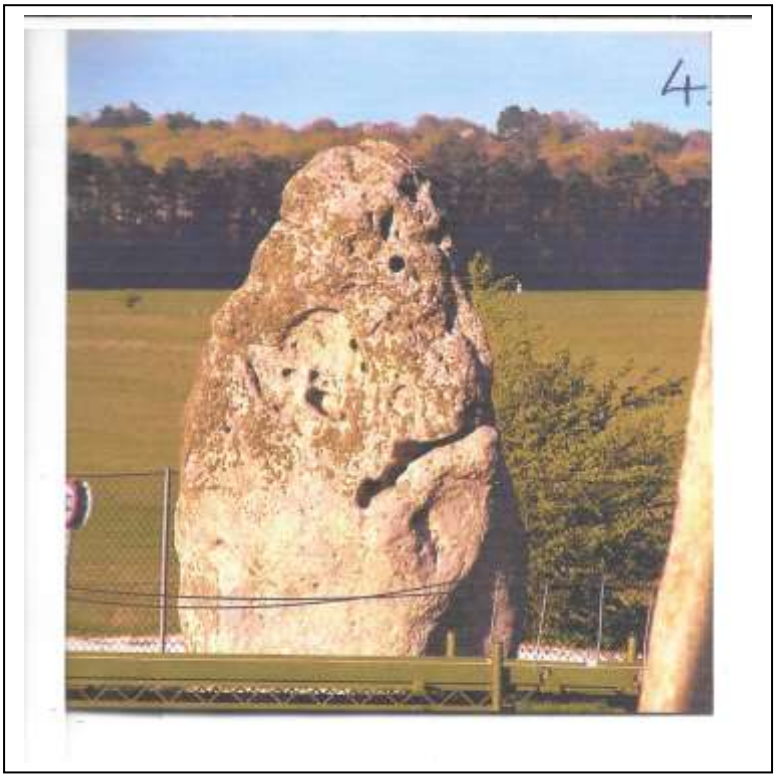
THE MANY FACES OF THE HEELSTONE

We can move on now from Altitudes and Altitude Circles to another aspect of Stonehenge that is easily visible to those who would see. First I will remark on the shape of Bluestone no. 49 that is the last stone of the Bluestone Circle to the left-hand (N.W.) of the entrance and just in front of Sarsen Circle upright no. 30. (No. 30, one of the Sarsen Circle entrance stones, is to the left hand of the Stonehenge main Axes.) It is easily seen, from the central area, that the top of no. 49 slopes upwards towards the East. The angle of inclination is measured at c. 25°. The rising solstice sun appears to ascend from the horizon, passing above the Heelstone (and close to Bluestone 49) on a rising track of c. 31 °. Though these two angles are somewhat different, it is of interest that this is the only stone today visible anywhere in the monument with this particular shape of top. I feel that the position of stone 49 next to the Entrance through which the rising solstice sun will be seen, and with this sloping effect to its top, is very suggestive as yet another pointer towards the function of Stonehenge when Stonehenge marks, celebrates, and is clearly tied in very firmly to the rising of Celestial objects through this Entrance. The top of Stone 49 may not be shaped with precision, but again it leads the observer on towards the main function of Stonehenge. It may be that the lack of precision reflects the general lower standard of accuracy that was demonstrated within the construction of the complete Bluestone Circle, but we can still make use of the information that is implied by the slope of the top if we can view the facts as presented, in front of us, in this light. It may, alternatively be, that stone 49 was 'spotted' in its natural form with this shape of top and installed for this obvious reason without time or manpower to modify the top slightly so that the slope angle exactly matched the rising track angle. (I prefer this reason.)

Bluestone 49, to the left-hand of the Entrance. The sloping top is unique at Stonehenge and is very suggestive of the rising track of Celestial bodies in the area of the Heelstone. The angle is c. 25°. As against the rising track of Celestial objects at this point of c. 31°. But the suggestion is clearly there.

In our own modern times named as the 'HEELSTONE', archaeologist R.J.Atkinson, and many other archaeologists since, have stated that the correct name in previous centuries was 'FRIARS' HELE' and that the HELE part has become modernised to its present form. Most accounts of

Stonehenge by archaeologists are happy to relate the old myth that the Heelstone became so named following on from the legend that the prominent circular markings on its inner face were caused when the Devil threw the stone after a friar and caught his heel, causing the 'heel print'. A daft story and a daft tradition! There is a far more prosaic source for the name. And it also tells us volumes towards the true function. The Welsh expression 'Ffriw yr Haul' is pronounced 'Friar Heel'. In translation the Welsh means 'Ascending Sun'. There could hardly be a more apt and descriptive name for this most important stone.

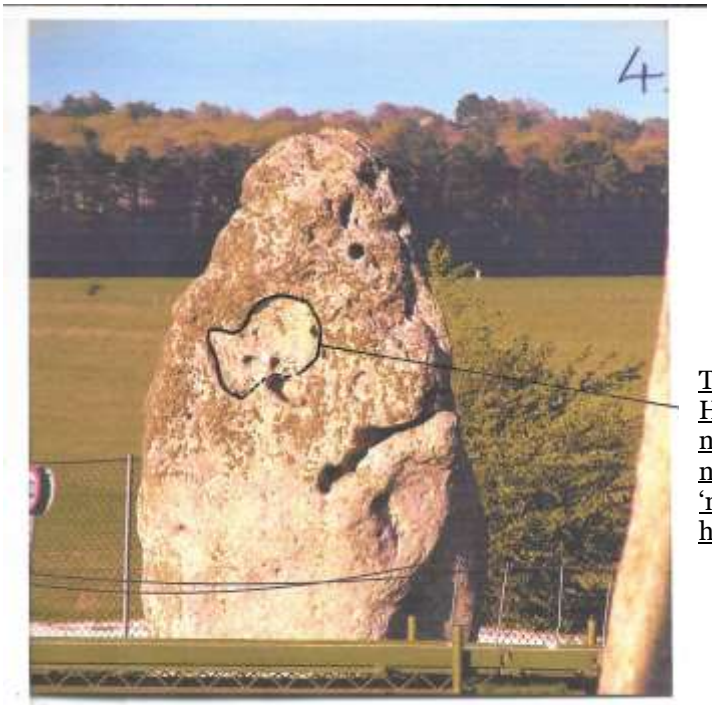


The Heelstone under a clear, blue sky, and with the sun full on its 'face'. It is a large and very hard pillar of Sarsen stone. It is my opinion that it has hardly weathered since original installation. Like any very ancient face that has looked upon the world for 5000 years, and seen so much life pass it by, it is full of character, interest. experience, knowledge, (= information!). Like so much around us few, if any, people look at it, give it a second glance, pause to consider what it may have seen – may know.

The faces of the Heelstone, on all sides, appear very battered and weathered. The material of the Heelstone is very hard Sarsen sandstone, comparable to Millstone Grit, the material of choice for making the corn grinding wheels of water and windmills for centuries. It is a moot point whether it actually does weather significantly and has done so over 4½ millennia since the Sarsens came to Stonehenge. My own opinion is that it has hardly weathered at all.

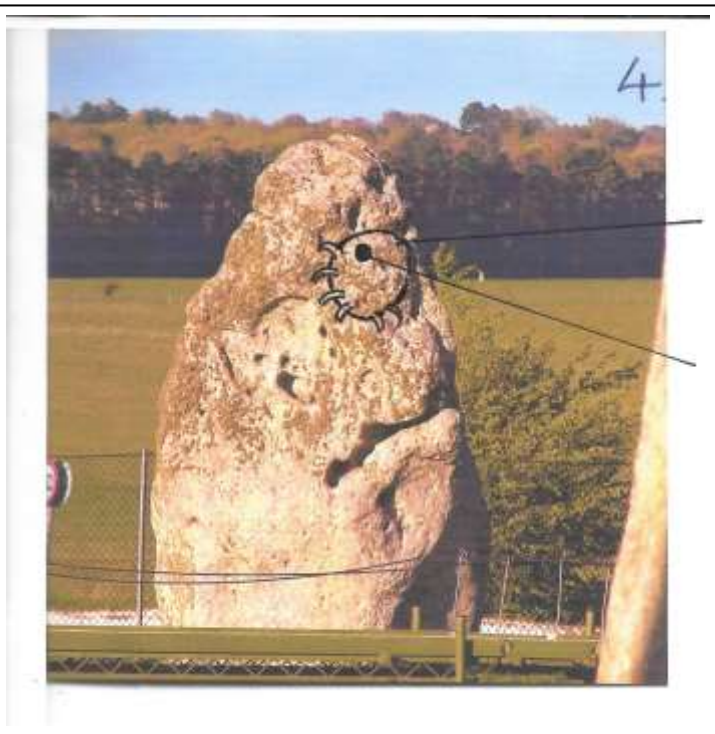
If the markings on the faces are not the result of weathering then they will either have been there from scars in the formation and very ancient history of the stone, or they will be the result of human endeavour. I believe that they are a mixture of both. Human endeavour has marked the faces sometimes by sustained work on clear sites, sometimes by astutely spotting the potential of natural markings and 'improving' them. The result is to fill out further our developing picture.

Concerning the face of the Heelstone facing 'inwards', that is S.W. towards the monument itself and with the 'back' of the stone towards the rising solstice sun and horizon of Durrington Down, the first and fairly obvious markings



The 'Heelprint' on the Heelstone. Man-made or natural feature? I suggest it is a natural feature that was then 'modified' or 'improved' by human endeavour.

worthy of note are the two large and over-lapping,, sharply defined circular depressions with accompanying trapezoidal mark. Both are situated about three-fifths of the distance up from ground level and with the circular part almost central to the stone. This is indeed the much referred to 'Heel' mark of Friar's Heel legend, more correctly named in the Welsh language as 'Ascending Sun'.



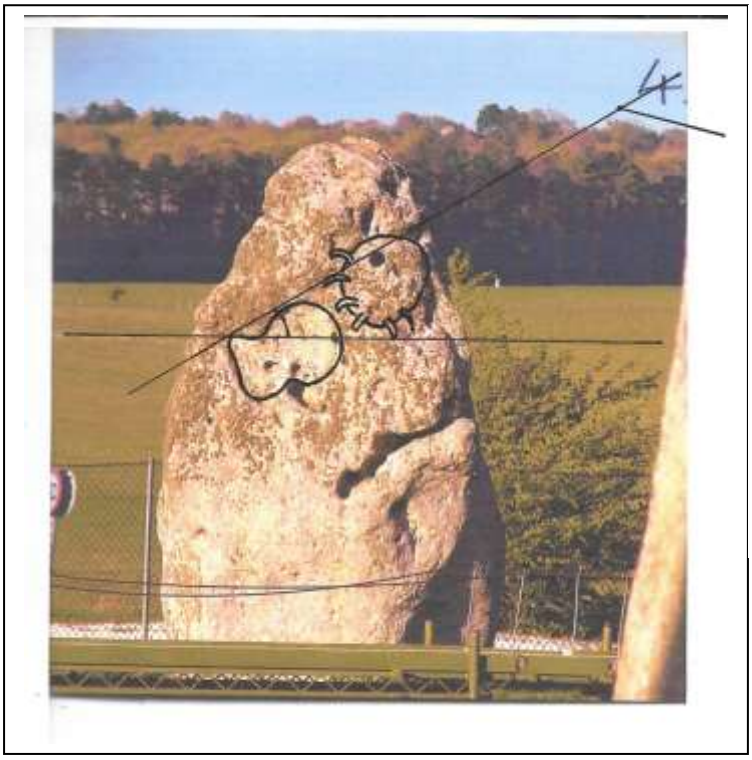
The 'Flaring Sun'. A circular feature, again picked out by slight human embellishment with radial 'wiggly' rays, as rays of the sun.

This very deep circular cavity looks far too deep and too symmetrical to be a natural feature. Consider many other pits on other Sarsens. There is nothing else like this one.

To the right of the 'Heelmark' and somewhat higher up the face (almost to the stone edge as seen from Stonehenge), there is another circular mark of very similar size to the circles of the Heel mark. This time this circular mark (carving) appears raised above the local stone surface. Visible around the edge of this circle in several zones to its left hand edge, high and low, are a number of 'squiggly' parallel radial markings pointing outwards across the circle circumference and on to the adjacent background. These give a clear

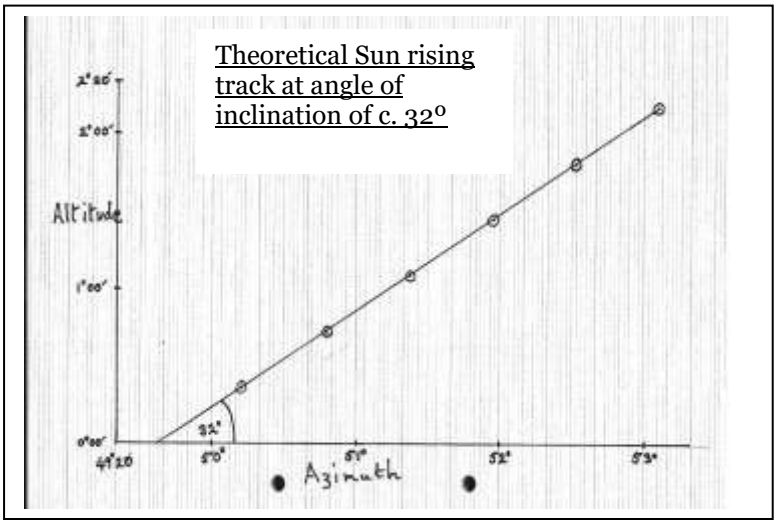
representation of nothing more nor less than the 'flaring' rays of the sun as so often depicted from ancient times to modern. I would contend that this is indeed a very effective carved picture of the sun, on its rising orbit, and 'drawn' on the face of the Heelstone to represent the true event as it would occur at SSSR.

Within the boundary of the 'flaming' circle is a rather large and very symetrically formed hole, striking because of its precise form. It is my opinion that this hole, as now seen, is man-made, perhaps the enlargement of an existing natural feature – we cannot tell – but of significance if man-made because it would have been for a purpose as this rock is not easily worked.



The two edges of the Heelprint, and the top edge of the deep circular cavity, (as with alignments of large stone uprights, it is always the EDGES that give the alignment),are connected by a line at an elevation of c. 31°. This is the angle of elevation of the rising tracks of sun and other Celestial objects at the location of the Heelstone. We have been given a true 'picture' across the face of the Heelstone, of the solstice sun rising

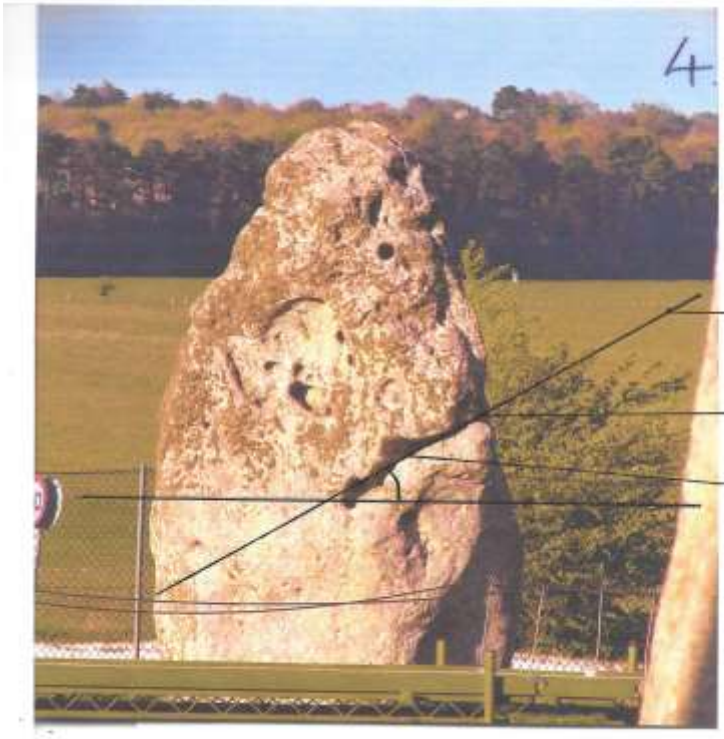
The top edge of the first 'Heel Print' circle, the top point of its partner 'trapezoid', and the top edge of the man-made hole within the 'flaming' circle can all be connected by a straight line. This line is inclined at 30° -31°, the track of the rising solstice sun.



The theoretical track is c.32°, but in practise, to an observer, the angle is slightly variable around 31° because of distortion due to refraction of the shape and position of the sun at the horizon at rising.

The ‘flaming’ circle has its outer, E., edge almost at the E. edge of the Heelstone. The sun is about to emerge and produce FIRST FLASH. (We are seeing, again, the principle of aligning the EDGE of a celestial event with the EDGE of a particular stone.

The next very prominent feature of this inner face of the ‘Friar’s Hele’ is the deep slit within the lower half that starts to right hand (E.) of centre line and ascends towards the E. edge of the stone, where it finally exits at the ‘MOUTH’ about half-way up. Once again it is possible to distinguish an ascending line for the slit of c. 30° -31°. It may be argued that the slit is very erratic and that a case could be made for it describing a range of ascending angles. However, though the slit appears to be rough enough to be mostly be a natural feature, about halfway up, on the lower edge, there is a very straight edged section that looks too regular to be natural. This looks very much like an example of human effort working to embellish a natural feature sufficiently to provide a demonstrable base line. The angle of inclination of this straightened section is 30° - 31°.



The most important detail about this ‘slit’ is that it emerges through from the visible E. edge of the Heelstone just at the point of contact of the Stonehenge Stellar Axis described, earlier, that can be identified aligning from round barrow Amesbury G15, and travels through Stonehenge to Durrington Down. Indeed it is possible, with good magnification, to stand atop G15 and visually see between the Sarsen uprights, just grazing their edges, for a very fine alignment to the edge of the Heelstone at the slit mouth (‘notch’). This is a very, very precise alignment. I will return to this alignment and ‘notch’ as the text moves on. It is very important.

STELLAR OBSERVATION AT STONEHENGE

It has long been accepted that knowledge of the cycle of the sun is demonstrated within the construction plan of Stonehenge. The rising at summer solstice is clearly a very prominent focal point. Horizon positions of rising and setting at winter solstice are also defined by the geometry and orientation of various aspects. (Notwithstanding that detractors of any possible astronomical links with Stonehenge will argue that any apparent links are merely 'chance' and fortuitous. It is very easy to argue destructively but requires courage to argue constructively. – One of the problems of being an 'academic' – Do you dare to put your head above the parapet and risk the wrath of your contemporaries?)

There have also been many probable lunar alignments that have been identified, many of these using the same stones as for solar alignments but in different directions. Indeed it is quite remarkable how successfully economical was the design of the ground plan of Stonehenge in incorporating so many significant alignments of sun and moon within relatively few 'key' stones. There is continuous evidence of a very agile mind behind the design, active for very many years.

There has been very little discussion of the third dimension of observation – the vertical dimension.

It has always seemed quite obvious to me that the observation of the sky ABOVE the horizon was a very important feature of Stonehenge. We can all see how obvious, visible and powerful is the effect of the sun upon life on earth at any season of the year. To a lesser extent many of us (certainly country dwellers) notice the moon by night especially when it is large and full some of us when it is partial, waxing or waning.

But how many of us pay attention to the night-time stellar sky? In our modern world few of us are out on bright, clear, star-lit (and probably frosty) winter nights gazing with awe at the incredible beauty above. It is so very common to encounter people of mature years who so rarely see the night sky that their first comment is, 'How extraordinary – I wish I recognised those stars above. Are there any constellations up there?' Such is the lack of depth of familiarity with our Cosmos in our modern times. Early people lived with the sky all of the days of their lives on a daily - and nightly – basis. It was as close to them as our televisions are to us now. Therefore we should expect that they were totally familiar with the pattern and motion of the stars even as much as sun and moon.

When the concept of Stonehenge first arose in the imagination of its original creator, the question must early have arisen of how best to incorporate Celestial knowledge. One immediate difficulty with stellar observation is that there is a DEAD zone when objects have risen above the horizon, between horizon and when they will become visible, owing to the combined haziness and refraction of the Earth atmosphere. The solution, at Stonehenge, was literally to raise the horizon into clear sky. Hence was born the concept of the ring of Sarsen lintels standing on a ring of Sarsen uprights. That is why there

was an obsession, when it was complete, to keep the top surface of the ring very level. Two objectives with one stone – a raised horizon and a level horizon. They had moved sky observation into the third dimension. And the concept could be, and was, developed even further with the construction of the Sarsen Tri-lithons that had the potential to be focussed on specific stellar events.

It was, and is that easy – the idea, but not the doing.

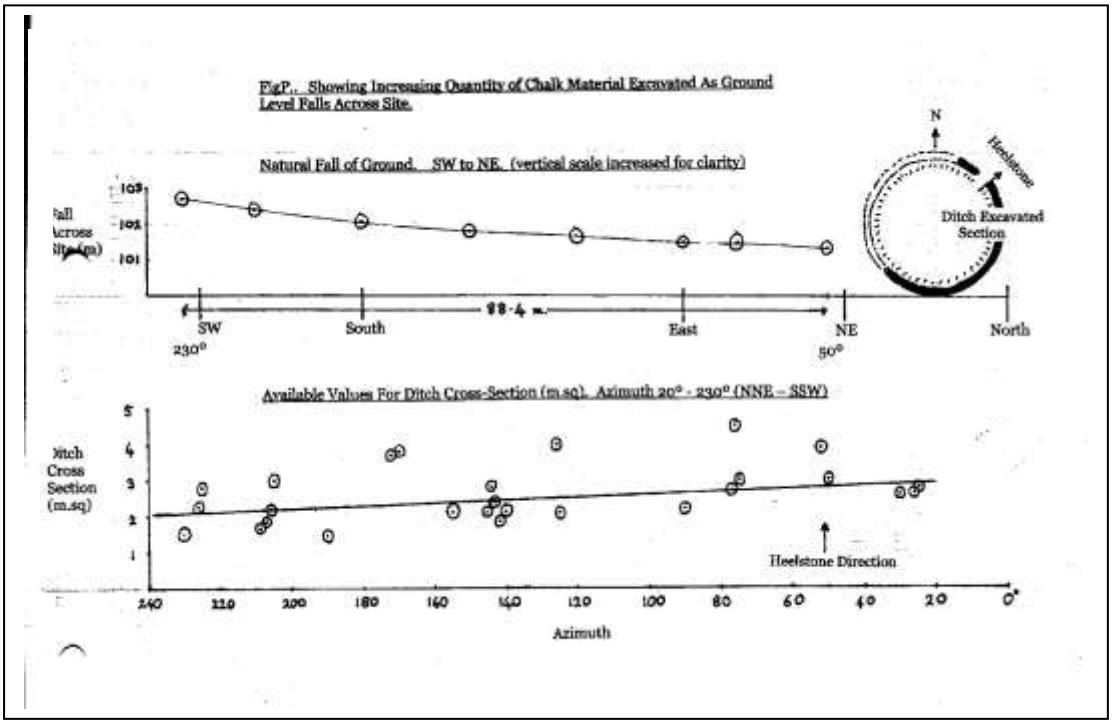
Solar, lunar, stellar knowledge of cycles, positions, ancient concepts of groupings, arrangements – the concept of named constellations was probably well known long before the idea of stone Stonehenge arose. There is evidence of wooden post alignments in the early stages of Stonehenge, certainly centuries before the first stones were brought here. All over the United Kingdom as far north as Orkney, west to Wales and Cornwall and in many areas in between, Neolithic remains with probable astronomical links are steadily emerging. As far West as Ireland and as far East as the Middle East and Ancient Mesopotamia from whence appears to originate our modern system of angular measure for astronomical measurement, constellations, recording of Celestial events, the knowledge was present and growing. And the evidence of this ancient knowledge continues to accumulate. The dots are steadily joining up.

It has long been my belief that Stonehenge was never conceived as an astronomical observatory. It was built as a demonstration of knowledge already obtained. It was built to create a picture and reference of the Cosmos and of the place of our planet and solar system within. A statement of where we are and where we are heading. It was designed and built with knowledge already held but at the same time it was an accurate working model for pre- and non 'scientific' method and means in an age that we can now see from our modern perspective was obviously millennia ahead of our modern, device/gadget/machine driven epoch. The design and erection were largely dependant upon the power of human observation and mental agility, but at the same time there were generations of already gained knowledge incorporated.

So how could stellar observation be turned into useful, practical information. (I suppose the same question can nowadays be asked of a large part of modern space research and astronomy – what is the point – when will it ever be of any use? The answer is becoming more up-front, more out in the open as time goes by. Twenty, thirty, forty years ago any serious scientist who spoke of human beings colonising some remote planet, light years away, was likely to receive short shrift from the mass of the scientific world. The chance of humans ever meeting with 'little green men' was likely to receive even greater opprobrium. It is startling to see, as a detached observer, with a long lifetime of observing the observers, how the collective attitude is changing. Now astronomy is positively and actively seeking evidence of planets where life may have developed, and there are a sizeable number actually seeking 'signals' from more advanced civilizations. One wonders where it will end! Can we extrapolate the results of this research forward a few centuries?)

It is observed that, as sun or moon rise, they appear to travel towards the right hand or East as they ascend. As they climb higher they appear to follow paths that cross the sky and descend to set in the West. Observation immediately shows that the stars of the night sky do the same. It soon becomes clear that the height to which any star ascends depends upon its position of first appearance above the horizon, north or south of east, in the same manner as sun or moon. From this very simple concept the technique of observational astronomy was born. But, as described earlier, definition at the horizon is difficult and therefore a raised artificial horizon is needed.

In earlier times this could have been achieved with timber and rails, possibly even a raised earth bank. So far as Stonehenge is concerned, the very first phase of development – Stonehenge 1 – consisted of the circular earthen bank perimeter that was formed by means of digging a rough, concentric ditch outside of the bank. This is the bank and ditch that now form the perimeter of the site, some way out from the stone structure. The bank forms a fairly accurate circle of diameter circa. 98m. The ditch is made up of a rough and variable ring of dis-jointed segments, varying when dug, in depth and width, the conclusion being that the ditch was the necessary quarry that provided the all important soil for the important first objective that was the bank. (The ditch was a secondary feature and its detail was unimportant.)



The whole feature, bank and ditch, were extensively excavated in the 1920's and a number of dimensions of depth and cross-sectional width that provide cross-sectional volume related to position on the circumference can be obtained. These show that there is a general trend for quantity of soil excavated to be significantly greater at the downhill, N.E. 'Entrance' area, and decreasing steadily towards a minimum at the opposite, uphill, S.W. side of the circle.

At the same time there is a gentle slope uphill across the site, from lowest at the N.E. Entrance area towards S.E. (Circa. 1.83m. / 6ft.) In other words more soil was excavated at the lower side of the site than at the higher. As the object of the project seems to have been the construction of the bank, is it possible that the final objective was to create a level horizon around the site? If the whole site could be encircled by a level horizon it would be a very practical finishing touch to finish off the top of the bank with a ring of horizontal tree trunks, woven wooden hurdles, or similar to provide a hard, weather-resistant viewing line. Was this the genesis of the idea of a man-made, raised horizon.

If this suggestion of an essentially level horizon being constructed is correct, then it gives an insight into the level of accuracy that somebody was seeking. The effort / man-hours required for constructing bank and ditch was clearly judged to be justified by the desired result in observational accuracy.

The logical progression from a not very high, and potentially imprecise earthen bank artificial horizon towards a more solid durable and, most importantly, significantly vertically higher artificial horizon constructed of timber upright posts and timber horizontal lintels, seems almost obvious. Especially if the original bank was topped by the woven wooden 'raised horizon' that blew away whenever a storm blew up. (As happens so often in our gardens in our modern times. One can envisage the frustration of the astronomer when his long awaited observation was ruined by a gale the day before!) If a first earthen horizon, as described, had been constructed it was never going to be very high. Who would not see the advantage especially now that the principle was being established? The ring of 56 Aubrey holes that encircles the site circa.4.9m inside of the bank has long perplexed archaeologists as to its purpose. At times the argument swings one way and at times the other in favour of, or against the fact that these holes once contained wooden posts. Sometimes the opinion is that they were dug for 'ritual' purposes. Being more prosaic than that I do not believe that the Stonehenge people were happy to spend months or years of hard work chiselling out solid chalk for spiritual enlightenment.

I do not wish to get too embroiled at this point in the specific and detailed story of the Aubrey holes but the dating, hole descriptions, description of infilling in the following years, and nature of in-fills, coupled with the suggestion of the steadily developing requirement, on-site, for a better and higher artificial horizon all seem to point to one conclusion for the intention of the Aubrey holes. Finally the distance apart of the Holes is given as c. 4.9m / 16ft. 4.9m. is a really convenient length to source and handle tree trunks for a task such as this. Such straight length would easily be found in young trees of say 0.5 or 0.6m in thickness and was probably always a favourite size for upright posts elsewhere. (It is even very close to the type of length of Sarsen stones that were needed later for stone Stonehenge,) The length (height) of vertical posts is a matter of total conjecture. There is no guidance, but suffice to say, 'The sky is the limit'. If the timber was found in softwood species such as Scots Pine, or in young Fraxinus or Corylus species growing in dense groups, it would be very straight and easily worked. One can almost sense the

natural progression from dirt bank, to higher timber perimeter, to the final glory of Sarsen Stonehenge!

The idea of an artificial raised stone horizon that was to be realised as the outer Sarsen Circle, led on to the idea of further observational means within the circle in the form of the five Sarsen Tri-lithons. These encompass almost three-quarters of a complete circuit of the local horizon (from azimuth 95° - just past east, to azimuth 360° - north) as measured from the centre. Once again this underlines the absolute economy of design and construction. The five Tri-lthons, in the Horseshoe arrangement that straddles the main two Axes but is rotated in its orientation by 50 ° from the Meridian have contrived to cover the complete process of the Cosmic sky from N. to S. to N. with only 265° of observational range. (The two halves of the Cosmic sky, east of the Meridian, and west are mirror images of one another so far as positioning and obtaining azimuth / altitude bearings are concerned at Stonehenge – just measure from north clockwise in the eastern half and anti-clockwise in the western half.) Modern astronomical observatories take it for granted that they will have a full 360° observational range.

Having decided upon this 'novel' way of creating a range of artificial horizons, numerous permutations became possible in the final design.

First Stonehenge, in principle, could incorporate a range of data of sun and moon built in to its layout. Next it could also be used to describe a limited amount of significant stellar data. This was all knowledge gained in earlier times during the lives of Stonehenge 1 and 2, the pre-Sarsen phases, dating from late 4th millennium B.C. through to c. B.C. 2500 when the Sarsen structure was started. Incorporating such information and knowledge into the design was tantamount to designing and building a megalithic astronomical 'encyclopaedia'. But at the same time, because of this under-lying form and function, the implicit knowledge had to be incorporated in a very logical form in order that it could be later interpreted. This was yet another constraint on the final form of design.

For instance, it is possible to argue that such observational astronomy depends upon observing and recording position / date / time, etc, of any object of interest. We cannot know whether, or how these may have been recorded or 'logged', probably because we would actually need to carry out research on the actual heads, brains, memories and minds of the people then involved. But we <u>can</u> see the <u>result</u> of careful and detailed observation of Cosmic events, over a long period, within the design. We need to be sufficiently open minded, certainly at our own 'initial ideas' stage, to consider these things possible if we are to progress further. (Or we can close our eyes and minds, bury our heads in the sand, and pompously declare 'Just not possible – I know better than that - Ignore', and continue on our way in ignorance. We all have a choice.) We need the <u>courage</u> to <u>believe our eyes</u> and <u>believe the results</u>. Very much of the whole huge corpus of scientific knowledge now possessed by the human race has been achieved by clever, intelligent, smart, sharply focussed ancestors 'spotting' or deciding ideas of one type or another that happened within their experience and then being moved to investigate further. The principle of 'following hunches' has

advanced the human race far, far beyond the wildest imaginations of even our recent ancestors. This principle will continue to do so for generations to come, and must not be smothered by 'clever professionals'.

An intelligent design for Stonehenge that is to incorporate clear and significant data about Cosmic events implies that the data must be built into the design according to some clear ground rules.

During my exploration into the plan, horizontal and vertical, there have been countless numbers of potential lines of investigation attempting to link alignments here, co-ordinates there, date and time elsewhere with potential Cosmic events. The sheer quantity of potential events have led me to the conclusion that one must argue that any significant event must be contained within very limited parameters that are indicated by the design. For instance, one can seek alignments / azimuths for this event or that event for all sorts of locations within the Sarsen Circle. And at all sorts of potential eye-levels above ground level. This is not necessary. I think that the design – the designer – senses this potential confusion from the beginning and at all times takes steps to avoid it. If we can put ourselves in the mind-set of trying to pass on information / knowledge to others by a route that is straight-forward and avoids confusion then that is correct.

Therefore any Cosmic event that <u>is</u> intended to be marked within the design must conform to the following parameters:-

(i). It must occur at, or very close, to SSSR within a very short time frame (number of years) - literally decades. Centuries will not do as the total time period of many years is too long. And it has to be at the moment of sunrise at summer solstice – no other time of day or season of year. (Having identified a particular Celestial object as being potentially of interest, it is however reasonable to further explore the passage of that object through other parts of the year for general interest.)

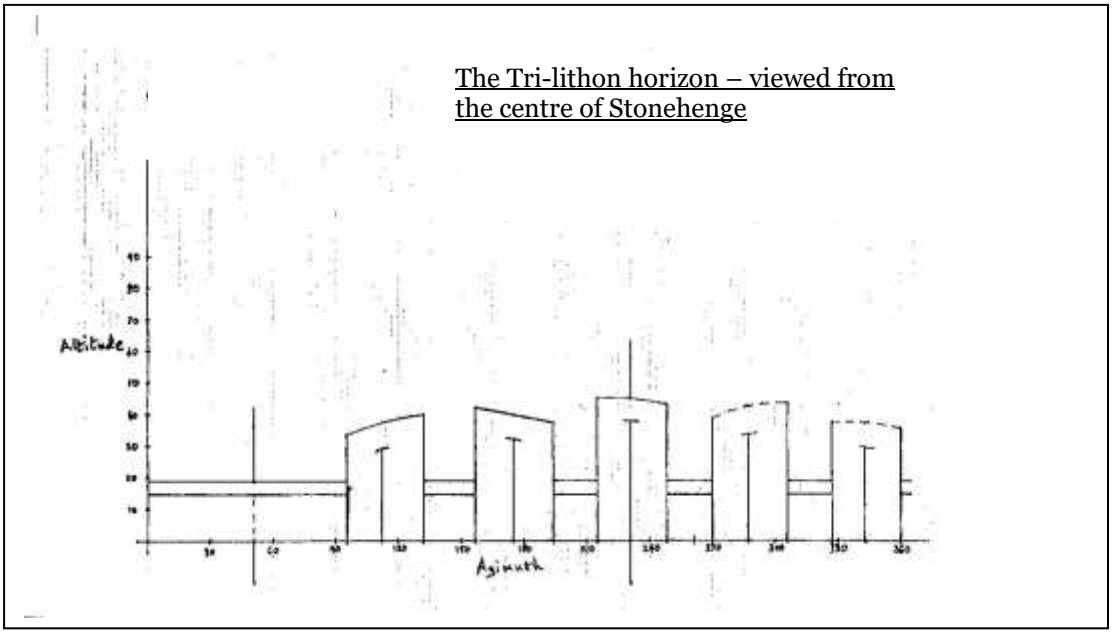
(iii). Information of altitude and azimuth of the Celestial event that is in focus and built in to the design, is all centred upon the geometric centre of Sarsen Stonehenge. This is the central observation point from which all incorporated information originates. We should not expect to find other originating points within the design that have been used for incorporated observation data. (There may be many other 'sightlines' here and there to many and varied celestial 'targets' that were exploited <u>after</u> the construction but these are not part of the primary objective of Stonehenge.) It is not required to use other viewing points. (Other viewing points would certainly have been used <u>after</u> the construction, for other viewing purposes, <u>but not to establish the primary purpose.)</u>

(iii). Any and all incorporated information is absolutely and totally 'logical', 'common sense', and clear. There is no attempt whatever to obscure or imply any data in any way other than absolutely direct and obvious. There is no hint of any 'mind-game' or 'riddle'. The whole project is far too serious. For interpretation of Stonehenge it does not need a mind that can decipher code or construct complex algorithms. Interpretation only needs the interpreter to

have a mind that is open and wide enough to accept the unknown because it is there in front of them. The very strong impression is that the design foresaw, in very many ways, the doubts and uncertainties that would arise, in time, when Stonehenge was interpreted. There is no need at all for doubt if one is on the correct track. But if a particular line of investigation does not seem to be making sense then it is probably wrong.

The design is an impressive monument to clear, logical, focussed planning. There is absolute economy of information and data conclusions built into the plan – ostensibly simplicity. It is the nature of the interwoven information and the nature of how much knowledge and information is implicit in that plan that is astonishing within the era and context. It is only the date of the acquisition of this information that may seem out of place to human minds that are still severely limited within their Earthbound experience of the Cosmos.

Although the primary purpose of Stonehenge was based upon and used already acquired knowledge and it was never built primarily as a working observatory, it would certainly have continued to be used for observation after

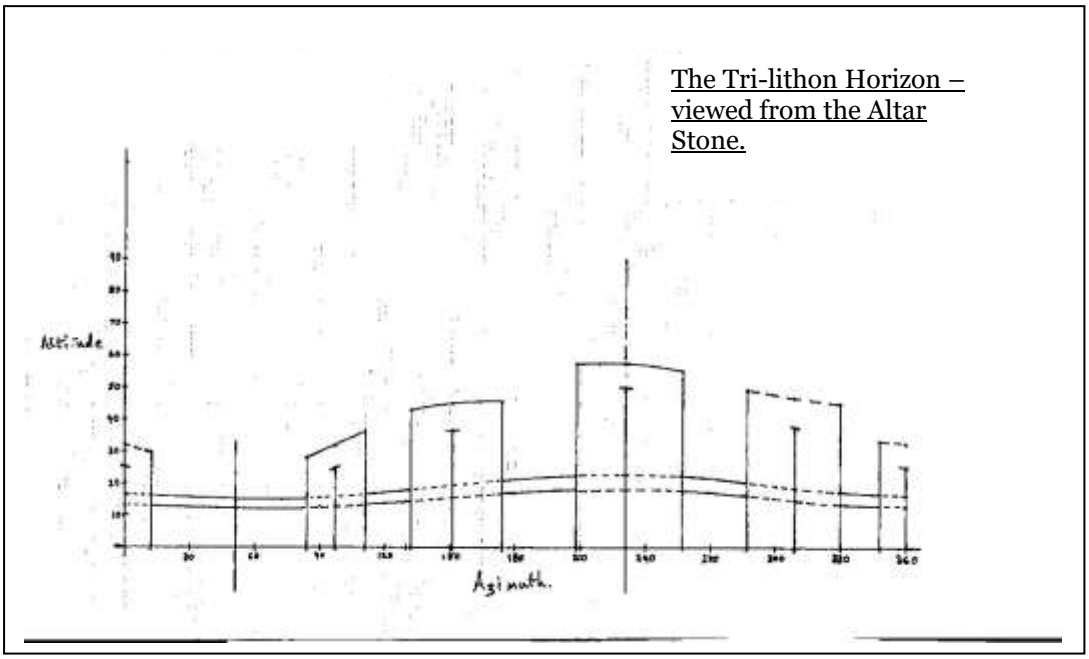


The Tri-lithon horizon – viewed from the centre of Stonehenge

construction. With so many and varied artificial horizons and so many potential viewing points it could hardly have been otherwise. We can reconstruct, from modern measuring, ideas of how it was used in this way and obtain a huge quantity of possible information on objectives. But we cannot be absolutely confident that we are correct as we do not know the mind of ancient astronomers. Some of the range of potential horizons are shown in the diagrams of just two potential ways of using the Tri-lithon skyline. I am sure that there are many further ways of representing the skyline using different viewpoints. This is of great interest for future research but merely underlines the necessity to stick rigorously to the simple and pure parameters I have outlined for my interpretation of the design.

To summarize these thoughts on the purpose and use of the Sarsen lintels and particularly the Tri-lithons;- there are many potential observational

astronomical uses. But to satisfy the basic plan parameters of date / time, and point of origin as centre-point there are few. This is very good because it greatly limits the number of options for final interpretation.



The Tri-lithon Horizon – viewed from the Altar Stone.

Returning To The Description Of The Heelstone.

It will be remembered that there is a representation of the rising sun across the face of the Heelstone as the sun approaches 'First Flash' from behind the Eastern flank. There is also the clear 'slit' running in parallel with the sun track and 'emerging' through the 'mouth' of the slit. Both trails run at c. 30° - 31° as the sun and the whole Cosmic sky would at the time of summer solstice sunrise.

For a long time I have attempted to relate this picture, on the face of the Heelstone, to the actual sun position on the horizon of Durrington Down. But this attempted tie-up depends upon the viewing position adopted from the Stonehenge side. This position is not given, is not particularly defined. I have concluded that it cannot be defined because the height of the eyes of the observer above ground level cannot be defined. Therefore it is not possible, or necessary, to ''fix' the picture at exactly the correct level. So long as the vertical azimuths are aligned correctly from the centre point, then that is sufficient. That is easily possible. Therefore we have been given a picture of the actual event as the prehistoric sun rose at SSSR at the correct epoch c.4300 years ago.

Archaeology has now given us fairly narrow parameters for dating. The prevailing view is that Sarsen Stonehenge was started, constructed, and probably completed, very quickly relative to the enormous amount of work required, beginning at some time around B.C. 2500, give or take a decade or two. The construction is believed to have been relatively very rapid, possibly over about a century or so. Therefore it was probably completed c. B.C. 2400, once again give or take a few decades either way.

At the same time it was built very accurately and very neatly. The significant faces and forms of particular stones were very carefully finished. Others that were not considered significant were left relatively rough. Once again economy of effort where appropriate, but thorough work where required. (For instance, almost without exception the lintels, all round, were carefully worked, especially their top surfaces – another pointer to the need for a very smooth and level surface as needed for an artificial horizon. If we look carefully we can actually see that the undersides of some of the lintels are still quite rough, bumpy and uneven – smooth finish not needed.) I believe that there was a very important astronomical reason for the haste.

Undoubtedly ancient civilizations were deeply involved with stellar (star) observation as well as solar and lunar for probably millennia before the time of Sarsen Stonehenge in mid 3rd millennium B.C. In the Ancient Far and Middle East, observation and recording had been in progress certainly since the 4th millennium B.C. Earlier than this it is reasonable to assume that human eyes and minds had started to wonder and grapple with the challenge of the concept of star presence and motion for a long time before any permanent recording was made on material that would survive to our present times. We can only certainly say that humans had acquired astronomical knowledge from earlier ages on the basis of material remains now discovered. Therefore an age of discovery, to science, is an age when such remains were produced and have managed to survive until now. We cannot credit human development with discovery if we do not have physical proof in front of us. Therefore such discovery cannot be accepted. We can extrapolate backwards our thought that astronomical study was in process at a very early time but it cannot be proven.

We could suggest that, along with (and probably in parallel with) a developing astronomical knowledge, there was the developing corpus of religious and mythological belief that has so come to dominate and influence the development of human society from its more primitive and immature early age, and is now rapidly giving way to a more truthful, fact-based, scientific age. (These ancient religious and mythological beliefs have provided the human race, for so long, with a reason to exist and to struggle forwards towards a grown-up society based on the application of intelligence to the information from modern scientific and logical thought and discovery. But now the time is coming when they may be relegated to the realm of ancient and curiously entertaining 'fairy story', the basis of stories to entertain the young children at bed-time or for pantomime. In the same way that we regard the lives of our ancestors living in primitive wooden hovels with primitive utensils and primitive agrarian life-style now with curiosity because civilization is moving on – fast -, so we must accept that knowledge and belief also needs urgently to be moved on. But this is a big digression and a big 'other subject' and I must return to my theme!)

As the development of such religious threads within human development can be seen back into sixth and seventh millennium B.C. and earlier, we can therefore assume a similar situation for astronomical interest. We may have difficulty in proving the situation because comprehensible material remains

have not survived. The alternative is to credit the first serious and successful astronomical discovery to the place and people where physical records are now found and deny the possibility of astronomical work and discovery elsewhere in time or place. I think this is a very narrow, restrictive and unhelpful attitude and will inhibit the successful search for, and development of, a true and global picture of who and what the human race is, where and when it began, and where it is going.

It would be extraordinary if there was not an element, within the developing culture of early human civilization, of curiosity towards the star-filled sky that dominated the night-time world. It is also likely that early humans were equivalent to ourselves nowadays in memory and intelligence levels. Therefore they would, early on, have started to order the various groupings of stars into familiar 'families' – our 'constellations'. Each constellation could then contain its familiar patterns of bright and not-so-bright stars.

Now there was a developing corpus of identified Cosmic features. On to this began to develop the idea that many of these features could influence the lives and fortunes of individuals / families / tribes / nations. The Cosmic features located within the star-filled sky began to acquire religious / faith / belief overtones, and began to be identified with particular facets of human life.

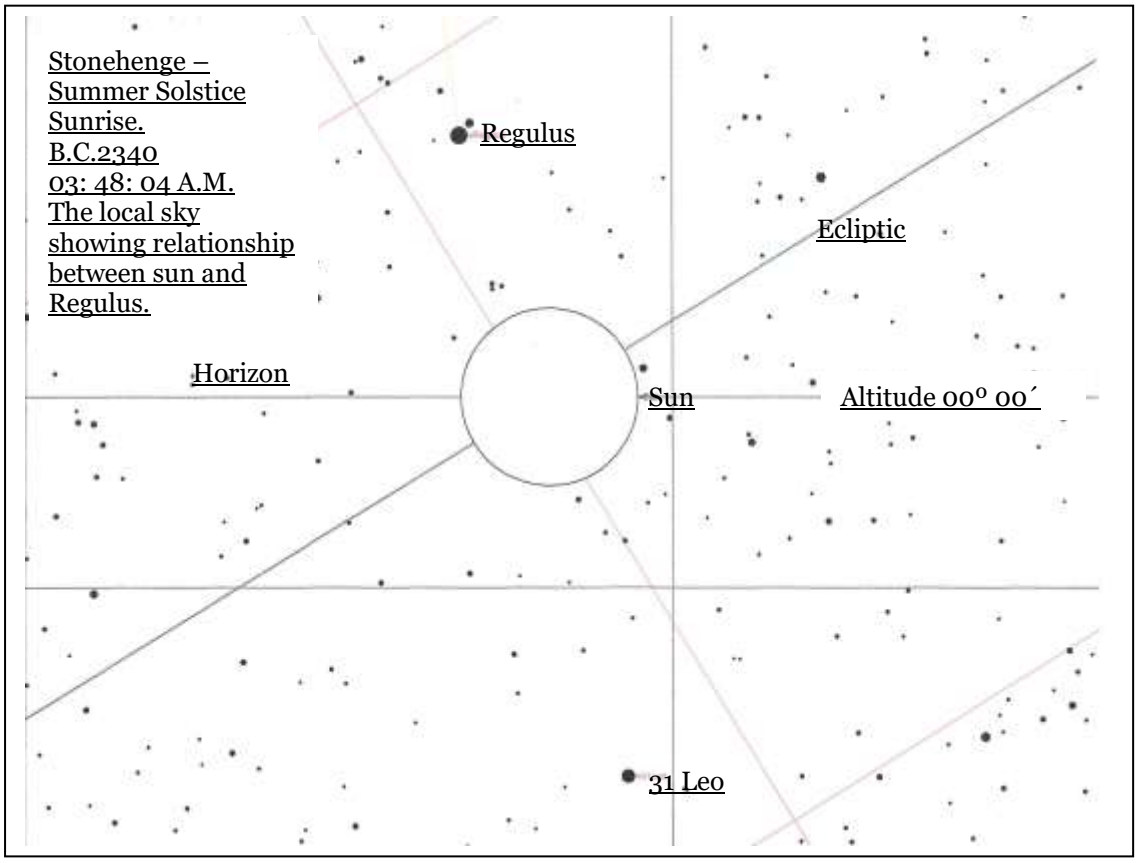
(The seemingly primitive belief of many of our modern human population that their lives are intricately tied in with the aspect of the stars at significant times in an individuals life, and that study and divination of an individual's fortunes and future are dependent on auspicious timing and arrangement of the stars, has very ancient roots and is very deeply and passionately held within the psyche. Modern science may decry these beliefs as much as they like but they will not shift them from most adherents. If modern science wishes to successfully debunk such thoughts and persuade normally rational people to 'convert' to seemingly more rational and factual basic belief then it must offer something better to these people to replace their current astrological instinct. If modern science could offer a solid, scientific reason why human culture should lean so heavily on, say, a particular aspect of the Cosmos for 'spiritual' purpose and strength within their lives, then modern science may be in with a chance! If modern science could actually produce – God – (or Gods) then all hope is possibly not lost. Sadly modern science has probably already proven there is no such entity. Or so they keep telling us!)

It seems reasonable to assume that the Cosmic features that were biggest and brightest became the dominant objects. Therefore sun and moon would be dominant. Presumably further down in importance would come planets and brighter stars. But then there was the question of 'relationship'. A particular star, for instance, might not be the brightest, but it might occupy a particular relationship to another very important object. Either it 'shared' some of the glory of the dominant object, or it was a 'child' of it. As a generalised principle, if we wish to acquire some sort of feel for the individual reverence that existed towards individual Cosmic objects such as individual stars or planets we can think in terms of the mythological tales of such civilizations as Ancient Egypt, Greece, Persia, Babylon.

Any of these civilizations (and many others) had a raft of stories – legends – of the doings and familial relationships amongst their particular family of Gods that was often an extension of the familial doings and relationships within human families or tribes. The families of the Gods that were identified, within the Cosmic sky with individual or groups of stars or planets had become invested with the faults, failings, hopes and ambitions of the humans who had initially 'created' them. (The people had created their own Gods!) Inevitably individual stars began to acquire significant properties, powers – characteristics – possibly related to season of visible presence, or relationship to others stars, or battles won or lost, or ancient plague or pestilence, earthquake and flood.

Some of the Cosmic objects of veneration had specific, unique characteristics that singled them out and placed them above the mass. The path of the sun through the heavens (the ECLIPTIC) had been known to the Babylonians, amongst others, since the fourth millennium B.C. It was probably known over a much wider area. And any prominent, well-known objects close to, or on, the ECLIPTIC naturally acquired some of the aura of importance of the sun.

There is one particular of the brighter visible stars that is close to the ecliptic and was, during the third millennium B.C., close along the ecliptic to the sun at the middle of the year, or mid-summer, when the sun is at its hottest. This



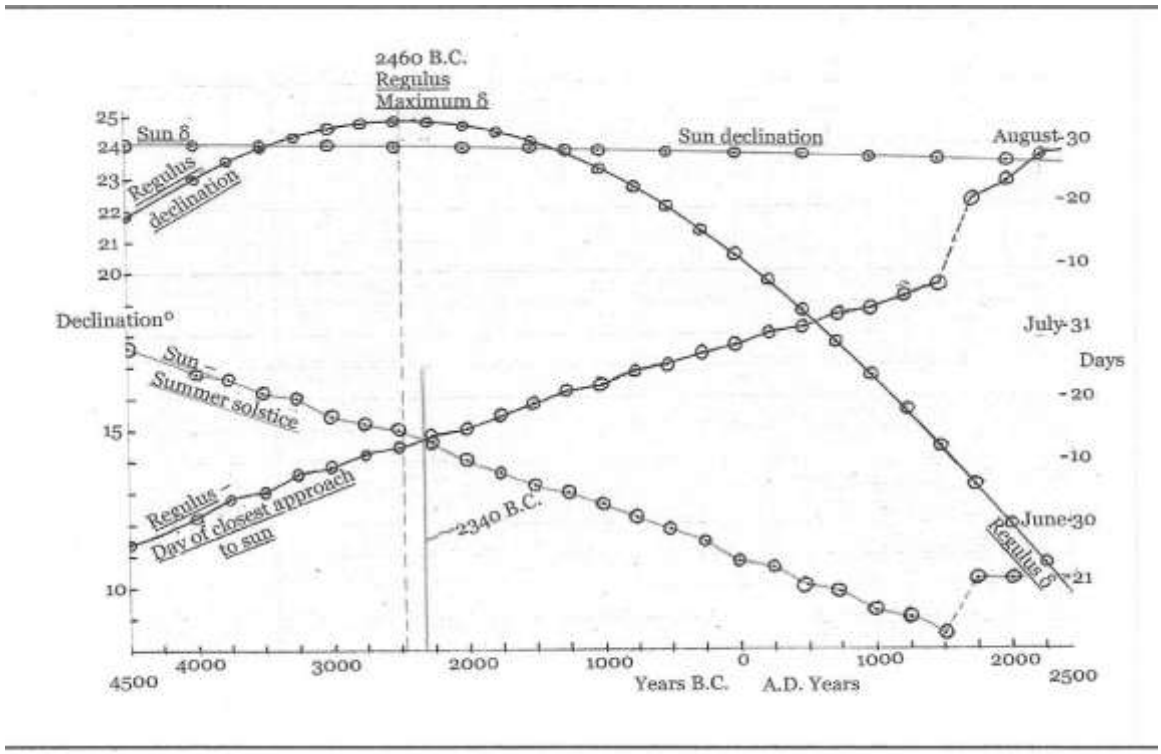
was the star REGULUS or 'α Leo' (alpha Leo - 'alpha' because it is the brightest or most dominant star in its constellation), of the constellation 'LEO' (the 'LION').

Regulus has orbited on a path through the heavens very close to the ecliptic for more time than the span of the story of modern homo sapiens on Earth. Possibly some of the earliest civilizations regarded Regulus as a 'child' of the sun. As with all stars it moves slowly away ahead of the sun as the year passes, gaining almost 4 minutes each day throughout the year so that it takes about 365 days for it to travel from a particular point of relationship with the sun, around the ecliptic, and back to that original position of relationship. At a certain time of year it is close to the ecliptic and very close to the sun. Six months later it is still very close to the ecliptic but at its furthest point from the sun, before it returns back again to the place of its starting point close to the sun. For this reason it is, when close to the sun, in full bright daylight each day. But six months later when furthest from the sun, it is in complete darkness. The sun is above the horizon by day and gives light. Regulus is above the horizon by night and is visible in the dark night sky. During the time of the building of Stonehenge, Regulus would have been visible during the long dark nights of late winter and early spring. There are very few bright stars that occupy a position close to the ecliptic apart from Regulus.

Ancient civilization throughout the Middle East, Asia, and Central Southern Europe, as far back as physical records can be found, associated Regulus with Royalty and kingship (as the 'Heart Of The Lion'). It was also frequently linked with, and even responsible for, the heat of the sun of summer because, during the fourth and third millennia B.C., it lay so close to the summer solstice sun. Regulus would also have been very important to the people of Northern Europe at this time, also, because of the importance of the sun, although there are few surviving physical artefacts to say so. For the same reasons as for the people from further south in Europe and beyond, presumably it would have association with kingship, kings, and powerful leaders of these people. Fortunate indeed would be the local or regional leader whose birth date coincided with the season of the year when the sun and Regulus lay close. A near birth-date may even have been a factor in the search for a new leader – a selection criterion!

As the third millennium B.C. proceeded Regulus was moving steadily closer to the summer solstice position of the sun when the sun is at its highest and hottest. This steady convergence of star and sun is due to the effect of 'PRECESSION OF THE EQUINOXES' which is an effect caused by a slight 'wobble' in the rotation axis, or the Polar axis, of the Earth upon which the Earth appears to rotate. The effect of the 'wobble' of the axis is that the direction in which the axis appears to point into the Heavens (North Pole) slowly 'describes' a small circle through the stars and consequently North Star for Earth slowly changes as time proceeds. Consequently the whole Celestial sky appears to slowly change en masse and stars and constellation, though not changing their relationships with each other, slowly change their position relative to the Earth.

As the sun is a star it also does not change its relationship with the mass of stars. A star close to the ecliptic stays close to the ecliptic. A star far from the ecliptic stays in that position. But Precession causes an apparent steady change in the position upon the ecliptic where the sun will be at the two annual equinoxes, and therefore the two annual solstices. And so the celestial



Graph showing how Regulus and the sun came to their closest approach after mid 3rd millennium B.C., and that this event coincided with summer solstice c. B.C. 2340. A thousand years later, when their paths actually crossed, the event would have been long after summer solstice.

Appendix 3 Regulus and The Sun – Data for the Conjunction.

Regulus Date	δ (° ')	Closest to Sun	Sun-Summer Solstice Date	δ (° ')
B.C.				
4500	21 48.4	27 – 06	28 – 07	24 8.06
4000	23 3.4	1 – 07	24 – 07	24 5.99
3750	23 33.7	4 – 07	23 – 07	24 4.89
3500	23 58.9	5 – 07	21 – 07	24 3.71
3250	24 18.8	8 – 07	20 – 07	24 2.41
3000	24 33.4	9 – 07	17 – 07	24 1.12
2750	24 42.6	11 – 07	16 – 07	23 59.78
2500	24 46.2	12 – 07	14 – 07	23 58.30
2340	24 45.7	13 – 07	13 – 07	23 57.35
2250	24 44.4	14 – 07	12 – 07	23 56.84
2000	24 37.0	15 – 07	10 – 07	23 55.32
1750	24 24.1	17 – 07	8 – 07	23 53.7
1500	24 5.8	19 – 07	6 – 07	23 52.12
1230	23 42.2	21 – 07	5 – 07	23 50.46
1000	23 13.50	22 – 07	3 – 07	23 48.73
750	22 39.70	24 – 07	1 – 07	23 47.01
500	22 01	25 – 07	29 – 06	23 45.21
250	21 17.70	27 – 07	27 – 06	23 43.42
A.D.				
1	20 30.1	28 – 07	24 – 06	23 41.56
234			23 – 06	23 39.86
250	19 38.1	30 – 07	23 – 06	23 39.73
500	18 42.2	31 – 07	20 – 06	23 37.83
750	17 42.6	2 – 08	19 – 06	23 35.93
1000	16 39.5	3 – 08	16 – 06	23 34.02
1250	15 33.2	5 – 08	15 – 06	23 32.06
1500	14 24	7 – 08	12 – 06	23 30.15
1750	13 12.1	20 – 08	21 – 06	23 28.18
2000	11 57.8	23 – 08	21 – 06	23 26.24
2250	10 41.5	27 – 08	21 – 06	23 24.31
2340	10 13.5	28 – 08	21 – 06	23 23.61
2360	10 7.3	28 – 08	21 – 06	23 23.44
2500	9 23.3	30 – 08	21 – 06	23 22 32

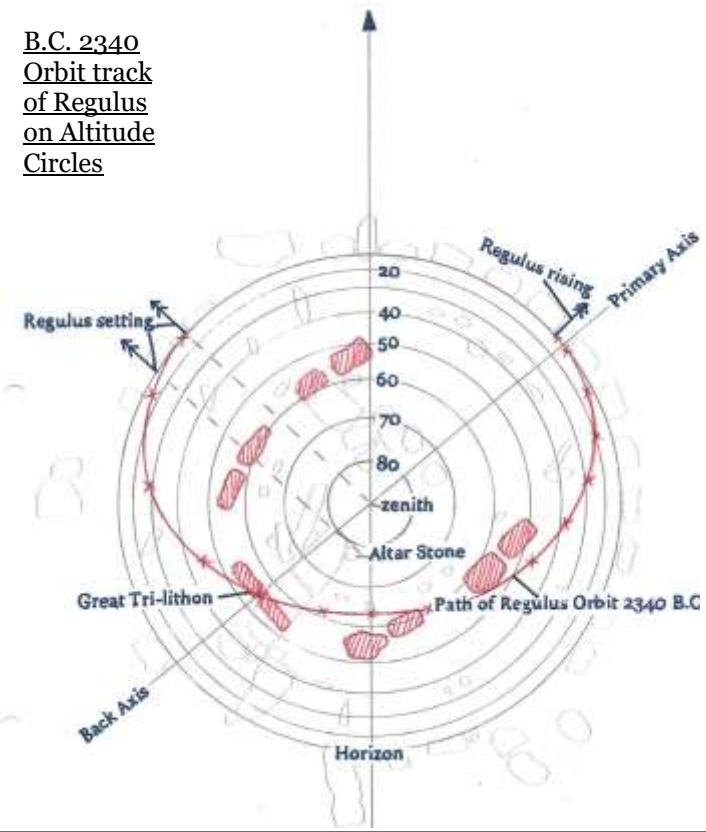
Regulus maximum – 2460 B.C. Declination 24° 46.29'

sky, at solstice and equinox appears to slowly move forward. One cycle of the 'wobble' through the Celestial sky takes about 25,600 years. (For the astrologers it takes, on average, just over 2000 years for the sun to travel through each in turn of the twelve constellations of the Zodiac.)

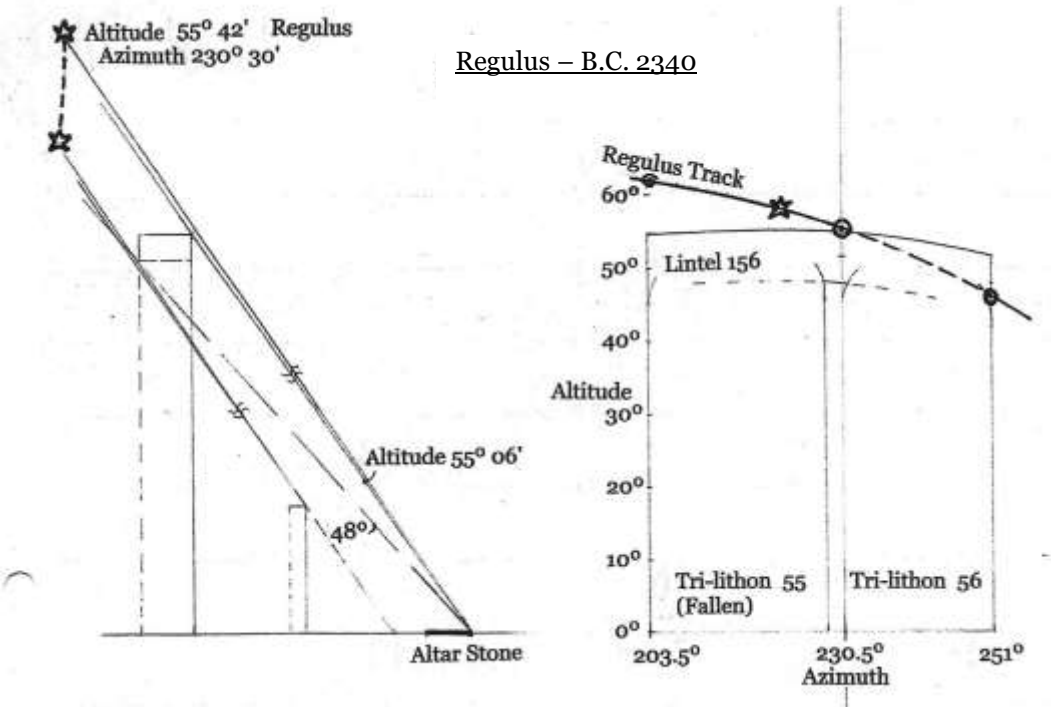
Therefore any convergence of sun and star is seemingly, to an early people, going to be a once-forever and never-to-be-repeated event. The apparent steady change in the appearance of the sky with the passage of time means that any visible Cosmic event, when being recorded, has to be accurately timed and dated

by some means. The means may be on paper or electronically, or in earlier times on wooden sticks or clay tablets. Or even written in stone.

B.C. 2340 Orbit track of Regulus on Altitude Circles

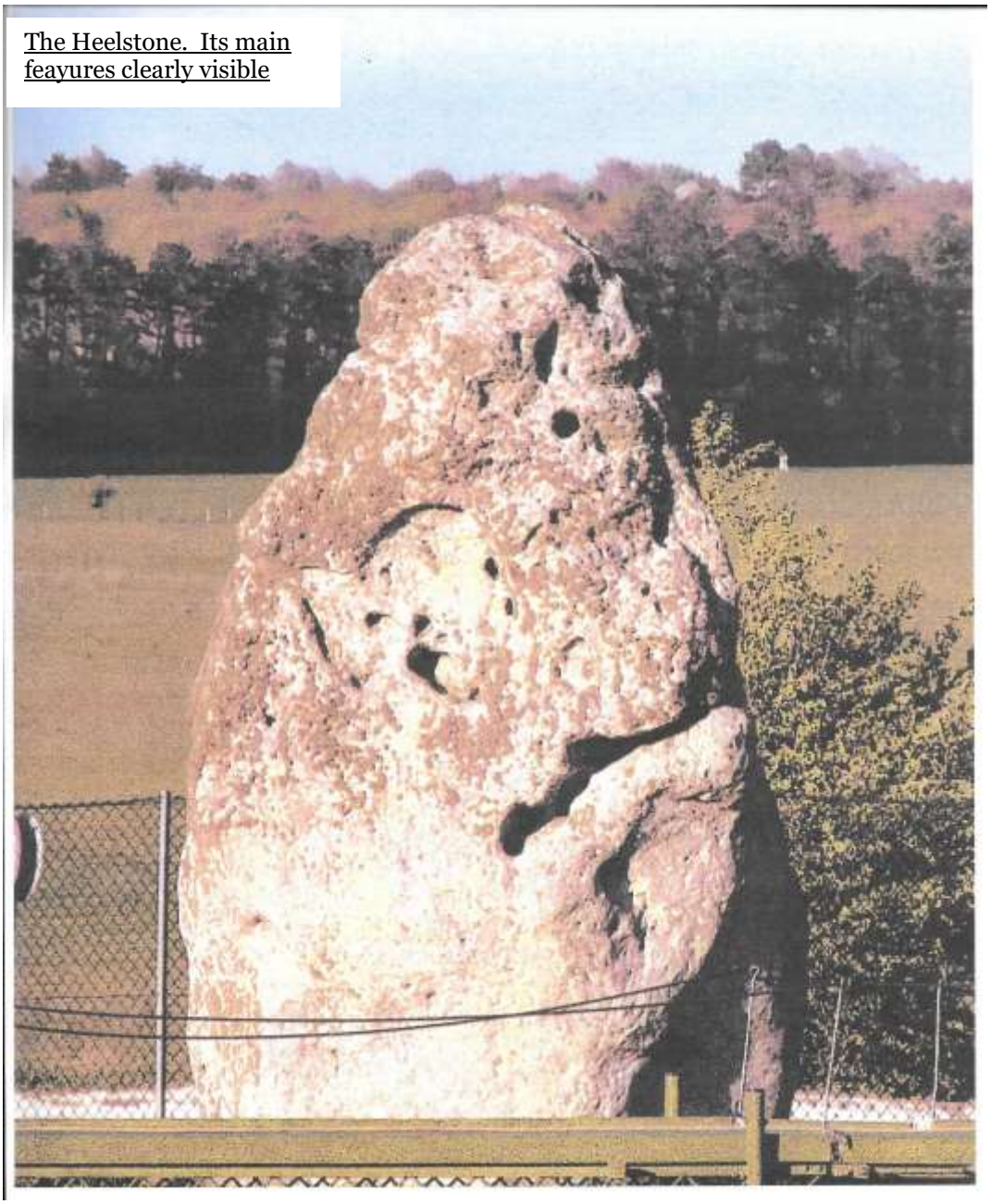


Once again we need to plot the orbit track over the Tri-lithons – this time for Regulus. Because Regulus, in B.C.2340, was about one degree higher in the sky than the solstice sun, its orbit track was slightly higher than that of the sun. Therefore the orbit track ran fractionally closer to the centre of Stonehenge. Notably it precisely fits Tri-lithon uprights 52 and 53 as it enters the Horseshoe (the reason for their positions?) before passing above the Great Tri-lithon archway and with its footprint further into the archway itself. As Regulus seems to fit the shape and positioning of the Horseshoe better than the sun this could even mean that Regulus had higher priority than the sun.



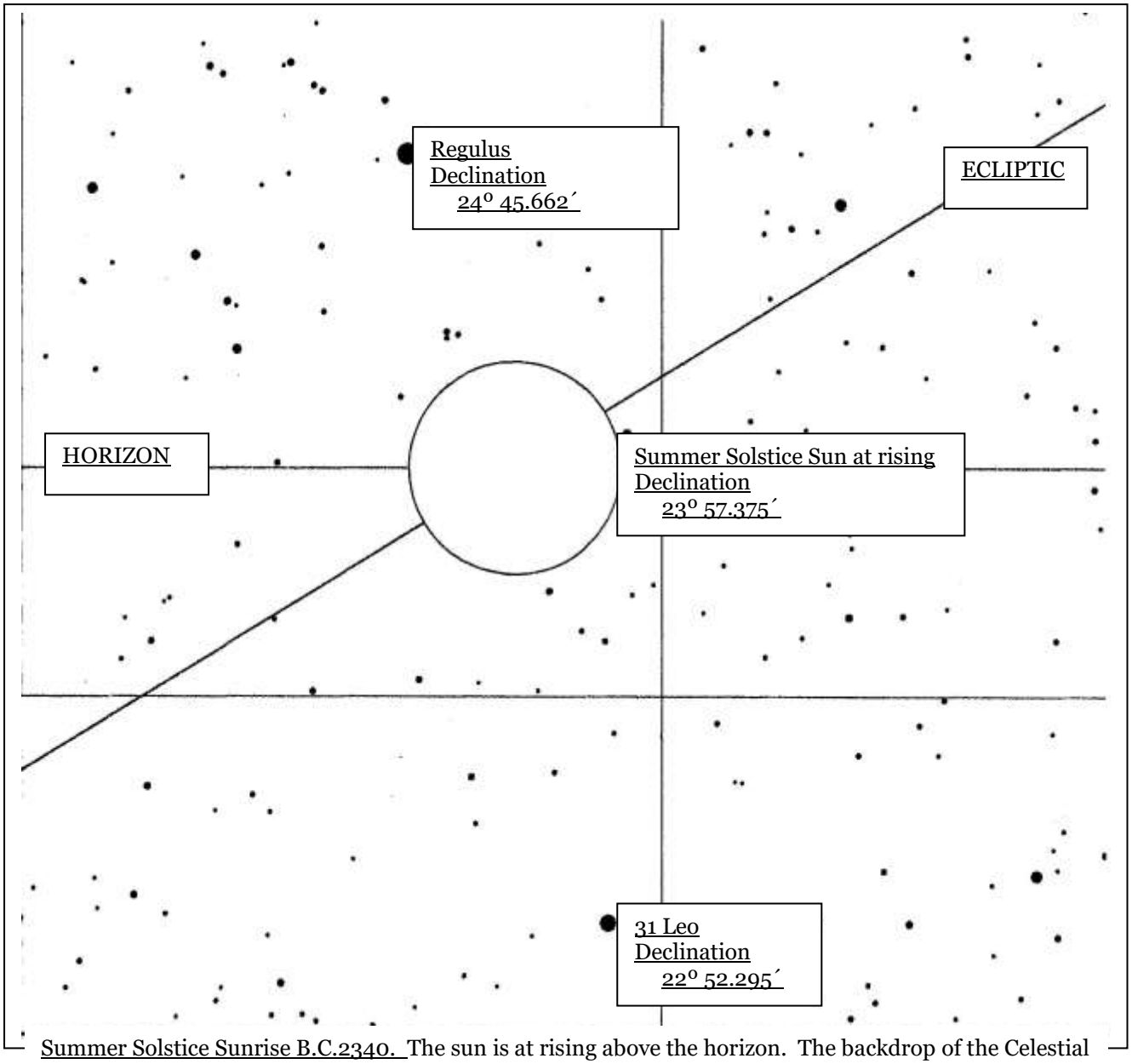
The Effect of Regulus over the Great Tri-lithon - .Regulus altitude was marginally higher than the sun (indicated by second sightline just below Regulus). Regulus would have travelled with the sun at solstice, but been visible above the Tri-lithon archway at night during late winter and early spring. - The function of a Sarsen 'false' horizon!

There was a very close approach, almost a conjunction, approaching between Regulus and the sun. And it would be the rare, 'once only', event of union between star and sun that was both eagerly and fearfully anticipated by early sky watchers. It would be a very important event, probably all over the 'known' world from Asia, to Middle East, to N.W. Europe – possibly sufficient to galvanise the people of some nations into the construction of celebratory monuments of a scale to equal the occasion. In Egypt at this epoch, the Great Pyramid was created c. B.C. 2500 In Britain Stonehenge was created. Both very quickly because there was an astronomical deadline approaching. The deadline was due for the second half of the 23rd century B.C.

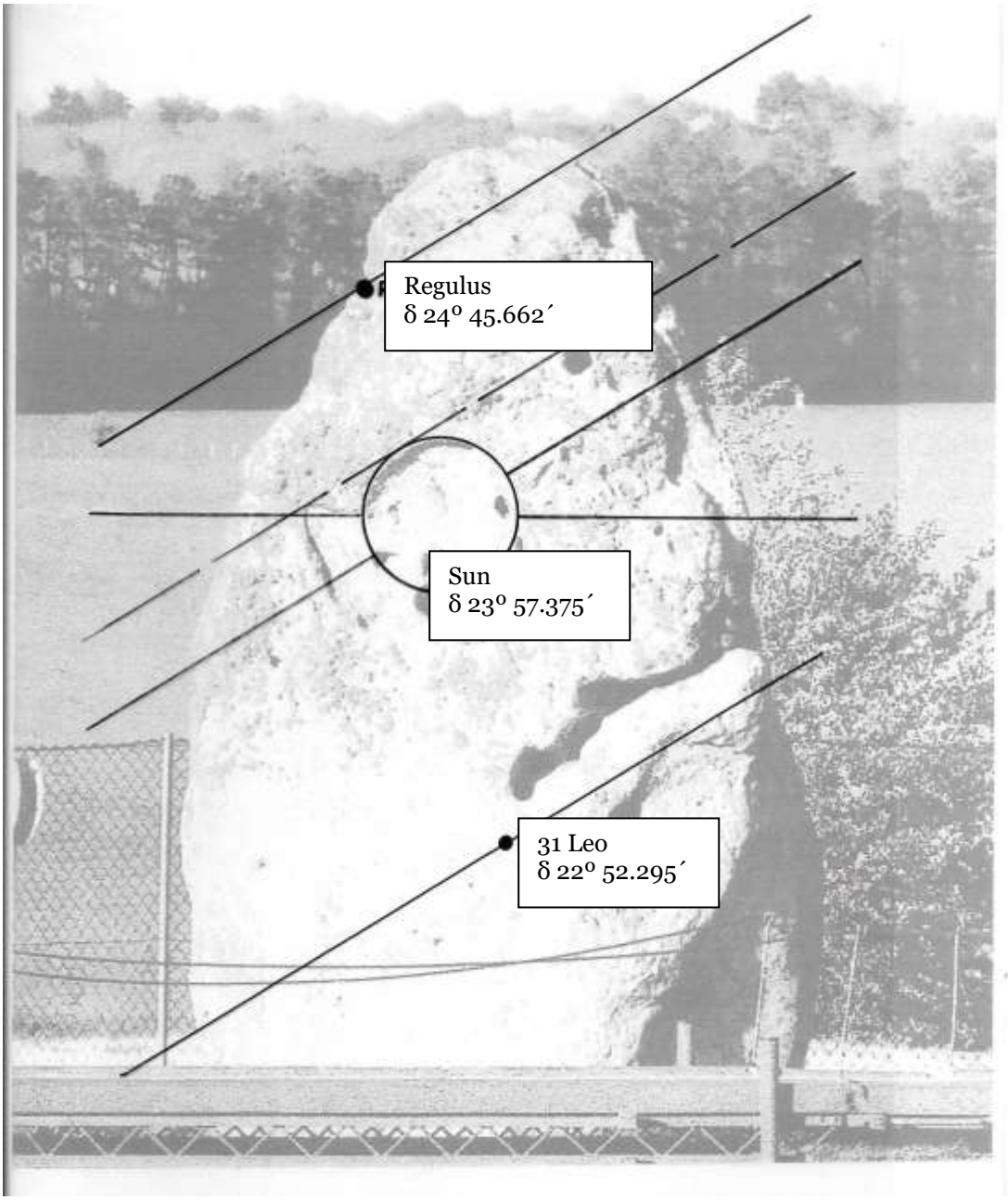


The Heelstone. Its main feayures clearly visible

The same view of the Heelstone but with the colour removed to make way for some new aspects.



Summer Solstice Sunrise B.C.2340. The sun is at rising above the horizon. The backdrop of the Celestial Sphere behind includes Regulus, the most visible star of Leo, and, below the sun, 31 Leo, a much fainter and more distant star than Regulus. These two stars, for the purposes of the current exercise, provide convenient 'markers', with the sun at this date and time, to help quickly locate the area of sky in which we are interested. They 'frame' the area. Obviously none of these stars are visible when close to the sun at this time. But all are far from the sun and visible during the dark nights of late winter and early spring. We have to assume that the Ancients were well aware of the cyclic nature of the sky throughout the year and that stars far from the sun at one point, were very close half a year later. It seems inconceivable to me that they were not so aware. There is such a wealth of evidence from other cultures and civilizations, from their art and monumental structures that the knowledge was common. Otherwise we must assume that our ancestors were blind and stupid compared to our much smarter modern selves.



The Heelstone with the main features of the Solstice Sunrise stellar backdrop, as shown on the previous page, now super-imposed. Star map and Heelstone illustration have been scaled such that one degrre on the Star map is identical to one degree on the Heelstone. The orb of the sun is in the circular part of the 'Heel' mark and it is quite obvious how well it fits.The rising tracks of the Celestial objects are inclined at c. 30° Which is very close to correct. The track of the top of the sun's orb is aligned to the 'point' of the 'Heel' mark to the left of the disc, whilst it rises past the edge of the deep circular pit within the representation of the 'Flaring Sun' previously described. Regulus is within the 'nick' in the lefthand top edge of the Heelstone. It is so well fitted that the representation of Regulus has obscured the nick which can be seen on any of the clear pictures on preceding pages. The position of the horizon in this picture is seen against the backdrop of the grass field across the valley just before the fence of the Cursus. This is where a projection of level from the centre of Stonehenge strikes the grass field and therefore the indicated horizon must be very close to the correct place.

Returning to the Heelstone, if the Heelstone 'picture' of the front face with the representation of the rising sun is overlaid with a diagram of the rising sun at SSSR B.C. 2340, it can be seen that, as the sun is represented as rising and passing 'behind' the Heelstone, Regulus is approaching the top left hand corner of the stone at the point of the sharp 'nick' in the edge.As the sun is pictured fitting very neatly within the circular part of the 'Heelmark', so Regulus is exactly at the 'nick' and about to pass behind the stone. Both Celestial objects have been successfully marked (With this pictorial overlay of sun and Regulus onto the Heelstone the plans of the two subjects have been scaled to a matching angular dimension. This means that the radial width and height of the Heelstone, as measured from the centre of Stonehenge, is calculated and used as the basis for the comparison. Then the azimuth and altitude of sun and Regulus at SSSR B.C. 2340 can be super-imposed. In other words the Sky plan has been adjusted in size such that one degree on the sky plan is the same as one degree on the plan of the Heelstone.)

The beauty and the precision of this 'animated' picture begin to become apparent moments later. Just moments after the first gleam of the sun has appeared and made 'First Flash', Regulus 'peeks' out from just below the top and makes its rebirth – Regulus rises, following closely behind the sun. The rising of Regulus has been emphatically marked. (But there is more 'picture' to follow shortly.) The Stonehenge creators have made their celebratory monument to the meeting of the two Celestial bodies in the moment of the first flash of the summer solstice sunrise – never to be repeated, never to be seen again by human eyes.

The picture on the Heelstone of the rising sun is fixed. We cannot say what is the correct viewing point to actually watch the sun rise, i.e. the altitude behind the Heelstone. Therefore we cannot say that this much or that much of the upper part should be level with, or above the Durrington Down horizon to mark, or possibly observe, the rising sun such that it may have 'stood' atop the tip in its rising. Rhysically it is very difficult to have the Heelstone tip significantly above the top line of Durrington Down such that the picture of the sun in the vertical direction would actually align with the real event. The Heelstone would have to be nearly twice its current height (presently c. 4.9m. / 16ft.). By approaching the Heelstone it is possible to 'raise' the picture closer to the horizon level. By standing at the Stonehenge 'Entrance' with ones eyes about level with the top of the Bluestone Circle stone no. 31(to the right hand of the Entrance), then one can observe the Heelstone with its top just about level with the horizon. But then there would be no Heelstone above the horizon on which to draw the picture of the rising sun as an actual event at its correct altitude.

Therefore the 'picture' drawn on the Heelstone face is exactly that – a picture, and we may apply it to the horizon and therefore that local part of the sky safe in the knowledge that our builder intended us to use it in this way, as a very concise picture and map of the sky at SSSR c. B.C. 2340. We can also deduce that, besides being able to draw this astonishingly accurate picture in enormous blocks of stone and on an epic scale, the mind of the builder behind all of this had an enormous mental ability and an encyclopaedic knowledge of

astronomical principles, data and numerical manipulation in an age that was just emerging from the later Stone Age. So what can we learn now?

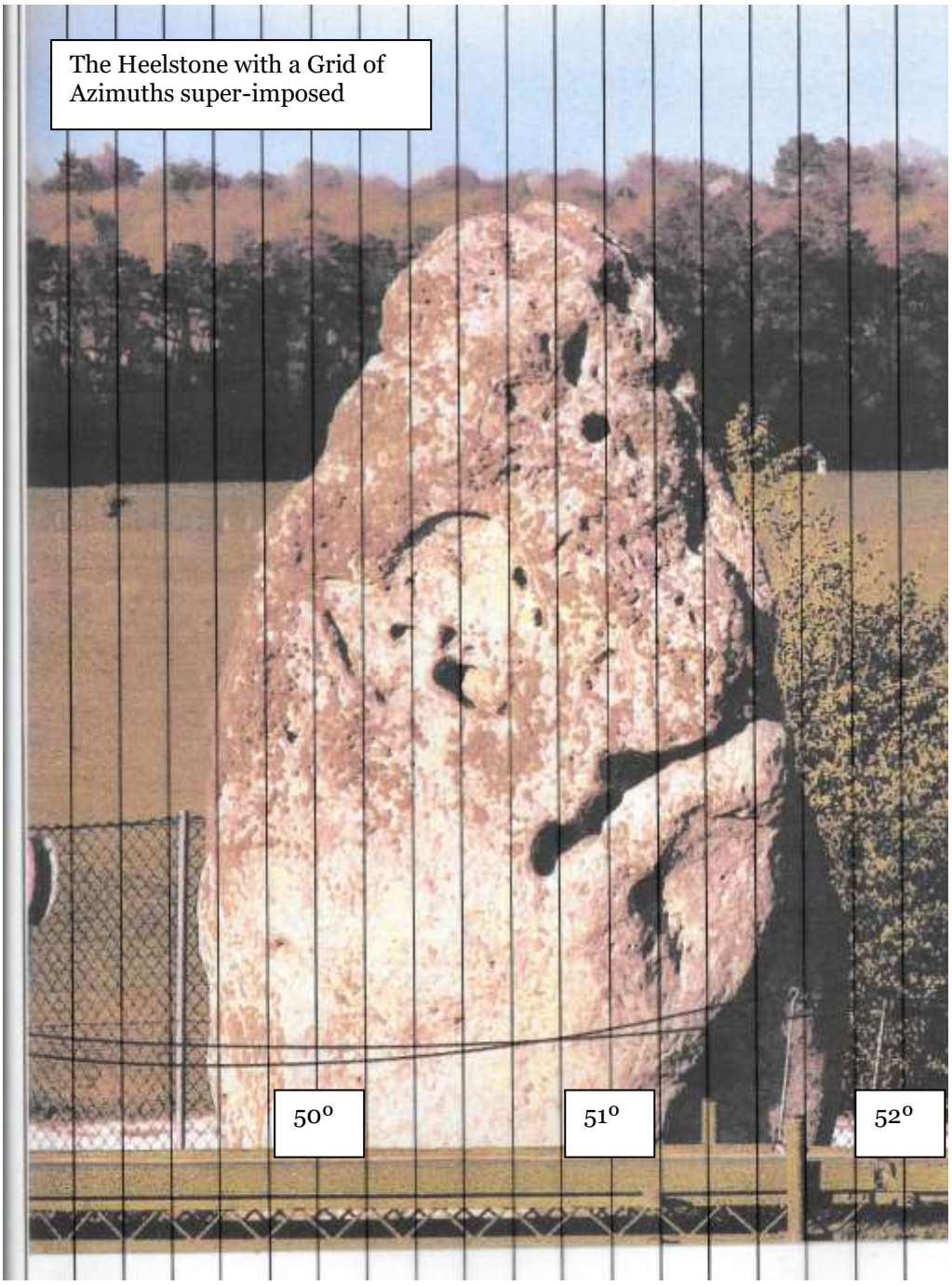
(The problem for us super intelligent humans in our wealth of knowledge millennia later, is that it just should not be. Primitive people were not clever, not intelligent, not given to placing stones of many tonnes on alignments almost precisely to the millimetre., not able to spot stars and sun and degrees. So therefore, as it is not possible, it is not there. Ignore it.)

We have now seen that the sun was very important and Regulus almost equally so – not to be ignored. We have also seen one reason why Stonehenge had to be built quickly because of the astronomical deadline. We also now know a little of the mind-set and motivation of our early ancestors, not to mention the stubborn brute strength they could display and the single mindedness to achieve their objective.

I am confident that this was the event for which Stonehenge was devised, and the date of B.C. 2340 was the deadline for completion, certainly of the main Sarsen structures. The sun was an impartial feature always, and a perfect time-keeper, throughout the year. As far as we have now got, it appears that it was the single star, Regulus, that was the first and obvious focal point of the VISUAL effect of the solstice sunrise. Though the sun would come and go along the horizon from mid-summer to med-winter, and the sun and Regulus would separate and then re-connect from solstice to solstice for a short number of years, Regulus would consistently rise above the Heelstone for several years through bright summer sky and dark winter sky.

Regulus is not a bright star. It is the least bright of the 'first magnitude' stars and it is unlikely to have actually been visible above the Heelstone in our Northern latitude. (Which makes it, initially, even more perplexing as to why there should have been such an apparently obsessive interest in it at all at Stonehenge. Clearly there had to be a very impressive reason for its importance for so many people to commit to such an enormous building project that would see many of the builders grow old and die before it came to fruition. But this, I hope, will become much more understandable as this text now proceeds.) Regulus should have been seen, in good weather conditions, as it rose above the Sarsen Circle lintels. (The altitude from the centre and above the lintels is c. 19º.) This fact gives further justification to the construction of the artificial Sarsen horizon. The azimuth of rising of Regulus above the Circle lintels would have been c. 74º.

The 'picture' on the Heelstone gives us a visual record of the solstice sun rising and, by correct scaling, Regulus can be located crossing behind the top of the stone and emerging just after the instant of first flash of the sun. There is also the rising diagonal 'Slit' lower down the Heelstone face that 'exits' the stone at the 'Mouth' or notch on the right-hand flank about half-way up. This Slit can also be scaled by altitude and azimuth, based on the rising sun orbit, on to the local picture of the sky c. SSSR B.C. 2340. Initially I had thought that the star 31 Leo, as shown on the various diagrams, was to be the target of interest on this area of the Heelstone, but, once the Heelstone and Celestial sky had been scaled together, it became clear that 31 Leo was in the wrong position. 31 Leo



Showing the Grid of Azimuth. Azimuth is the angular measure from North, around the horizon in a clockwise direction. Therefore an azimuth of 50° means that one has turned away from North by 50°which is just past North-East (N.E. is azimuth 45°). This Grid is possibly subject to a slight variance away from that indicated by no more than possibly one or two minutes of arc owing to actual difficulties of measuring on-site. Partly difficult access, partly obstruction such as boundary fencing, thorn bushes etc. The heelstone is also very irregularly shaped and there can be uncertainty about the actual edges. For B.C. 2340, azimuth of sunrise at SSSR was c. 49°38´ which should define the left hand edge. Measured and calculated width of the Heelstone is c. 2°10´. This gives a centre line of c.50°43´ which falls very close to the extreme bottom edge of the Slit. It is postulated that the actual value for the Slit is c. 50°45´ to 50°46´. That is how fine the measurement must be.

was too low by several arc minutes. At the same time it has to be remembered that the 'Mouth' of the Slit is solely and precisely the single notable part of the Heelstone that is visually the target of the long Primary Stellar Axis of Stonehenge that arises a kilometre away to the south west at Round Barrow Amesbury G 15. Therefore the Mouth of the Slit, and obviously by implication, the Slit itself, is very, very important.

Therefore I continue to follow the trail. What is it that is so interesting within, and possibly at the bottom of, the Slit, that fits time, date and place to complete this picture? There are no obvious planets, large stars, or similar. Consultation of the star charts reveals that there is a good sprinkling of distant stars within this area of the sky, although nothing remotely as dense as the Milky Way. Represented on the chart as tiny dots, it is a fact that one dot looks just like another. But I have got co-ordinates. By combining the information from 'proportioning' the position of Celestial objects already placed upon the face of the Heelstone and applying this to the bottom of the Slit, I can derive and apply these co-ordinates:-

Declination in the region of 23° 4´ (Ideally it would be 23° 4.05´)

Local Azimuth circa 50° 43´. (Ideally 50° 43.2´, but in the range 50°43´ to 50°46´)

Measured at, or immediately after, SSSR B.C. 2340. (03hrs - 48 mins – 04 secs.) – at Stonehenge. (To fit the location of the sun on the picture on the face of the Heelstone.)

The reasons for the choice of most of these numbers will become clearer before this narrative is completed.

The declination value of 23° 4.05´ very closely fits the inclined alignment of the unnaturally straight section of the lower edge of the Slit that occurs approximately half way up towards the 'Mouth'. I have long believed that this very straight section was formed by human effort modifying a typically erratic natural feature. The angle of inclination of the slope matches perfectly the rising orbit tracks of the other Celestial objects shown here at c. 30 - 31°.

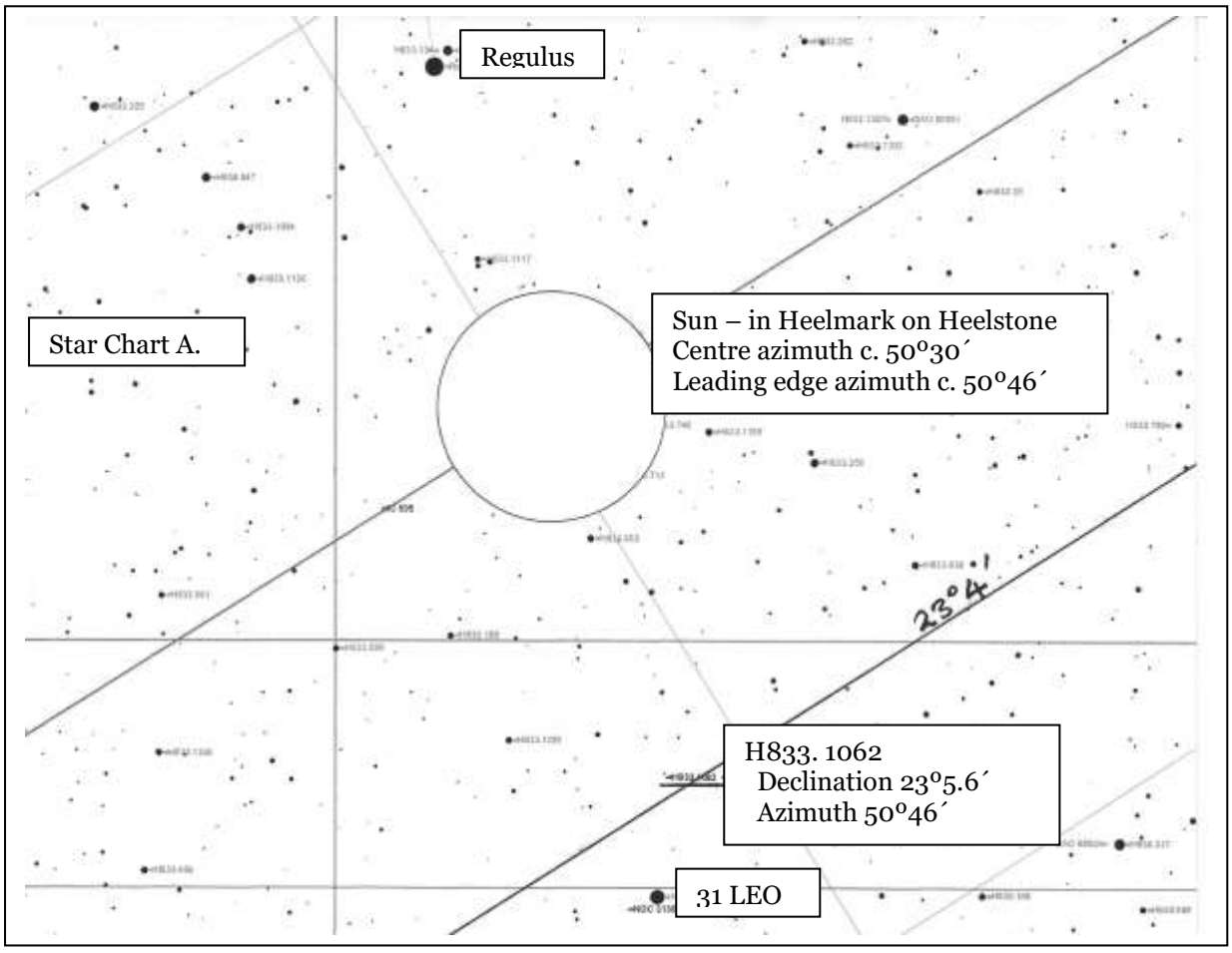
The local azimuth value of 50° 43.2´ that I have quoted is the value for the centre line of the Heelstone based on several of our attempts at measuring the exact width on site. Even this detail has slight uncertainty due to the very irregular shape of the Heelstone and the fact that the shape varies as the viewing position may alter slightly. The possible variance is fairly minor, limited to only one or two arc minutes at most. If this is a correct value for the centre-line of the Heelstone, then the bottom of the Slit is actually measured at c. 50° 45´or 50° 46´. Whichever of these is correct the difference is very, very small.

Date and time for the co-ordinates for any Celestial object / event must be at, or very close to, the moment of sunrise at summer solstice. This is the only information given by the form and design of the whole construction of Stonehenge as I am attempting to make clear. There is only one design, shape, and form, and therefore only one date and time.

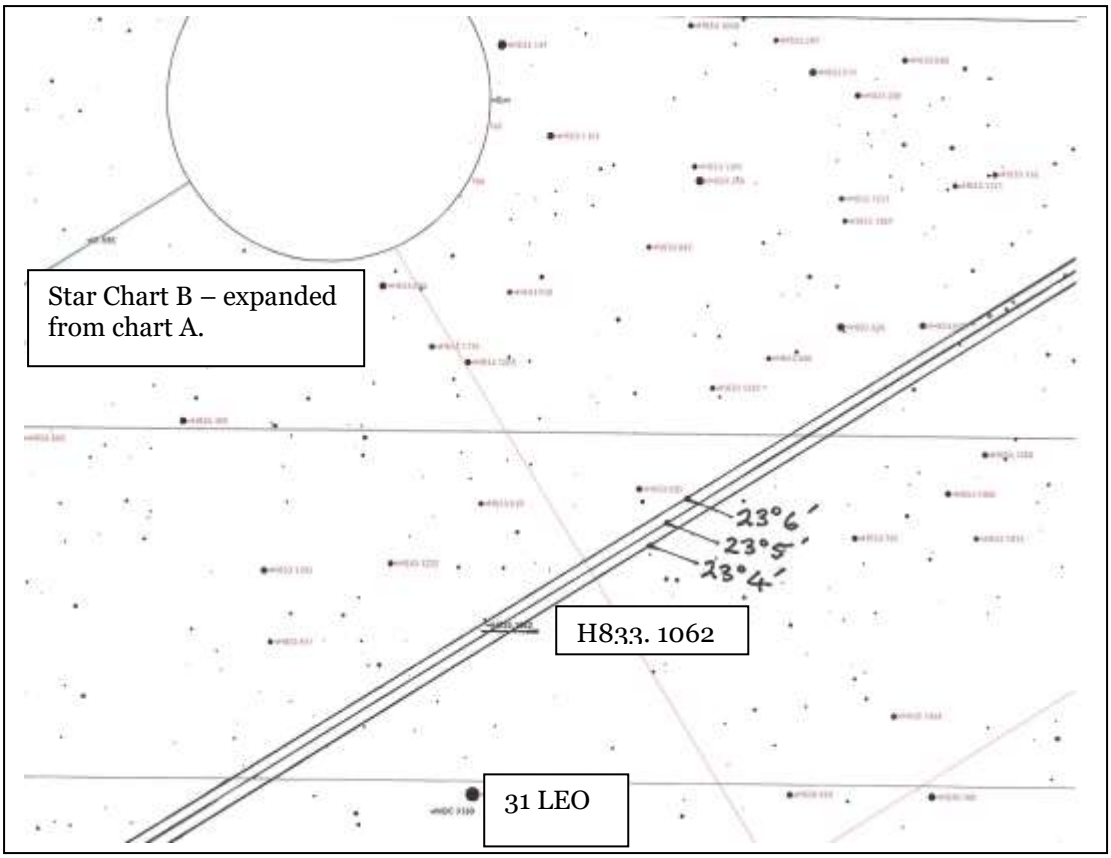
The relative paucity of stars within this part of the sky makes a choice much easier. Tracking declination 23° 4´ or very close, and azimuth 50° 43´ to 50°46´, satisfyingly gives only one choice. The tiny dot designated H833.1062 is a very distant and naked-eye invisible star with appropriate co-ordinates.

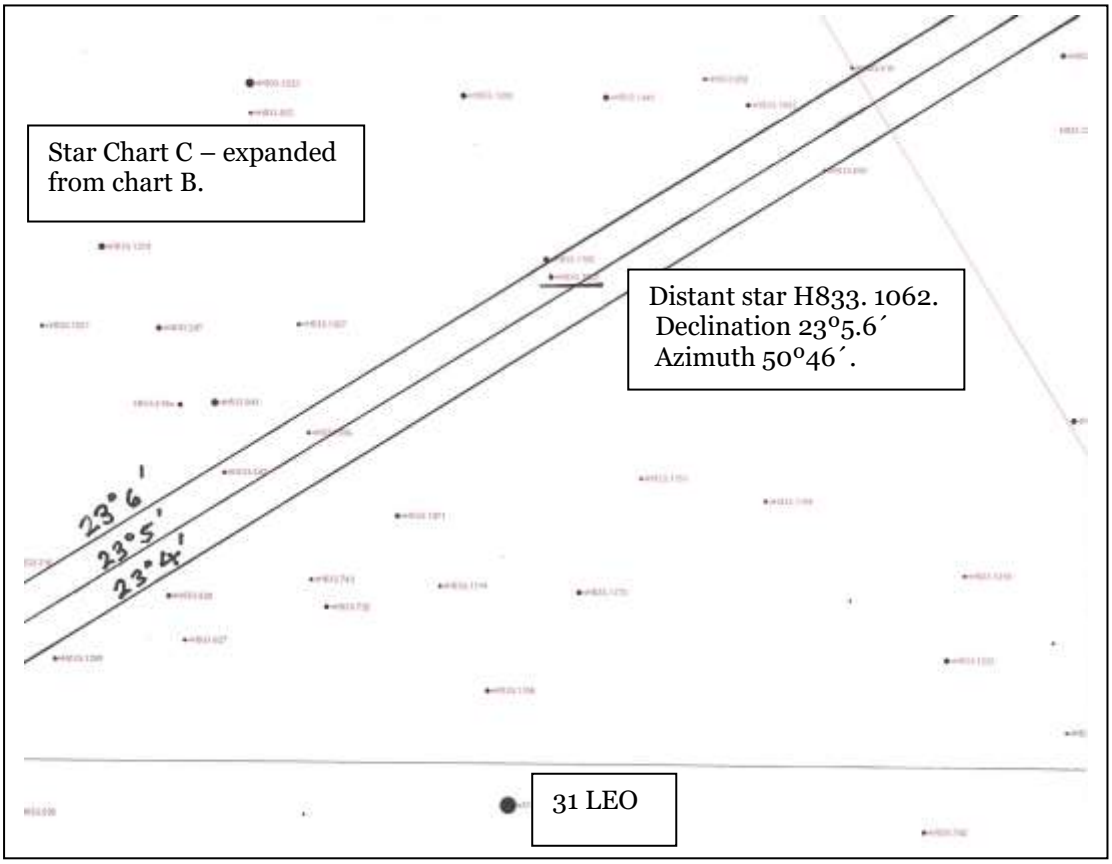
H833. 1062:- Declination: 23° 5´,
Azimuth: 50° 46´.

It is the only candidate. From this point onwards the target of the Heelstone Slit and of Stonehenge is assumed to be:- H833. 1062. It fits easily and comfortably within the bottom of the Heelstone Slit, its 'presence' hidden, dormant, forgotten and 'safe' within the middle of the bulk of the Heelstone for almost four and a half thousand years.

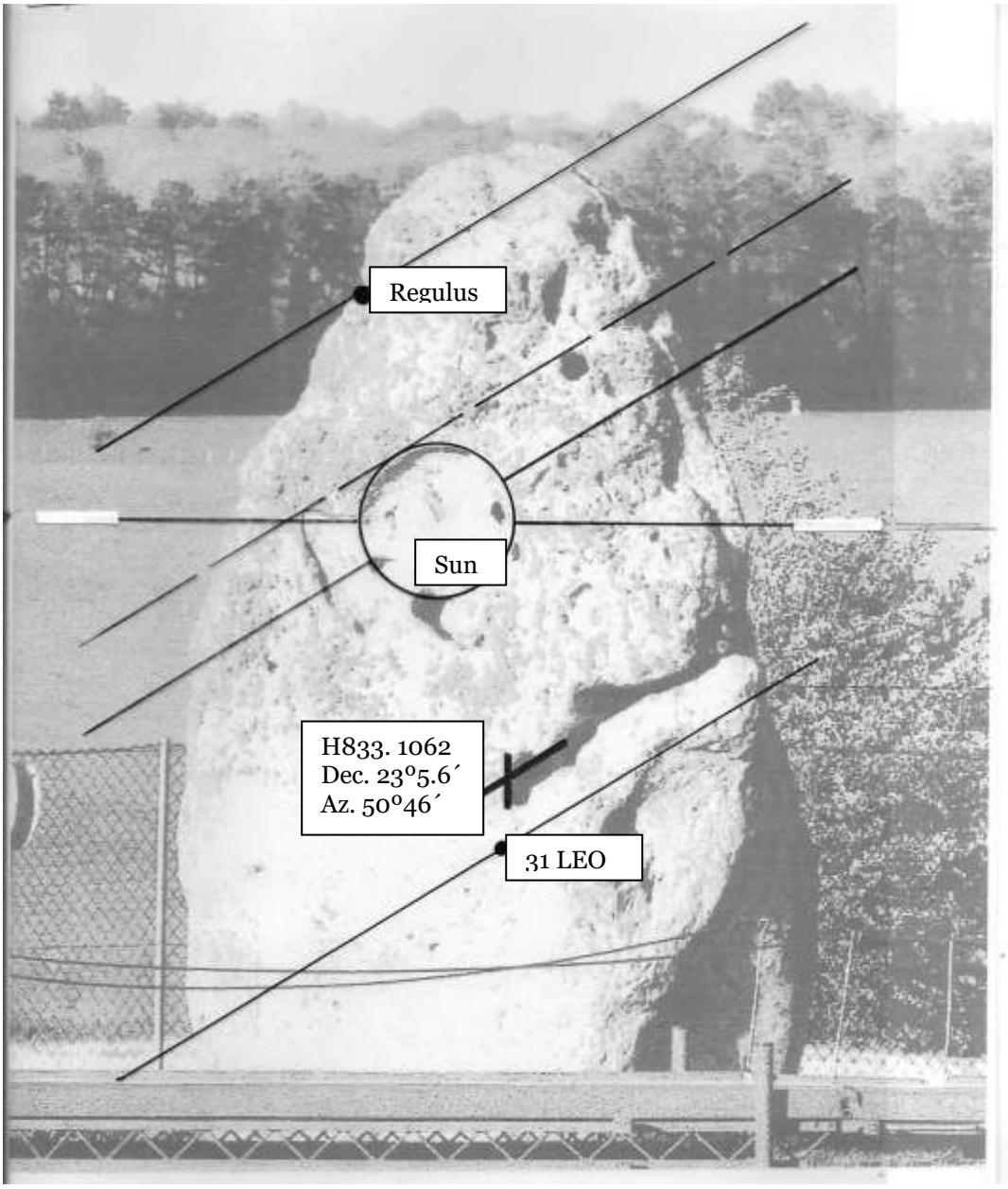


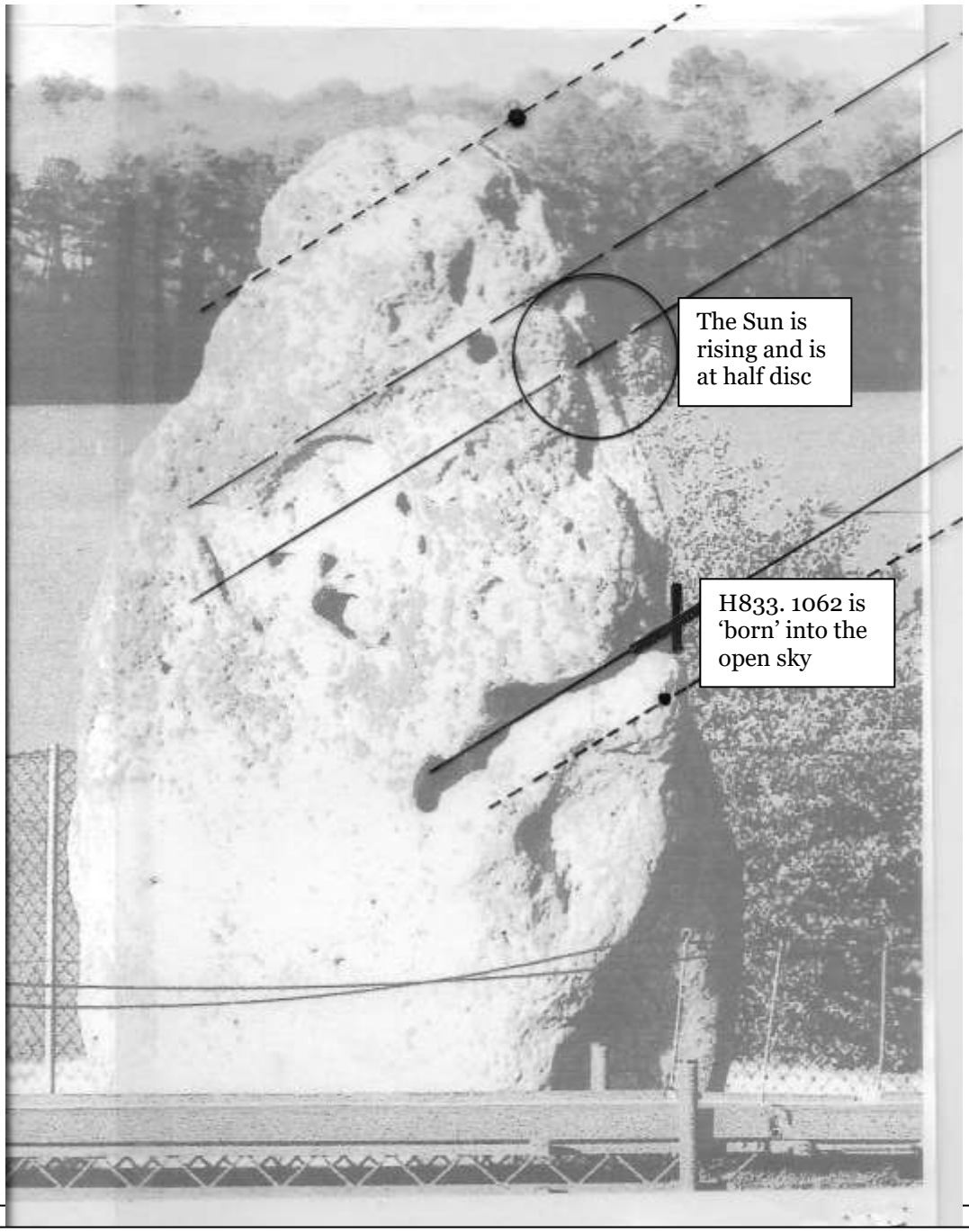
Star Chart A :- B.C 2340. Just after Summer Solstice Sunrise – The sun has ascended to the middle of the Heelstone such that it sits within the 'Heelmark' centred at azimuth c. 50°30´. The leading edge of the sun is at azimuth 50°46´. The ascending track of declination 23°4´ is shown. Indicated on the chart is the one distant star H833. 1062. This is the only star that comes near to the co-ordinates that I have quoted above. Co-ordinates of ..1062 are:- declination 23°5.6´, azimuth 50°46´. The leading edge of the sun is at azimuth 50°46´. The starting edge of the Slit is at azimuth c. 50°46´. My starting target for the co-ordinates was c. azimuth 50°43´ to 50°46´. There is no better fit for both azimuth and declination.


Star Chart B – expanded from chart A.
23°6´
23°5´
23°4´
H833. 1062
31 LEO

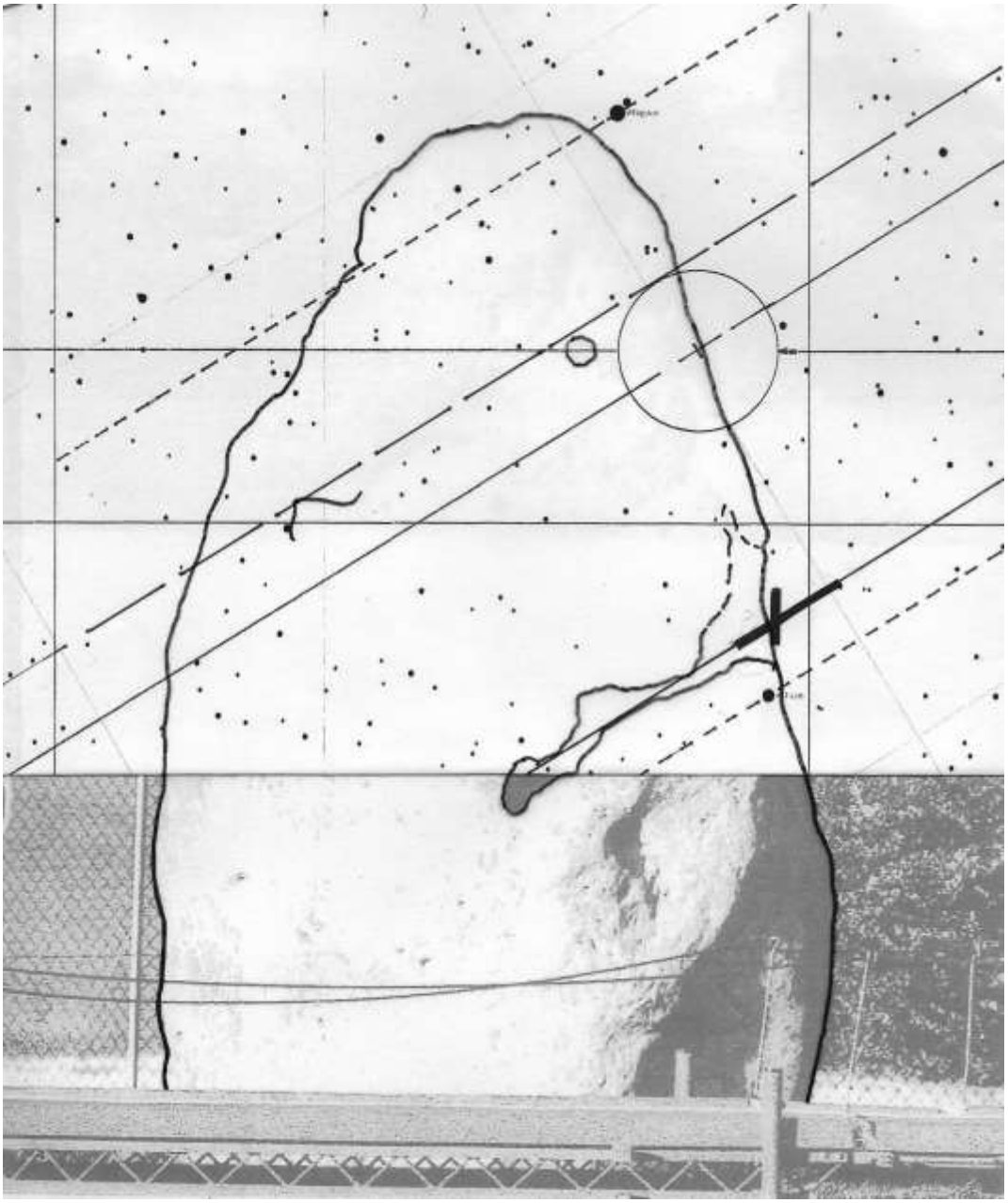

Star Chart C – expanded from chart B.
Distant star H833. 1062.
Declination 23°5.6´
Azimuth 50°46´.
23°6'
23°5'
23°4'
31 LEO

The Heelstone with the Star Chart information transferred across. Summer Solstice Sunrise, B.C. 2340.Time is 4½ minutes after the moment of sunrise when the sun has ascended to be within the circle of the Heelmark – centre at azimuth 50°30´. At this point other Celestial features fit their correct positions on the 'picture'. Regulus is in the notch on the top left hand edge of the stone. H833. 1062 is exactly at the bottom of the Slit and in a position to rise up along the Slit, at declination 23°5.6´, as the sun continues on its ascending track. Sun azimuth of leading edge is 50°46´. Azimuth of ..1062, from the star chart, is 50°46´. Azimuth of bottom edge of Slit is 50°46´.





The Ascending Sun is rising and is almost at half disc. Regulus has risen clear of the top of the Heelstone. And at this moment H833. 1062 rises from the mouth of the Slit, into the bright sky. The Heelstone has 'given birth' to its secret child, and all under the supervision and care of the sun. Rather than the meeting of sun and Regulus, I believe that this was the true event for which Stonehenge was built. (Even worse, I believe that it had been in planning for many centuries before the visible project was started.) The whole of this part of the sky came together in this way for just a very short number of years but only once with the precision shown here, and never to be repeated. Important as Regulus may appear to have been to the ancient world, it was its very remote (and effectively invisible) neighbour that mattered. There is very much of this story that will seem to modern human minds hopelessly unlikely. I can only follow the clues as found, and hope that there are people of vision within the scientific community who have the equipment and the courage to follow this through. The 'picture' is there, the data is there, the physical evidence is there. It is only the 4½ thousand years in between that causes a problem.



The profile of the Heelstone set against the Cosmic sky. The coming together of the special little group of Regulus, Sun, and H833. 1062 in a once and only and never to be repeated configuration that was and is the whole reason for the creation of Stonehenge.

On the star chart, H833. 1062 occupies a position such that its azimuth is level with the leading edge of the Solstice sun. As the sun rose diagonally behind the Heelstone at summer solstice, this star rose on a rising track that maintained its position relative to the sun. The rising track of ..1062 effectively ascended within the track of the Heelstone slit. As the rising sun passed the edge of the Heelstone and its orb grew in size towards halfway, ..1062 was within the 'Mouth' of the Slit. Moments later ..1062 was 'born' into the open sky. The star passed from the realm of darkness within the Heelstone, into the open expanse of the sky. This was the rebirth of ..1062 heralded by the rising sun. Is it possible that the belief and lore of the people of that time was based upon the concept of the sun itself giving birth to ..1062. Or was the sun only a marker. This event was the 'rebirth' of this special object upon which is focussed, via the long Stellar Axis, the whole structure of Stonehenge. This is the picture that is drawn on the face of the Heelstone. The entry of H833. 1062 into the world and the new day had been declared by the arrival of the sun.

Stand before the Heelstone such that the sun rises above the horizon at the left hand edge and wait for it to emerge higher on the right hand, north-east edge. The mouth of the slit will actually now also be level with the distant horizon. And as the sun has just emerged from behind the Heelstone and just before it reaches half-disc, then ..1062 will emerge from the mouth and begin its ascent into the sky at the same moment. Never seen but always paired with Regulus and the final gift to our present day human family from Stonehenge, our forefathers the builders, and the designer.

One other detail occurs before I move on. The selection of the stone that was used for the Heelstone must have been made before B.C.3000. Archaeology seems fairly confident that the Sarsen Heelstone was brought to Stonehenge and erected, in its present position, as part of Stonehenge 1 – construction currently dated to before B.C. 3000. If this is true then the natural features of the Heelstone, and particularly the 'slit', must have been sought, identified for the final purpose at Stonehenge 3, and the stone transported and erected no later than this date. This is at least 500 years before the start of the construction of Sarsen Stonehenge3, circa B.C. 2500. The alternative is that the Heelstone just happened to be in the right place at the right time and be the right shape and have the right natural features, and was the only choice that the builders of Stonehenge 1 had when they needed a big stone. (The slit is quite big and it will already have been argued, elsewhere, that this slit <u>is</u> a natural feature rather than man-made when I described its inclination of 31° as matching the track of the rising solstice sun previously.)

If the Heelstone <u>was</u> identified before B.C. 3000 and selected for the purpose of drawing the picture that I have shown, then how was it that its final position, purpose and the picture of the solstice events of c. B.C. 2340 that it would eventually portray were known so far in advance. This is a real and serious question and somehow modern science will need to find an answer. It cannot just shake its head and walk away. Somehow there is a very big existence out there that modern science cannot even discern. Whatever else we cannot see, we <u>can</u> see that the events of an ancient pre-historic sky were

predicted and began to be acted upon more than half a millennium before they were due – the future had been predicted.

How did I come this far? Referring back to the early pages of this text, the main focus of Stonehenge that I identified, is the very long main stellar axis from Barrow Amesbury G15, precisely through the main Sarsen structures of Stonehenge and out to graze the just-visible N.E. flank of the Heelstone halfway up at the 'Mouth' that exits the 'Slit'. The features on this side of the Heelstone are the only points of unusual / distinctive interest along this very long alignment. Everything else about the Sarsens is very polished and well finished. The Heelstone features are very prominent, even from a distance. And the edges of the Sarsens employed to form the alignment taper upwards and away from each other, as the alignment is viewed, to form a 'V' shape. They are the pre-historic 'gunsight'.

Then I identified the 'picture', drawn on the face of the Heelstone, of the ancient prehistoric summer solstice sunrise that gave confirmation of what tradition had been telling people for centuries, that summer solstice was the main focus of interest at Stonehenge. Further confirmation of the significance of the summer sunrise was given by the solitary point of mid-summer sun crossing the Back Axis exactly within the footprint of the archway of the Great Tri-lithon on the grid of Altitude Circles. There were no other celestial objects from other directions featured on this plan. No confusion, the plan and the monument had been created to celebrate one and only one event – mid summer solstice.

But it was tempting to dig deeper into this 'main event'. And buried within was another star – Regulus. Pursuing this line gave a very good date for 'completion deadline' for the build c. B.C. 2340. And also gave very good reasons why the builders had had to move fast to complete before the deadline. The link into Regulus also gave a link into the kind of mythology and belief systems that were prevalent in the ancient world elsewhere at the time of Stonehenge. The story became even more 'likely', even more as one would expect on the basis of the recorded history available from other parts of the world.

But yet there was one more layer. There had to be something coming forth from that curious slanting slit on the face of the Heelstone. Something rising up from the darkness of the underworld and bursting forth into the brilliant light of high summer. Something being 'born again'. The picture and the timing were exquisite. Incredible. Spectacular. Spooky? It was never a case of 'nearly but not quite'. No need to apologise because it 'almost works if you give a bit here and take a bit there.. Absolute spot-on precision –timing and placing of stone monument on an epic scale and stone 'picture' on a 'micro' scale. And the answer so far is an almost invisible distant star – H833. 1062. But that is nearly as far as I can get now. Sadly I do not have the equipment to finish the job, but I believe that it already exists in several places on this planet

if the operators can be persuaded to point their kit in the correct direction. I await impatiently.

(Once upon a time a very old man told me that there was nothing remotely so accurate, so precise, within this land. I never knew just how accurate, how precise until now.)

AND NOW FOR SOMETHING COMPLETELY DIFFERENT

- But it works. Coincidence or intended? Random chance or just wrong era?

The form of the four separate stone arrangements is of some interest. The two Sarsen formations are each of the form of upright pillars and horizontal lintels (but of two different patterns). The two Bluestone formations are only of upright pillars. There are no horizontals. That combination of upright and horizontal presents an interesting possibility incorporating a pair of formats, i.e. BINARY FORMAT. In our modern times binary formats are the stuff of digital technology. The binary format and method to represent numbers, letters, symbols of information, is also the simplest and probably the most universal (in the sense of 'throughout the universe') means of manipulating, storing, representing idea and information. There is presently no more obvious way to conceive a simpler format to represent and manipulate knowledge and information than a by long series of codes comprised of yes/no, or one/zero., or positive / negative.

The individual components of a particular code are also very easily represented, manipulated, and stored with electrical devices purely as electrical positive/negative form. This has led, in the late twentieth century, to the spectacular 'digital' revolution in all aspects of human life that has now changed our lives and potentially moved human civilization forward from 'childhood' to 'adolescent teenager'. Civilization now has a previously unimaginable potential of possibilities before it, once individual sections such as national, business, religious, or wealthy have learnt that they cannot be in control and take all of the advantages before others.

For digital processes numbers or letters are represented in binary code by a row of symbols, conventionally either 1 or 0, alternatively 1 or --. It is a very obvious process to apply this principle to a row formed of any material if there only two options. Therefore:-

(a) a row of uprights becomes; I I I I I I..... for as long as necessary.
(b) a row of uprights and horizontals becomes; I ¯ I ¯ I ¯ I ¯ I ¯ ..... for as long as necessary. Alternatively shown as: I – I – I – I – I - ..... (and representing I o I o I o I o I o I o .....)

It is that easy!

The outer Sarsen Circle consisted of thirty uprights with thirty horizontal lintels. In fully constructed form this becomes:
1010101010101010101010101010101010101010101010101010101010101010
which is a combined total of 60 Sarsen stones!
Modern digital computers make it an almost instant action to convert this binary expression to the same value but expressed in our usual, conventional decimal format.
The result is: 7686 1433 6404 5646 50

The identical process can be applied to the second stone formation, the Bluestone Circle. The problem here is that this circle has been very badly damaged over time and many stones have vanished. This circle was solely of upright pillars ('Welsh' stones). A certain amount has been excavated and recorded in other ways in modern times, by archaeologists. Archaeologist R. J. Atkinson, who excavated at Stonehenge extensively during the 1950's and 1960's, attempted to answer the question of how many uprights this circle contained. He formed the view that it had contained about sixty uprights when complete, give or take one either side. In other words it contained 59, 60, or 61 uprights. It is the work of moments to convert these three from binary form to modern decimal form. This gives results thus:-

59 uprights is I I I I I ..... to 59 ----- 57646 07523 13423 487

60 uprights is I I I I I .....to 60 ----- 11529 21504 60684 6975

61 uprights is I I I I I ..... to 61 ----- 23058 43009 21369 3951

I now have numerical values for two stone circles in decimal format. As we all, within our education system, are taught from an early age to manipulate numbers within the decimal system it is now far easier to work with and recognise any purpose in these number expressions.

In the beginning, there were just these raw groups of numbers and a few scraps of 'context' with which to start out on the search to find any meaningful function within them. It was before the era of modern electronic calculation devices, digital computers. 'smart' phones, satellite navigation, in another era when the limited amount of computing power in the world was to be found within 'mainframe machines' filling whole rooms and consuming enormous quantities of power. As the tide of the digital revolution washed over the world throughout the later part of the twentieth century, I have seen my own search for significance within the binary expressions derived from the stone formations of Stonehenge become steadily more advanced in parallel with the easier access to computing technology and more easily available software programmes covering ever possible facet of life on Earth. (My very first items of astronomy software had to be obtained from the United States. There was nothing of any consequence easily found in the United Kingdom.)
Consequently my search for anything useful within these numbers has covered

a most enormous range of possible subject under a very wide range of headings and in all kinds of diverse permutations. The only significant limitation to this search has been that it has generally had a theme within astronomy, for the primary reason that this is the dominant context of the physical presence of Stonehenge, and also the context of tradition.

During the same period there has been an enormous advance in the science of archaeology, in the skill, perception and 'craft' of archaeologists on the ground, and in the development of the scientific techniques that now back them up. The results that they have achieved in my own area of interest have been an enormous help and every credit should be given to them for achieving so much resulting knowledge with such scanty material. Clearly the greatest asset now from archaeology has been the creation of a much firmer and more certain dating scheme for Stonehenge. Like ever other aspect of the matter of Stonehenge, it has taken so long, involved so much pure hard work and stubborn persistence, and needed a lot of very careful and intelligent interpretation. But then so did the creation and the build! Did anybody ever think that it would be quick and easy?

Suddenly ever aspect and every requirement for interpretation seems to have come together very quickly and all at once: - Knowledge – tools – attitude(?).

To go, now, directly to the point, and side-step the many years of number crunching, 'hunch' following, and frustration, the decimal values can be applied to the context, epoch, and physical design of Stonehenge as follows:-

(a). The Sarsen Circle value:- 76861 represents an angular value
76.861° = 76° 51.7′
(b). The Bluestone Circle value for a 61 stone circle:- 23058, by the identical process, represents 230.58° = 230° 34.8′.

Two separate circles in two varying forms have yielded the two angular values:

Sarsen Circle 76° 52′
Bluestone Circle 230° 35′

[It can be remembered from the earlier discussion concerning the ALTITUDE CIRCLE GRID of the ground plan of Stonehenge, that the altitude range of the ALTAR STONE, as defined by its position on the Circle Grid can be measured and calculated as :-
Outer edge (Closest to Great Tri-lithon) - 76°11′
Inner edge (closest to centre) - 79°47′
(NEED TO THESE CHECK NUMBERS ELSEWHERE.)
This altitude range values are at the point where the Altar Stone straddles the Stonehenge BACK AXIS at about azimuth 230½°. The Back Axis is the REVERSE direction of the main Stonehenge Axis across the Heelstone. Therefore the two values for the Back Axis are the two Main Axis values + 180°. This yields:- 49° 38′ + 180° = 229° 38′
And:- 51° 48′ + 180° = 231° 48′.

With a mean value for the Back Axis Azimuth of:- 230° 43′

Therefore the pair of measured and calculated co-ordinates for the Altar Stone obtained via the altitude grid process are:-

Altitude 76° 11´ and 79°47´/ Azimuth 230° 43´

There are two measured and calculated altitude values for the Altar Stone due to its width. At first glance this may cause confusion and indecision. But a moment's consideration will remind us that in all other cases so far where alignments of stones are used, it is the case that the EDGE of the stone is the important part for the particular sightline. Therefore we should rightly assume that this rule must apply to the Altar Stone. And we are perfectly entitled to select the edge that almost exactly fits our context, rather than the one that is several degrees away and does not obviously fit, but is there solely because a large stone has width and has to have a second edge somewhere. So we can allocate the two measured and calculated values for the Altar Stone as:-

Altitude 76°11´ / Azimuth 230°43´

And the two values from the Binary expressions as: -

Altitude 76°52´ / Azimuth 230°35´

Difference between the two routes: - Altitude 0° 41´ / Azimuth 0° 08´

The measured altitude value is liable to slight possible error due to the fact that the important part of the Altar Stone for this part of the argument is securely buried beneath the top section of the fallen Great Tri-lithon upright no. 55. There is also a potential lack of exact definition of the edges of the Altar Stone as it lays buried to ground level and surrounded by turf.

As I described earlier, the position of the Altar stone on the ground plan corresponds with the position of the Milky Way as it straddled the Back Axis at SSSR, B.C. 2340. This is the region of the Milky Way, within the constellation Cassiopaea that was exactly encompassed by the length and breadth of the Altar Stone.

Earlier in the text I stated that I believed that the outer Sarsen Circle was intended to depict the total, star-rich prospect of the Cosmos (the 'Heavens'), from the local horizon upwards, that was visible to the people of that era. The Sarsen Circle numerically, as I have here interpreted it, has now yielded an altitude value of circa 76° 52´, and a measured value from the 'pictorial' altitude grid, of 76° 11´ through to 79°47´. These values encompassed one of the star-richest parts of that Cosmos, the Milky Way, as it straddled across the Back Axis of Stonehenge at Summer Solstice, during the era of the time of the building and inauguration. The Milky Way is not a specific point within the Cosmos that has a specific position that can be described precisely, but somehow Stonehenge has managed to 'fix' its 'picture' as it would have been at the moment of SSSR B.C.2340. Needless to say, owing to Precession of the Equinoxes, the Milky Way was only in this position for a short period of years around SSSR, B.C. 2340. It has now moved far away at this season of the year and will probably never align again in this way.

The Bluestone Circle, with its material of Welsh, visually 'star-spattered', stone has become the second strand of the pair of coordinates defining the position of the Altar Stone, and also the star-filled heart of the Milky Way. To do this it has yielded the numerical value of 230° 35´ that is very close to my Back Axis value of 230° 43´. But only applicable to the Milky Way for the few years either side of the prehistoric summer solstice

The interpretation, so far, of the two circles has now 'drawn' a picture of a star-filled Cosmos at a very specific time and date in prehistory. And that date is now tied in very closely to recent dating estimates from archaeology. So far this picture is a broad backcloth to the specific interest that is the main purpose of the construction of Stonehenge that is the subject of the developing text.

The Sarsen Tri-lithon horseshoe has, by tradition, always been associated with the sun. At mid-summer sunrise the Horseshoe faces towards the rising sun as it breaks the horizon. At this time crowds of people gather, as they have done for many years, to celebrate the solar maximum. At mid-winter the horseshoe has its back towards the sun setting in the opposite direction, and appears to pointedly face away from the dying sun. I have shown, earlier, that the orbit track of the mid summer sun, as it passes above the central Great Tri-lithon, places the sun directly above the central Archway. The dimensions of the ground plan, as a map of altitude, put the 'footprint' of this mid summer sun on the narrow strip of soil exactly within the central archway as it crosses the Back axis at azimuth 230° 43´. Therefore we can conclude that the relationship of the Tri-lithon Horseshoe is primarily with the mid summer solstice sun. The summer solstice is the day of the year when the sun is at its highest orbit track in the sky, and when the point of sunrise is at its most northerly along the horizon. (And also the sunrise is at its earliest time of day.)
The form of construction of the Horseshoe is of Sarsen uprights carrying Sarsen lintels on top. There is an obvious difference to the form of the Sarsen Circle. This time the uprights are in pairs, each pair with a horizontal lintel. The result is that there are now separate groups, each formed of two uprights and the lintel, resulting in the formation of a Horseshoe of five individual and separate archways. The form of the completed Horseshoe is:-

I ¯ I I ¯ I I ¯ I I ¯ I I ¯ I

As a digital code it would be written:-

I o I I o I I o I I o I I o I

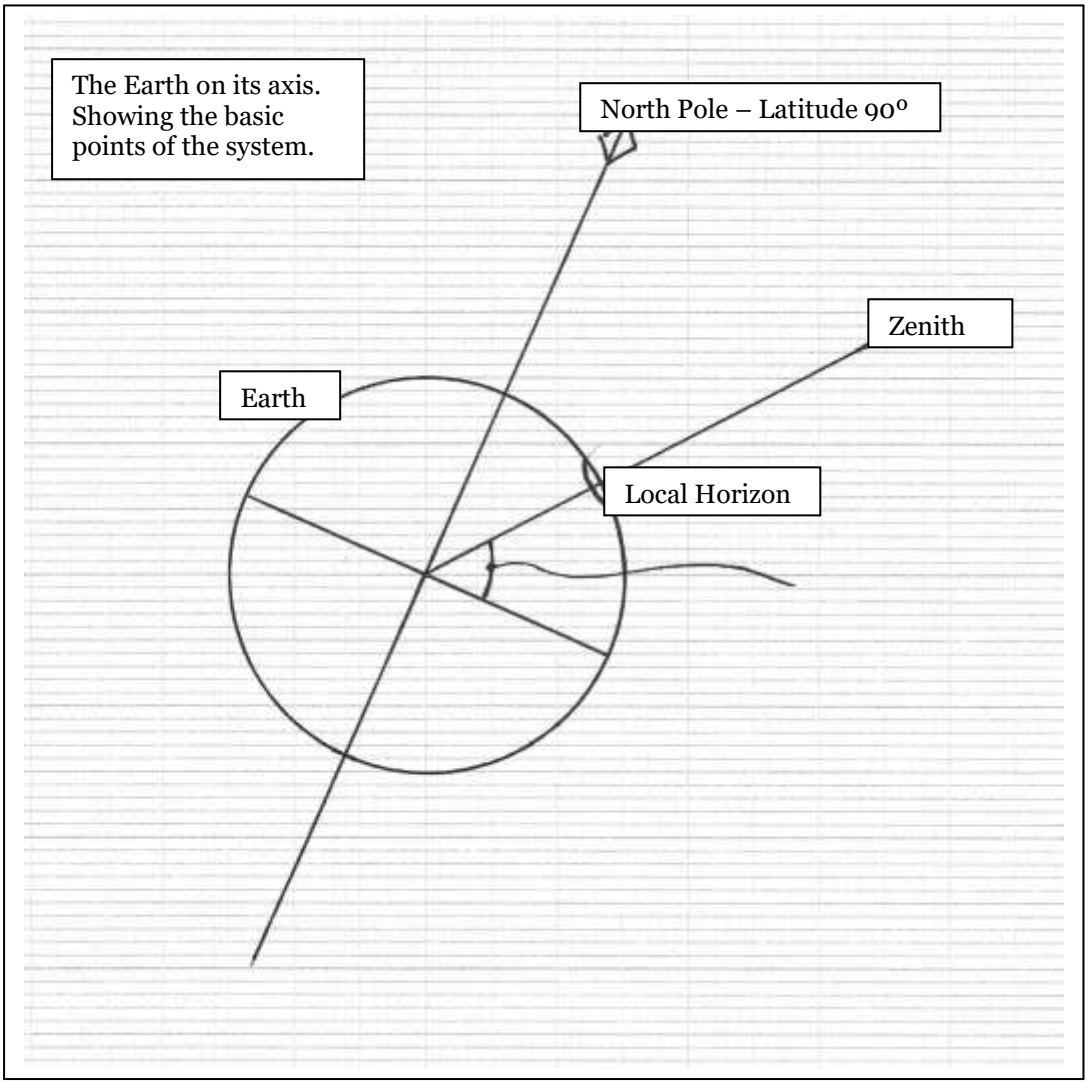
When converted to decimal form it becomes:-

2 3 4 0 5

and as discussed above, the context of the Sarsen Tri-lithon Horseshoe is almost certainly the summer solstice sun.

It becomes necessary, at this point, to break of for a brief description of some basic astronomical facts describing how the Earth / sun system fits together within the Cosmos.

Essential Astronomy - Things You Need To Know.



The basic fixed reference points that we need to know, understand, and keep in mind, are shown here. The polar axis, about which the Earth rotates once per day, is the North – South Axis. Perpendicular to this is the Equator that encircles the middle of the Earth, halfway between North and South Poles. These are the fixed points from which all measurements of position upon the surface of the Earth are made. They are also 'projected' into space and on to the inner surface of the Celestial Sphere to give an identical system upon the Celestial Sphere of identifying the position of Cosmic, stellar and all extra-terrestial objects. The local horizon and Zenith are obviously dependent upon the observer's location, which is dependent upon his latitude. The Zenith is the point that is directly, vertically overhead, with an Altitude of 90°. The local horizon has an Altitude of 0°.

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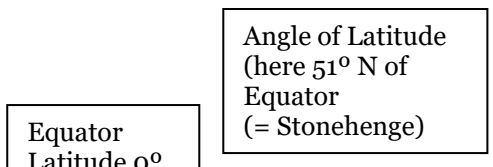
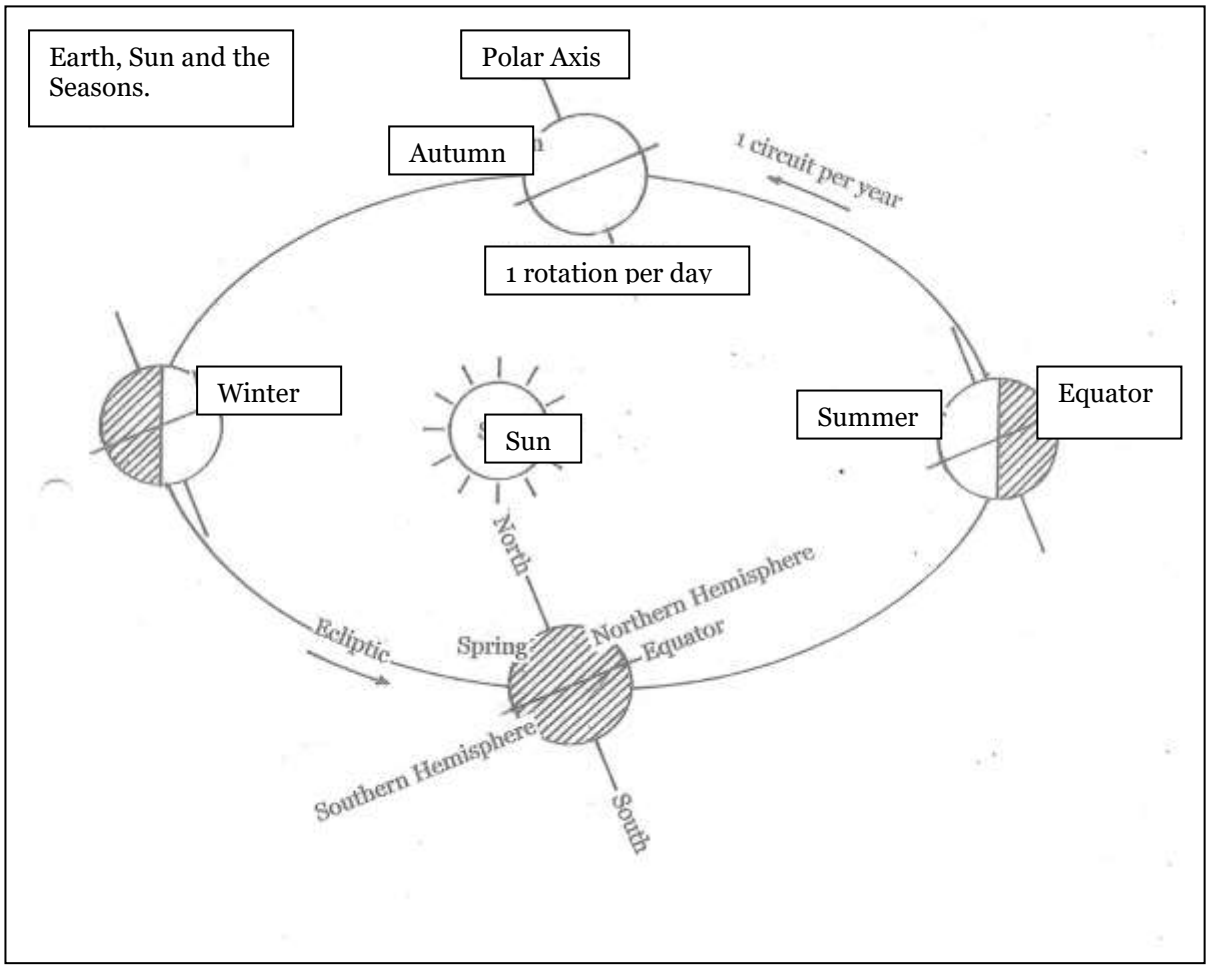
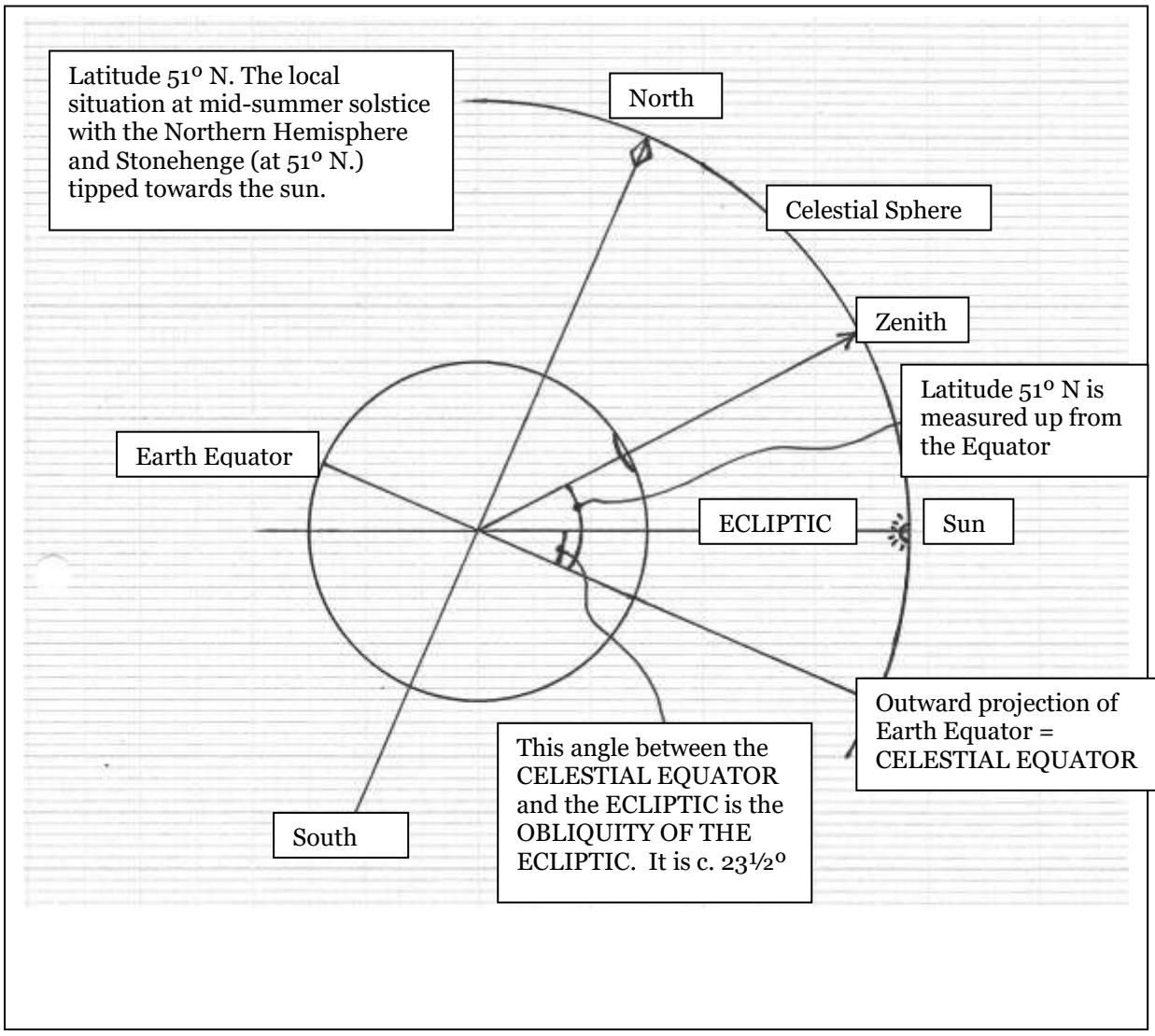


Southern Hemisphere

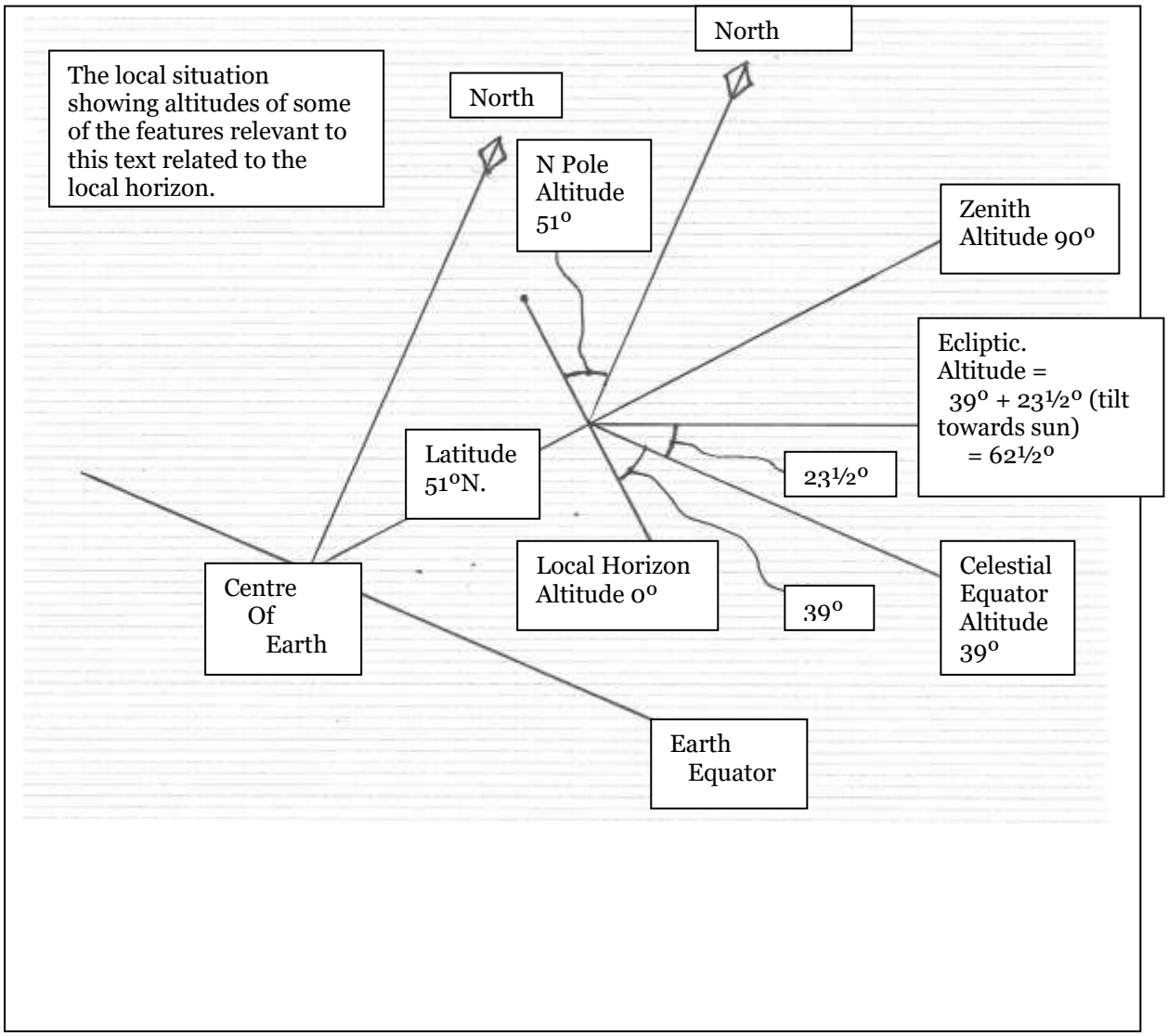
South



The four seasons are the result of the Earth being tilted on its Polar Axis with respect to the route of the circuit that it makes about the sun over the course of a year. At one point on the annual circuit the Northern Hemisphere is tilted away from the sun, and the Southern Hemisphere is tilted towards. This results in winter in the Northern Hemisphere and summer in the Southern Hemisphere. Half a year later the situation is reversed and so are the seasons. Spring and autumn are at intermediate points when the tilt is parallel to the sun. The seasons are hardly different when at, or close to, the Equator, but differences become more extreme as one moves away from the Equator towards North or South Poles. The tilt of the Earth Axis away from the vertical is, in the short term, fairly constant, but is gradually changing with the passage of longer periods. This will be seen to be <u>a very important detail</u> over the next few pages. The route of the annual circuit of the Earth about the Sun is called the 'ECLIPTIC'. This is also a very important term and must be remembered.



In this diagram the North end of the Polar Axis (and therefore the Northern Hemisphere) is tipped towards the sun as at mid-summer. The sun reaches its highest point in the sky by day, the length of day is greatest, and temperatures should be very high. Additional fixed points that must now be remembered are the CELESTIAL EQUATOR that is the outward projection of the Earth Equator on to the Celestial Sphere. Also to be remembered is the 'ECLIPTIC' which is the annual orbit track of the sun. At mid-summer this is higher than the Earth Equator (and Celestial) Equator by an amount equal to the tilt of the Polar Axis of the Earth (that is c. 23½°). This angle of difference between Equator and Ecliptic is called the OBLIQUITY OF THE ECLIPTIC. (A rather imposing word for a simple concept that actually means that the two –Equator and Ecliptic – are not parallel. They diverge.) OBLIQUITY OF THE ECLIPTIC is at the very heart of the unravelling of Stonehenge as will be seen. Therefore it must also be remembered and understood.



We are solely concerned with the local situation and aspects of the sky locally visible at Stonehenge. (Although we still need to understand the basics of the bigger picture and why things are as they are - hence the preceding diagrams. We need to understand how the local picture fits within the bigger picture.)

Some Further Definition

(a). The Celestial Sphere
Is the grand sphere of the Cosmos, visible outwardly from the surface of the Earth, upon which all Celestial events and objects appear to occur. As we stand upon the surface of the Earth we are looking at the INSIDE of the Celestial Sphere, as if at the inside of a great globe.

(b). Latitude, Longitude and Declination.
To locate and define the position of any specific Cosmic object or event, the Celestial Sphere is calibrated into a GRID of HORIZONTAL and VERTICAL lines and squares that correspond to the projection outwards of our Earth system of LATITUDE and LONGITUDE. Every point on the Celestial Grid System has a comparable and matching point on the Earth-Bound system, excepting that the names for the two systems are different. Therefore, in the same way as on the land surface of the Earth, every point on the Celestial Sphere can be defined numerically by its POINT CORDINATES.

On Earth, lines of LONGITUDE (or very LONG lines) known as GREAT CIRCLES go VERTICALLY from North pole to South pole. The Great Circle lines are numbered in degrees from 0°, starting at the Greenwich Meridian, travelling westwards around the Earth to finish up back at the Greenwich Meridian as, also, 360°. At any particular point on the surface of the Earth where a line from North pole to South pole – Great Circle – intersects that specific point, then the N – S line is the MERIDIAN at that point.

For the purpose of this work lines of LONGITUDE do not need to be involved as we are only concerned with one location – Stonehenge. The Great Circle for Stonehenge would be of the same value however far we are from North or South poles. (And we are working in an epoch long before the Greenwich Meridian had been invented.) Our Great Circle is defined by knowing the location of Stonehenge. Therefore there is no reference to any particular Great Circle. The only concept of Great Circle we need at Stonehenge is the MERIDIAN – from due North to due South.

Lines of LATITUDE and the HORIZONTAL component of the Grid of the Celestial Sphere are vital to the understanding. As the horizontal component of the Grid of the surface of the Earth they are known as lines of LATITUDE. As outward projections of the latitude on to the celestial Sphere they are known as lines of DECLINATION. This a very important term and quantity in this work and must be remembered and understood. They do the same job as lines of latitude but are for describing the position of Celestial objects on the Celestial Sphere.

©. North – South Polar Axis, and Equator The Earth rotates once per day on its Polar N – S Axis, giving us alternately day and night as the land surface faces towards and then away from the sun. Halfway between the two poles is the Equator. The PLANE OF THE EQUATOR is perpendicular (or at right angles) to the Axis line of the two Poles. The Equator is the base-line for counting our horizontal lines of LATITUDE. The Equator is Latitude zero - 0°. The outward projection of the Equator on to the Celestial Sphere is called the CELESTIAL EQUATOR, and its DECLINATION is 0°.

The axis line of the two poles is perpendicular to the Equator and the poles are at the extremes of distance from the Equator. As the axis is perpendicular (a right angle) , the latitudes of the two poles are +90° and - 90°. The DECLINATION of the CELESTIAL POLES are correspondingly ;- δ +90° and δ-90°. (δ is Greek letter ‘delta’ and is the conventional sign for DECLINATION.) All other Celestial points, therefore fall within a range of

either 0° to +90° (+ is used for declinations in the Northern half of the Celestial Sphere. – is used for declinations southwards.) , or 0° to -90°, and this is measured from Equator towards respective Pole.

(d). Earth and Sun

The Earth travels around the sun on a virtually unchanging annual orbit (one circuit per year). From Earth it appears that the sun is travelling around the Earth, and, from the point of view of an observer on Earth, we can adopt that view from here onwards that all Celestial objects are 'seen' to move around Earth. Therefore the 'apparent' orbit of the sun's annual journey is a slightly elliptical circle that is almost fixed in space with only a slight change in position over many thousands of years. This is the ORBIT PLANE of the sun, known as the ECLIPTIC, and, to our observer, can be viewed as a flat disc. The observer, at a fixed place on the surface of the Earth would appear to be at the centre of that ORBIT PLANE / ECLIPTIC.

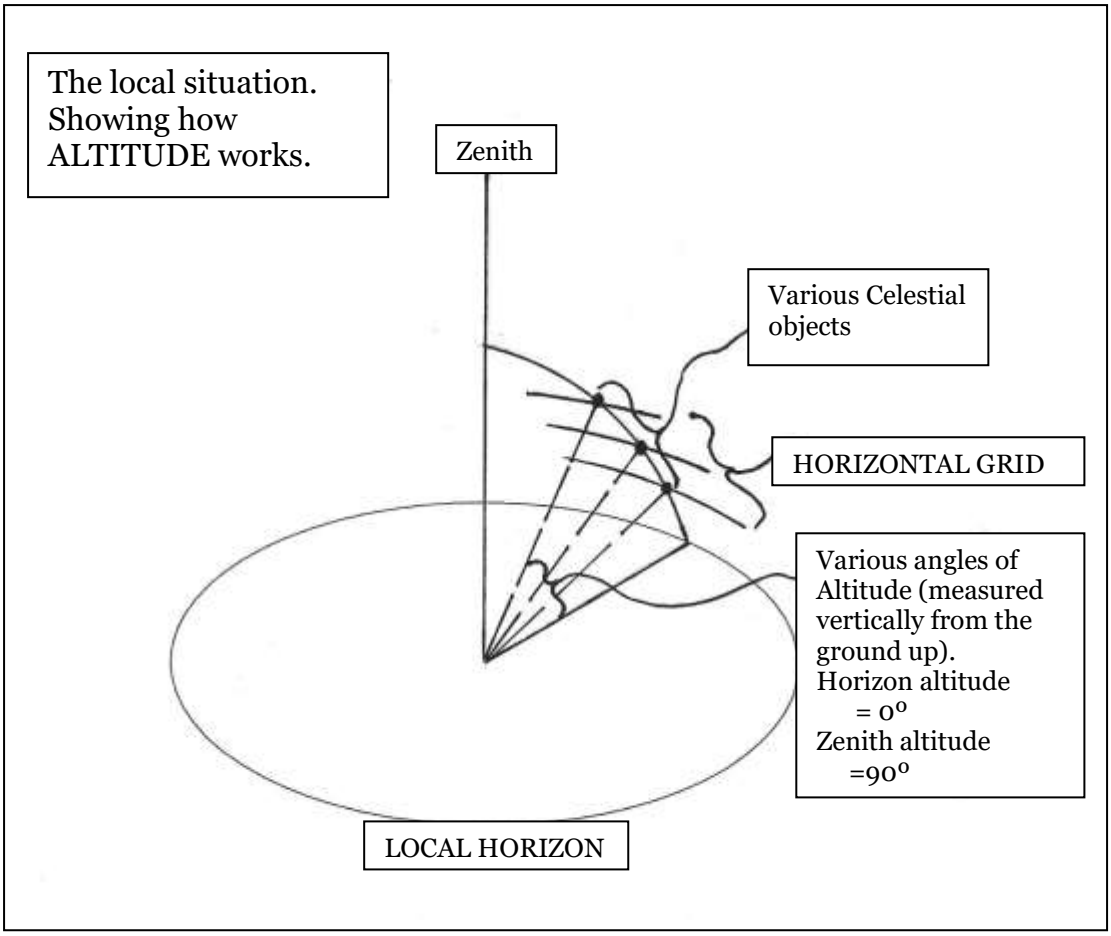
The sun, from Earth surface, is seen to travel one complete circuit around the ECLIPTIC against the backdrop of the stars of the Celestial sphere over the course of one year, from starting point and back to that same point. The Orbit Plane / ECLIPTIC is not perpendicular to the DAILY ROTATION AXIS (POLAR AXIS) of the Earth, but rather the two, ECLIPTIC and ROTATION AXIS, are tilted quite significantly with respect to each other. The tilt of the daily POLAR AXIS away from perpendicular to the annual ECLIPTIC is about 23½° which is quite a large angle. (Approximately a quarter of a right angle.) (It is this effect of the tilting of the Polar Axis that causes us to experience seasons because, at one point on the annual ECLIPTIC a place on Earth will be more tilted towards the sun during daylight, whilst at an opposite place, half a year later, it will be tilted away.)

As a consequence of the relative tilt of the Earth's Polar Axis, this means that the EQUATOR of the EARTH is equally tilted with respect to the Ecliptic, and consequently the Celestial Equator, (the outward projection of the Equator of Earth), appears to be equally tilted. Therefore the whole effect of all of these various tilts is that, for our observer on Earth, the ECLIPTIC, (the annual orbit track of the sun across the Celestial Sphere), appears to be tilted at about 23½° to the Celestial Equator. And this tilt, or OBLIQUITY OF THE ECLIPTIC, has this angular value of c. 23½°. This term and this value are of fundamental importance and must be well remembered for the following section.

(e). The Local Situation

(i) HORIZONTAL Grid Lines (1st Coordinate)

If we consider the Cosmos and wish to define the position of a Celestial object from a certain place on Earth surface, then, so long as we know that place on the surface, we can describe the horizontal part of the position of the Celestial object by describing its vertical position above our LOCAL LEVEL horizon. In effect we have utilized a set of horizontal lines from the horizon upward to form a HORIZONTAL GRID. These lines are lines of ALTITUDE and go from 0° at level horizon / ground level to 90° vertically overhead at the ZENITH POINT.

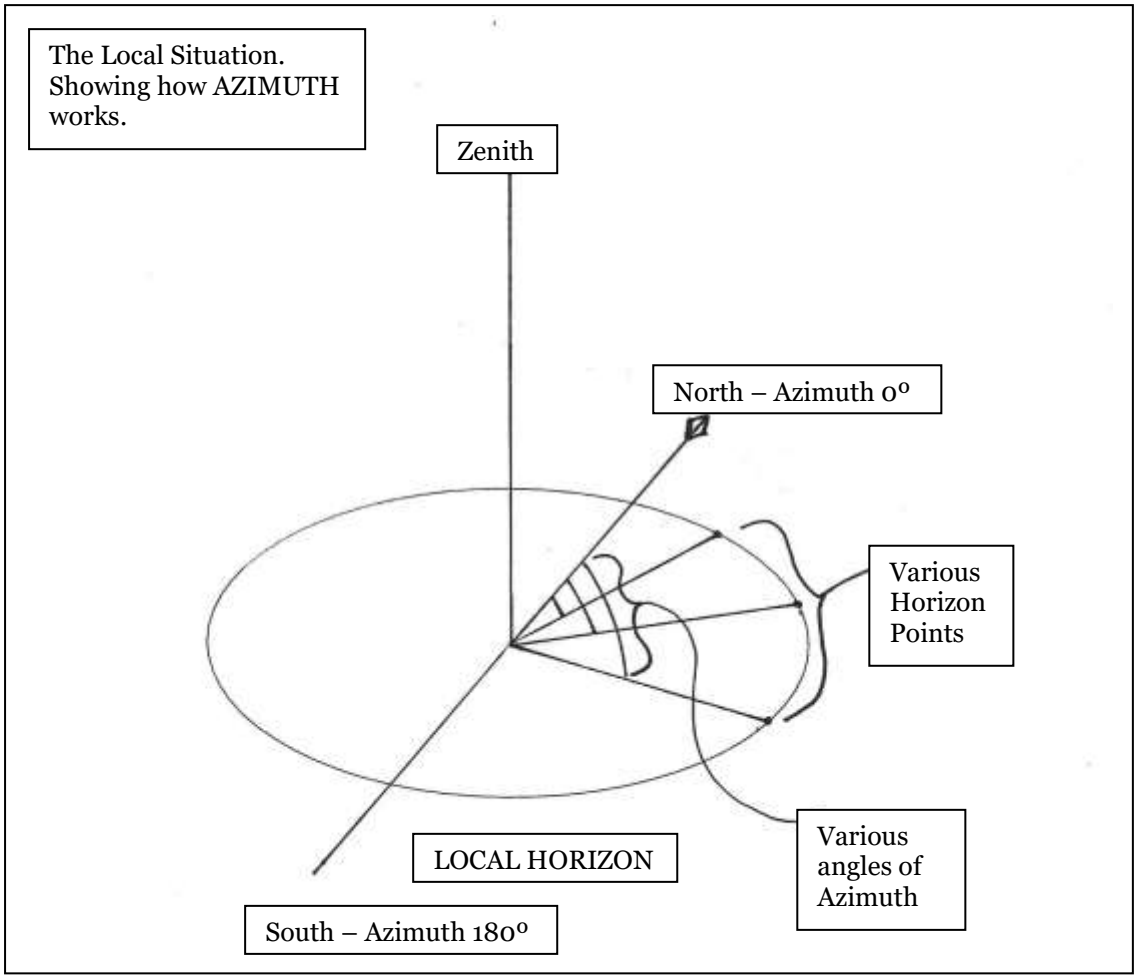


To demonstrate an Altitude value to another person in another time we really need to somehow be able to transmit the Altitude value through time. If we wished merely to quote a numerical value for the quantity of that Altitude we could record that number in some (INDESTRUCTIBLE / INTELLIGIBLE) way. That assumes that the other person, at a place elsewhere in time, could comprehend our numbering system. We could try to erect a very substantial / diagrammatic / vertical / pictorial / physical construction of some form that would 'point' at the object of interest. Again that assumes that the structure would survive, and that the interpreter had enough imagination / faith / intelligence to believe their eyes and accept their interpretation as a part of the 'answer', - a starting point to go forward with further interpretation! We could combine both options in the hope that one way would reinforce the other and that the future interpreter had at least a little courage when faced with an 'impossible' truth.

(ii). VERTICAL Grid Lines (2nd Coordinate)

The vertical coordinate is obtained by measuring the angle around the horizon, in a clockwise direction, from North, starting at the North point of the horizon. A complete circuit of the horizon and back to the starting point again at North encompasses 360°. This vertical coordinate is the AZIMUTH. A complete circuit of the horizon passes the following azimuth values / points / angles :- Stonehenge MAIN AXES at AZIMUTH c. 50°; EAST at AZIMUTH 90°; SOUTH at AZIMUTH 180°; Stonehenge BACK AXIS at AZIMUTH c. 230°; WEST at 270°; Back to North at 360° / 0°. To define an AZIMUTH

value of a Celestial object we can use the angular measure in this way, but numbers are not essential.



We can define a horizon point merely by erecting a pointer on that horizon. If we wish to transmit the horizon point through time to a future observer, we would need to erect a very substantial pointer owing to the destructive urges of many humans (such as those wishing to 'spiritually purify' their compatriots). And we also need a substantial and unambiguous viewing point to satisfy the needs of future statisticians who specialise in proving that nothing actually exists and nothing ever happened – ever.

It may be that we do not need numbers, but it may be worth trying a system that uses the same type of number system as we tried for the Altitude values, and a substantial / diagrammatic / horizontal / pictorial / physical construction that, again, 'points' at the object of interest.

If two types of coordinate value, horizontal and vertical, are inter-woven into the same construction, and also defined by the same number scheme, then that has to be significant (doesn't it?).

So that's my challenge for this week. Design and construct a monumental something that both 'pictorially' by its physical design, and numerically by the use of inter-woven universal number 'codes', will transmit forward in time the

significant position of a significant Celestial object to a time more than 4000 years into the future. Resources available:- a piece of rope, a wooden lever, a spade, a thousand tonnes of rock in very large lumps, 1000 years or more of astronomical observation. Answers, please, on a postcard, by lunchtime Tuesday.

Summary of (i) and (ii).
The location of a Celestial object can be described, at a LOCAL site, solely by the ALTITUDE and AZIMUTH values. So long as the site is known exactly, then the Azimuth can be demonstrated by a horizon mark from a known centre. No number is required. A number value is required to describe the ALTITUDE value, excepting if the altitude is at a level horizon, in which case the Altitude value is 0^{0}. This has eliminated the need to know an Altitude value. Therefore, so long as the location on the surface is known, then a Celestial point can accurately be described purely by a horizon marker and centre. If we can attach an accurate year / time of year to our location then we can exactly fit the Celestial location to a Celestial object. It is that simple.

We can follow this path at Stonehenge and exactly identify a specific Celestial object / target for the stone construction because we have projected a precise date onto the stone scenario by the route of relating the peak of the orbit of Regulus to the mid 3^{rd} millennium sun. So far we have now identified the distant star H833.1062 as, potentially, the Celestial object. However, we also have the luxury of being able to obtain the same result by a totally different route using 'universal' number expression.

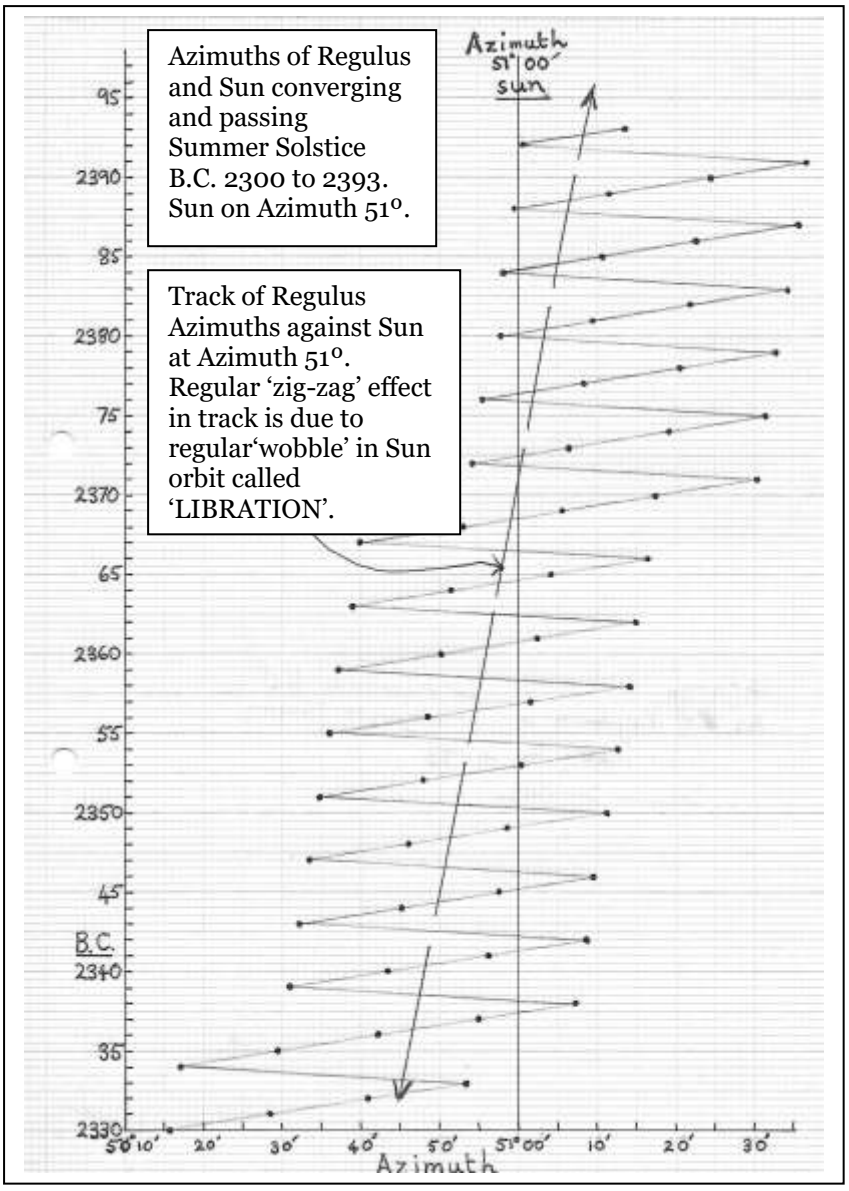
Back to 23405

(1). The Sarsen Tri-lithon Horseshoe interpreted as a binary expression translated to the decimal value of 2 3 4 0 5 is immediately suggestive. It will have been noted, earlier, that I believe that the close approach of Regulus and the sun during the century B.C. 2400 to 2300 may have been the spur that drove forward the construction of Stonehenge at the particular era when it happened. I have also suggested that it may be the reason for the design and positioning of the Great Tri-lithon as it is in the plan of Stonehenge.

It is important to try to identify a specific year when they were closest but, in reality, the sun, in its orbit, demonstrates NUTATION, or a regular 'WOBBLE' within its orbit that produces a slightly erratic orbit track at any particular time. Therefore, on a precise and detailed scale, the distance between sun and Regulus 'FLICKERS' from year to year over a four year cycle. Consequently it is better to refer to a 'SEASON' of closeness of approach. (A 'SEASON', in this case, covering something more than half a century as the sun and Regulus 'FLICKERED' towards and then past each other.) The SEASON began just after B.C. 2400 and continued for most of the century until about B.C. 2300. The central point was c. B.C. 2364

To calculate positions and movements of any objects of interest in this text it is necessary to settle on a date. The binary value yields 2 3 4 0 5 based upon the form of the Tri-lithon Horseshoe. The numbers are within the range for

the date of sun – Regulus closest approach. There is no comparable Celestial event and date for that epoch that can be represented in a comparable way with blocks of stone yielding a coherent binary code. Therefore these numbers are used as the basis for the required date for astronomical calculation. For this reason the year is fixed as B.C. 2340. (Any attempt to substitute B.C. 2364 for B.C. 2340 must translate this alternative year number into a binary expression suitable to be rendered on a monumental scale with enormous blocks of stone.)

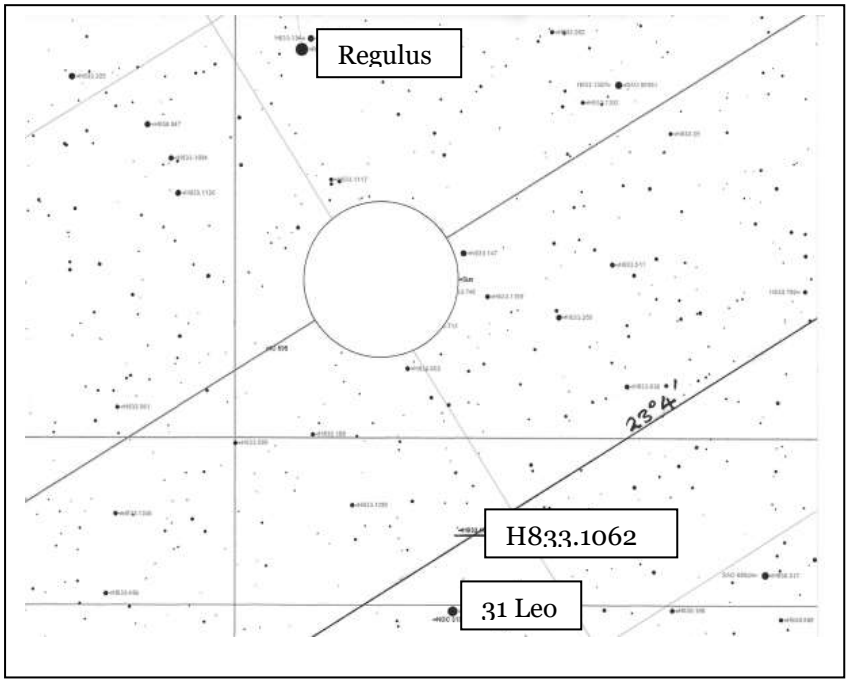


The time of day is given within the design incorporating the Heelstone position. It is Summer solstice sunrise. Therefore the complete date and time is SSSR (Summer Solstice Sun Rise), B.C. 2340. This translates to;-

03 hours: 48 minutes: 04 seconds / 15 – 07 – B.C. 2340

(2a). <u>The expression 2 3 4 0 5</u> has further potential. In my earlier work on the discussion of the two HEELSTONE AXES, I described what I consider to be the MAIN AXIS of the Heelstone. That is the LONG AXIS from Amesbury G 15, through Stonehenge central Great Tri-lithon archway 55 – 56, and grazing the right- hand (S.E.) flank of the Heelstone. The LONG AXIS has an azimuth value of 51° 48´. This azimuth value intersects the 'MOUTH' of the 'RISING SLIT' on the face of the Heelstone. I have described how, structurally, this alignment and the 'PICTURE' on the face of the Heelstone have led me to a specific Cosmic point, notably – in constellation Leo - the star H833.1062.

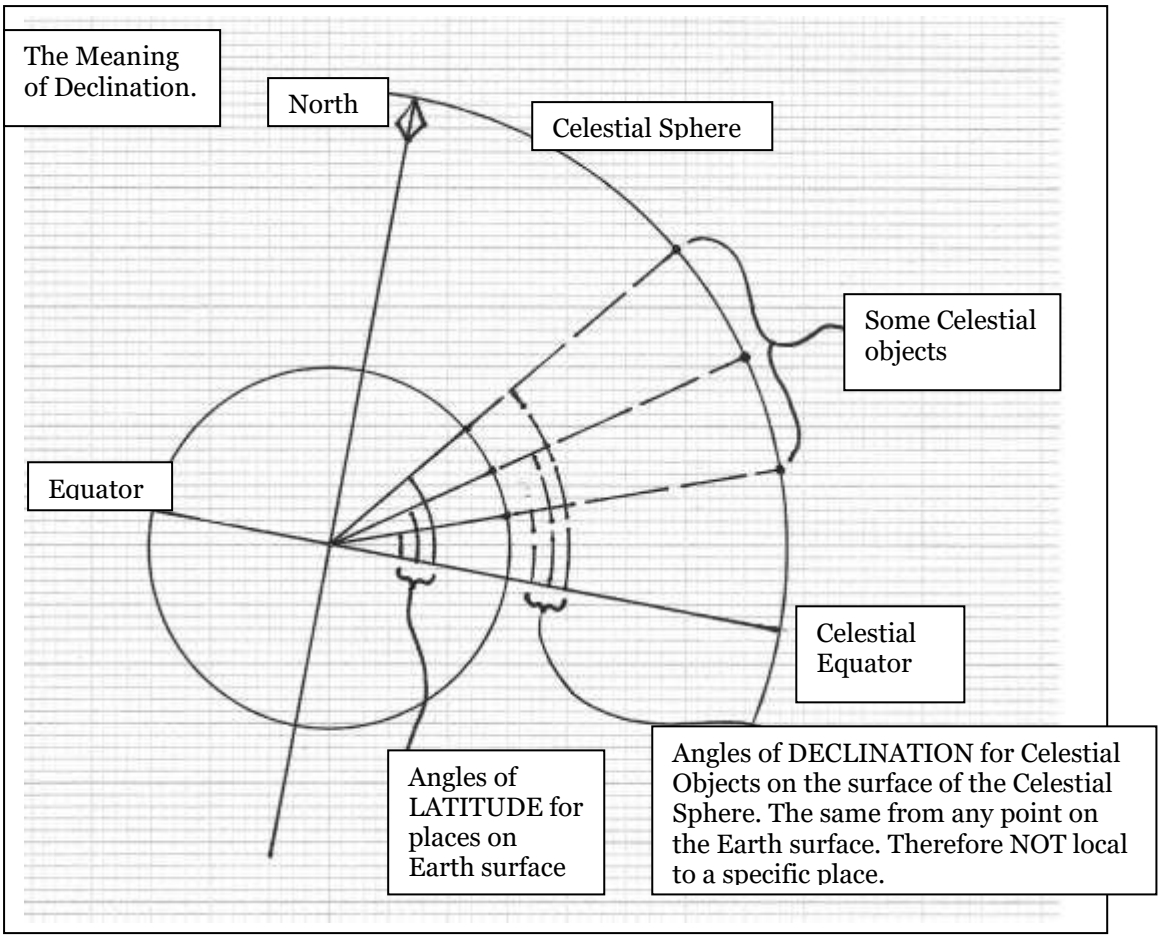
With the date and time obtained from archaeological evidence, construction content, the close approach of Regulus to the sun at summer solstice, and specifically, from the binary expression that yielded the value 2 3 4 0 5 as described in (1) above, the passage through the sky of H833.1062 can be explored in more detail.



For SSSR B.C.2340, …1062 rose as the 4th member of the group with Regulus, the sun, and 31Leo, at sunrise. However we are at this point effectively dealing with the rising of a small GROUP of stars – Regulus, Sun, 31 Leo, and …1062 And the group is moving as it rises such that, at different moments, different members are passing zero altitude as they break the horizon. The 'picture' on the Heelstone gives a general over-view of the group. And the presence and position of the Heelstone and the whole presence of Stonehenge and its orientation gives a very close context of the specific azimuth. But as the three objects are moving and as they are separate, they cannot EACH be described by a 'one-size-fits-all' single azimuth / altitude value. However, combined with our knowledge of specific year count (date), we now have almost every detail required to be completely specific to our Celestial 'Target'. We only need to attach the correct 'label' to the correct object.

The other 'label that we can attach to the individual stars, as it is not now appropriate to try to specify their azimuth / altitude values, is their DECLINATION values. It may be remembered that 'DECLINATION' of a Celestial object is a corollary of the use of LATITUDE to describe a location on the surface of Earth but applied to Celestial objects and their position on the CELESTIAL SPHERE. Declination describes the angular measure of the object above the CELESTIAL EQUATOR, whereas ALTITUDE gives the height above the LOCAL HORIZON. The declination value for each star is specific to that star for a particular time / date (which we have obtained as described above)) and does not change for small changes of the object's position as it rises.

The base line of the ' declination' value for celestial objects is the CELESTIAL EQUATOR, the outward projection of the EQUATOR of EARTH. An object



close to the Celestial Equator will have a declination close to 0°. An object close to the North Pole (the location of the North 'end' of the polar axis of rotation for Earth) will have a declination close to 90°. Any object in between will have a declination value within the range from 0° to 90°, according to their distance away from the one and towards the other. (That is according to where there position is to be found on the Celestial Sphere between Celestial Equator and Pole.) For the purposes of the exercise that we are carrying out here, the declination value for a Celestial object does not significantly change, regardless of change of day or season, for substantial change of date over large parts of a year or more.

In so far as declination values for Celestial objects are based upon the Celestial Equator, they form part of the EQUATORIAL SYSTEM of identifying star position. The system using Altitude and Azimuth measures from a certain location on the surface of Earth, out to the local, visible horizon and is the LOCAL SYSTEM. Both systems use the same tools and language to measure position in the sky, they merely measure from different baselines. Each system has subtle differences from the other that can be exploited by a skilled observer. It might seem, to an inexperienced observer, that it is 'tidy-minded' to only work in one system or the other but the two systems are easily interwoven if an operator clearly understands the underlying principles, advantages, and disadvantages of each system against the other. (That is an important detail that should be borne in mind.)

The declination values for the members of the Heelstone star group are obtained, for the correct time and date, from a standard astronomy computer programme. This data is available as standard data on such programmes because it is the basis for all positional and observational astronomy, even as latitude and longitude information is the basis of all navigation on the surface of the Earth. Declination values for SSSR B.C. 2340 are as follows:-

Regulus	declination δ	24° 45.7′
Sun	δ	23° 57.4′
H833.1062	δ	23° 5.6′

Considering the three members of the group and the role of each within that group:-

The sun is the 'timekeeper' that has supplied the day and year. It is also the great illuminating beacon that has unmistakeably and reliably flagged up the event, the 'where', and the 'when'. It has been the centre of all attention and focussed all human interest upon the tiny, but important, part of the sky that is the focus of Stonehenge. It has been the 'leader' and 'director' of the group. It is also still the 'power house' of planet Earth and the human race, and its importance is obviously still fundamental to our existence.

Regulus has played an important role insofar as, firstly, it marked the impending, and then near, union of itself with the sun that gave rise to the timing and the astronomical deadline for the construction and completion of the building of Stonehenge. It has also marked the location of the important 'target' described by Stonehenge, by night, at times of the year when the sun was distant from the group. Even today it continues to provide a quick location finder in the night sky when visible. (Although its position can be estimated by observing neighbouring brighter stars and constellations.) As the visible manifestation of an otherwise invisible star (H833.1062) it provided ancient civilisation with a source of myth and lore as it adopted the role of 'kingmaker' amongst the beliefs of the ancients. As this present story is unfolding, Regulus has less critical importance now that its more important but largely invisible 'neighbour, comes into prominence. Of the three stars, Regulus, although still of importance, is less so now.

H833.1062 is the distant, near invisible third member of the group within the 'picture' on the face of the Heelstone. It is the target of the main axis of Stonehenge that starts from Barrow Amesbury G15, and 'gunsights' through Stonehenge and across the 'Mouth' on the East flank of the Heelstone. ...1062 is the star that travels up the 'slit' on the Heelstone face and emerges (is 'born') into the world seconds after the sun first flashes from behind the Heelstone flank, SSSR B.C.2340. The sun may well have been invested by ancient people of the time of Stonehenge, with the mystique and lore that should probably have gone to ...1062, of whose existence they may hardly have been aware. ...1062 may indeed be the root and source of a very large part of the religious, folk-lore, 'divine' part of the psyche of a vast part of the human population of this planet. It may be that this enormous dimension of human belief, faith, and existence is imminently about to be 're-booted' into a more intelligent, 'grown-up' dimension of 'common-sense', 'true' truth and 'actual' reality. It is certainly fact that the greater part of the population of this planet

is imminently about to become aware of ...1062. H833.1062 is the target and the raison d être of the creation and construction of Stonehenge.

The numerical value of the binary expression contained within the Sarsen Tri-lithon Horseshoe is:- 23 405. If it is here taken as representing 23° 4.05´, and compared to the declination value for ...1062

The difference is:-

23° 5.6´
- 23° 4.05´
00° 1.55´

This is a very tiny difference between the declination value of the key star of the scenario and the numerical expression obtained from the binary form of the Sarsen Tri-lithon Horseshoe. In other words, it is here suggested that the numerical expression from the binary form of the Tri-lithon Horseshoe was the (declination) 'label' that was needed to positively identify ...1062 as the main target of Stonehenge. In point of fact it is an astonishingly close correspondence between the numerical value and the declination value, added to the fact of the manner in which the Heelstone gave such an accurate 'picture' of the same star, but by a totally different route. Bear in mind the fact that there is obviously a severe limitation as to the finding of a method by which this important event can be described in such a manner, using the, potentially, very 'clumsy' device of representing the 'thought' of a number in this way, with great rocks arranged in some sort of coherent manner. There is a very limited choice of stone combination and arrangement available to describe the specific thought.

(2 b). There is more use yet to be made of the expression 2 3 4 0 5 in this context.

As previously described, the VERTICAL GRID coordinates for the Solstice Sunrise group are described with LOCAL values of AZIMUTH because there is no obvious fixed Celestial basis, or starting point, for this part of the system. This is perfectly satisfactory if we have a clear and obvious viewing point on the surface of the Earth. Obviously we do have because it is the centre of Stonehenge.

The AZIMUTH values for the two Heelstone Axes are:-

Sunrise Axis:- 49° 38´
Main Axis (from Amesbury G 15):- 51° 48´

Mean for the two:- 50° 43´. Reversing the numerical expression 2 3 4 0 5, yields:- 50432.

50° 43´ is the mean, or average, of the two axes, and the azimuth of the centre line of the Heelstone. It is also very close to the azimuth value for H833.1062 as the star 'lies' at the bottom of the Heelstone Slit, with the sun above within the 'Heelmark'. (it will be remembered that the actual azimuth value for the bottom of the Slit was c. 50° 46´, and this also described the azimuth of the front edge of the sun at this moment.) So now this other single numerical expression has, at one stroke, described very accurately and very

economically, the key 'picture', the key scenario 'drawn' on the Heelstone, with a description that covers two very important Celestial objects, in two very important positions with one 'stroke of the pen'. How clever is that?

To Summarize:- The one binary expression of the Great Tri-lithon Horseshoe has yielded two decimal number expressions that very accurately describe key declination and azimuth values confirming the 'picture' that is represented on the face of the Heelstone. The values that have been obtained have been embedded into the design and structure of the Horseshoe in such a way that the type of values – declination and azimuth- are not dependent on other numerical values that could not be fitted into the design and use of binary expressions, relating to site context, time, location, etc. The obtained values are completely supported by the context of Stonehenge, in its time and place. There is not a range of 'options' to interpret the values. They give one, and only one, scenario, the rising of these two, sun and star, in the unique relationship, and the time and place that was intended by the design. There is no ambiguity, but everything is totally specific to the one event. The whole is extraordinarily economical in design and execution and quite unbelievable! Completely accidental, fortuitous, and, of course, never intended.

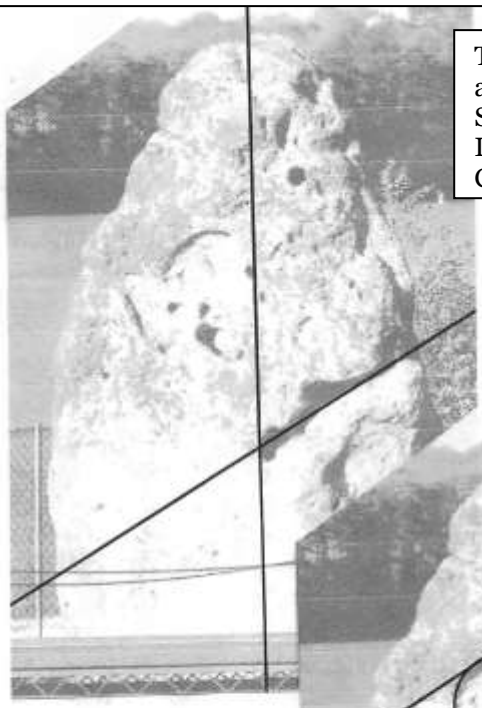
I cannot take this specific line of investigation further at this point, as I do not have the means at my disposal. But there are now others within the astronomical world who do have the resources, or are soon to acquire them. It is now over to them to complete this part of the story.

Putting the derived numbers for H833.1062 all together at the moment when this 'target' star lays hidden within the centre of the Heelstone at the bottom of the 'Rising Slit' across the Heelstone face, we have: -

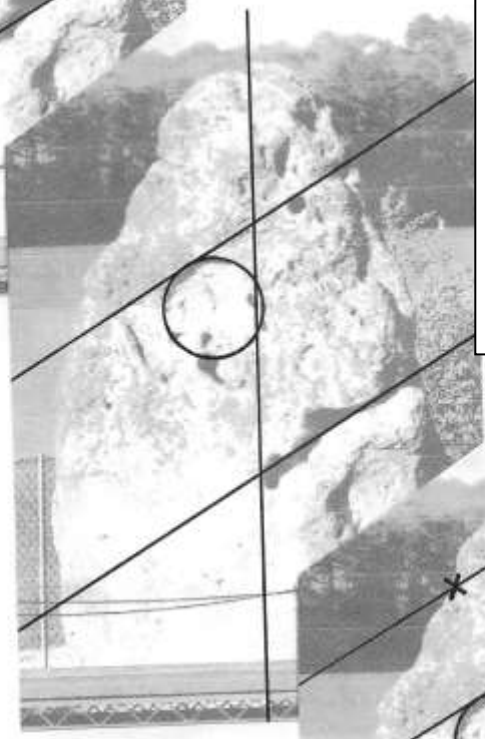
Trilithon Binary Expression -	2 3 4 0 5
Date and time – Summer solstice sunrise (sun on horizon) B.C	2 3 4 0
Declination for H833.1062	23° 5.6'
Binary Expression reversed	5 0 4 3 2
Azimuth value for H833.1062	50° 43'
Azimuth value for centre line of Heelstone	50° 43'

Summarizing the combining of the two strands:- (a) The 'picture' drawn on the face of the Heelstone. (b) The number values supplied by the Tri-lithon Horseshoe as a binary term.

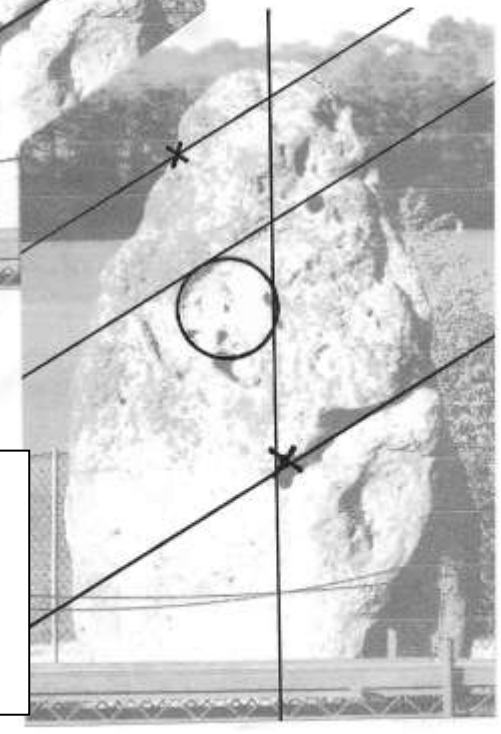
The Heelstone as a stone marker in the landscape and undated. As seen from the centre of Stonehenge. Azimuth of centre line c. 50° 43´. Inclination of 'Slit' is 31° which is correct for rising Celestial objects.



The Heelstone –the 'Friar's Heel'. 'Frhiw yr haul' –' the ascending of the Sun'. The Sun in the 'Heelmark' – the ascending topline of the orb marked by the tip of the Heelmark and the large man-made pit in the 'flaring' sun. The topline inclined at 31°. Summer Solstice Sunrise given by context. Year unspecified but archaeologically in the period B.C. 2500 to 2200.



The Tri-lithon Binary Expression converted to decimal gives; -
23405, and reversed gives:-
50432. These digits then describe date, azimuth, and declination for one specific Celestial position and object.

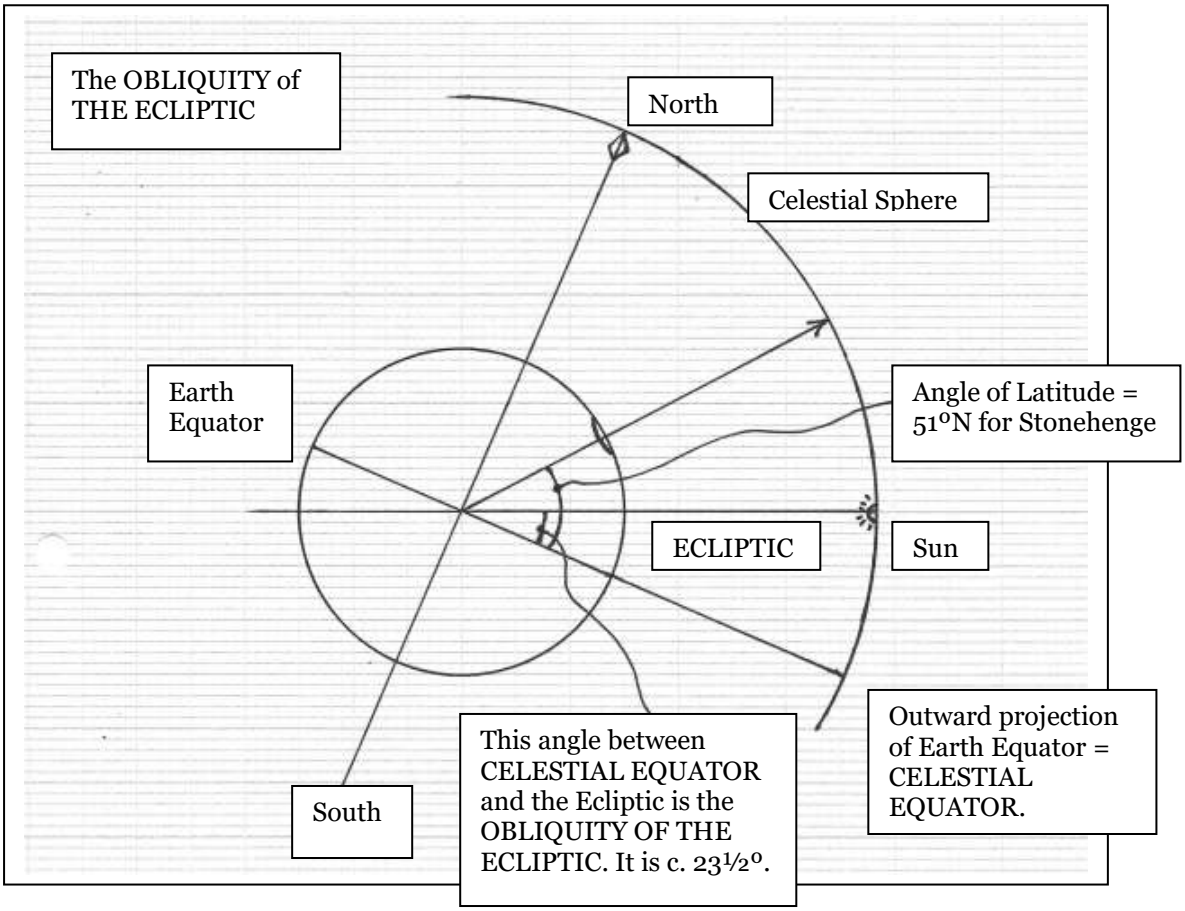


Union of the Sun and Regulus. Regulus in the top Heelstone notch and at its closest approach to the summer solstice sun. Year no. now specifically B.C. 2340 gives sun declination 23°57 4´. Scaling sun declination gives 'Slit' declination 23°4´. Bottom of 'Slit' now- Azimuth c. 50 °45 / δ 23°4´. Star H833.1062 co-ordinates:- Azimuth 50°46´ / δ 23°5.6´.

(3). There is further information to be gained from 2 3 4 0 5.

I have described, previously, how this expression appears to have been used to describe DECLINATION values. It can also be applied to the declination value of the sun.

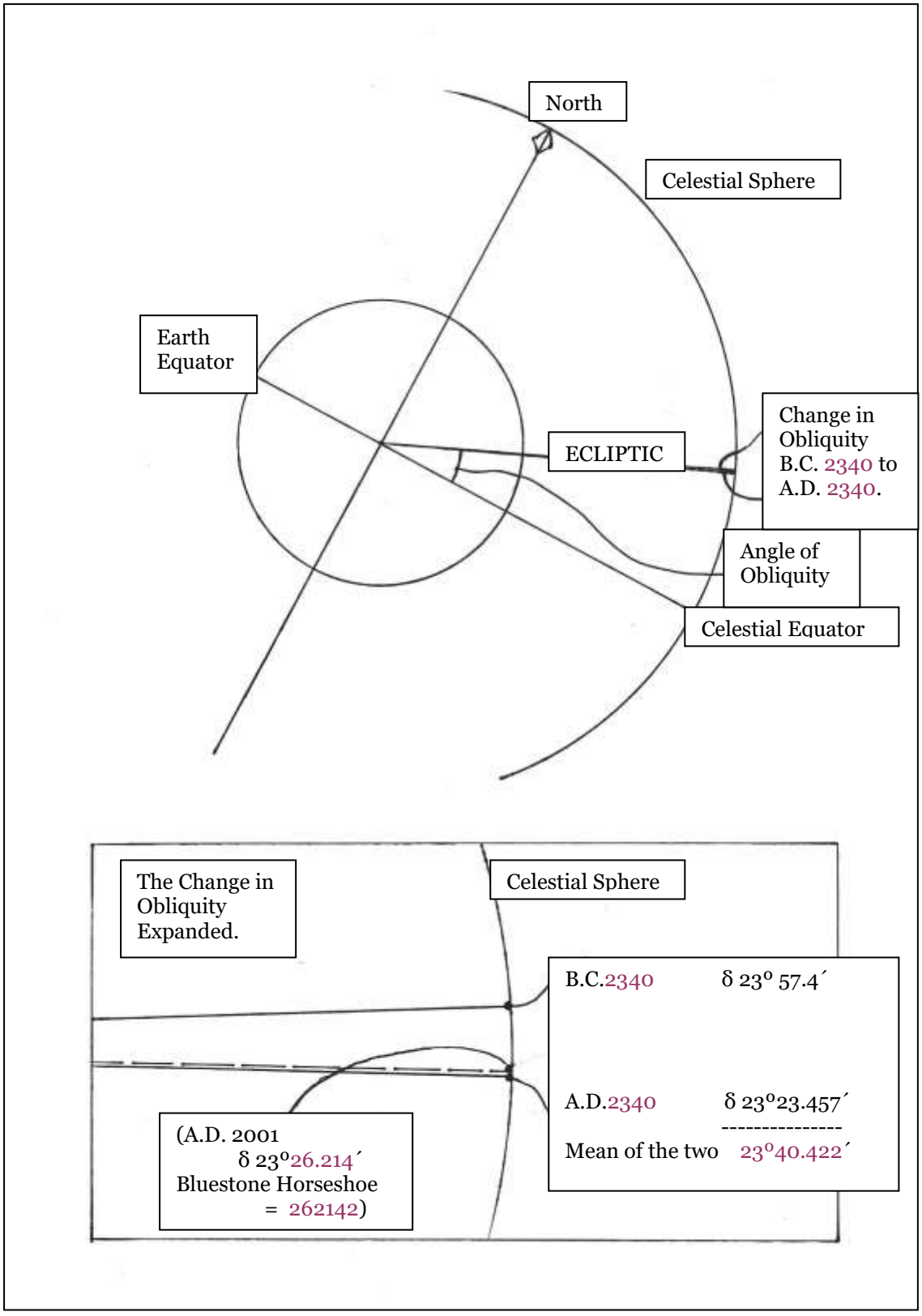
In my description of the operation of the Cosmos and 'Things that one needs to know'. I frequently referred to the fact that the orbit plane of the sun was tilted at 'about' 23½° to that of the Celestial Equator. (Because one degree equals 60´, 23½° is exactly described as 23° 30´.) This puts the sun, at its highest point in its annual cycle (i.e. mid summer – mid point of the year), at an altitude of 23½° higher than the Celestial Equator. (23½° closer to the



North Pole.)

This ANGLE OF TILT of the sun's orbit, or 'ECLIPTIC', is known as the 'OBLIQUITY' OF THE ECLIPTIC. The Obliquity of the Ecliptic can be measured very precisely. It is, however, changing very slowly but steadily, (reducing), with the passage of time. It can be measured in our current era, and also calculated for recent past and future dates. (The change in the value of the Obliquity of the Ecliptic is due to yet another very slow and 'long-period' cycle that the sun experiences.) For the current era the value of Obliquity that is often quoted as 23½° is described precisely as :-

23° 26.213´ (epoch A.D. 2001)


North
Celestial Sphere
Earth
Equator
ECLIPTIC
Change in
Obliquity
B.C. 2340 to
A.D. 2340.
Angle of
Obliquity
Celestial Equator
The Change in
Obliquity
Expanded.
Celestial Sphere
B.C.2340 δ 23° 57.4´
A.D.2340 δ 23°23.457´
Mean of the two 23°40.422´
(A.D. 2001
δ 23°26.214´
Bluestone Horseshoe
= 262142)

For SSSR, B.C. 2340 the value of Obliquity of the Ecliptic was:- 23° 57.386´.
A difference for 4340 years of just more than half of one degree,

The value for A.D. 2340 will be:- 23° 23.457´.

This can be summarized as follows:-

Obliquity:-	(B.C. 2340)	23° 57.386´
	(A.D. 2340)	23° 23.457´
Mean of the two values	(A.D. 0)	23° 40.4´
Numerical expression from the Binary code of the Great Tri-lithon:-		23 405
	(Difference	00° 00.1´)

In this one summary of disparate declination values separated by 4680 years, the expression 2 3 4 0 5 has appeared three times in a total of six values – two dates and the mean of their declinations. It is extremely difficult to dismiss this 'picture' as a pure fluke –purely fortuitous and never intended, or even realised. The alternative is to accept it as intentional. Which raises another clutch of questions – by whom, when, where, how? If we accept that is was indeed intended, then we can accept that the intelligence, the thought process was there within the thinking mind of somebody. More than four thousand years ago, and probably more than five or six thousand, an intelligent mind had observed and detected this knowledge, had considered it, and manipulated it, and then formed a plan of how it might be used or exploited.

The Cosmos was there. The Cosmic processes, orbits and cycles of sun and stars had existed for aeons of time. It only required for intelligent thought to spot this knowledge, assemble it, exploit it, and manipulate it into this coherent story that I have, here, described. Our task now is to find the intelligence behind this story. Or we could just shrug our shoulders, dismiss the whole thing as science fiction, and carry on in our human rut as normal, destroying everything in our paths including ourselves. Which is the stupid course?

It is not suggested that the designer of Stonehenge arranged the motions of the Cosmos / sun to fit their design, or the numbers implicit therein. But how can the situation have come about that these dates and the average of their declination values are all described so very precisely by the Tri-lithon Horseshoe. The objective is not to judge the choice of the form of Stonehenge. That would be a pointless and useless exercise because Stonehenge already exists. The point is to explain how this situation came about. Here I point out the facts. I do not create them, ignore them, deny them. Again that would be pointless.

The Bluestone Horseshoe.

There is one remaining stone formation to be dealt with within the plan of Stonehenge. That is the Bluestone Horseshoe.

This formation presents a slight problem because of its ruinous condition. Especially is the damage concentrated in the central zone of the Horseshoe between the Altar Stone and Great Tri-lithon central arch 55 – 56.

Consequently it is difficult to be certain as to exactly how many stones it contained. Opinion seems confident that all of the stones of this formation were vertical pillars. R.J.Atkinson describes the remains of ancient working that can be found on some of these pillars that suggests that they may have formed horizontal lintels in an earlier design, but the worked stones were all re-erected as single pillars in the final setting. One cannot resist the thought that, originally this Horseshoe may have been erected as a complex formation of upright pillars with a few horizontal lintels, the object to create another binary expression but with an asymmetrical mixture of I's and 0's to define some other astronomical declination or whatever. But then, with hindsight, it was decided that asymmetry within the design of any one stone group would almost certainly mean that the correct meaning would be lost over the ensuing future as the monument suffered damage and the smaller stones were robbed away. As with the other three stone groups, it was concluded that symmetry was vital to the survival of the data and the 'thought' contained within the design of the Bluestone Horseshoe. Therefore the Horseshoe had to be re-worked as solely upright pillars. Yet another example of the constraints within which the design had to be established.

Atkinson calculated that there were nineteen upright pillars within the final version of the Bluestone Horseshoe, based upon his excavation results of the 1960's. However he was unable to excavate very thoroughly in the central area of the Horseshoe, partly because of the litter of large fallen stones that now occupies much of this area, and also because the central area has been much dug by others in the centuries before modern archaeology. Most commentators since have been happy to accept this figure of nineteen.

It has to be said that, although this total number is probably a reasonable first estimate, it is certainly not absolutely certain and there is a major problem that can affect the results. It has long seemed to me that a nineteen stone total implies that the Horseshoe contained a central upright between the Altar Stone and Great Tri-lithon archway. Such a stone would have been self-defeating to the builders / users of the monument in that it would have successfully blocked the Main Axis through the archway of the Great Tri-lithon – unless a central stone was deliberately low in height. Such a low stone would have perfectly well functioned as number nineteen but would have left the sight-line clear.

Alternatively the Horseshoe had eighteen uprights only. A total of eighteen uprights is my preference on the grounds of the obstruction caused to the sightline by a postulated number nineteen. It may not be possible, ever, to answer this detail decisively by excavation. And in the unlikely event that excavation evidence did suggest that a central number nineteen may have

existed at some time, this cannot tell us exactly when it came and went, nor how high it may have been.

Consequently I have attempted to consider the two options. Two possibilities of Binary expression yields the two decimal values below:-

18 uprights --- I I I I I .....x 18 = 2 6 2 1 4 2

Bluestone Horseshoe – 18 uprights --- 2 6 2 1 4 2

By analogy with the declination values for the sun at different specific dates, implied by the Sarsen Tri-lithon Horseshoe:- a value of 23° 26.213´ is the value for the Obliquity of the Ecliptic at summer solstice A.D. 2001.

Obliquity of the Ecliptic (epoch A.D. 2001):-	23° 26.213´
Decimal value from 18 pillar Bluestone Horseshoe:-	26 2142´
Difference	00° 00.0012´

Bluestone Horseshoe – 19 uprights --- 5 2 4 2 8 7

Currently I have been unable to ascribe to this number value any astronomical / stellar value or constant that logically fits into the picture so far described. Therefore I am happy to leave it on one side for now.

Returning to the concept of the 18 stone Bluestone Horseshoe, the number expression there derived, and the interpretation that I have suggested for it of representing year number A.D. 2001, some explanatory points can be made.

1). The logic of applying a year number in this way is absolutely in parallel with the way in which year numbers have fitted on to the binary value from the Sarsen (Tri-lithon) horseshoe.

2). Selection of just one year number in this way by the designer of Stonehenge suggests that this year must be special in some way, or mark a 'season' of years of special importance. I have not identified any other dates within the design apart from B.C. 2340. So far as year number A.D. 2001 is concerned as a marker of a season, or period, of significance, then I can only judge by the current state of the world, and particularly the human race, as it has developed and is now developing around the early part of the new millennium. On the one hand technology in every area of science, learning, communication, health and welfare have taken an enormous leap forward since the start of the digital revolution in the second half of the twentieth century, and promise to make even greater leaps in the very near future. On the other hand this enormous leap forward is well matched by the enormous progress in perfection of methods of industrial warfare and the insane murder, by nation or religion, of perceived 'opponents' or 'disbelievers', on a scale never before conceived of or even dreamt of in earlier ages. It is indeed very easy to form the opinion that the current era is a very important one for the human race in so far as the whole of humanity seems frequently to be

shaken to its foundations by current events, possibly on a scale never before experienced.
3). I can say from personal experience for a number of years on either side of the new millennium date and A.D. 2001, that this has been the era when the enduring puzzle of Stonehenge has been solved – Becos I just writ it! To the designer who worked to create and construct this 'puzzle' starting probably more than 5000 or 6000 years ago, the distant date in the future must have seemed very important - a very good reason to include just that one date.

4). The fact of interpreting the binary expression of the Bluestone Horseshoe in this way was not my idea. I have merely followed the process that has become apparent and arrived at the inevitable answer. The application of logic – something that we are all taught from an early age! If the solution to this puzzle causes unease and discomfort to the reader then any issues should be taken up with the designer.

SOME LAST THOUGHTS

(a) The device of representing these numbers with binary code, drawn out in great stone pillars, imposes a severe limitation of choice. There just are not that many options of decimal numbers as binary code to begin with. Also the selected formations have to be symmetrical so that their form can be recovered at some point in the future. And horizontal lintels on the tops of smaller pillars will not do because they will soon be robbed away for building material or whatever. To find a range that utilizes each completed stone formation in one or more ways to decimal fractions without wasting any completed formation on numbers that are apparently irrelevant to the Astronomical context of Stonehenge is nothing short of miraculous.

(b) It just is not possible to represent units of measurement or position of decimal fraction in this format. Such details can only be derived by intelligent study of context, and trying to 'read' the mind that first created these stone formations (Rather like trying to 'read' the mind of the person who creates the crossword puzzle.) If my decipherment of Stonehenge has been correct then the 'story' will be completed. If I am wildly wrong then that is egg on my face. The cynics will have a ball at my expense. At least I had the courage to go forward and bring this story into the open. One cannot avoid thinking of Charles Darwin. So fearful of presenting his work 'On The Origin Of Species' to the assembled ranks of the Victorian Scientists, for them to savage, that he was physically sick in anticipation. The assembled ranks of twenty-first century scientists now agree that his work was better than the invention of sliced bread!

(c) In the final analysis Stonehenge was never created to be a scientific and astronomical lexicon, a source for all of the astronomical knowledge that the human race would need as it developed its own astronomy. Neither was it constructed as an observatory to seek and obtain new

knowledge. The essential astronomy that was needed was already gained earlier. Stonehenge was created to convey forwards into the future 'thought' of a very important fact that would, eventually, become accessible to human minds when they could make use of it. If my interpretation is correct then presumably the 'thought', and the knowledge revealed, can now be accessed and exploited.

SOME LAST QUESTIONS?

(a) The binary values for the two circles – Sarsen Circle and Bluestone Circle are described earlier in the text, and I have suggested reasons for their purpose that fit in with the general purpose of the design of Stonehenge. But at the same time they are very precise to the edge of the Altar Stone that is towards the Great Tri-lithon, i.e. effectively, one of the most important areas of the monument, certainly if they are interpreted as I have suggested. That is:-

Sarsen Circle – Altitude 76.86°

Bluestone Circle – Azimuth 230.58° - and the purpose of these numbers being to underline the position of the Milky Way during the inauguration period of Stonehenge, c. B.C. 2340

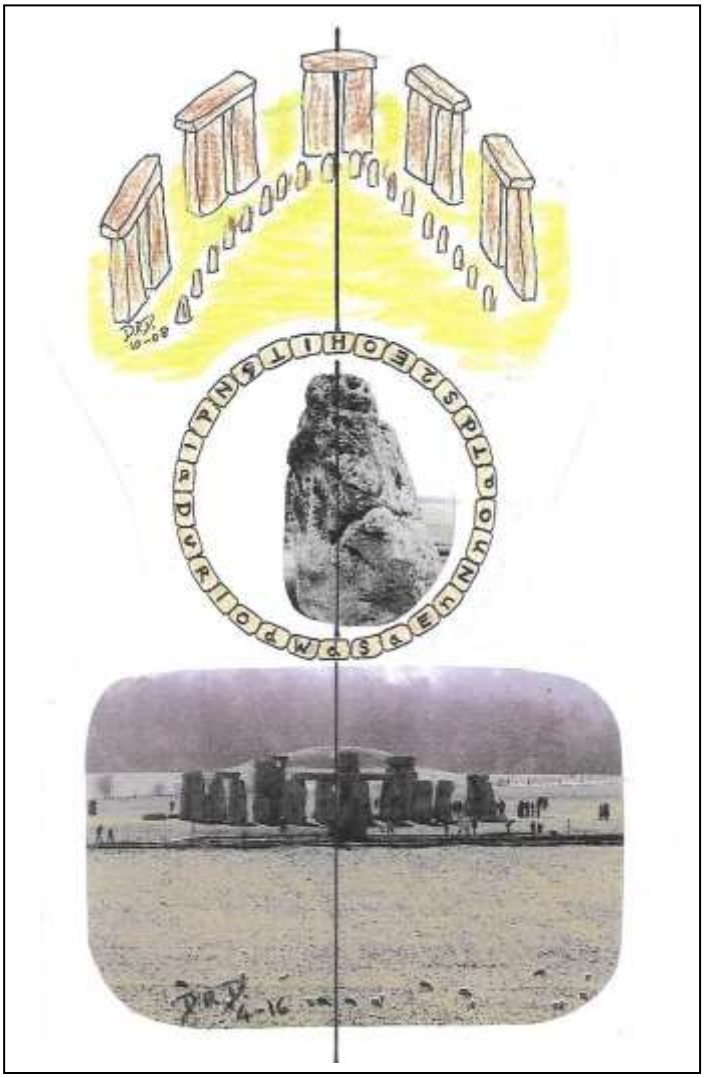
Constructed as circles they speak of cyclical time, or astronomical events that are continuous for many tens of millennia, repeating over many epochs without significant change or interruption. (This is distinct from the Sarsen and Bluestone Horseshoes that are finite in length and speak of fixed periods of time that have beginning and end in relatively short periods by astronomical measure).

The two circles give two number values that may possibly also constitute a pair of astronomical coordinates for a specific stellar object, i.e. a star or similar. This particular position within the design of Stonehenge, on the EDGE (as usual) of this very important Altar Stone, is clearly a fairly important zone and presumably worthy of 'something special'. The obvious problem is that this part of the Celestial Sphere at SSSR B.C. 2340 is so heavily packed with star and other objects that there is no particular way of distinguishing just one from the many. So therefore I leave this thought open for future consideration.

(b) Ffriw yr haul, from the Welsh, is translated as 'The appearance of the Sun'. Or even just 'The face' -or 'look' – 'of the Sun'. The meaning is there however the phrase is actually interpreted. This meaning and the transmission from generation to generation has been, through the medieval period, passed on presumably through several centuries, by the work of medieval scribes, monks, or whatever, ultimately dependent upon the eye-sight, quality of handwriting of the previous scribe, and probably quality of the candle or oil-wick lamp that the next generation of scribe had at their disposal. How easy, at some point, to have transcribed 'yr haul' as 'gr haul', especially if the new scribe was not too literate or not too familiar with the language with which they were confronted! Meaningless to a native Welshman and

probably to the third and following scribe in this process who did understand that this did not quite make sense and so altered even more, in his own way, to try and make sense of it, 'gr haul' became 'graul'. But it still did not look correct and so it became 'grael/grail'. 'The appearance of the Sun' became 'The appearance/look of the cup/drinking vessel'. Would that concept make sense to a medieval scribe, perhaps transcribing a story of ancient Lords and warriors (Knights) and their legendary lives?

By circular process and by continuous transmission and attempting to relate subjects within this ancient text, as it continued to be transcribed, eventually a story incorporating tales of legendary heroes who delighted in drinking strong drink from raised drinking vessels became interwoven with legends incorporating ancient and prehistoric monuments such as standing stones. Especially across South Wales and the Western part of Southern England. The story of the 'appearance, or look, of the Sun' written into the picture on the face of the Heelstone became the story of medieval heroic knights living their 'merrie' lives. But the grail was still linked, in the psyche of our Ancient British legends with a 'secret' buried somewhere and waiting to be found and brought back to the real world. Thus are legends born.



July 2018 (New Work) Stonehenge confirmed by yet another route

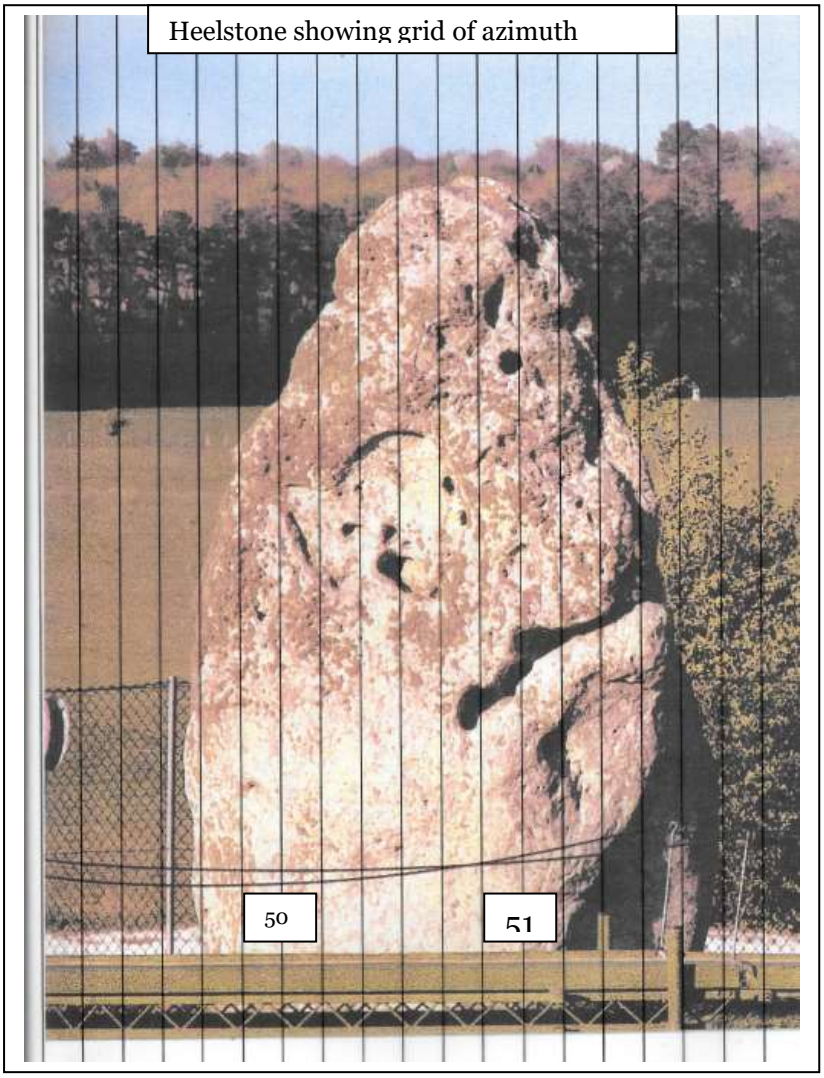
My re-visiting of the matter of the Main Axis at Stonehenge has been prompted after re-reading, after a gap of several years, the work of Martin Brennan on the Irish Passage Graves – 'The Stars and the Stones'. Still in print but now under the title 'The Stones of Time', these extremely readable and, at the time, provocative research results, relate absolutely directly to my own work and results on Stonehenge. With recent consideration I can say that there are very clear links between the two themes, excepting that his subject matter was created a thousand or more years before mine. The Irish Passage Graves demonstrate idea, theme, practise, results, architecture, construction materials and method that must surely take the genesis of the Stonehenge project back further in time and geography than has generally been acknowledged in Britain. A clear route back to a more ancient genesis that still contains a mythological residue of characters / names /stories, can only help to trace further the origins of the whole Stonehenge story. This route back should be acknowledged, embraced, explored. It must ultimately be to the good of the Stonehenge story. The following further exploration of Stonehenge shows how much progress can be achieved by such a seemingly small prompt.

In earlier pages of this script I have described, in some detail, certain aspects of the Main Stonehenge Axis through the monument, its double option of focus on the north east horizon on either side of the Heelstone ;-
1). One option to the left hand or north-west edge, towards the rising of the mid-summer sun in mid 3rd millennium B.C., and also towards the rising of the visible star Regulus (alpha Leo).
2). The second option to the right-hand or north-east edge, slightly further east. This option not immediately obviously pointing up any significant visible celestial risings, but, as I showed earlier in this script, leading to a very 'curious' but significant rising of the mid-summer solstice sun, c. BC 2340, coincident with a pair of very distant, naked-eye NOT visible stars in a very thinly populated area of the Cosmos. This celestial event being aligned and emphasised much more definitely by the main (and only really effective) axis that can be detected within Sarsen Stonehenge. (My 'Gun-sight' axis.)

It is possible to explore this scenario of Heelstone, Main Axis, Durrington Down local horizon, the 'Back Axis' toward the south-west, and other related aspects in much greater detail.

I have described earlier how we managed to obtain a very accurate azimuth value for the Heelstone by timing a late winter sunset passing behind the Sarsen Trilithon upright no. 56 (the biggest and most central stone of Stonehenge that still stands in its original hole, and is the remains of the great central arch of the horseshoe of Sarsen Trilithons). The azimuth value that we obtained for the centre of the Heelstone, as viewed from the Trilithon arch was of the order of 50° 43´. (Azimuth is the value of the angle between true north and the particular point towards a horizon that is of interest. North is azimuth 00°; north-east is 45°; due east is 90°; and so on back round until we reach 360° / 00°at due north again.)

Consequently (and curiously – fortuitously?) the Heelstone extreme left-hand (west or 'sunrise') edge just happens to coincide with the azimuth value for mid-summer solstice sunrise (S.S.S.R.) c. BC 2340 at 49° 38´. (Centre of sun on level horizon, altitude value 00° 00´.) The subject of altitudes around the Stonehenge Axis horizons will be extensively dealt with as part of the subject matter in the next few pages. Because this is the real world things do not happen so neatly – the horizon altitude beyond the Heelstone is some way from perfectly level 00°.

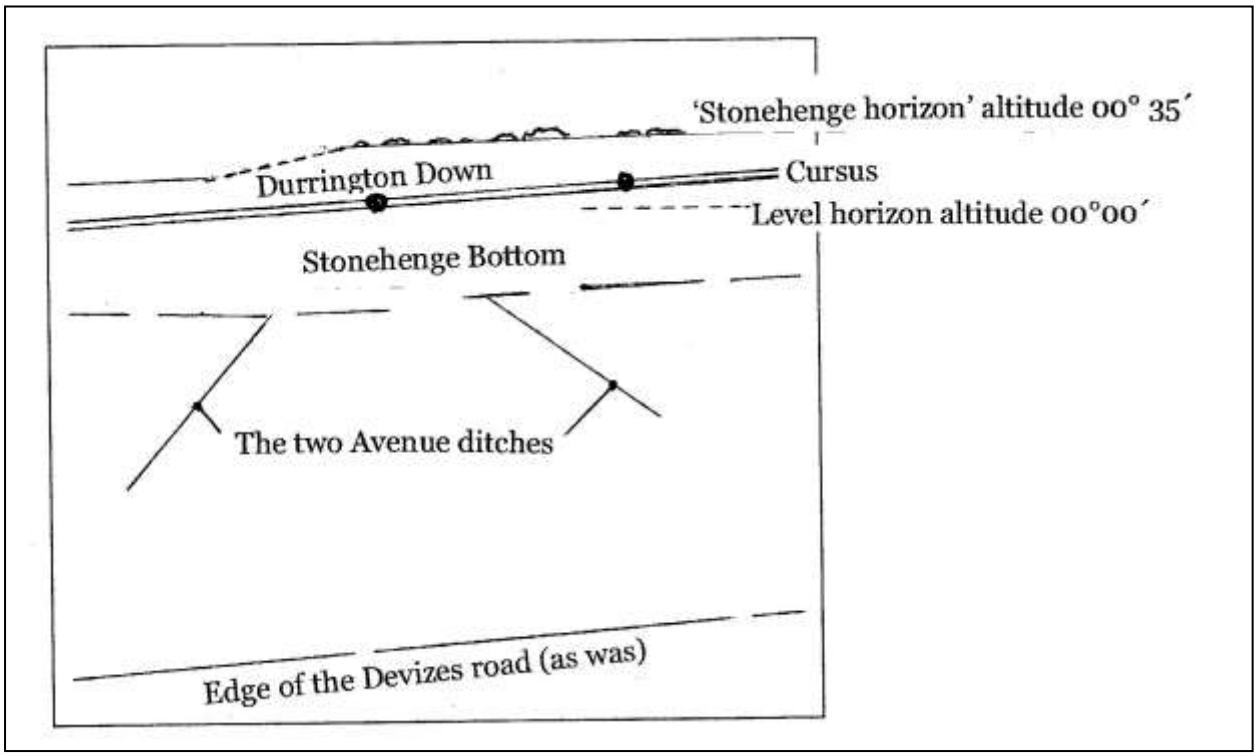


The horizon altitude, as measured from the central area of Stonehenge, is c. 00° 35´. (Source Ordnance Survey local large scale map.) (In our present epoch the observed horizon is 'spoilt' by the presence of fairly mature woodland, presumably left in place to help obscure the military barracks along the top of Durrington Down. There is plenty of scope for the hill-top to be cleared in the necessary place to see the sunrise properly without spoiling the military screen. One would think that with the amount of cash that is being generated by the appalling admission prices now being charged of the public wishing to see their own national monument created by their own ancestors, that there would be a miniscule fraction left over to get this hill-top sorted).

It is of interest, at this point, to examine in more detail the nature of the distant hill-top horizon of Durrington Down and how it meshes in with the matter of the view encompassing the Heelstone from the centre of Stonehenge. The first illustration below shows the general landscape across the pasture land from Stonehenge, down and up through the valley of 'Stonehenge Bottom', and on up to the Cursus.

The 'Stonehenge Horizon' , looking north east towards Durrington Down from a position next to the Heelstone

The distant top of Durrington Down. from the west it is very flat and level until it rises quite sharply, just before the view from the Avenue, and then continues toward the east at the higher level. The Avenue alignment just makes it on to the higher level. My main 'Gunsight' alignment is slightly further east, or right hand and is located just at a clump of very tall trees right of centre. Altitude of the horizon at that point is c. 00° 35´ to 00° 37´. Azimuth at the high tree clump is c. low 50° 40's.



The direction is about 50° east of north to encompass the line of the Stonehenge Axis. (The defining two parallel sides of the Avenue can be made out seeming to taper in towards one another as they head into the distance due to the effect of perspective.) A general 50° east of north also encompasses the direction of my 'Main Axis' or 'Gunsight' Axis that passes through the middle of Stonehenge from the south-west and about which there will be far more information as this text develops.)

The 50° direction takes the line of sight on up the distant hill, through an area of quite mature forestry, until it reaches the crest of the hill. The crest is also wooded and scrubby.

Of interest is the way that the crest of the hill is fairly level and a straight line from west to east until it has almost reached the 50°axis line when it rises in height quite significantly. It then levels off for a further distance to provide a raised, but again, very level sky-line in exactly the correct area to form a constant backdrop (foredrop?) for the Heelstone. I suggest that this very uniform skyline is as much a part of the Stonehenge plan and just as important to the monument as many other features. It is against this background (foreground?) that the full effect of any astronomical appearances will be displayed, marked, measured.

Within the second illustration I have shown the important features that need to be noted to follow the story displayed on the face of the Heelstone. (On the Cursus I have also highlighted the position of the only two thorn bushes along the Cursus boundary, They can be seen very faintly on the colour picture and are a very useful mark to gain one's bearings when studying this landscape.)

To consider the matter of Stonehenge within its landscape we need to start with the bigger picture clearly in our mind and then move on to specifics.

There is the monument itself and there is the landscape.

The monument was built with many properties, numbers and alignments, relating to many different aspects. The aspect that is dealt with at this point in this account is that of the 'Main Axis' or 'Gunsight'Axis. This axis passes from atop the large round barrow, Amesbury G 15, one thousand yards (or just over half a mile) to the south west, unobstructed through the centre of Stonehenge, and then exits through the 'Entrance', towards and clipping the edge of the Heelstone, before continuing across the pasture field, the Cursus, and up the hill of Durrington Down to the highest point. A total length of about two and a quarter miles. (The effect of 'clipping the edge' of the Heelstone will be seen to be very important as we proceed.)

From the centre of Stonehenge, out towards the north east and Durrington Down, the landscape is wide, relatively flat, open, and empty of any notable geological features or variation. This is the direction of the mid-summer solstice sunrise – empty flattish land and a distant, level hill range.

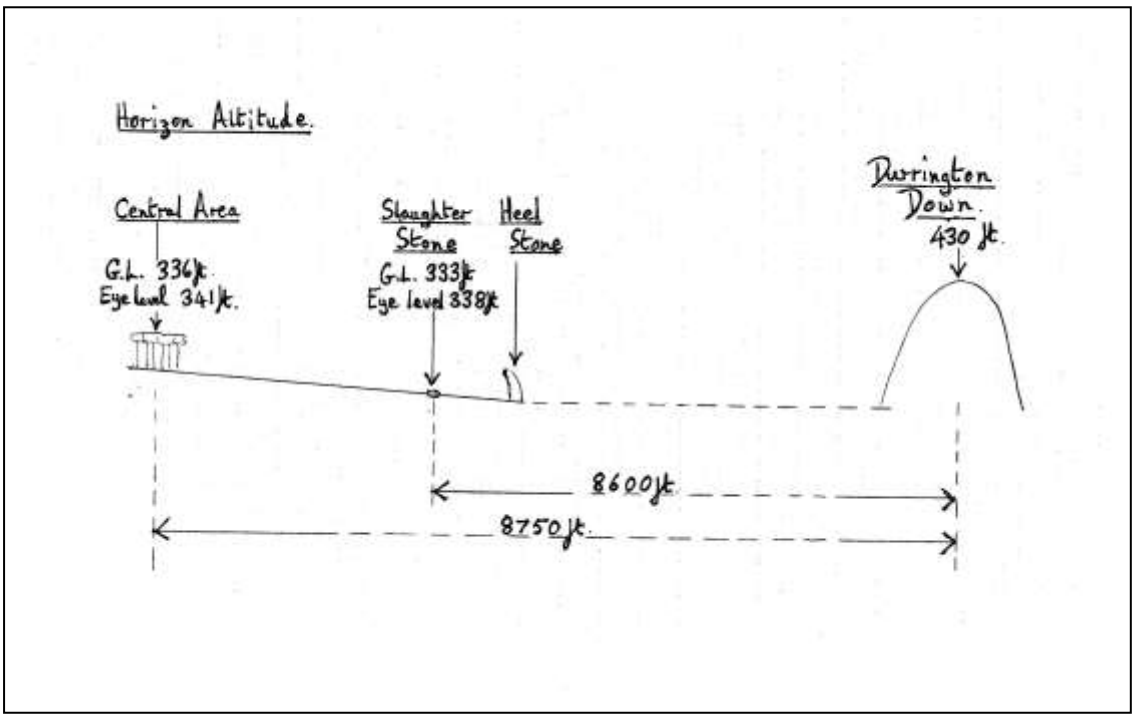
Into this empty view the builders of Stonehenge inserted the battered-looking, leaning, single stone that we now call the Heelstone, famous for its position

on, or close to any of several axes that different writers have attempted to prove have important astronomical significance (much to the despair of some within the archaeological community). Regardless of the various arguments that are often raised about the astronomical purpose of the Heelstone and whether or not the builders were aware of and intended this fit between stone and sky, it can be said with absolute certainty that the Heelstone DOES stand as a significant marker of mid-summer solstice sunrise, and COULD be used to pinpoint this annual event.

It can be said that, to an observer, the sun rose to the north-east or left-hand of the Heelstone at mid-summer solstice and passed either behind, or across the top of the Heelstone, DEPENDING upon where the observer stood along the central main axis between Stonehenge central area and Heelstone. The sun orbit track upwards at this point in time, latitude and azimuth location on the horizon, is inclined at c. 31° to the horizontal as shown by the upward inclined orbit tracks shown in a number of my illustrations. (The upward inclination of 31° applies to the majority of celestial bodies rising above the Stonehenge horizon at this point, all other factors being equal.)

The azimuth point of rising, at a particular epoch and date within a few decades, shows little change, and for mid 3rd millennium BC can be regarded as fairly stable. (There is a very slow increase in the sun azimuth value for the sunrise at Stonehenge, amounting to about one degree over 4,500 years, but this can be disregarded for the purposes of this present work.)

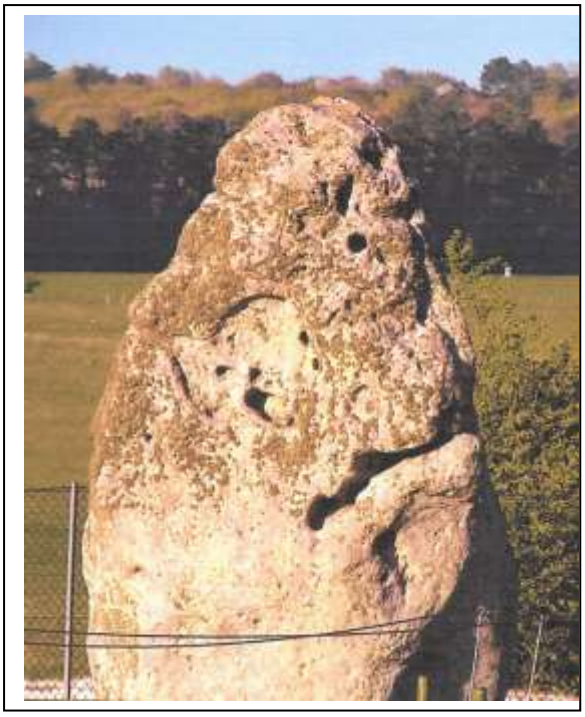
What is not quite so fixed and constant for sunrise at mid summer solstice at Stonehenge is the vertical position of the Heelstone and its top relative to the rising sun and the horizon. The relationship between the top tip of the Heelstone (and the whole stone) and the horizon, and hence the sunrise as seen from the Main Axis, is completely dependent upon the position of an observer along that main axis, and the attitude or posture that the observer might choose to adopt. The horizon 'altitude' is fixed, but the relative height of the top of the Heelstone can be manipulated by change of viewing position.



Horizon altitude values

Central area;	Ground level 00° 37´
	Eye level (+5 ft.) 00° 35´
Slaughter stone	Eye level (G.L. + 5 ft.) 00° 37´

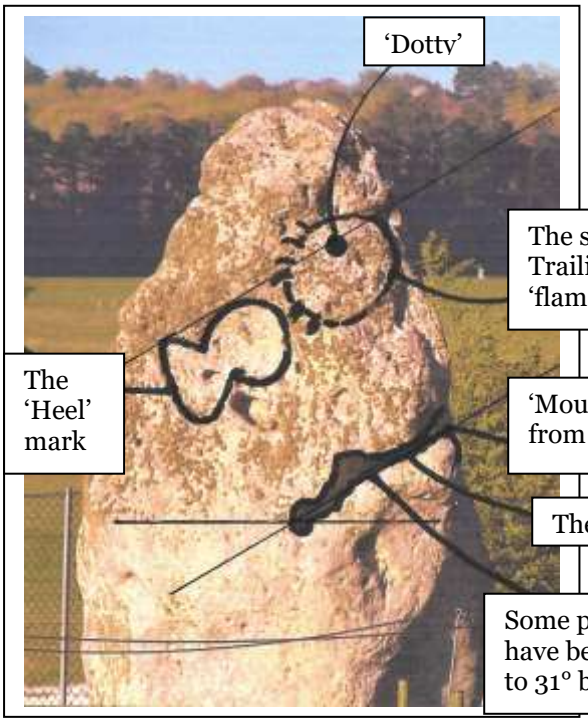
Upon reflection this is actually a very clever exploitation of what could have been a stumbling block in the effort to design and build a monument with a very clear and specific purpose, but at the same time trying to accommodate the important but inherently difficult objective of clearly showing a very precise viewing point that would endure for the life of the monument. On the one hand Stonehenge had to be a very accurate 'working' design that could actually accommodate real people to see and celebrate the 'main event'. On the other hand it also had to be a very precise, very accurate 'description' of a particular celestial event, phenomena, scenario, that might not be immediately obvious to the people participating in its celebratory life – the people who had worked so hard to construct it. The final result of the 'unfixed' viewing point was to accommodate real people of different sizes and possibly quite large numbers, (tens or dozens rather than just a handful), to actually participate in associated ceremony on the due date, whilst at the same time a design was achieved that accommodated a very highly accurate description within the information contained therein. The pages ahead deal with the result of this 'system'.



The 'Clean' Heelstone as seen

The main features are visible . As seen from the direction of the central area, along the Main Axis.

Looking towards the direction of mid-summer solstice sunrise. Azimuth c. 50°



The notable features marked out.

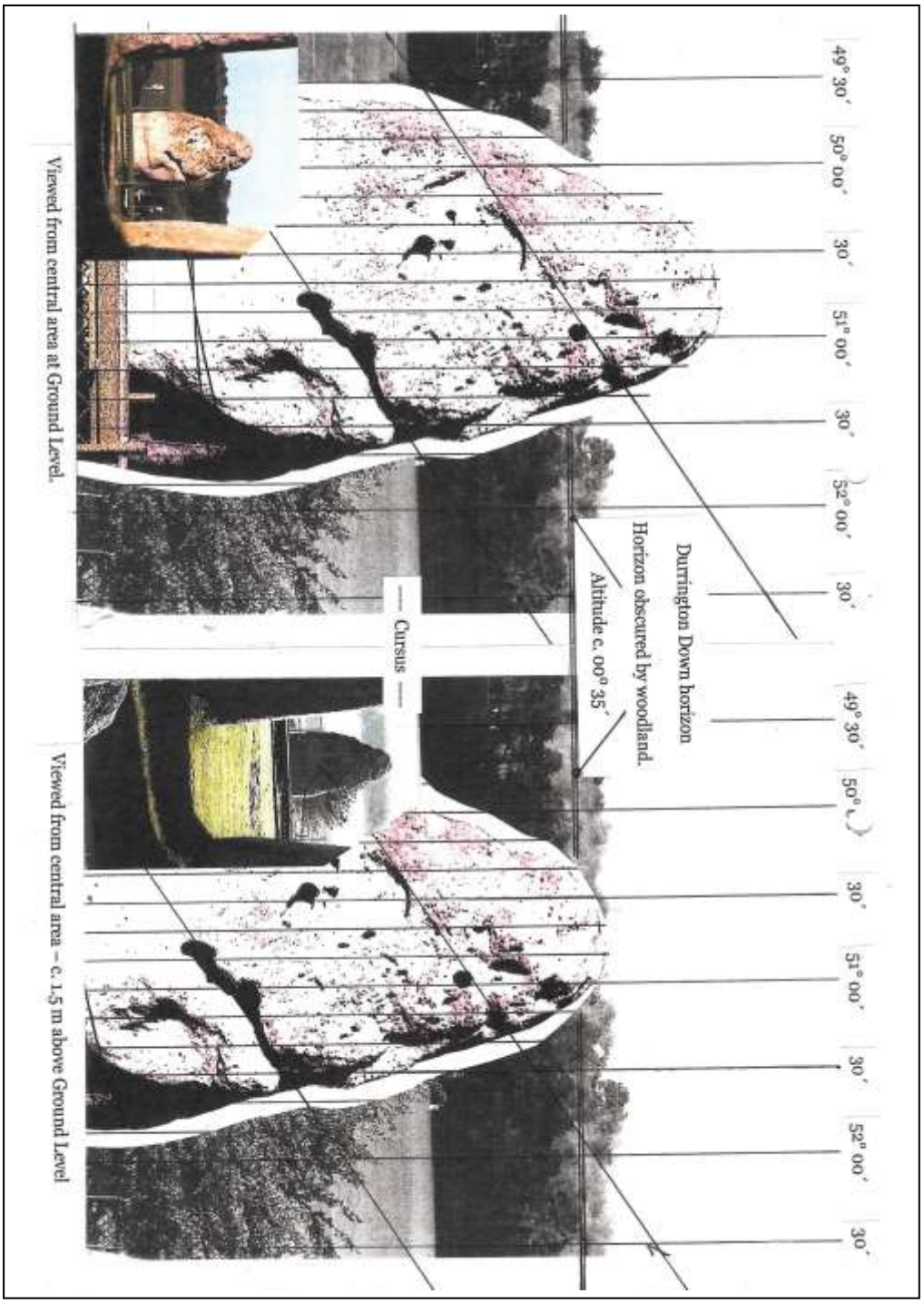
The upward slanting lines are at 31° as ascending celestial tracks.

It was never possible to indicate one fixed position for viewing sunrise. It was always going to be potentially a cause of uncertainty in deciphering a purpose. I would argue that this scenario was always recognised from the early days of designing Stonehenge, and it was in fact turned to advantage.

In my earlier pages I have shown how the face of the Heelstone contains significant features from which it is possible to create a 'picture' of the cosmic sky at the ancient date and event of mid-summer solstice sunrise – specifically at BC 2340. Now I think it is possible to further fill-out and reinforce this

same picture by exploring the several ways in which the variable viewing positions towards the Heelstone and the solstice sunrise that are then seen can be achieved.

(A)



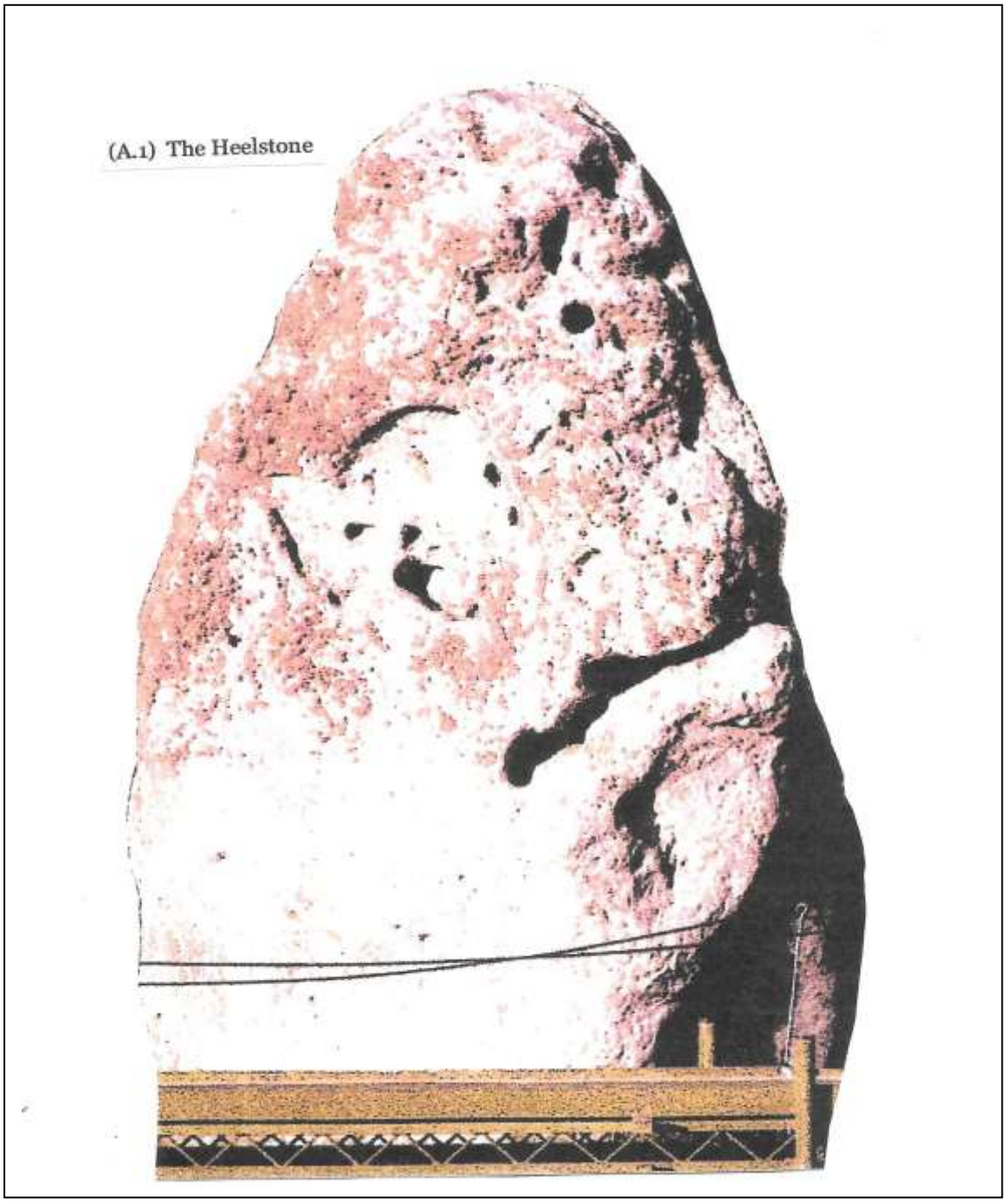
(B)

The double illustration of the Heelstone on this page (P. 108) shows the change ofHeelstone top aspect relative to the horizon when viewing point is changed. Figure (A) shows the aspect as seen from GROUND LEVEL within the Central Area of Stonehenge. Figure (B) shows the aspect when seen as an observer would see the Heelstone from the central area with a typical eye height above ground level of c. 5 ft.

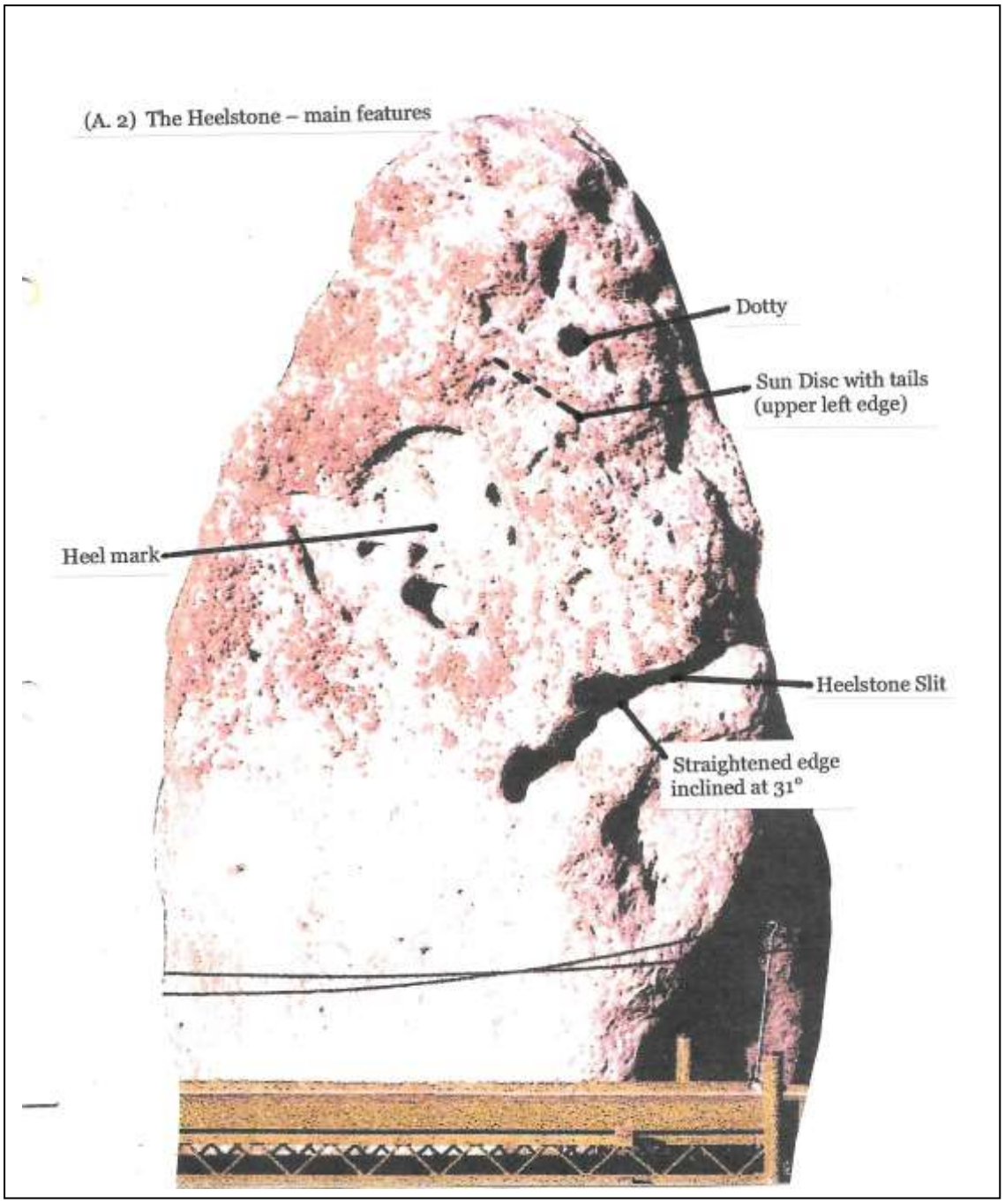
Figure (A) also shows the aspect from a viewing point down the slope of the Main Axis about at the Slaughter Stone position. The top of the Heelstone is now well above the horizon. It is very important to understand this arrangement because the view of Heelstone top and horizon shown in this figure (A) is exactly the same view that is designed from ground level in the central area but the central area viewpoint is not possible because it would need the observer to lay on the ground with their nose on the ground in order to see it. The view of the Heelstone top relative to the horizon as seen from GROUND LEVEL in the CENTRAL AREA is the true astronomical aspect of the sky in this area beyond the top of the Heelstone if Stonehenge is to be interpreted as showing a picture of a specific astronomical scenario at a specific date (point in time). This is the purpose of the true astronomy that is incorporated into the monument and is the true basis of its construction. At the same time a practical 'real-time' view of the focus of the monument, sufficient for interested observers to actually see, is easily possible from the Slaughter Stone position - view A, (depending upon how tall they are – the height of their eye-level), but always on the Main Axis.

The following illustrations show how the Heelstone face as seen from the central area and Main Axis can be brought together with a particular, specific celestial event. They show how the particular sky, at a very precise instant in time, coincides with the combined 'features' on the Heelstone face. These assorted features may have been partly formed during the natural processes of rock formation aeons ago. But I suspect that natural features were somewhat 'modified', altered, shaped as necessary by human hands and eye-sight. The challenge of battering features into an enormous, hard sandstone rock as if 'sculpting' a piece of softer limestone, may sound a daunting task until we reflect upon the way in which many of the sarsens were shaped, 'straightened', jointed, during the construction. Truly there was little involving these megaliths that seems to have been beyond the capability of the builders. Certainly exploiting a 'naturally shaped' rock and altering it into its final construction form was possible. By whatever way the features on the face were formed, the fact is that they are there and do fit into the 'picture' now shown. The sequence of illustrations begins with the 'clean' natural Heelstone and develops onward.

(A.1) <u>The Clean Heelstone</u> Picture A.2 shows the same view with main features picked out and labelled.



(A.2) <u>The Heeklstone with main features.</u>



'<u>Clean' Heelstone.</u> The features shown and labelled on the illustration on p.107 are visible here. From upper right hand downwards can be seen;-

- The 'sun disc' with fiery, flaming tails on its left flank.
- Contained within the disc is the deep, very smooth, circular 'cupmark' labelled' Dotty'. Very black, very prominent even from a distance. -
- The famous 'Heel mark' that has given this stone its name.
- The Heelstone 'slit'. This deep fissure running diagonally up the middle of the stone from left to right, looks so very natural. Perhaps much of it was originally. But a line, up through the slit and inclined at 31°, goes the full length including the very straight central part, just as the beams of light once

cut along the passageways of many of the Irish Passage Graves for astronomical reasons. The widening of the slit at the bottom (a chamber?) is also very reminiscent of the inner chambers of the Passage Graves. This detail will become of very great significance shortly. (31° is the angle of inclination of rising celestial orbit tracks in this current scenario.) Who 'straightened' the edges, so correctly, in ancient times? The bottom, central, start of the slit almost precisely touches the central azimuth line of the Heelstone at 50° 43'.

- At the top of the Slit is the 'Exit' or 'Mouth'. Once again a seemingly minor and insignificant detail of the Heelstone to any casual observer, this little detail will shortly be seen to be the whole focus of the Monument, the focal point of a very complex, very precise plan

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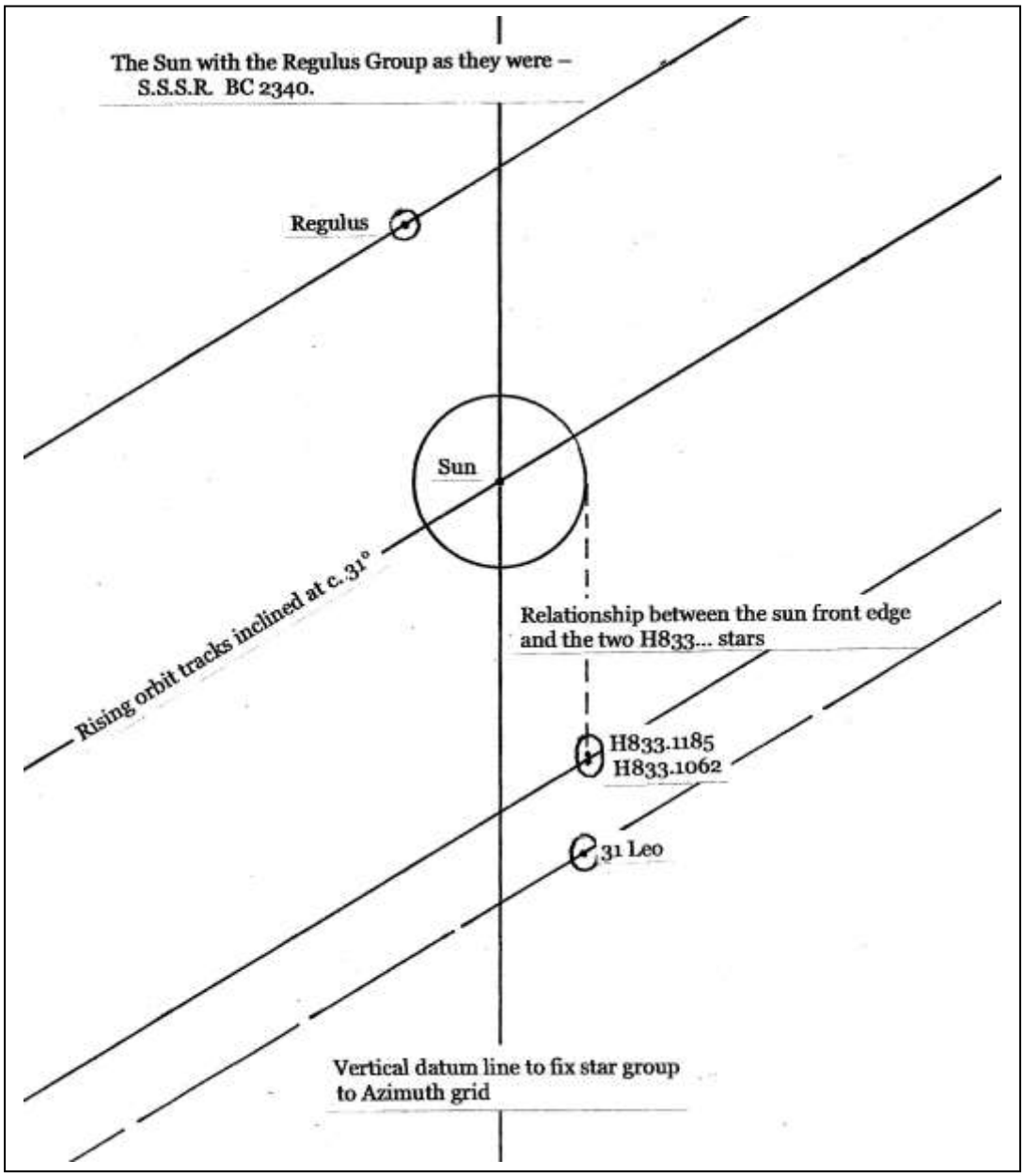
(B) <u>The Regulus Group and Sun.</u> S.S.S.R. BC 2340. Azimuth c. 50°



Regulus group and Sun BC 2340, sunrise, summer solstice. North-east horizon azimuth c.50°, altitude c.00°.
The group, (in constellation Leo), contains the bright, naked-eye visible star Regulus (alpha Leo) at the top; The much less visible 31 Leo at the bottom. So far as other stars are concerned this is a fairly thinly populated part of the galaxy compared, for instance, to the Milky Way. But it does contain the two very distant and obscure stars H833.1062 and .1185 that are only visible through a powerful telescope. Regulus lies very close to the ecliptic.

Once per year the Sun and Regulus are in very close proximity to each other as the sun travels on its annual circuit, along the ecliptic, and through the constellations of the Zodiac. (There are very few bright stars that lie close to the ecliptic but Regulus does.) Uniquely Regulus and sun just happened to have their very closest passing exactly on the day of summer solstice circa BC 2340. Because of Precession of the Equinoxes the relative positions of sun and stars slowly and steadily changes with the passage of time. The near union of sun and Regulus, at summer solstice, had not happened previously and will probably never be repeated. It was a unique and one-off event. It just happened to occur at about the time that archaeology now believes that Stonehenge had been more or less completed sufficiently to use just after mid 3rd millennium BC.

That is one of the reasons why my Stonehenge project is all based upon summer solstice BC 2340. (It should be remembered that none of these stars are visible by day or when the sun ic close to rising or setting – twilight. And none are likely to be visible close to the horizon due to Earth atmosphere. But again this consideration will come into discussion further on in this script.)

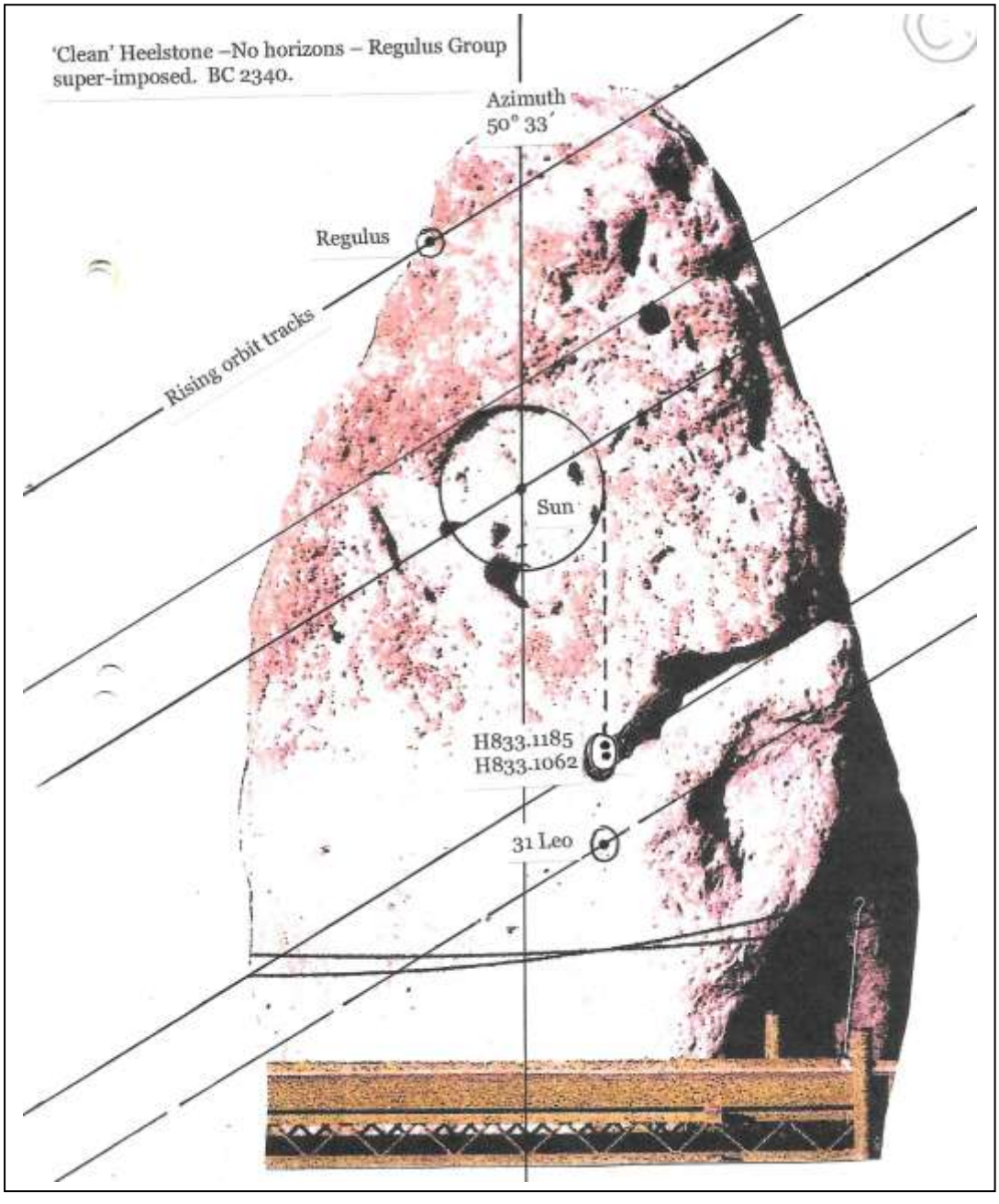
The two stars, Regulus and 31 Leo give a reference point to help locate the two small, distant stars. Hence the title of 'Regulus Group'. They also serve to orient the group relative to the horizon and Heelstone. Because the group is large enough to be oriented in this way it can be satisfactorily represented within the overall 'picture' as it develops.

My illustration, above, of the Regulus group also defines the relationship between the leading edge of the sun and the two H833... stars. Once again, uniquely (and very astutely) the designer of Stonehenge managed to select the specific date of S.S.S.R. BC 2340 and the meeting of sun and Regulus as the one unique date when the sun leading edge (first flash?) would exactly be on the same azimuth value as the two H833... stars. In other words the sun leading edge and two stars would be perfectly aligned vertically just at the moment of sunrise at the summer solstice. In other words, if these three could be aligned against a vertical face at sunrise then all three would rise together.

The other star to mention is the sun. Its form and position are clear enough. There are all sorts of subtleties about its shape and slightly curved rising orbit, refracted diameter, etc. but these matters are not required here. For this exercise it has a diameter of c. 31/32 arc minutes. As position is normally quoted for centre then adjustment has to be made for timing of first or last flash for rising/setting. Its azimuth bearing is very slowly changing through

time but this is insignificant over a short period. Suffice to say that the sunrise/set that we see in our modern era is about a degree further along the horizon than it was at the time of the building of Stonehenge. This can distort an attempt at trying to recreate summer solstice sunrise as it was then.

(C.) Connecting the Heelstone and Regulus Group



It is now possible to put together Heelstone and Regulus Group.. The Regulus group is shown superimposed on to the Heelstone. No horizon background.

This is an astronomical 'picture' obtained by linking many of the prominent features on the face of the Heelstone, applying the actual rising celestial orbit tracks, inclined at c. 31° to horizontal, and scaling the relative separations – vertical and horizontal – of the various objects to match the angular dimensions within the size of the Heelstone. (I.e. The Heelstone has angular dimension for the horizontal that corresponds to altitude in this scenario, and angular dimension for vertical that corresponds to azimuth.)

(It is worth noting at this point that the Heelstone, when viewed against a distant horizon, does not have its own angular values. Rather, it becomes part of the whole picture and adopts and shares the same values as that distant horizon. Visually it becomes a part of the big picture. The horizon has angular values and the Heelstone can be viewed against that horizon and its values. But the Heelstone can only share the same angular values as the horizon if it is that horizon that is the objective. To try to calculate and impose angular values on the Heelstone itself would be a fallacy. One can only impose the features of the Heelstone, as seen, on the view. Any celestial movement across the Heelstone has to be applied at the same scale as the distant horizon, with the Heelstone itself against that horizon.)

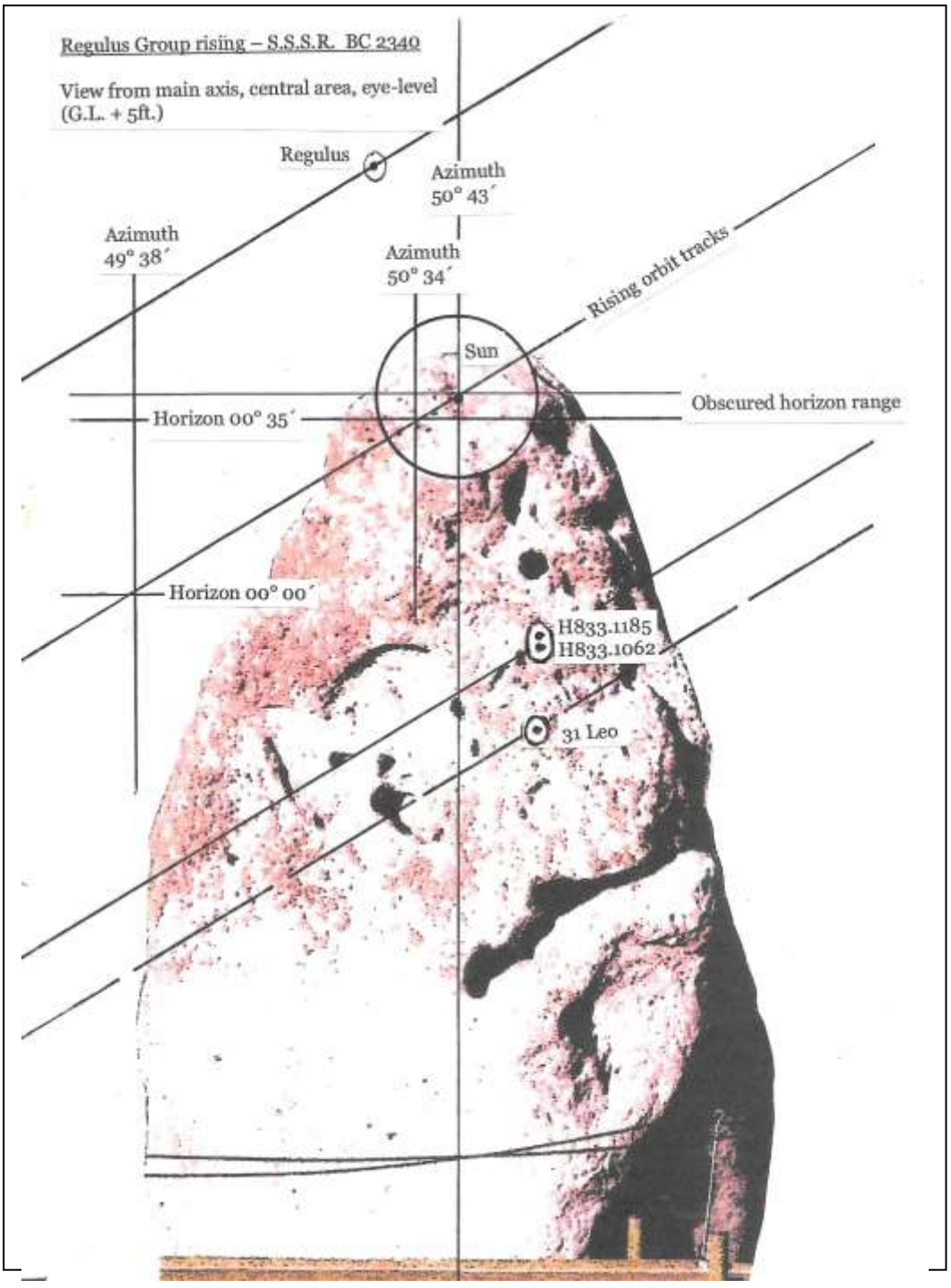
An orbit track at 31° inclination for the top edge of the sun circumference connects the top edge of the 'Heel' mark and its lower top point with the top edge of the deep and very circular 'Dotty' feature at the top right hand sector. The fit of sun and Heelmark is remarkable – almost as though intentional? (Bear in mind that scaling of sun and stone are identical.)

On the top left hand flank of the Heelstone Regulus fits very neatly and conveniently into the small notch of the, otherwise very straight, Heelstone edge.

Lower down and centrally placed on the face of the stone the two H833… stars sit exactly within the lower chamber of the Heelstone Slit. Their position is exactly below the leading front edge of the sun disc. Their orbit track, ahead of them, should take them exactly up the slit, grazing the 'straightened' section, depending upon which of the two is given priority.

The other larger star, 31 Leo, does not appear to fit any significant features. It is included onto the Regulus group to give scale and orientation.

(D) Sun and Regulus Group Rising. S.S.S.R. BC 2340
Main axis, Central area, Eye-level (c. 5ft.)



Horizons. The aspect from different view points can now be considered. It will be remembered that I described, just previously, how the viewing point across the Heelstone could be varied by moving up or down the main axis, towards or away from the Heelstone. That is the reason why the design of Stonehenge never included a clear and specific viewing point. Because the viewing point and the visual relationship between Heelstone and Durrington

Down horizon could be varied to give more than one 'situation' using the celestial picture on the Heelstone face.

In this first actual view, the viewing point is Stonehenge central area, main axis, 'eye-level'. This position has effectively elevated the horizon of Durrington Down to a point that it is about level with the top of the Heelstone. (Or 'lowered the Heelstone – manipulated it - to the required position. Imagine a full-size wooden or cardboard copy of the Heelstone complete with all surface markings that could be manipulated up or down as required.)

Again this is not a very precise point. It obviously depends upon the height of the eye. (I have used c. 5ft. / 1.5m as a demonstration. I do not have any other figure for the average eye height of Late Neolithic people.) It is actually a practical viewpoint and view. The eye position can be adjusted here or there so that the observer can feel that they are witnessing and generally 'absorbing' the important 'moment' , whilst not needing to see with precision. It is the practical, popular view – non-specific, precision not needed.

It is the 'classic' or spectacular view of the Stonehenge Summer solstice sunrise and would have been good for several days around the solstice, and for many years before and afterwards into the future so long as people were happy to see what they expected and hoped for. The sun has risen slightly to the north west or left hand of the Heelstone tip and climbs to the top to fit for an instant exactly central and, depending on your height, perhaps half-orb on top of the stone. Notice how the orbit track of the ascending sun exactly matches the sloping top left hand edge of the Heelstone. The sun is literally 'climbing up' the side of the Heelstone. For the mass of people who worked so hard to build Stonehenge this is what it was all about. This is what they dreamt of seeing, but several generations were to come and go before the lucky ones made it.

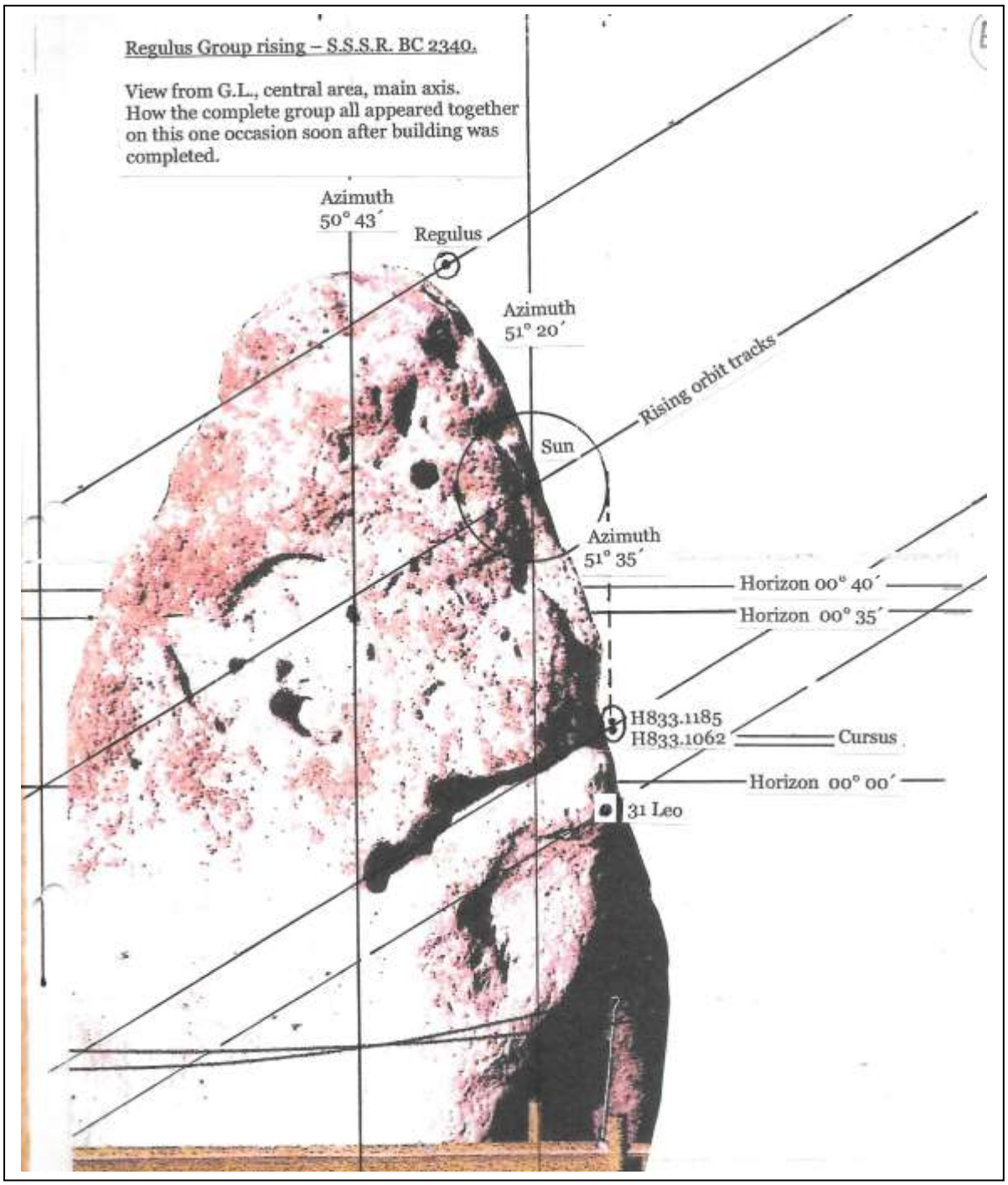
Many commentators, writing books over the years, about different aspects of Stonehenge, have commented that they believe the 'Classic' view of The Heelstone to be the main purpose of the monument. Many of these have commented upon how this Classic view does not quite seem to 'fit' the actual layout; how the sunrise always seems to be 'not quite where it should be'. There is a general feeling amongst the 'non-expert experts' that the view should be of sunrise exactly from the centre; exactly through the centre of the 'Entrance' between iprights nos. 30 and 1; exactly down the centre of the Avenue. Unfortunately 'general feelings,', intuition, 'it seems obvious' are not good enough reasons to accept that a particular opinion or 'widely held view' is correct. (Frequently I find that 'widely held views' are more likely to be 'non-expert experts' repeating views that they have acquired from other 'non-expert experts', ad nauseum, because they are unable to form more cogent explanations themselves but status requires that they say something. In life, and probably in astronomy, it is often the 'odd-one-out' , the anomaly. the slight aberration that gives the clue. The main focus and alignment of Stonehenge was never meant to be this Classic view. That is why solstice sunrise has never fitted with precision. The Classic view was for the buliders, the 'labourers', the 'common man' who could not have understood deeper meaning. (And was probably not too interested anyway.) As this script

develops we shall see reason to identify a far more important view of the Heelstone.

For the designer there was other information within the sunrise scenario, invisble to the naked-eye observer but implicit. We can see, from the plan, that as the sun stood atop the stone, just for a few moments the two h833… stars were within the deep 'Dotty' pit. (For the interest, at this instant the sun centre azimuth value was exactly tight against the edge of the bottom 'chamber' of the Heelstone slit.) As the sun began to progress beyond the top centre and continued to ascend, then the two stars also ascended towards clearing the stone edge. Finally they cleared the stone moments after the rising sun had fully cleared the horizon.

But sun and the two stars did not just clear the Heelstone. It was more clever than that. At the moment that the two stars cleared the edge of the Heelstone they sat exactly on th true zero horizon. In other words they sat within the angle formed by vertical Heelstone edge and horizontal level horizon. But there was more. As they touched this positiopn the sun cleared the top corner and its lower edge just about sat tangent on the Stonehenge horizon of Durrington Down. (Altitude 00° 36´ works better than 35´ - that is how precise it could be.) (Of course this could be a lucky chance!) To the designer the implication must have been clear – at the instant that the sun sat tangent, then the two stars had risen and were now into the sky. This whole scenario unique to just one summer solstice in BC 2340. (Still quite close for a few years either side of that date, but never to be repeated once Precession had caused solstice sun and stars to drift apart.)

(E) The rising of Regulus Group- S.S.S.R. BC2340 Based upon the fit of the group with the features of the face of the Heelstone.



(D) The Rising of the Regulus Group. S.S.S.R. BC2340

This second variant on the horizon theme underlines the ingenuity of the way that the Heelstone was incorporated into the sunrise horizon scenario. In point of fact the method of incorporation of the Heelstone was extremely simple but extremely clever.

To begin with there was a viewing point – the ground level floor of the Central Area of Stonehenge, Main axis, -, and a sightline toward the backdrop of Durrington Down the Cursus, and the hill-top horizon. On to this 'picture' was 'painted', or manipulated, the Heelstone in such a way that its horizontal relationship with the backdrop was selected by choosing this viewing position from other potential viewpoints. (Visually the Heelstone could be 'raised' or 'lowered' to affect how the sun was actually seen against it as it rose on summer solstice day by lowering or raising the viewpoint. Always the Heelstone is securely fixed to its vertical azimuth range – centre line c. 50° 43´.)

Because of the need to vary the Heelstone / horizon relationship there was never indicated a fixed viewing height. If it had been needed it could have been done by such means as one or two horizontal slabs / lintels with a sightline across the circles. Such a structure would have needed to be very substantial – big, heavy – to survive the inevitable onslaught of time and humans. There has never been any evidence of any such arrangement whatsoever, anywhere within the monument. The only horizontal slab that was, in my opinion, intended to be as it now is, is the Altar Stone. Earlier in this script I discussed how I believe that the Altar Stone is intentionally positioned for other reasons. One reason for its position is to 'fix' and emphasise correct ground level which is part of this current part of the discussion. But this one stone is not sufficient to produce a sightline, only to determine and emphasise this level. Ground level itself is the datum point for this current Heelstone view.

As this is Stonehenge I would expect absolute accuracy in the way that any aspect of the design was planned and built. That is so with this second horizon scenario. As shown, the datum point for this Heelstone view is ground level within the central area (main axis – circle centre). This level is permanently fixed, easily assessed, and unlikely to be demolished, defaced, destroyed by later human interference. The ground level can be projected across valley towards Durrington Down. Dead level point along the azimuth line 50° 43´ is on the grass pasture just below the lower boundary fence of the Cursus. This point is altitude 00° 00´. It is highly likely that it was marked in ancient times by some feature such as a prostrate or standing stone. Perhaps with a ditched circle, such as the Heelstone still is. Here's one for archaeologists to explore in the near future.

The Heelstone can now be set against this backdrop and this horizon position. The rising sun and its orbit track are clearly shown on the face of the Heelstone by the large 'Heelmark' (shown on A2) that gives the stone its name. Now the sun centre orbit track can be extended to the left hand, downwards and backwards such that it intersects the horizon line at altitude 00° 00´, just by the left hand edge of the Heelstone. This should occur at azimuth 49° 38´for S.S.S.R. BC2340. This confirms that the Heelstone is correctly set in its Durrington Down backdrop.

The actual Durrington Down skyline – 'Stonehenge horizon' – is a continual problem to define because of the mature woodland along the hill-top and the almost impossible access arrangements for the Stonehenge central area that

English Heritage have imposed. Therefore I can only indicate a 'band' of potential real horizon somewhere in the region of 00°35´ to 00°40´. The scenario still works in so far as the slight flexibility now needed does not potentially reduce the very clever result.

Now that the Heelstone is placed, based upon the actual track of the actual solstice sunrise, everything else quickly falls into place. The initial scenario is as illustration (C) – 'No Horizon' . The sun is in the Heelmark; Regulus is in the notch at top left hand quarter. The two H833... stars are within the 'chamber' at the bottom, or deep interior, of the Heelstone Slit. Their azimuth is exactly below the front edge of the sun.

As the sun travels upwards on its orbit track, Regulus and the two H833... stars travel also. At c. azimuth 51° 35´ the two stars 'break out' of their slit – their 'birth passage' – into the clear air beyond the Heelstone, and above the level horizon at 00° 00´. As they do so they are born on to the backdrop of the Cursus – although I have not yet ascribed significance to this earthwork– almost certainly it is also very important as such details usually are when Stonehenge is concerned. At the same moment Regulus, also, clears the edge of the Heelstone at top right hand.

It is the sun that marks the whole process. As the stars are born, the sun has passed first flash and is almost exactly at half orb,. (It is worth remembering, at this point, that a rising or setting sun is a very bright circular object but does not have a clear, sharp, well-defined edge or boundary. It is a fireball with all of the visual uncertainty of precise edge detail that one would expect with any focus of great heat and light. It is probably pointless to argue whether the half-orb or full-orb is here or there precisely to the arc-minute. Although computer programmes and calculation can provide a sharp edge, in real life, and to a naked-eye observer there has to be some latitude as to exactly how the sun is positioned relative to a fixed point or how large it is.)

As the sun progresses and the whole orb comes clear of the Heelstone, it rises further and, for just an instant, stands, full orb, above the 'nook' where stone and soil meet, back edge touching the edge of the Heelstone. And then the instant is past, sun and all three stars are on their way upwards into the new day. A star is born! (Actually three – but only one is our target.)

The whole situation has been timed and marked by the rising sun on just this one Summer Solstice Sun Rise day of this one year of BC2340. It happened only once and probably will never happen again – ever - unique and for some very important reason needing to be marked and celebrated by the construction that became Stonehenge.

One other very clever aspect of this scenario is that the Heelstone has been 'set up', within its landscape and backdrop, to give a fully functional VERTICAL edge, VERTICAL horizon against which the risings can be shown. To show these celestial objects all together on a horizontal (flat) edge would have spread them over a larger azimuth range than would fit into the general design, but this vertical display is compact, 'tight', unifies the essential objects, and fixes them to azimuth that can be clearly demonstrated and emphasised

in the design, rather than fixing them to altitude and horizon that are so difficult to fix, describe, identify with precision. How's that for clever – Huh? Hence my earlier description of a Heelstone that needed to be 'moveable' within the backdrop for a more versatile process of passing on the information implicit within the design.

Somehow, within the flat and windswept arena of Salisbury Plain, a vertical picture has been created. With just one ancient and ostensibly battered rock, information has been passed far into the future and to a present-day race of people who would be hard-pressed to equal this achievement. We must salute the builders.

SOME STAR and SUN DATA Summer Solstice Sun Rise BC 2340

Sun on Horizon -- Altitude 00° 00 03h 48m 04s AM´

	Altitude	Azimuth
Regulus	00° 46.80´	49° 21.85´
Sun – centre	00° 00.01´	49° 37.93´
Front	00° 00.01´	49° 53.70´
Top	00° 15.95´	49° 37.93´
H833.1185	-- 00° 50.73´	49° 53.15´
H833.1062	-- 00° 53.31´	49° 53.31´
31 Leo	-- 01° 07.70´	49° 51.94´

Sun on Durrington Down Horizon -- Altitude 00° 35´ 03h 52m 55s AM

Regulus	01° 21.74´	50° 18'13´
Sun – centre	00° 35.00´	50° 34.45´
Front	00° 35.00´	50° 50.36´
Top	00° 51.08´	50° 34.45´
H833.1185	-- 00° 15.51´	50° 50.27´
H833.1062	-- 00° 16.05´	50° 50.43´
31 Leo	-- 00° 32.50´	50° 49.20´

SUMMARY.

From the previous 20 or so pages of this more detailed work, so far, concerning the information gained from the face of the Heelstone, some useful conclusions can be drawn:-

1). The Regulus Group and sun, as described, fits the features of the Heelstone extremely well in scale, proportion, and as a direct picture of an event at the particular date of S.S.S.R. BC 2340. To identify this picture the Heelstone has been seen within the wider landscape, exactly as it now stands and has always stood since first erected. This is a perfectly simple fact – the Heelstone is where it is and as it is. No argument or conditions needed. The features it contains on its face also are where they are. There is almost certain to be argument as to whether or not they were intended to be interpreted in this way – dismissal even. So far as I can see the whole forms a unified picture that is unique in the ancient world.

2). From out of this picture has come confirmation, by the simple but very long 'Gun-sight' axis, of the fact that there is another primary focus of Stonehenge, rather than marking S.S.S.R. This very important primary focus is shown within the event, at the correct date, on the face of the Heelstone. The next section of this script will deal, in great detail, with the facts of the Gun-sight axis and the integration into the Stonehenge plan of that part of the axis that is the reverse axis towards the south west landscape.

3). I have offered a strong reason why so many people feel that the marking of S.S.S.R. and its axis is the primary objective of Stonehenge but yet this event never quite fits correctly into the actual picture. It is because S.S.S.R. is what is actually seen, and what so many want to see in this place and context. The old, old criticisms and contra-argument by the anti-astronomy group against an astronomical link for Stonehenge achieves very little, if anything. Better that they could turn their thought and argument towards other possible areas that would actually move the Stonehenge story forward. Let interested people continue to follow the mid-summer sunrise at Stonehenge because they are correct that it was and is part of the story – just not all of it.

4). The most fundamental result of this section of my story is to show that there is a far more important objective for the erection of Stonehenge. It is to identify – pin-point – the very distant and apparently very obscure pair of stars, H833.1062 and H833.1185. I know nothing whatsoever of these two. I know not how distant they are from us, or how close they are to each other. They possibly appear close merely by their sightlines to us, and they could actually be displaced along the sightlines by a great distance. Their great importance is demonstrated by the fact that they have become the primary focus of Stonehenge, the reason for its creation. This must be a very important reason. Probably argument will be short, sharp and pointed – impossible, complete rubbish – no way that primitive people could even be aware of such knowledge let alone create Stonehenge to exploit it. How very, very often has human kind taken this position. How very often has 'intelligent' hominid preferred to demonstrate his superior knowledge and judgement only to be shown to be completely wrong soon after. How many

more Galileos and Darwins, etc. does the human race need. All we need is for the scientific community, with its enormous technical resources and budgets to focus in on these two distant stars.

5). In demonstrating that describing this celestial event of the rising of these two stars within the Regulus Group / sun at BC 2340 was the primary objective of the creation of Stonehenge, I have shown that the main focus of the monument, along the Gunsight axis, is the right hand edge of the Heelstone, and that this is a representation of a vertical horizon. A vertical horizon to demonstrate the celestial events of the selected date rather than trying to fit the event on to a horizontal horizon. A horizontal horizon could have failed for various reasons that I have described, such as that the Regulus Group would have needed more than 5° of horizontal horizon across which to rise. The same event needed about 2¼° of vertical horizon. It could be difficult to establish a permanent and clear horizontal horizon that could confidently be recreated in the future. Also it could be difficult to avoid uncertainty about the intended altitude of a horizontal horizon at a future date. There are probably further reasons why a vertical horizon is better than horizontal.

At the same time I have demonstrated where the main axis is and why. I have shown that the S.S.S.R. / Avenue axis was and is a secondary feature – useful to keep the context of Stonehenge alive and functional to the world at large over the millennia. In the next few pages I will complete this explanation.

6). A reasonable degree of astronomical precision has been needed to get to the current point. It will be argued that there is no possibility that primitive man could have used such means and achieved such results. So therefore the whole thing is not possible. It seems to me that such an argument is rather the wrong way round. The point is to demonstrate the result and then try to explain the reasons and the method, rather than to try to prove intellect and then, afterwards, look for possible achievement. It would be hopeless to try to prove the depth of knowledge and intellectual ability present in an ancient population, and then base upon this their construction of intellectual achievement. This would be the wrong way round. The value is in the actual achievement, not in a possible result. The fact is that Stonehenge is there, and, merely by its presence this has led many people for many years to try to explain how it was done. The ability and achievement are already there – now find the means and the method.

The Principle Axes - The Sunrise Axis and the Stellar Axis.

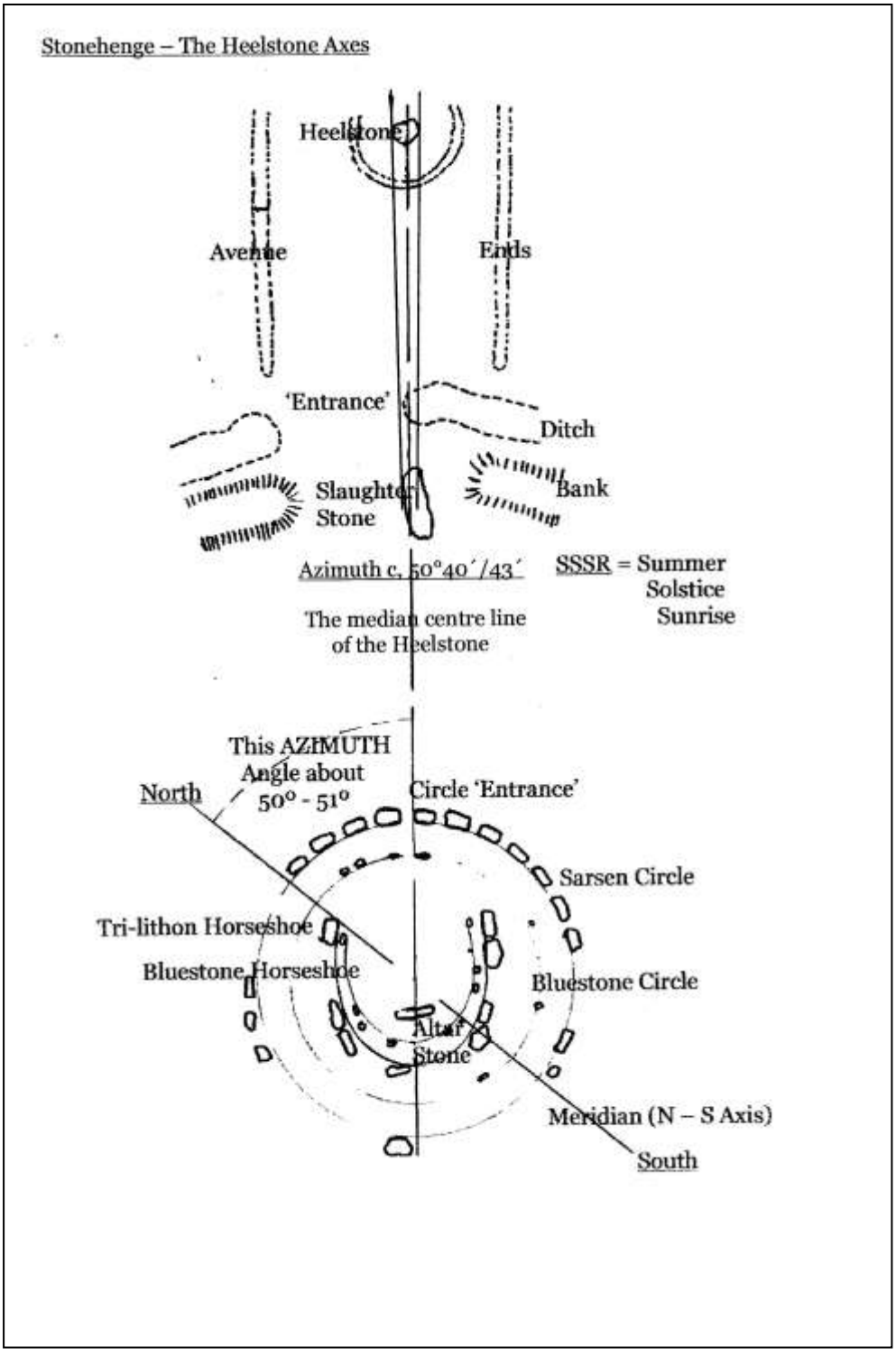
Within the context of Stonehenge, its astronomy, and the general form of its design, layout, and construction, any principle axis would be expected to arise from, or pass through, the centre point insofar as the centre can be found within the ruinous condition. I am aware that even in our present time people argue about 'where is the centre', 'which centre'? Some surveys show centres for different construction phases. These arguments are not particularly helpful in the context of where the present axes run. It seems to me that the actuality is what can be seen on the ground.

Plans on paper often tend towards 'perfect'. The reality, when seen on site, does not always match paper plans. Plans cannot show the subtleties of the shape of stones, nor definitely correctly describe the position of fallen and missing stones. Plans cannot take into account the backdrop of landscape or horizon. Plans cannot easily show lines of sight – alignments. Plans can easily lead to conclusions about such matters that do not work when actually checked on site. Similarly attempts at resurrecting – reconstructing theoretically – where stones may have stood on the completed Stonehenge are very tricky, uncertain, immediate material for criticism that is so often purely destructive.

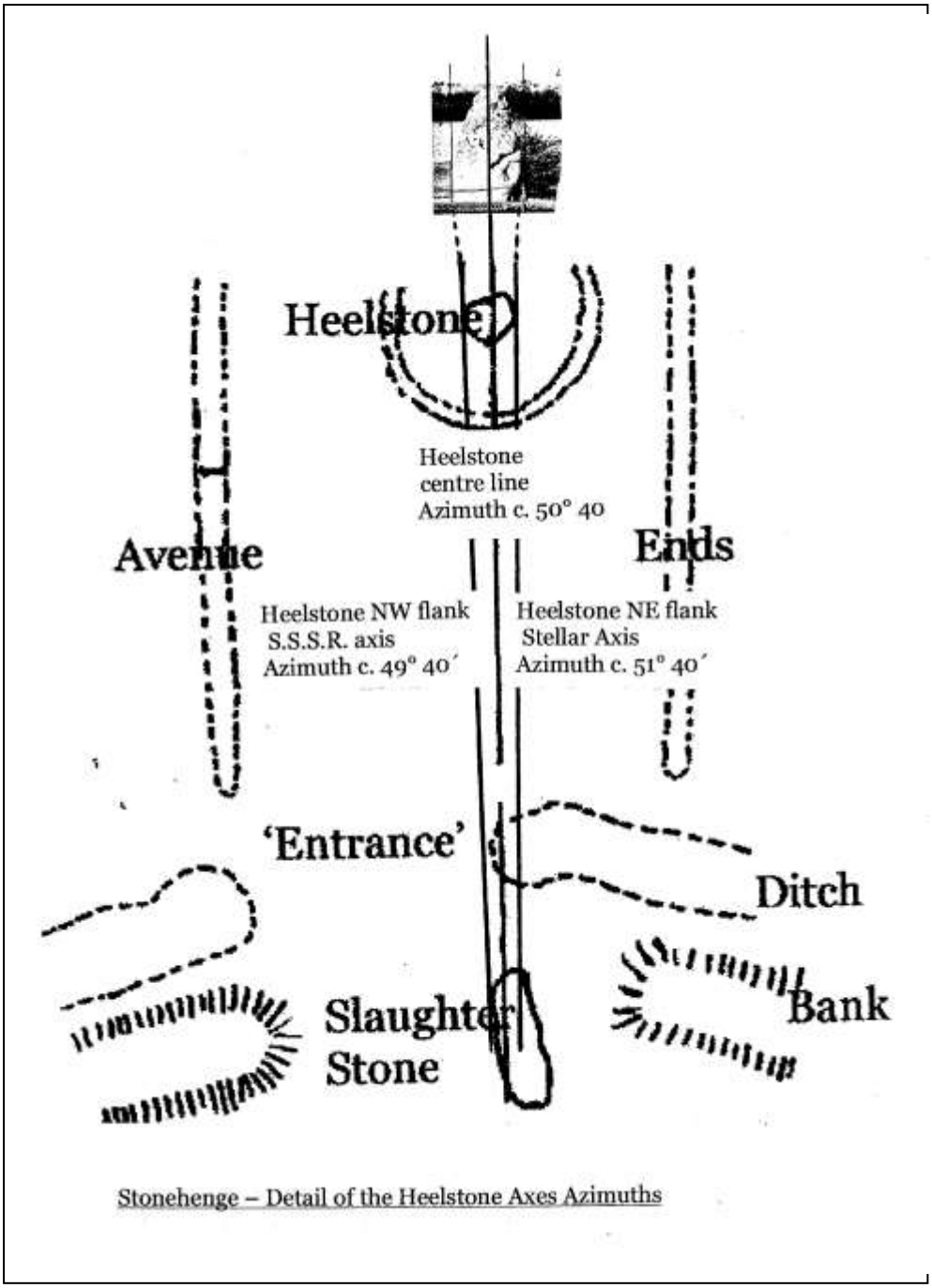
Stonehenge is circular, the astronomy that apparently revolves around it in the heavens follows a circular 'life'. The horizon is circular to Stonehenge. Time passes along the horizon in a circular manner. Commonsense suggests that any axes in such a multitude of circularity will pass through, or as close as practical to the centre. Then the centre has united all of these circularities into one description. Therefore we can expect that the principle axes of Stonehenge will pass through or from its centre. In these axes the centre is taken as being at ground level – at or close to the level set by the top surface of the Altar Stone. (Intentionally buried in its present position in antiquity – not the result of being 'squashed' into the ground by the fallen Great Tri-lithon upright no. 55.)

The following two plans show the two axes with which I am here concerned, and the monument centre line on to the centre of the Heelstone.

The 'Sunrise' axis passes very close to the left-hand or north west edge of the Heelstone, low down at its widest point. The 'Stellar' axis passes very close to the north east or right-hand edge, again low down at the widest point. In this way it will be seen that the full width of the Heelstone, as seen from the centre, exactly matches the width between the two principle axes of the monument. Both of these axes are concerned with risings of celestial objects above the horizon as has been described in great detail in earlier pages.



Full plan showing the centre line on to the Heelstone and the two axes, one each side, all passing through the monument centre and the archway of the Great Tri-lithon. Working azimuth values have been taken as;-
Sunrise axis 49° 40´, Centre line 50° 40´, Stellar Axis 51° 40´.



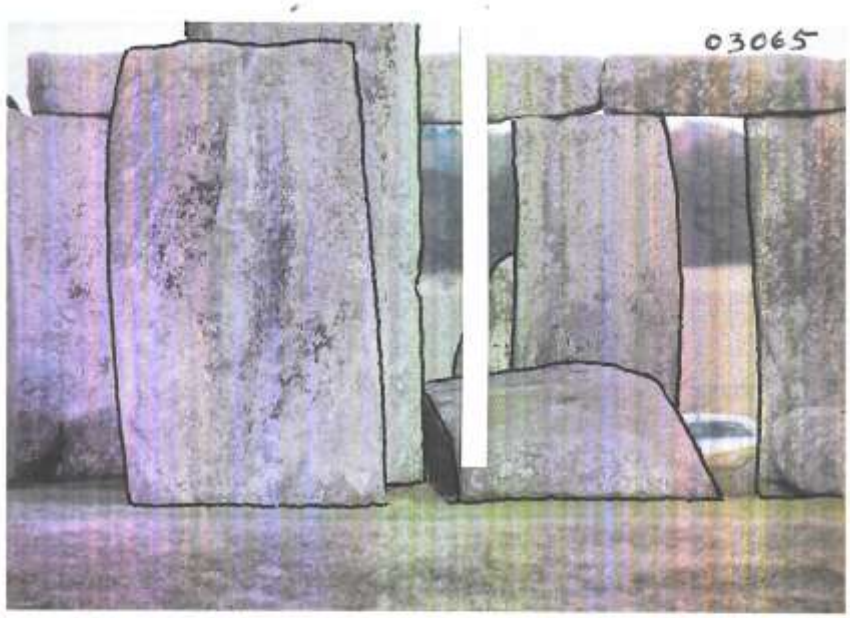
Stonehenge – Detail of the Heelstone Axes Azimuths

The axes in greater detail. It can be seen that the centre line reaches the Heelstone very close to the bottom of the Heelstone Slit. On previous, larger pictures it is also clear that it just clips the leading edge of the 'Heelmark' in the face of the stone above. Thus the two points align vertically.

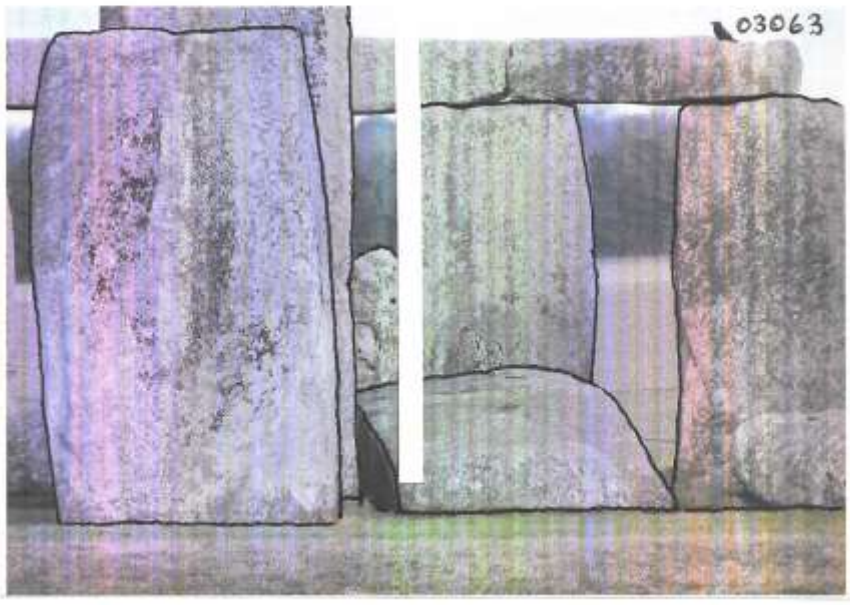
The stellar axis crosses the Slaughter Stone fairly centrally. It is of interest to note that, on the top centre of the Slaughter Stone is just a one, single, very deep, small but very regularly circular and smooth 'cupmark' that, in its form, matches very much the similar cupmark labelled 'Dotty' high on the face of the Heelstone. This second cupmark appears to be exactly on the line of the Stellar axis.

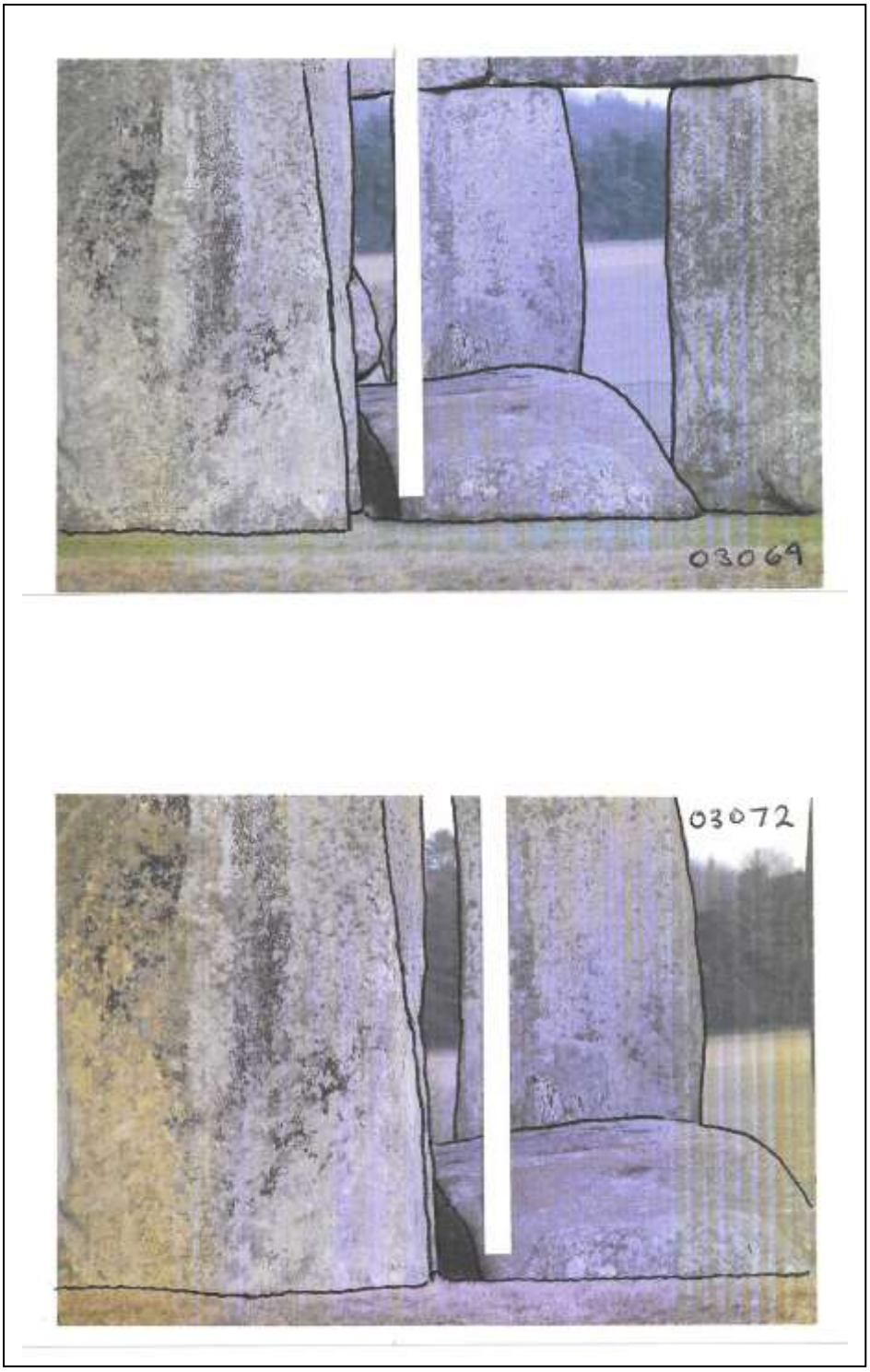
(I note that the azimuth values that I quote, throughout the text, for the various alignments, can vary very slightly here and there - normally by just a very few arc minutes from one place to another. This is because in places I am trying to describe with some precision, whilst in other places I try to give a slightly more generalised picture with numbers that are easier on the eye and to remember from one page to another. Generally the effect of a variation by one or two arc minutes does not affect the main story. Specifically there are plenty of places where great precision is possible and emphasises the whole concept of exceeding accuracy within Stonehenge. Apologies.)

(F)



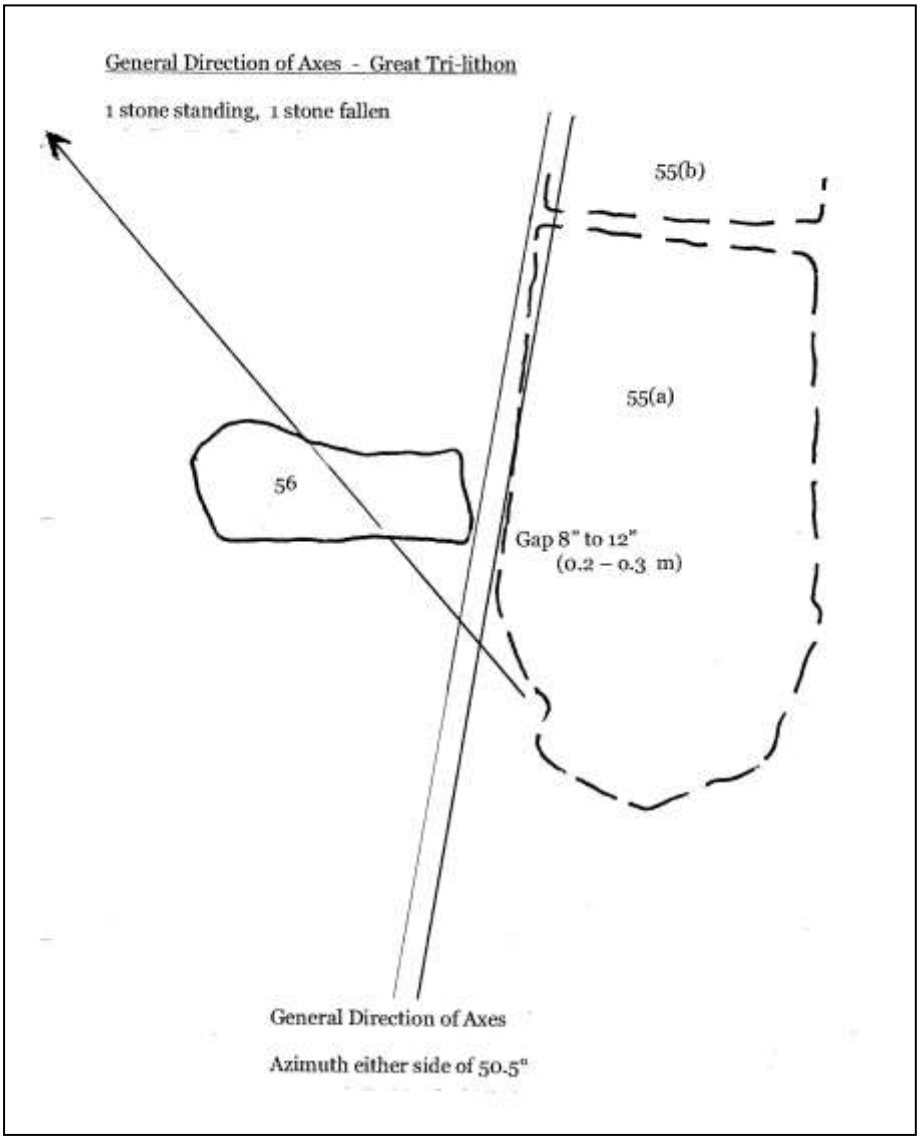
(G)





The picture sequence above, from (F) through to (J), shows the sightlines of the main axes through the monument from outside of 'rear', at south west, towards north east and Heelstone. The lines enter Stonehenge crossing the line of the outer Sarsen Circle and then through the central archway of the Great Tri-lithon (Upright no. 55 now fallen and broken mid-way). (Stone no. 16 of the Sarsen Circle is to the left of the axes.) They then proceed out through the Sarsen Circle 'entrance', passing close to Stone no. 1 on the right.

Finally they reach and'clip' the edges of the Heelstone, visible against the backdrop of pasture, Cursus and Durrington Down woodland. The solid white vertical line is a postulated edge for Tri-lithon upright no. 55 before it fell to try to give an idea of the narrowness of the slit through the archway. The enlarged illustration below of the gap through shows a width of c. 8 – 12 " (0,2 – 0,3 m). Clearly the gap was never designed for a 'processional' purpose and for people to pass through during ceremonies. The only other intended purpose could have been for a sightline or light beam to pass through.



Debate about whether or not there were other standing stones on the axes lines that would have blocked the sightlines seems pointless. Why would so much effort and care have been expended to create such astonishingly accurate sightlines to such important celestial events only to put some visual obstruction in the way and block them? We must take a gamble on the obvious to move forward.

The first axis in picture (F) clips the left hand (north west) edge of the Heelstone. In the far distance at the edge of the Cursus stands a lone thorn

bush that gives a mark to the edge of the Avenue. As I have shown just previously, the north west edge of the Heelstone is about exactly on the azimuth of true S.S.S.R. for BC 2340 at 49° 38´ - level horizon. By the very slightest of movements to the left hand in this picture (F) the edge of the Heelstone y occupies the centre of the Tri-lithon slit and the alignment (sightline) is now down the Avenue.

Therefore this is the solar – sunrise – axis and marks true position of S.S.S.R.

Visually the eye is at the point of the camera in this view whilst the true level horizon from Stonehenge is at a point in the distant pasture field slightly below the boundary fence of the Cursus and the dartk belt of woodland. This is the point of sun centre at rising. But because we are a long way back from the centre, and higher, the Heelstone appears greatly reduced in size and lower. Now the 'picture' of the sun rising across the face of the Heelstone is distant and hardly even relevant. But if the viewpoint is now moved forward to the centre and lowered to ground level, as illustration (E), then the apparently larger Heelstone and its top edge are raised against the distant backdrop until the top protrudes well above the skyline.

At this point the rising solstice sun will cross the true horizon and rise across the face of the Heelstone, fitting neatly into the Heelmark as it travels, and then rising clear of the Heelstone more or less as it rises clear of the top of Durrington Down. Therefore the Solar axis has done its job and placed the observer and the information concerning the sunrise in the correct place.

There is no obvious viewing point for the Solar sunrise axis on the rear outside of the monument. The eye can see the axis leading away past the Heelstone N.W. edge. That is sufficient as it gives us the azimuth for the event that accurately fits the date of BC 2340. (Or by its azimuth it greatly narrows the choice of date – event – for us in our initial search for dating information. One way or the other one fact is confirmed by the other.) It does not matter that the visual size – height – of the Heelstone is so much reduced. Only the azimuth for the edge is required to establish the axis.

This solar axis also takes a line just about down the centre of the Avenue. This fact also suggests that the emerging picture that is being built is on the correct track. It also confirms justification for the construction of the Avenue.

The solar axis can be extended from Stonehenge centre in the opposite direction towards south west. It has long been known that the unique feature of this scenario is that because of the choice of latitude at which Stonehenge was sited, the set of sun at mid-winter solstice was exctly diametrically opposite to the rise of sun at mid-summer solstice, during the epoch when Stonehenge was completed and would have been in use. Some example values for S.S.S.R. and W.S..S.S. are given below. The diametrical opposite of S.S.S.R. azimuth is 180° further round, so therefore adding 180°to the S.S.S.R. azimuth value should equal the M.W.S.S. value.

		Altitude	Azimuth
S.S.S.R.	BC 2343	00° 0.03′	49° 37.84′
	2340	00° 0.01′	49° 37.94′
	2337	00° 0,03′	49° 37.84′
W.S.S.S.	BC 2343	00° 0.05′	229° 37.57′
	2340	00° 0,05′	229° 37.4′
	2337	00° 0.01′	229° 37.8′

The result is demonstrated to be very precise. The two events of solstice rising and setting are very exactly opposite. This is a fact, whether intended or a lucky chance. This situation existed for some decades but only at the latitude of Stonehenge. Just a few miles north or south and the S.S.S.R. and W.S.S.S. axis would not have been straight. It would have needed a kink as it passed through Stonehenge. Now the solar axis can be represented as a straight and unbroken line from horizon to horizon, passing through the centre of the monument, through the Tri-lithon archway, through the two sides of the Sarsen circle, and grazing the N.W. edge of the Heelstone.

There is no known marking-stone, hump, hill, post or archaeological evidence for a site on the S.W. horizon to mark the winter solstice sunset. There may be remains of something. There is no record of anybody ever looking, certainly in modern times. It could be a worthwhile idea.

Following through the pictures from (F) through (G) and (H) to (J), as the viewing position is moved steadily to the left, towards the edge of Sarsen Circle upright no. 16, we can see how the relative view of the Heelstone and the distant horizon moves steadily towards north east (azimuth value increases).

In (G) the Heelstone top tip is visible and, on the face of the Heelstone, we can see the Heelmark that corresponds to the sun rise orbit track as it crosses the face. (Directly below the 'leading edge' of the Heelmark is the 'chamber' at bottom, or start, of the Heelstone 'Slit'). Also just visible near the top of the Heelstone is 'Dotty', the deep, (man-made?) very regular circular cup-mark that appears to match various celestial features that occur in different aspects of the view of the pictures on the Heelstone face. Notice how the two uprights – Sarsen Circle no. 16, and Tri-lithon no.56 – have their edges moving towards alignment. Both edged are very clean and regular. Possibly worked to take out natural roughness.

Picture (H) has moved on until the two vertical edges are close to complete alignment. Now the Heelstone view has moved further and the Tri-lithon slit takes in the top right hand (north east) edge of the of the Heelstone that is the vertical horizon from which the celestial objects – sun, Regulus, and the two H833... stars are depicted as rising at S.S.S.R. BC 2340. The top section of the Heelstone Slit is clearly visible.

Finally picture (J) has reached the point where the two vertical upright Sarsen edges are almost as one. The Heelstone has almost completely gone. But the

final part of the edge is still present (but here obscured by the fallen bulk of Tri-lithon upright no. 55 which, as it lays, rises by 3ft. 6ins. (1.1 metres) above ground level). The part of the Heelstone that should still be within the view through the Tri-lithon arch if no. 55 was still upright and in its correct position is the lower north east edge and, most importantly, the Heelstone Slit exit – 'mouth'. This arrangement is as it was when originally constructed and is the whole point of Stonehenge. What is left still within the archway view of the Slit exit is that part of the Heelstone Slit from where the two H833... stars emerged as I have described previously within the explanation to illustration (E). This tiny view is the heart of Stonehenge. This is the part that <u>really</u> mattered to the designer. This is the information – story – that was to be read. But only for the S.S.S.R. of BC 2340 when the Regulus group and the sun were in their rare juxtaposition.

The longer view of the Stellar axis from this viewpoint and going forward has the two sarsen upright edges almost exactly aligned and, on the far side of the Sarsen Circle, Entrance upright no.1 edge is very close to closing the view through. But this Entrance edge coming downwards has a long tapering curve towards the Heelstone and the nearer edges. If it was not for the fallen no. 55 blocking the view, I can surmise that no.1 tapered edge would meet no. 55 and 16 edges close to ground level and in such a way as to close up entirely just below the Slit exit. Thus the V-shaped notch sightline has been formed, hopefully to 'hold' the Slit entrance above ground level. If this was the intended view formed by this alignment then it has to be the whole point of the construction. And the right hand or north east edge of the Heelstone is the main part on which to focus.

Both of these axes that have been described can be viewed in reverse from the Cursus and through Stonehenge, back towards the south west horizon - 'The Long View Reversed'. Illustration (K), is the reversed Solar (sunrise) axis. It is defined from a position on the Cursus that exactly aligns the north west edge of the distant Heelstone with the inner, south east edge of the Great Tri-lithon upright no. 56. (Easily identified as the tallest standing stone and with the large 'lump' of the tenon on the top.) Satisfyingly this view is almost exactly central to the Avenue, whose defining side ditches can be seen leading across the grass field. So long has there been debate about how and whether or not the Avenue is an integral part of the solstice sunrise event at Stonehenge. Just focus on the <u>edge</u> of the Heelstone rather than the middle – as our Stonehenge man would have done. Then everything is perfectly clear. Looking in from the Cursus it appears so obvious.

There is no obvious visual mark beyond Stonehenge, in the south west landscape to mark this alignment. The view is of the grass field across the A303 and grass pasture as far as the small wood named 'Normanton Gorse'. Then the view disappears into this woodland and any potential archaeological remains are currently lost. I would have thought, in view of the landscape and features surrounding Stonehenge that there is a very good chance that there is a site waiting to be discovered. This may be wrong but if ever proven correct would be just one more fact to confirm this story so far.

The Two Axes From The Cursuc. Some of the best views of Stonehenge are from the Cursus, views that rarely, if ever, seem to be published.

(K) View along the Solar Axis, along the Avenue, and past the Heelstone north west edge.

(L) View along the Stellar Axis, past the Heelstone north east edge, past the edges of other standing stones, and to top centre of barrow Amesbury G 15.

The view along the Stellar Axis, (L), is very satisfying. There is no Avenue type feature from the Cursus but, moving to a position on the Cursus that exactly aligns the other, north east edge of the Heelstone and the Tri-lithon upright, it can be seen how the distant, very large barrow, Amesbury G 15 fits just about perfectly into the backdrop of the monument.

By adjusting the viewing position from the Cursus carefully, the mound G 15 can be brought to a position where it visually exactly 'captures' and enhances the top lintels of the side Tri-lithons of the Tri-lithon horseshoe. From eye-

level G `15 and Tri-lithons are a perfect fit (apart from the slight hollowing on the east side of G 15 that is possibly the result of nineteenth century barrow digging). It is easy to see that the top lintels of the Great Tri-lithon would have aligned and fitted exactly to the top centre og G 15.

This match of monument and mound would presumably be because this Stellar Alignment has priority over the Solar alignment along the Avenue. The barrow is very large. It must have taken great effort to build. It seems very unlikely that the designers / builders of Stonehenge would have allowed this to be built on this alignment excepting that it was to be a part of the scenario. The barrow has never been dated. Apparently there were / are the remains of wooden posts and wooden objects within. These may well be dateable material. Again one for future archaeologists? (So many potential sites, so much potential material waiting around the landscape!) Considering the totality of this particular aspect with monument and mound, it seems as though the creators of Stonehenge also had an eye for aesthetic satisfaction. There was clearly a desire for the visual result of the finished project to look good.

Illustration (M) – From Heelston north east edge to Tri-lithon upright.

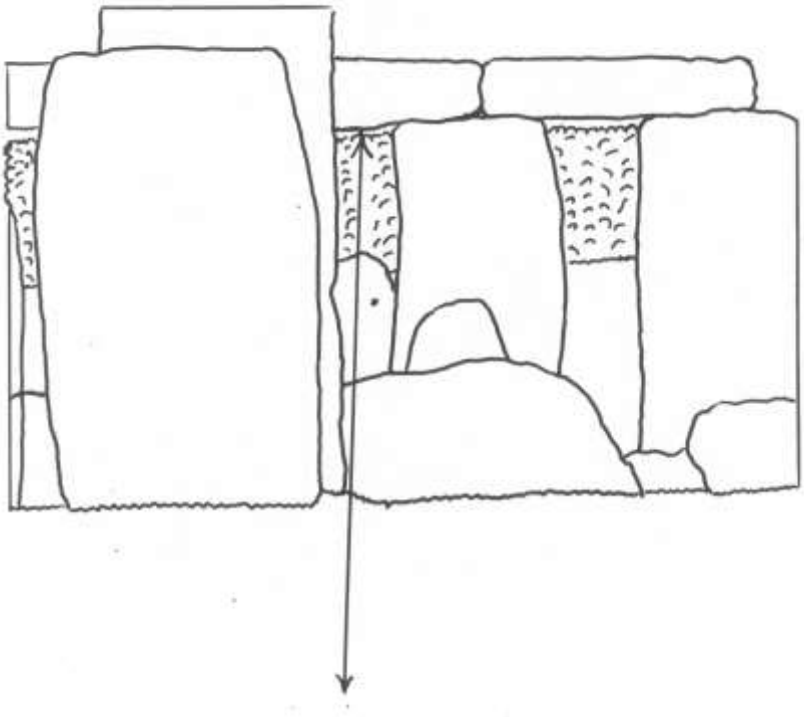
Illustration (M) from the north side of the Heelstone past north east edge, along the Stellar axis, and with the distant edge of Tri-lithon upright no. 56 just visible (see the top hump) forming the visual slit with the Sarsen Circle Entrance upright no. 1. The Heelstone Slit exit is indicated by the white arrow. The Slit exit is taken to be the focal point of this Stellar axis. (Apologies for the chain link fence obstructing this very important view –

needs must!) Early in the day on a frosty and misty winter morning the site is almost deserted and very atmospheric.

The extraordinarily satisfying view along this Stellar Axis, from Cursus, through Stonehenge, to barrow G 15 is only matched by the view in the other direction back from G 15, through Stonehenge to Cursus and Durrington Down.

These long views give some idea of the perspective and great length of vision that the designers and builders were also thinking of and imagining as they first scouted the land and began to form plans for the finished monument. How easily we can look with their eyes and see that which they sought to see. How lucky we are to see the final result without having the labour ahead of us to create it.

Stellar Axis seen from standing atop Barrow Amesbury G 15 – The 'Long View'
(The crowds of people bear testimoney to the success of English Heritage at harvesting cash off of the labours and the backs of our ancestors who struggled to build Stonehenge for our future for free.)



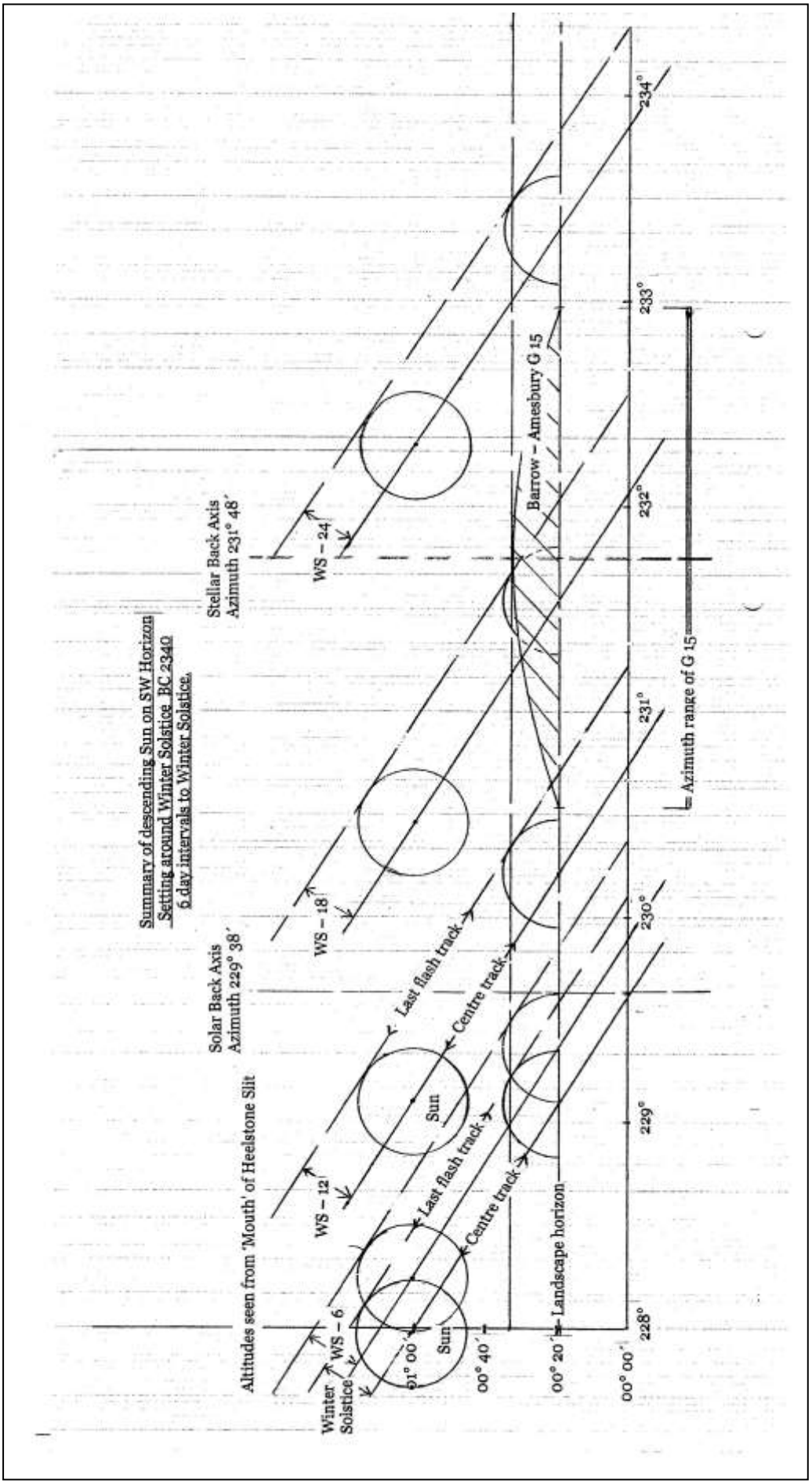
It remains now to deal with the south west horizon from Stonehenge itself, and with the setting of the sun in the region of the Back Axes around winter solstice sunset (W.S.S.S.).

Both of the axes, Solar and Stellar, can be extended backwards in this direction. Nowadays the effective horizon is the small woodland of Normanton Gorse that blocks any view into the further distance. We cannot say how this view would have been millennia ago. Presumably without the obstruction of trees there is a much longer view. What marks or monuments may have been created further along these axes is anybody's guess in our time. There has been little if any research here. Presumably, as the archaeological fraternity finds it so difficult to deal with astronomy and the possible connection of the two subjects in this context, and also because they dominate the research scene in most matters ancient, especially at Stonehenge, there is not much hope of any exciting discovery in the foreseeable future. Only if and when these two diverse subjects, archaeology and astronomy, can manage to come together, talk to reach other, and have some sort of serious debate about archaeoastronomy, is there likely to be any serious research concerning Stonehenge <u>above the ground</u>.

The summary graphic (see overleaf, illustration (Q) shows the pattern of setting sun, along with dates to (and from) the Winter Solstice for BC 2340. Altitude of the actual landscape horizon at c. 00° 20´ and for zero horizon are plotted against the sun azimuths fir centre and 'last flash' leading up to solstice. (The same day count applies after solstice as the sun 'turns around' and begins its progress back from mid-winter towards spring.)

Also shown is the large barrow, Amesbury G 15, that is such a prominent and significant feature of this aspect. I have shown an azimuth range for the barrow based upon its effective width across the width of Stonehenge. The precise points of its merging into flatter field are slightly debateable but do not particularly alter the total effect. The same can be said about the height of the barrow. The only printed figure is from the excavation report of Colt-Hoare in the nineteenth century when an 'elevation of 42 ft,' is described. Clearly this is not the <u>height</u> of the barrow as it would be twice as high as Tri-lithon upright no. 56 at Stonehenge! My graphic uses a height of 14 ft. Fortunately, and once again, uncertainty over the height (or effective vertical <u>altitude</u>) of G 15 does not particularly affect the result. As with the Heelstone aspects, it is the <u>azimuth</u> picture that matters most.

(Q)


Summary of descending Sun on SW Horizon
Setting around Winter Solstice BC 2340
6 day intervals to Winter Solstice.
Stellar Back Axis
Azimuth 231° 48′
Solar Back Axis
Azimuth 229° 38′
Altitudes seen from 'Mouth' of Heelstone Slit
WS – 24
WS – 18
WS – 12
WS – 6
Winter Solstice
Last flash track
Centre track
Last flash track
Centre track
Sun
Sun
01° 00′
00° 40′
00° 20′
00° 00′
Landscape horizon
Barrow – Amesbury G 15
Azimuth range of G 15
234°
233°
232°
231°
230°
229°
228°

During late autumn and moving, daily, towards mid-winter, the sun descends behind Stonehenge in the south-west sky to set below the horizon earlier each day, and further eastwards. It steadily progresses along the horizon towards its final Midwinter Solstice Sun Set position. The M.W.S.S. position, as I have described earlier, is, uniquely at the latitude of Stonehenge, diametrically opposite to the Mid Summer Sun Rise position. M.W.S.S. azimuth value is exactly that of sunrise + 180°. I.e.; -

```
   49° 38´      S.S.S.R.
+ 180° 00´
---------
  229° 38´      M.W.S.S.
```

These values are those at zero horizon altitude. As has been seen, visually, the very slight real horizon altitude elevations in either direction have only a slight effect on azimuth and largely mitigate the effect of atmospheric refraction.

Final azimuth values for M.W.S.S. at actual horizon altitude value of 00° 19´ are ; - Sun - centre 229° 03´
Last flash 229° 20.5´
(Seen from Heelstone Slit exit / Stonehenge centre – ground level.)

It is clear from the graphic that this azimuth value for the setting sun misses that part of the horizon marked out by barrow G 15. In fact it misses the top centre by more than 2 ° of azimuth. This equates to something in the region of18 days or more from winter solstice. Clearly the designer would not have made such a large mistake in the position of G 15. Therefore there must have been other reason for it's location. As I have so often shown, from the top of G 15 one looks straight down the Stellar Axis and through Stonehenge. In the present scenario of there being the marker of G 15 for the Stellar Axis but no significant comparable mark for the Solar Axis, the inevitable conclusion has to be that the Stellar Axis has priority.

As so often now stated, once again the fact is emphasised that it is the Stellar Axis that dominates the design of Stonehenge. And the Stellar Axis leads to only one point within the design – the exit ('mouth') of the Heelstone Slit. Combine design and dating, as I have demonstrated earlier, of BC 2340 – summer solstice. All of these facts lead to only one point – the pair of distant, obscure stars the Regulus Group: - H833.1062
and H833.1185

The process of sun setting over this mid-winter period is worthy of investigation. As this 'season' of sunset develops, the declining sun, throughout late autumn, has been passing across the back of Stonehenge, and daily its light has formed a light shaft that passes between the various uprights on the south-west side of the monument. When the sun is high – mid to late autumn – the light shaft has shone between the uprights and fallen, at its forward edge, before the central area. As it daily progresses it falls on the ground through the great Tri-lithon archway, then across the Altar Stone, and then beyond. Day-by-day it has progressed towards the Sarsen Circle Entrance, its leading edge always defined by the Sarsen lintels of the various archways. Effectively the shadow line of the lintels has moved forwards.

Eventually the shadow line and leading edge have reached the Heelstone and begun to ascend the face.

During this late autumn phase (and for the summer generally), the whole scene from south-west to north-east has been fully illuminated by day as the sun is in its normal summer position, high in the sky. But as the sun declines it reaches a low point when it does not illuminate the Heelstone above the lintel shadow height.

At this time a 'season' begins when, daily, the light shaft, for a few minutes before sunset, enters the archway of the Great Tri-lithon, through to the Heel;stone, but the bulk of the Heelstone is within the shadow effect of the bulk of the monument uprights. This 'season' would have been the high point of the purpose and process of the grand design.

Daily a tall but very narrow light beam would sweep the Heelstone face, 'switching-on' sharply just before the left-hand edge and 'switching-off' just after the right-hand edge. At the same time the lower edge of the beam would effectively be formed as the hump of barrow G 15 produced a shadow effect whilst the sun was still crossing this part of the sky. I cannot actually demonstrate this in practise but it would have been my personal objective to cause the bottom of the light beam, at some point, to actually travel up the Heelstone Slit. The result would have been an actual, real-time, live, sun-powered, light show to actually and vividly bring the whole stone monument to life. And that is what it was all about!

And at this point remember the 'sun-dialling' effects, and the sun-symbol engraved backstones within the chambers of several of the Irish passage 'graves'!

Finally the day of winter solstice is very close and the sun set has progressed until it is now passing G 15. The light beam is still entering through the Great Tri-lithon archway but is no longer reaching the Heelstone Slit. This part is now in darkness from the stone upright shadow effect. For approximately 15 days on either side of the winter solstice the sun did not reach the Heelstone Slit. For some of these days it probably did not reach the Heelstone at all. The whole façade was unlit, cold, lifeless, until the sun turned around, retraced the process, and sun and life returned for the new year.

But during this process, after sunset, at the beginning of darkness, the night sky was rising around and above the Heelstone. And within the night sky, at this time, was the Regulus Group.

Because of the diametrically opposite effect of the same sky at two exactly opposite ends of the year, at the same time as the sun set at winter solstice at azimuth 229° 38´ in the south-west, the night sky that rose around azimuth 49° 38´ in the north-east contained that part of the Cosmos that was of such intense interest and was mapped out across the face of the Heelstone. It would have been at this time that the eye-testing hunt for the stars of the Regulus Group would begin. At this time of solstice the H833... pair of stars would have risen, completely invisible but to be celebrated.

Due to the cut off of star observation because of the Earth's atmosphere it would be very unlikely that any Cosmic objects would be seen at very low level. But now the Sarsen lintels came into use again as artificial horizons above which the night sky could be relatively easily seen and marked. There is no particularly obvious place from whence observing was carried out. It could have been any of several points within the stones once familiarity with the night sky at this time of winter solstice had been achieved. Cold frosty nights would be very good, the kind of night when one can feel as if is possible to 'reach out and touch the stars'. Even in our day and age in north-west Europe such nights are not rare. I doubt that there have been many investigations of the top surface of the lintels looking for obvious marking such as cup-marks or straight lines such as are found at the Irish Passage Graves on suggestively significant entrance stones. I recall some years ago that somebody pursuing an archaeoastronomical theme had some results of marks above the Sarsen Circle Entrance, but I cannot find any particular record of this now.

There is a wealth of potential views to be had from within the stones to all directions of the sky. To enter into this particular area of speculation as to how anybody might have memorized / marked particular sight-lines in order to observe a particular aspect of the Cosmos is to enter into a very tricky morass of speculation that is, at this distance in time, nearly impossible to prove. This is how so many arguments within the recent past, by so many enthusiastic investigators have come to grief once the detractors have got to work employing arguments based upon statistics, probability, etc. to demonstrate that anything can be proven given so many alignments and therefore nothing can be proven.

I will give just one example. There is a (theoretical) alignment from centre front of Great Tri-lithon archway towards E.N.E. at azimuth c. 75°, grazing the last, outer, northern, vertical edge of the end Tri-lithon, nos. 50 – 51, and out over the top inner edge of the Sarsen Circle lintel. (If the horseshoe shape of the Tri-lithon formation represents two arms reaching out to 'embrace' and 'gather' a certain segment of the sky, then this alignment would be the very easternmost boundary of that segment.) This alignment exactly grazes the edge of the Trilithon upright and then passes directly over northern edge of Sarsen Circle upright no. 4. (It looks just like an alignment ought to!) It is an easily memorable alignment.

The altitude of this alignment from the archway at ground level is c, altitude 12.7°. Interesting perhaps but of little practical use because it is calculated from off of ground level. However, if I walk forward towards the Sarsen Circle keeping very carefully to the alignment with the Sarsen uprights, then at a point just off of the end of the nearby Altar Stone the altitude has become c. 18.4° (still calculated off of ground level). If I continue to walk forward until I am at a point about 10.2 metres inside of the Sarsen Circle (depending upon the height of my eye-level – here at 1.5 m.), I am now at a point just within the line of the inner Bluestone Horseshoe. Now the altitude along the same alignment <u>from my eye-level</u> is c. 18.4°. For BC 2340, Altitude 18.4° and azimuth 75°will give me, over the top of the Sarsen Circle and in the 'nook' formed by the end Tri-lithon vertical edge, the Regulus Group and, in particular, the two small H833… stars. An alignment that is very easily

remembered by somebody on site and familiar with the night sky. But just about impossible to prove in our modern times. Far too many ifs, buts and maybes about it. Not defined within the remains of the Sarsens. Just one of many possible alignments. Hence the recovery, discussion, potential gain of information and knowledge about the reasons for Stonehenge are so easily bitten off at birth by detractors and ignorance. Investigation cannot proceed. Sadly the detractor brigade rarely seem to have any potential new lines of enquiry of their own to put forward.

There is an aspect of the potential astronomy of Stonehenge that has been much explored and written of in recent years. This is the question of whether Stonehenge was used to predict eclipses. Personally I see little use to this ability excepting that it has been claimed that a 'priestly class' could impress and possibly dominate the masses by predicting, ahead of the event that the sun / moon was to be 'banished' and then brought back by 'magic'. That is another issue and does not concern this text. However it might just have been possible, given a very full solar eclipse at the right time of day (sunrise or near), and the right time of year (Regulus Group rising?), to detect that part of the Cosmos of interest during daylight. It seems unnecessarily awkward to look for a star group at this time, especially as any eclipse can only last for a few minutes. I do not see much value in this line of investigation. Once again it seems to rest on too many fragile extrapolations.

It has also often been suggested that early civilizations, and particularly farmers, needed a calendar system to tell them when to plant or harvest crops, or what time of the year it was! And Stonehenge could have been the 'master' calendar – 'Big Ben' – for the prehistoric 'nation'. Again this is unlikely. Anybody at all who lives close to nature (amongst it!) all of their lives has only to put their head out of the door and look around to know exactly what time and season is outside. They certainly do not need clocks and calendars.

There are many and varied suggestions put forward for the creation of Stonehenge. I will not discuss any more here, save one very recent one. This is that the monument was built to celebrate – Death! More specifically to mourn, contact, think of, even revere dead ancestors, predecessors, whatever. Soon to be expanded to a 'cult of the dead' that presumably dominated the thoughts, lives and actions of the population at large. I think this idea is not worthy of any credence. The people of that time would have loved life, laughter, love, good family, friends and neighbours, exciting events, travel, adventure, just as we do now. An obsession with death? Huh!

Another Chapter – 'Constructs'

Having written this account as far as the description of the 'vertical horizon' effect that was achieved with the right hand or north east edge of the Heelstone showing the rising of the sun at S.S.S.R. c. BC 2340, along with the Regulus Group (Regulus, H833.1062 / 1185, and 31 Leo,) I have still felt that there is detail that I have not accounted for. I have still felt that I needed to 'tweak' the result slightly further. This now appears to be true.

The 'tweak' that I needed to include was the potential 'Proper Motion' of any star for which there is data within the current astronomical record.

Although it is commonly believed by many people that the Cosmic sky, with its backdrop of myriad stars, is generally unchanging from generation to generation, this is not true. Generally speaking, within a lifetime, an observer would see little if any change to the relative positions of stars amongst one another – their separation distances or their layout relationship to each other. However, careful astronomy has revealed that many, if not most stars are constantly moving in different directions to each other, and that the Cosmic sky is subject to a very gradual but steady change in appearance. Because of the enormous distances between planet Earth and the individual stars relative to each other such change, or movement, normally appears very small, The observed movement of stars relative to the general backdrop is called 'Proper Motion'.

Proper motion of any star can be in any direction relative to the mass – sideways in any direction (tangential), or away from, or towards us (radial). The motion of many stars has been measured and it is described within modern star catalogues. Unfortunately there is frequently difference from one catalogue to another and this can introduce uncertainty into the matter.

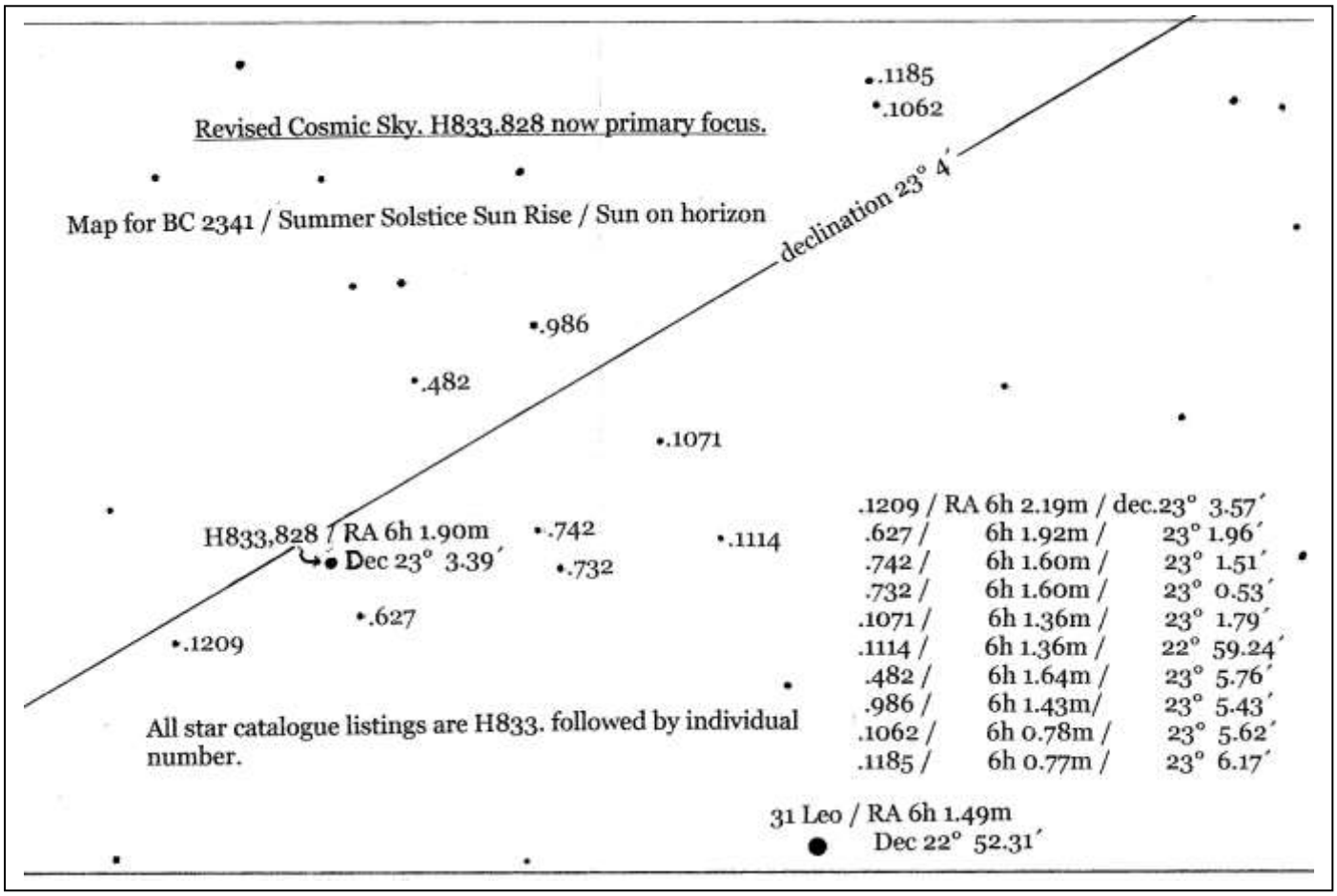
As a very general guide (but certainly not hard and fast) the nearer a star the more obvious and possibly larger is its motion, as one might expect because it is nearer. (Although this is by no means certain simply because Proper Motion can be in any direction.) Consequently the further (more distant) a star from Earth, the more likely is it to hardly, if at all, show significant Proper Motion. And when very distant stars are considered as part of the backdrop of the Cosmic sky, then things do not appear to change hardly at all, even over longer periods such as the span of c. 4500 years currently under consideration between the construction of Sarsen Stonehenge, c. BC 2500 and our current epoch c. 2000 AD.

In summary, therefore, I have a situation where the backdrop of the Cosmic sky that I have tried to set against the vertical horizon of the Heelstone has hardly changed, if at all, over the time span, except for the bright near stars of Regulus and 31 Leo. (And the very close sun whose constant, steady, and well measured motions against the Cosmic backdrop is being exploited to time, calibrate, and demonstrate the key framework of time against which the Stonehenge 'picture' has been 'drawn'.

I can use the data from published star catalogues to calculate the change of position of the brighter closer stars. This gives a star map for the Regulus Group area of the sky that is of fractionally different aspect from the previous result by up to c. 0° 15´ to 0° 18´ towards north-west as seen from the Stonehenge central area. across the Heelstone at S.S.S.R. for BC 2340. The backdrop of smaller, very distant, stars has no change in its relative layout, and the relationship between one distant star and another is unchanged.

The only slight change that concerns this story is that the part of the Cosmic sky that now comes into focus at the Heelstone vertical edge (and particularly the Heelstone passageway ('Slit') exit) at the critical time when Regulus also 'rises' higher up on this edge has now moved westwards, or towards the left, by an amount equal to the revised position of Regulus due to Proper Motion.

The change to a new area of sky is very small but obviously significant because I now have a slightly different group of stars as potential 'target'. As can be



Sky map for revised 'target area' of sky due to revised position of Regulus after Proper Motion correction. Target should still be on declination 23° 4´ which is the declination of the Heelstone passageway, but is slightly further west than previous target area of H833.1062 / 1185.

seen, my original target of H833.1062 / .1185 is now moved slightly eastwards and would have risen ahead of Regulus. My new target area is about 00° 15´ to 18´ west, (a very small change), and I show the now revised Cosmic sky.

What has now emerged, after all factors are considered, is a new, revised, replacement 'target' for the Heelstone Passageway that is H833.828. This very distant star is c. 00° 18´ to the left hand or west of the original target and now replaces it as the main focus of the Heelstone layout, all due to the revised position of Regulus when its Proper Motion through 4500 years is added in.

This slight change in the relative priority of these stars within the Stonehenge story is dealt with in the following series of diagrams under the heading of 'CONSTRUCTS'. Diagrams nos. 1 – 11 'Constructs' - follow on the following pages.

Within the 'Constructs' diagrams, no. 1 shows the 'Clean' Heelstone as seen along the main Stonehenge axis line from the monument central area at c. azimuth 50° (just past north east), in the direction in which the mid-summer solstice sun rose (and still rises in our current epoch although at a slightly different azimuth value.

'Constructs' no. 2 labels the main features on the face of the Heelstone. These factors are easily seen by any interested observer visiting the monument when sun and light are in a favourable combination. They are more easily seen if viewed through the viewfinder of an old fashioned camera as this tends to focus the eye and eliminates distractions caused by surrounding objects and activities. The features have been there for several thousands of years, and just need acknowledging.

'Construct no. 3 introduces a 'real-time' portrayal of the basic astronomical framework on to the face that is correct and 'as is' for the position of the Heelstone relative to the centre of Stonehenge. The azimuth value of 49° 38´ is correct from the monument centre and marks the extreme north west, or left hand, edge of the Heelstone. This azimuth value just about corresponds with the centre of the Avenue. It was the azimuth of summer solstice sun rising past a zero (theoretically level) horizon c. BC 2341 / 40. It is the intersection of sunrise azimuth and the ecliptic. (The track that the sun centre appears to follow as it circles about the Earth.) I have described in previous pages how the Heelstone does not have horizons marked or demonstrated on its face because there is no fixed vertical viewing point within the Stonehenge design. The horizon is easily derived by placing the sun into the 'Heel Mark' and locating the intersection for the two lines of ecliptic and sunrise azimuth, thereby 'fixing' all three lines. That is why the sun fits about perfectly into the size of the Heel Mark when at the correct distance which is from Heelstone to Stonehenge centre. (And when Heelstone and astronomy have been brought to correctly equal angular scale.) Now there is a basic astronomical framework on which to build.

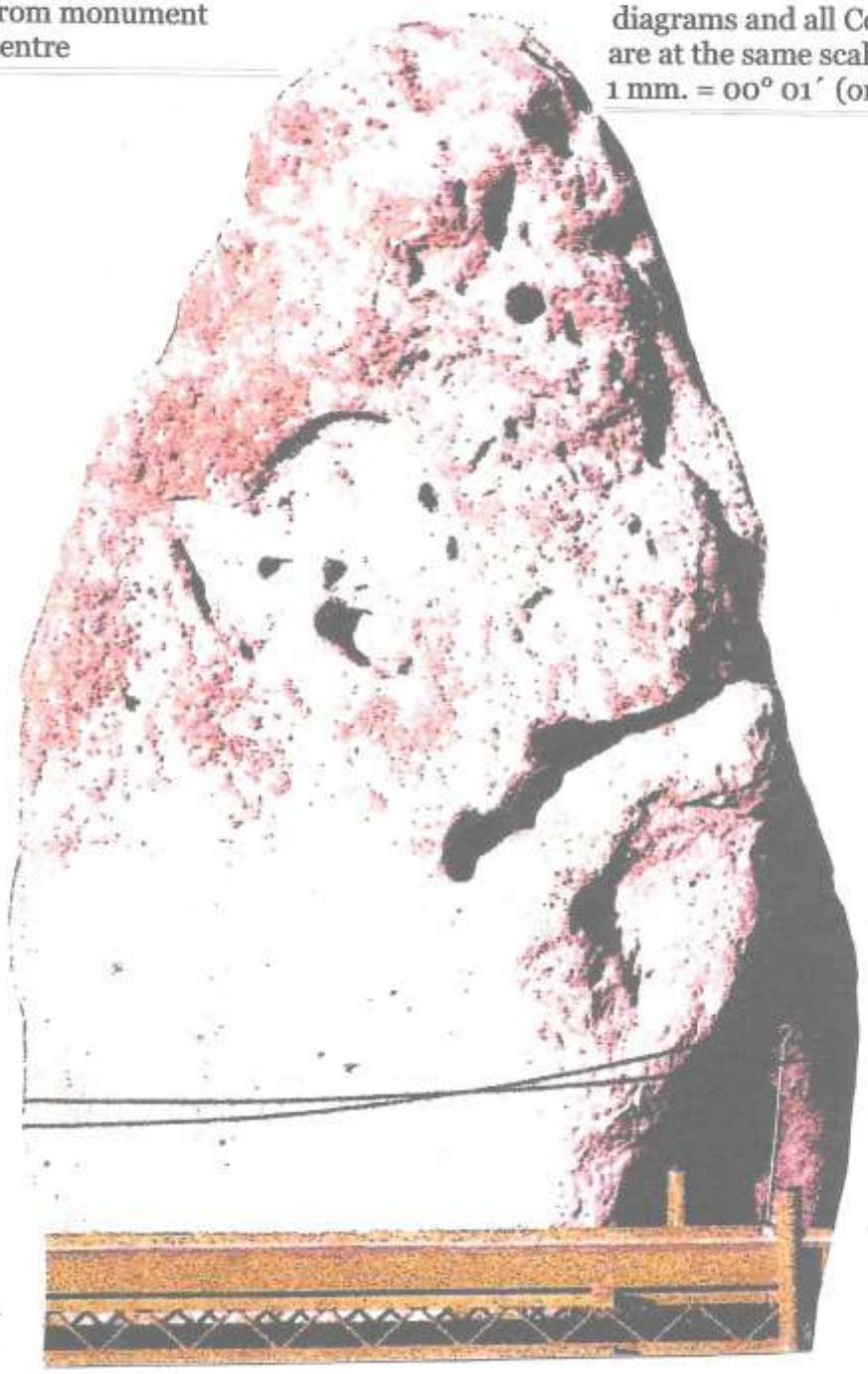
'Constructs' no. 4 adds in more tracks for the general trend of the rising Cosmic sky at sunrise. The tracks are inclined at c. 31° at this time of day and year The tracks shown are those that will be relevant over the remaining diagrams, Scale of Heelstone and Cosmos are the same. (Diagrams are constructed at a scale of 1mm. = 00° 01´ - 1 arc minute.)

'Constructs' No. 1

Clean Heelstone

Seen along main axis from monument centre

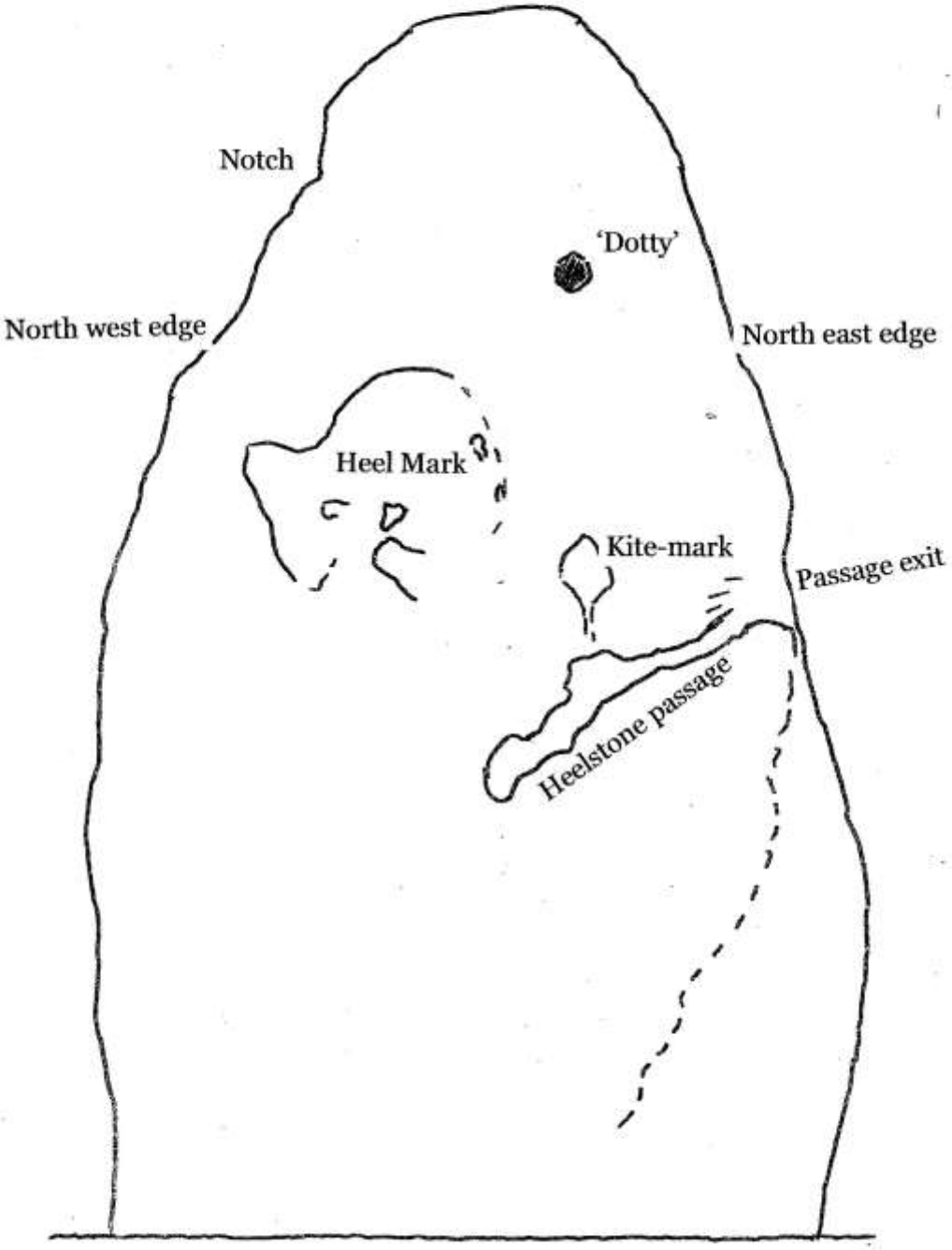
'Constructs' diagrams
From here onwards all Heelstone diagrams and all Cosmic sky plans are at the same scale.
1 mm. = 00° 01′ (one arc minute).

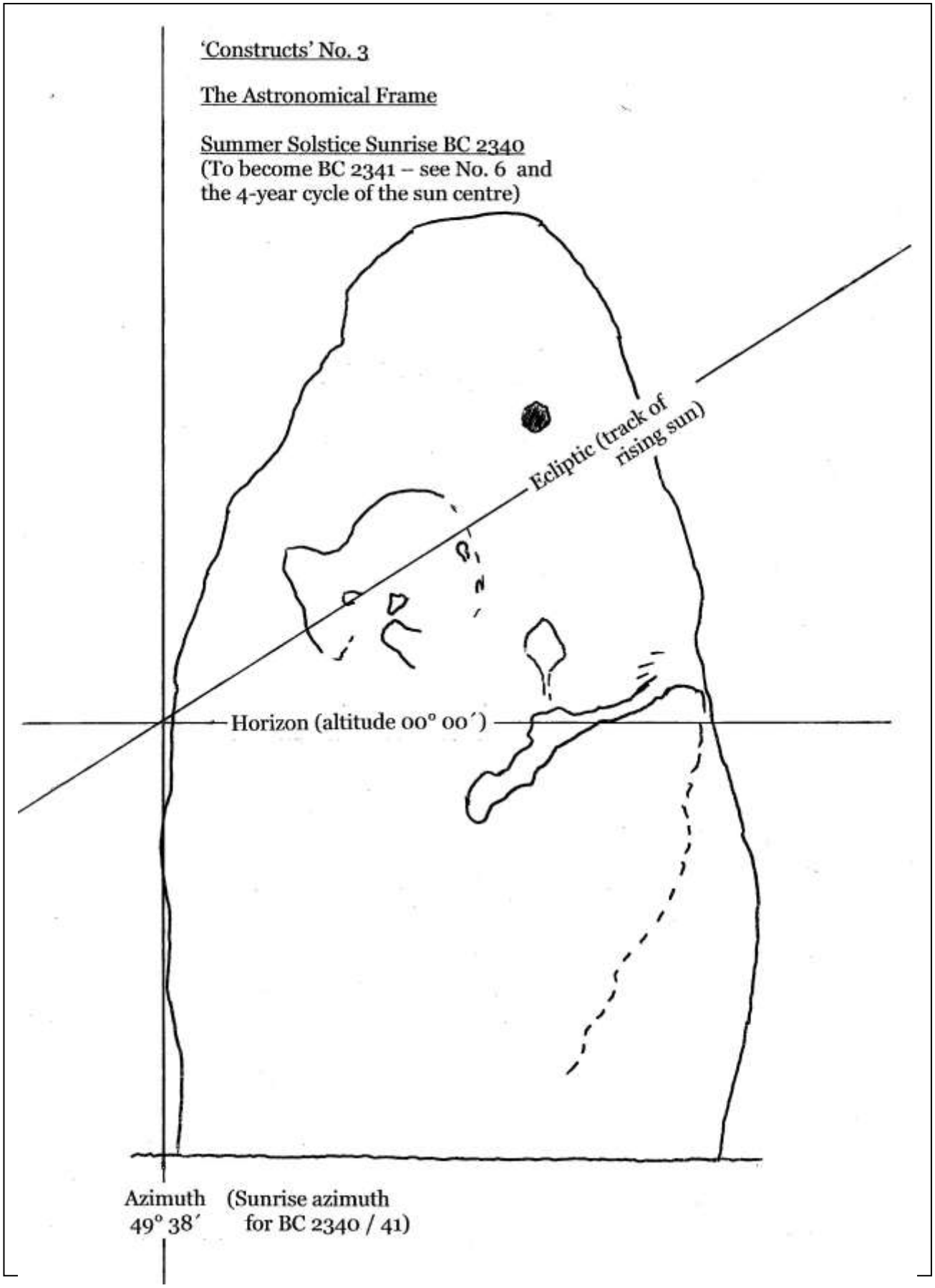


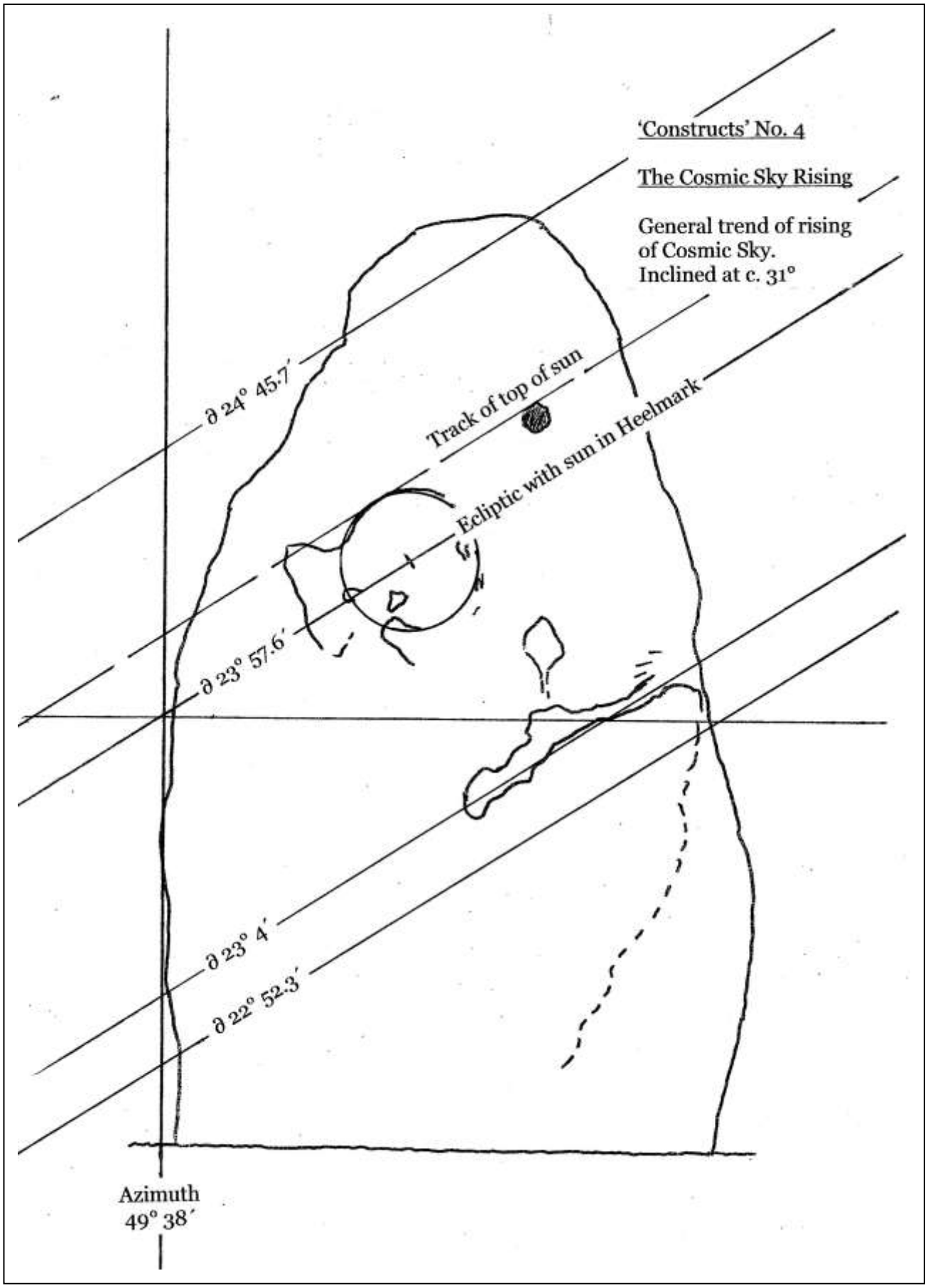
'Constructs' No. 2

Heelstone silhouette
showing main features

Scale: 1 mm. = 1 arc minute




'Constructs' No. 3
The Astronomical Frame
Summer Solstice Sunrise BC 2340
(To become BC 2341 – see No. 6 and
the 4-year cycle of the sun centre)
Ecliptic (track of rising sun)
Horizon (altitude 00° 00′)
Azimuth
49° 38′
(Sunrise azimuth
for BC 2340 / 41)


'Constructs' No. 4
The Cosmic Sky Rising
General trend of rising of Cosmic Sky. Inclined at c. 31°
∂ 24° 45.7′
Track of top of sun
Ecliptic with sun in Heelmark
∂ 23° 57.6′
∂ 23° 4′
∂ 22° 52.3′
Azimuth
49° 38′

Note how the width and direction of the sun, ascending on the ecliptic, appears to be confirmed by the top track just grazing the edge of the deep, circular cupmark labelled 'Dotty'. This appears to confirm that the deduced information about the astronomy is correct as it is developing. The fit with the cupmark works for the angle of inclination of c. 31°. Also note how the sloping 'Passageway' slit is also parrallel with the ecliptic and the general run of the 31° inclination.

In Constructs diagram no. 5 I have added some other relevant azimuth values. The angular width of the Heelstone is c. 2° 10´ (130 arc minutes). This value is obtained by measuring the stone width with a tape and converting it to circular measure as a fraction of the corcumference of a great circle including the Heelstone in position and with circle centre at the Stonehenge centre.

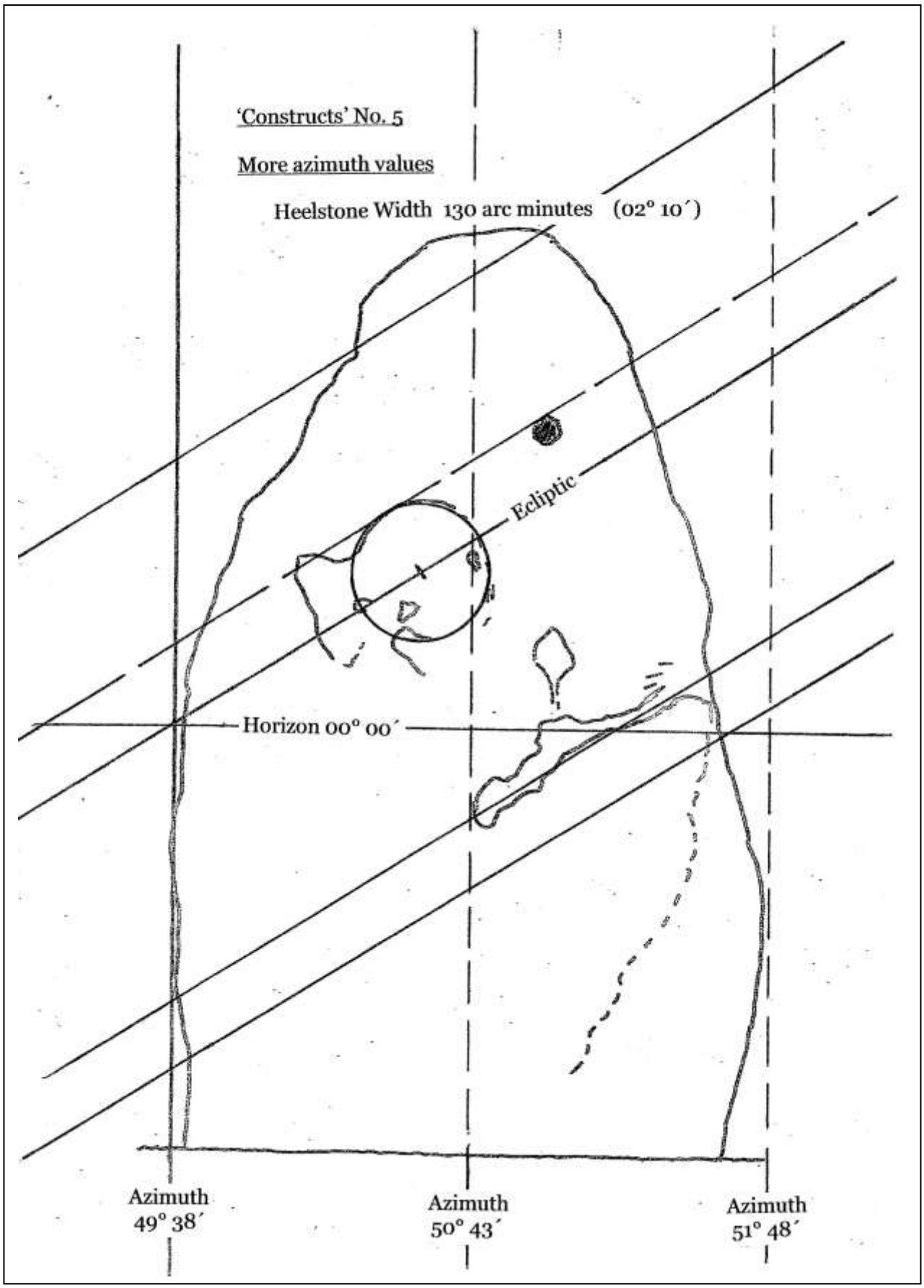
Therefore we now have the full width. With the first edge at azimuth 49° 38´ and a centre point at 50° 43´. It should become clear, at a fyrther point of this Stonehenge story, that this number of this particular azimuth value of 50° 43´ is very significant.

'Constructs' No. 6 introduces that part of the Cosmic sky that is the focus of Stonehenge – the part that rose with the summer solstice sun in BC 2341 / 40. (This part of the sky was also, annually, in direct 180° opposition to the sun ½ a year later at winter solstice, but at same time of day / night.) The focus in the sky was the Regulus Group, as shown, from Regulus down to 31 Leo, and according to the time of year – i.e. mid-summer – our Sun. As the developing picture shows with the 'Constructs' diagrams, there were (and still are) other Cosmic features of this part of the sky – notably a number of very remote and obscure stars. There are not large numbers of theses distant stars in the way that the Milky Way has such a density and this fact makes it easier to focus on just one.

The sun, on the ecliptic, follows a 4-year cycle of 'wobbling' slightly along its track as shown. I show the four options for data around my target date of BC 2341 / 40.

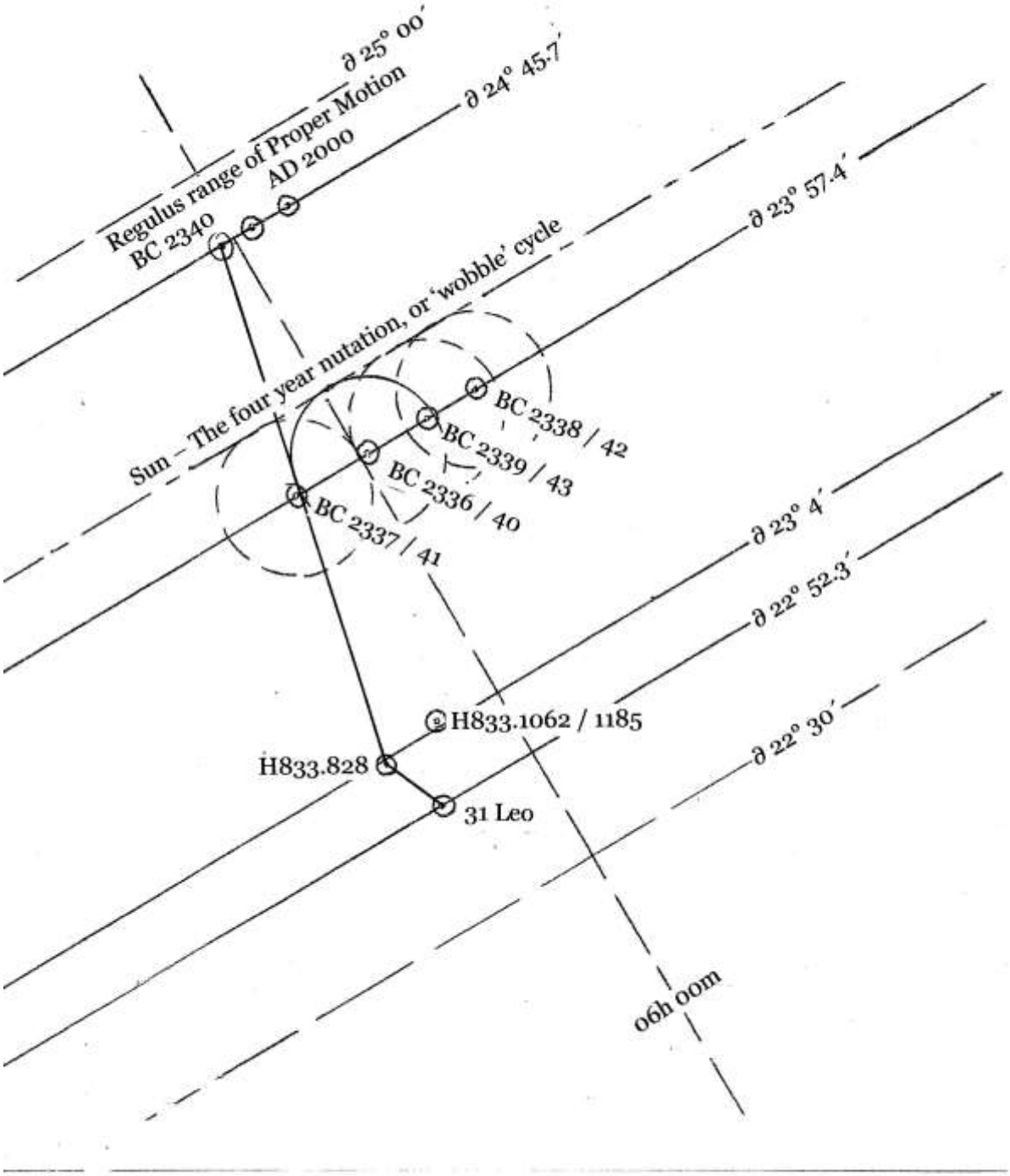
I have adjusted the position of Regulus as changed from earlier pages, by taking into account the effect of Proper Motion. The maximum value that I have from current star catalogues computes to a total movement for 4500 years of c. 0° 15´ to 18´ forwards, (right to left on the Cosmic sky map). The results have been, firstly, that the 'best fit' sun centre position for the Heelstone face / Regulus Group combination is now based upon the sun at BC 2341 rather than the date of BC 2340 that I have used so much in preceding pages. Secondly that the focus at the lower end of the Regulus Group has now shifted slightly from H833.1062 / 1185 previously identified, to equally remote and obscure star H833.828. These slight changes in the Regulus Group will be incorporated from now onwards into the developing story and into the diagrams.

The star 31 Leo is not an 'active' part of the Regulus Group but is included to help identify the orientation of the Group It is also an aid to finding the


'Constructs' No. 5
More azimuth values
Heelstone Width 130 arc minutes (02° 10´)
Ecliptic
Horizon 00° 00´
Azimuth
49° 38´
Azimuth
50° 43´
Azimuth
51° 48´

'Constructs' No. 6

Part of the Cosmic Sky – The Regulus Group c. BC 2340 / 41



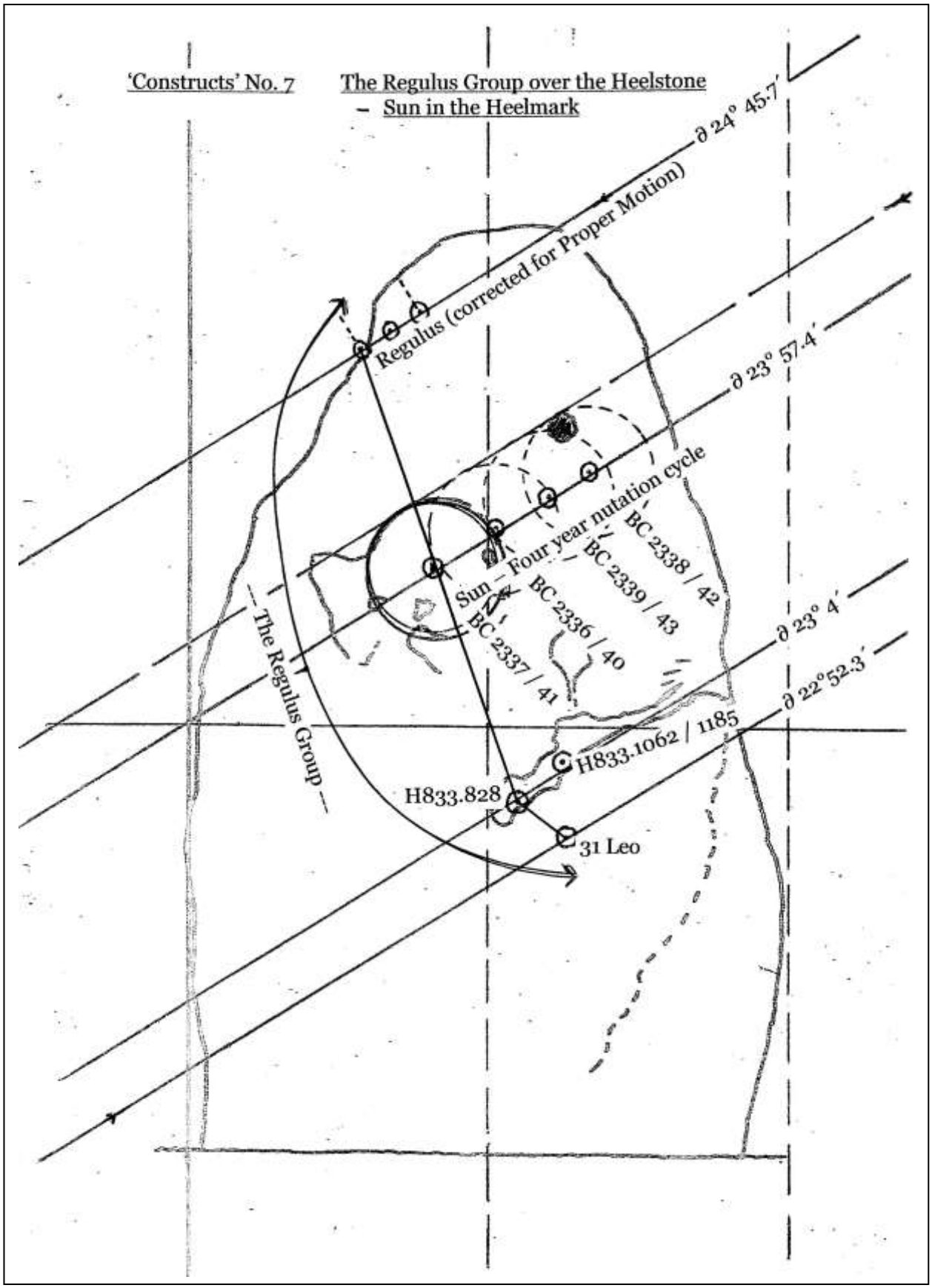
'little star' H833.828. This star and 31 Leo are very close on the Cosmic map. I have also shown the boundaries of the grids of Right Ascension and declination.

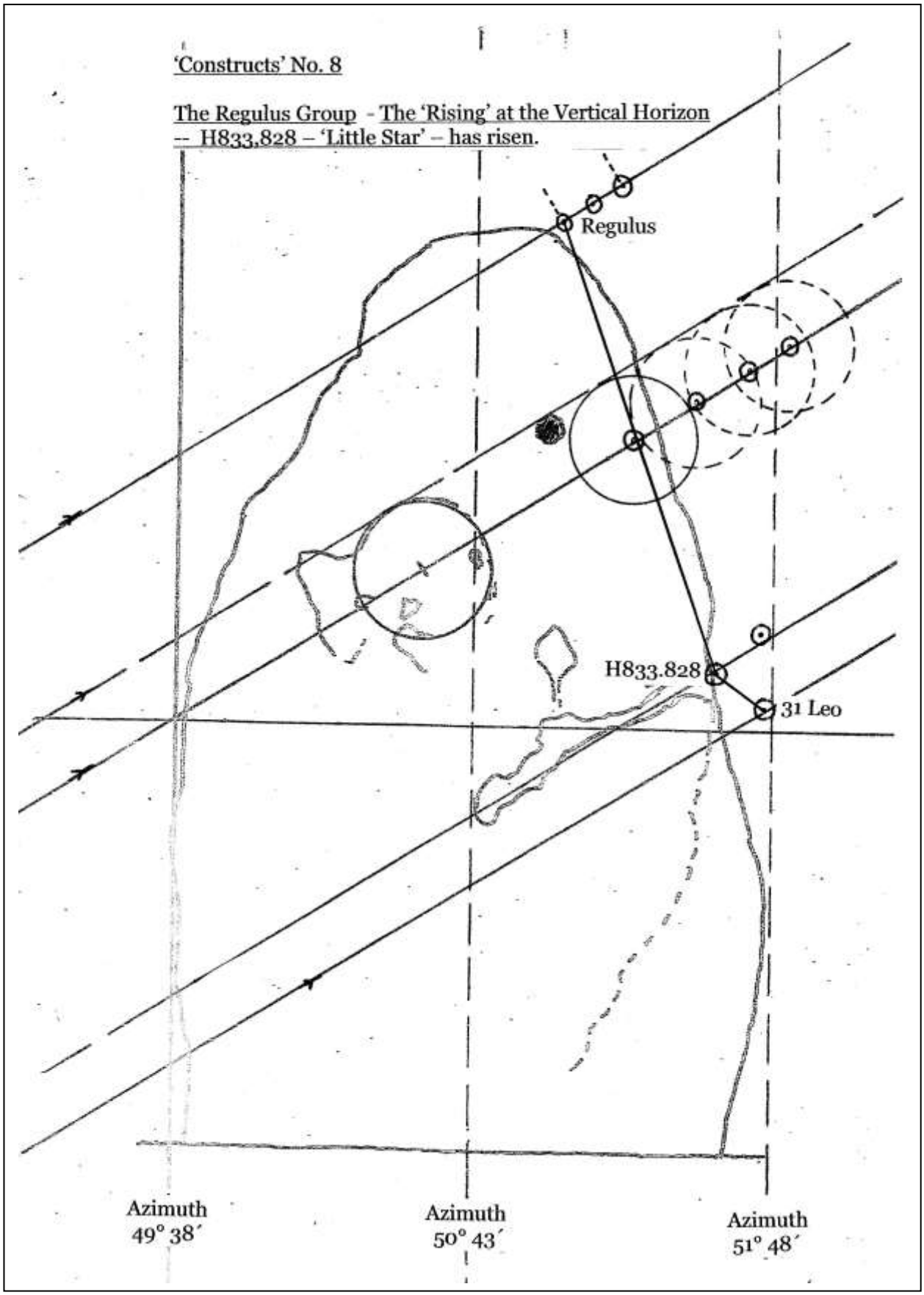
The diagram for 'Constructs' No. 7 shows the Cosmic map superimposed across the face of the Heelstone at same scale and with the sun 'anchored' in the Heelmark and on the ecliptic. It is clear that the other important members of the Group – Regulus and 828 – immediately 'fall' on to other significant features of the Heelstone. Regulus is now 'held' in the significant notch, at top left hand of the Stone. H833.828 is contained within the 'chamber' of the Heelstone 'Passage', or 'Slit'. 828 with a declination of 23° 3.4´ is very close to the declination line for 23° 4´ that is very significant for this exercise, and is my 'base' value for the track of declination that fits best the rising slope of the Passage. It follows very closely the angle of ascent of the 'straightened' section of the passage. I have remarked elsewhere how the diagram of the Heelstone passageway is very reminiscent of the passageways within the Irish Passage Graves. It is very easy to see an 'intellectual' connection between the Heelstone passage and the passage graves that matches in epoch and culture.

From the diagram no. 7 it is also now clear why I have revised the sun to BC 2341 as the centre point now fits very neatly onto the connecting line from Regulus to .828. As a 'pointer' to define 828 in its position within the chamber of the passage, this whole scenario appears to be very effective and very dramatic. This whole exercise – interpretation – of the intention within the Heelstone and within Stonehenge itself rests upon this connection of Cosmic sky, Heelstone form and features, and date. Astronomy has supplied the map. Archaeology has supplied the date. It is time that the two disciplines spoke to one another – archaeoastronomy / astroarchaeology!

As the rising summer solstice sky was at the stage shown in diagram 7, the sun was minutes from rising past the horizon and the view was twilight. 'Constructs No, 8 has moved the sky forward and the sun, with Regulus Group, has now arrived at the Heelstone 'vertical' horizon. The sun is now risen to almost exactly half orb, sufficiently high to be clearly visible but still with a clearly defined shape. At this moment Regulus has just cleared the top right hand edge of the Heelstone. And, most important of all, H833.828 has now emerged from the exit of the passageway and is in the ascendant sky. The 'axis' of the Group all aligned with the edge of the Heelstone. All visually, completely dominated by the light of the emerging sun. All on the alignment built into the axis of Stonehenge.

The whole is a 'picture' that only works on the correct alignment as formed in the design. But it does not rely only on the correct <u>vertical</u> placing of the Heelstone. Rather it works when the sun is placed on the correct location – the 'Heelmark' of the face of the Heelstone.


'Constructs' No. 7
The Regulus Group over the Heelstone – Sun in the Heelmark
∂ 24° 45.7′
Regulus (corrected for Proper Motion)
∂ 23° 57.4′
Four year nutation cycle
BC 2338 / 42
BC 2339 / 43
Sun –
BC 2336 / 40
BC 2337 / 41
∂ 23° 4′
∂ 22°52.3′
The Regulus Group
H833.1062 / 1185
H833.828
31 Leo


'Constructs' No. 8
The Regulus Group - The 'Rising' at the Vertical Horizon
-- H833,828 – 'Little Star' – has risen.
Regulus
H833.828
31 Leo
Azimuth
49° 38´
Azimuth
50° 43´
Azimuth
51° 48´

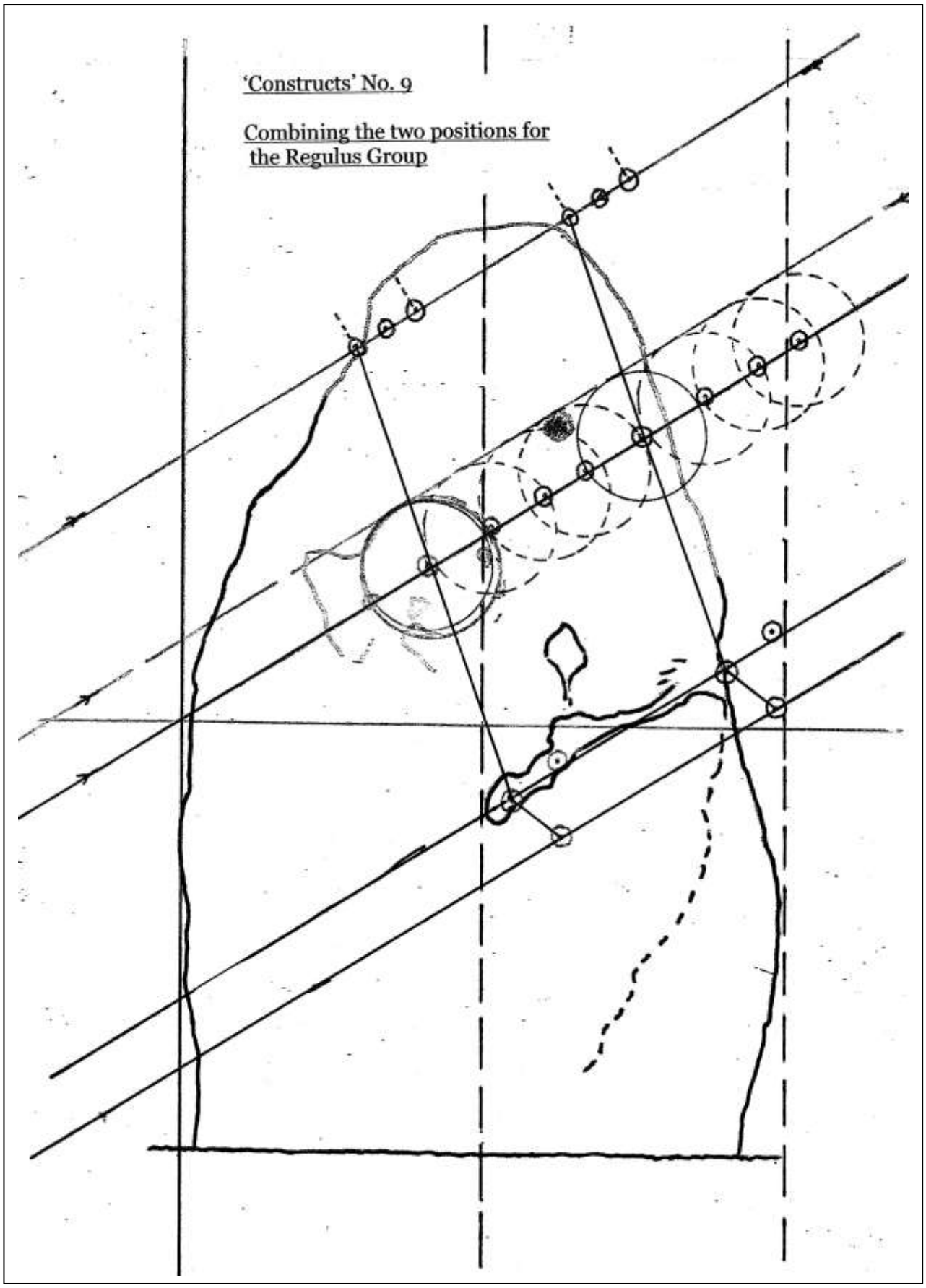
The name ‘Heelstone’ itself lends even more weight to this story. In Welsh the word for the sun is ‘haul’. Pronounced very closely to our modern English pronounciation of ‘heel’, it is perfectly obvious that the ‘Haul stone’ would quickly become ‘Heel stone’ (or ‘Hele stone’). There is no need for legends of the devil throwing this very large stone at a friar and causing the imprint of a heel mark in the stone. Perfectly simply the name, when translated from the Welsh / Celtic / Old English becomes ‘Sun’ stone. What could be more explicit.

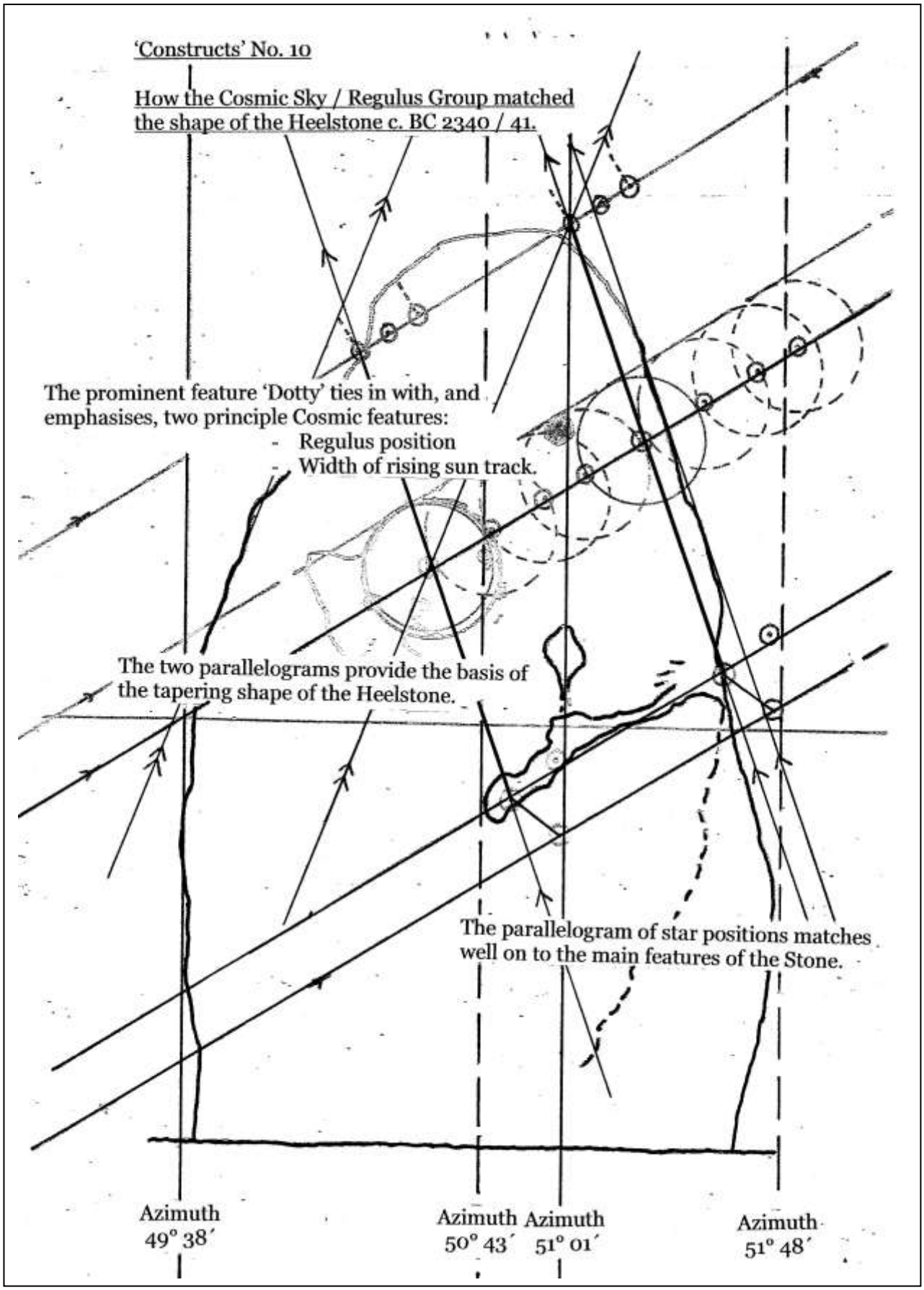
The expression ‘Ffriw yr haul’ from old Welsh translates as ‘Countenance’ (or ‘face’) of the sun. So easy for the Welsh expression to have been interpreted in recent English historical times as ‘Friar’s heel’’ (‘hele’). Hence the source of the ‘strange’ explanation that is published in most accounts of Stonehenge involving devil and friar. My explanation of the origin and meaning of the name as being derived from Welsh and including ‘face’ and ‘sun’ leads immediately to the interpretation, in my developing story, of a representation, on the ‘face’ of the Heelstone, of the sun. And the sun fits well into the prominent ‘Heelmark’. The Heelmark is now correctly labelled the ‘Sunmark’ – English, or the ‘Haulmark’ – Welsh! And if the ‘Heelmark’ is interpreted as the ‘Sunmark’, the whole story of the ‘picture’ represented on the ‘face’ of the Heelstone can be unravelled.

It should be clearly understood that this formation of Regulus Group and Summer Solstice Sun rising only happened over a very short time period centred on BC 2341 / 40. It was a unique event, the close union of Regulus to the ecliptic and the sun. It may never be repeated. Although Precession will eventually bring sun and star close again at a very distant time in the future, there is almost certain to have been ‘drift’ in the Cosmic sky arrangement, and who can say how close or far from the ecliptic will be Regulus? Clearly, if this is the correct astronomical scenario that is demonstrated on the Heelstone and within the planning and design of Stonehenge, then somehow knowledge was in existence long before the start of the building operation. This theme leads into the biggest and most ‘difficult to consider, describe, recount’, part of the whole matter! Nevertheless, BC 2341 / 40 was obviously a very important date! And, also, there is the link between this whole structure and H833.828. The question of ‘why’ is also very important.

‘Constructs’ No. 9 brings the complete relevant Cosmic sky story together in one picture as it combines Heelmark situation and ‘Rising’ situation. ‘Constructs’ No. 10 then emphasises how well the combined Cosmic picture fits to the Heelstone face and also its shape.

By combining these two situations in this way it is possible to demonstrate, not only how the various Cosmic bodies fit prominent features on the face, but also how their rising tracks also fit into the context of the Cosmic picture. The tracks of the various objects are a second feature of them after the absolute positions and depicting them in this way both increases the amount of information given on the Heelstone and also contributes towards confirming the correctness of the interpretation.


'Constructs' No. 9
Combining the two positions for
the Regulus Group


'Constructs' No. 10
How the Cosmic Sky / Regulus Group matched the shape of the Heelstone c. BC 2340 / 41.
The prominent feature 'Dotty' ties in with, and emphasises, two principle Cosmic features:
- Regulus position
- Width of rising sun track.
The two parallelograms provide the basis of the tapering shape of the Heelstone.
The parallelogram of star positions matches well on to the main features of the Stone.
Azimuth 49° 38′
Azimuth 50° 43′
Azimuth 51° 01′
Azimuth 51° 48′

The track of the sun (ecliptic) and its trajectory are confirmed by the alignment from top edge of Heelmark to top edge of 'Dotty'. (All of my work with Stonehenge has always confirmed, when alignments between objects are concerned in aspects of the plan of Stonehenge, that it has always been edge to edge alignments that are involved. Never are there significant centre to centre alignments. Therefore I would expect the same simple rule to apply to smaller situations such as the Heelstone face.)

The track of H833.828 is confirmed by the sloping lower edge of the Passageway.

The significance of the kite mark, just above the Passageway, is that it is part of an alignment, again with the edge of Dotty, and also Regulus in the 'rising' position. And this alignment is part of the grid of azimuth of the face – a key feature in interpreting the Cosmic picture. The fact that this alignment also is very close to alignment with 31 Leo may or may not be coincidence. Finally, because this alignment is vertical and as fits into the grid of azimuth it confirms the correctness of orientation of the grid.

Regulus, at the top track, encompasses the width of the Heelstone. The Heelstone could hardly have been selected, transported and erected on the basis of a coincidence that stone width and star positions would fit in this way. If it did not naturally fit then obviously it had to be 'battered' into shape after erection, a considerable task in its own right.

A similar statement can be made regarding the position and form of the Heelmark and its relationship to the lower 'passageway' and its chamber. Also the other features on the face including the large cup-mark 'Dotty' and the lower 'kite-mark' above the passageway that looks man-made.

All of these features are very accurately placed, very few (probably just an un-straightened and un-modified passageway) were already on the Heelstone when it was selected. Now the passageway has its straight section that aligns and fits so neatly with the rising Cosmic track at 31° inclination. And the straight section fits very closely to declination 23° 4′ on my explanation of the stone face. Is this coincidence of fit a natural feature that was very astutely selected, or was it even more cleverly noted as a feature <u>with potential</u> that was then modified by human hands to make the required fit?

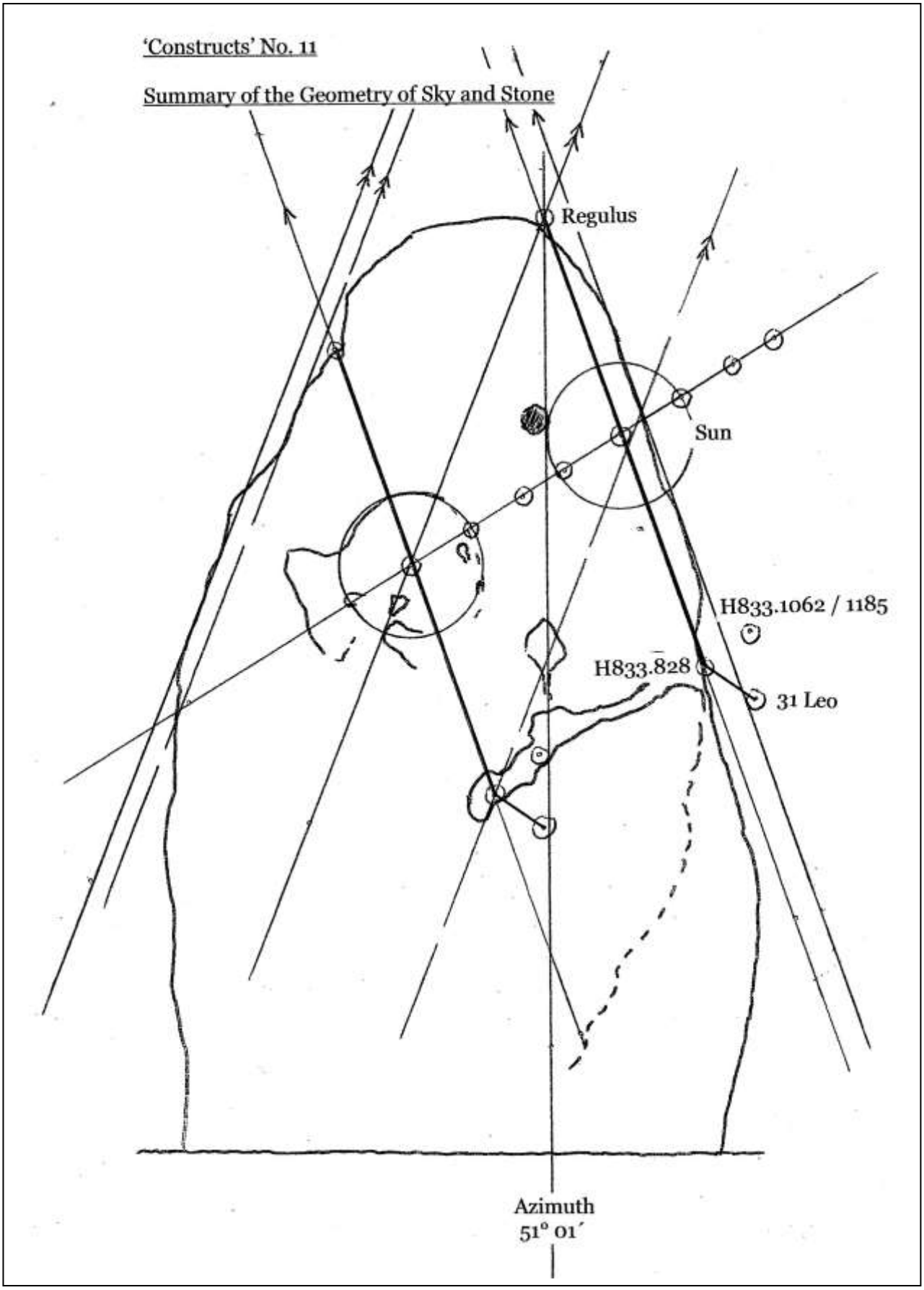
The number 23 4 is, again, very important within the developing story. And 23° 4′ is one of the target coordinates in the search for 'Little Star'. Probably, with the tiniest amount of 'tweaking' of my interpretation, stone plans, and astronomical data, this declination value would come exactly onto the Passageway straight section.

The right hand, or north east, upper edge is very true to the collective Regulus Group in its slope angle. It is also comparatively straight. Again this points to more adjustment – shaping having been carried out, probably after erection.

The left hand upper edge also fits well to the second parallelogram shown, incorporating the same Cosmic features / intersections, but at an earlier stage, on 3 out of 4 corners. Together the two sets of parallel lines appear to have been used as the basis for the shape of the top of the Heelstone.

All of this detail within the face of the Heelstone, and its shape, is very close to the Cosmic 'picture', probably far too close to be natural, but perhaps natural features were there that only needed 'adjustment', i.e. re-shaping manually. Consequently the Heelstone, as completed, has now become a monumental work of art. Far more than just a natural, un-worked, rough lump of Sarsen weighing probably in excess of 40 – 45 tonnes, it has become what must surely rank as one of the largest and most complex works of sculpture in Britain or North-West Europe and, in complexity, the world. And for so long un-recognised, un-credited! It has to be asked what was the nature of the eyes and mind-set that saw the potential, knew the reasons, and developed the stone in this way?

'Constructs' No. 11 shows some of the more obvious geometry that underlies the Cosmic picture and the Heelstone shape and features. There is clearly a pre-occupation with parallel lines and the resulting parallelograms. As might now be expected many significant points of sun and star tracks / intersection of Heelstone edge and track coincide with intersections of the parallelograms and these parallelograms have then been used as a basis for the shape of the upper section of the Heelstone, The parallelogram theme could be extended by adding in the rising tracks of the various stars shown in the earlier diagrams. This then completed a quite complex but extremely satisfying construction design.


'Constructs' No. 11
Summary of the Geometry of Sky and Stone
Regulus
Sun
H833.1062 / 1185
H833.828
31 Leo
Azimuth
51° 01´

'TAILPIECE'

This section, 'Tailpiece' is an example of how to explore a possible match of alignment at Stonehenge, this time on to the plan of the monument rather than looking along horizontal straight lines on the ground between one feature and another. It has all of the risks of alignment theories that are so often labelled as not provable whilst at the same time requiring knowledge that would be, theoretically, far beyond anything available in a prehistoric age to be used in such a way. At the same time it is always worth exploring possibilities, even if only for the interest. This one is not essential to prove anything that has so far gone before, but it fits in very neatly. The four following illustrations summarize the idea.

The first illustration shows the plan of the four principle stone formations – two outer circles and two inner horseshoes. The Sarsen stone formations are highlighted in red colour. The Sarsen Circle is the outer circle and the Sarsen Trilithon horseshoe is the third formation inwards. The two Bluestone formations – the lesser Welsh stones – are not required for this particular exercise.

The second illustration is of the star map of that very small area of the Cosmos within the Regulus Group that contains the star H833.828 that is the focus of the Heelstone Passageway and the monument in general. As usual the date is BC 2341 and 31 Leo is included as an aid to location and orientation. 'Target' star H833.828 is at the left hand and about central on the map.

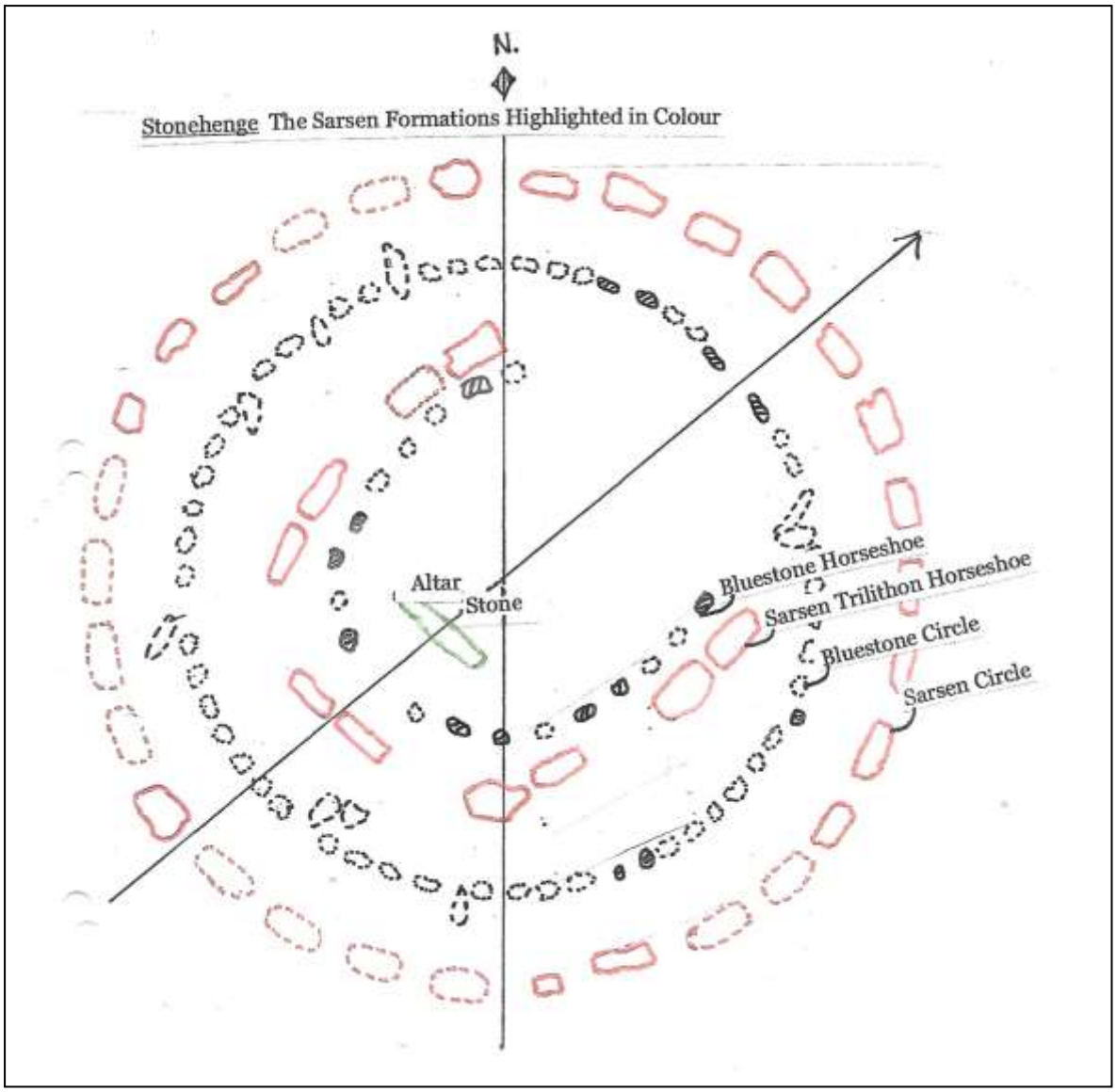
The declination line for 23° 4´ rises across the map from mid left hand to upper right hand. This is the declination line that is represented on the face of the Heelstone as rising up the Passageway almost exactly on the straightened section and, therefore, exiting from the Passageway at c. azimuth 51° 34´. H833.828 lies very close to, and just below, this declination.

As the cluster of these very distant stars occur on the map there is a small group of five that lie either side of declination 23° 4´, with .828 closest . If this group of five is superimposed on to the plan of Stonehenge such as to fit them over the Sarsens, there is a strong feeling of agreement of the plans of the two groups, stars and stones. .828 lies close to the central axis of the stones and over the outer 'frame' of the Sarsen Circle, whilst the other four stars either coincide or almost so with the four 'lesser' Trilithons of the Sarsen Horseshoe. And the main axis and declination 23° 4´ are very close.

For interest I have shown two overlays at a slightly different match of scale.

It is not possible, here, to argue one way or the other, whether this is complete coincidence or a factor in the inspiration of the basic layout of Sarsen Stonehenge that was involved in the thought, idea, and very early planning of the whole monument. But it would be very interesting to learn, one day, that this was indeed the case. For now it is just one more fact that can be 'squeezed' out, and one more example of an alignment theory.

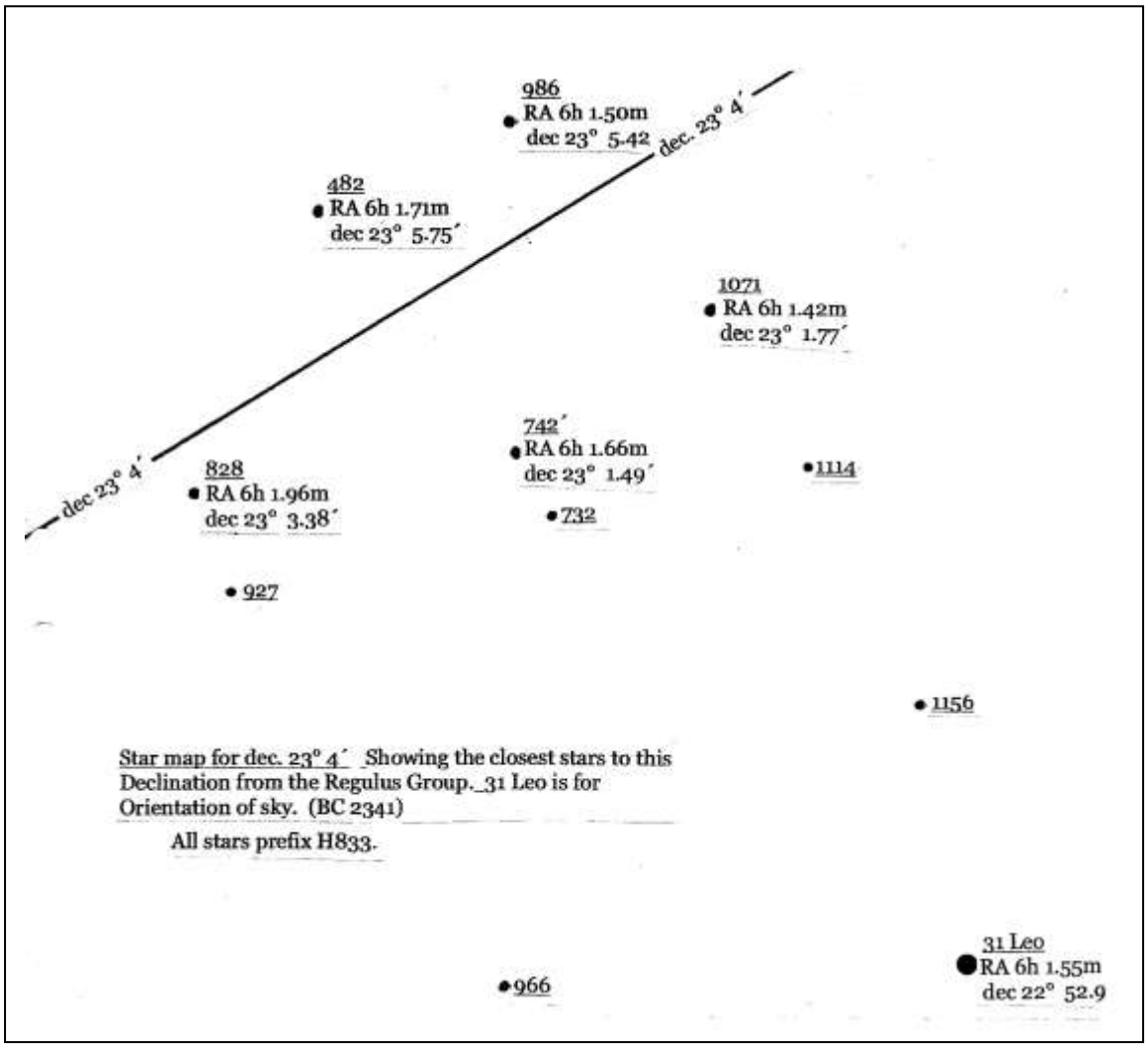
Stonehenge – The Four Principle Stone Formations



The red colour highlighted Sarsen stones are relevant to this section. The lesser Welsh bluestones (not red coloured) are not required for the section.

The Cosmic sky within the Regulus Group showing the near neighbours of H833'828.

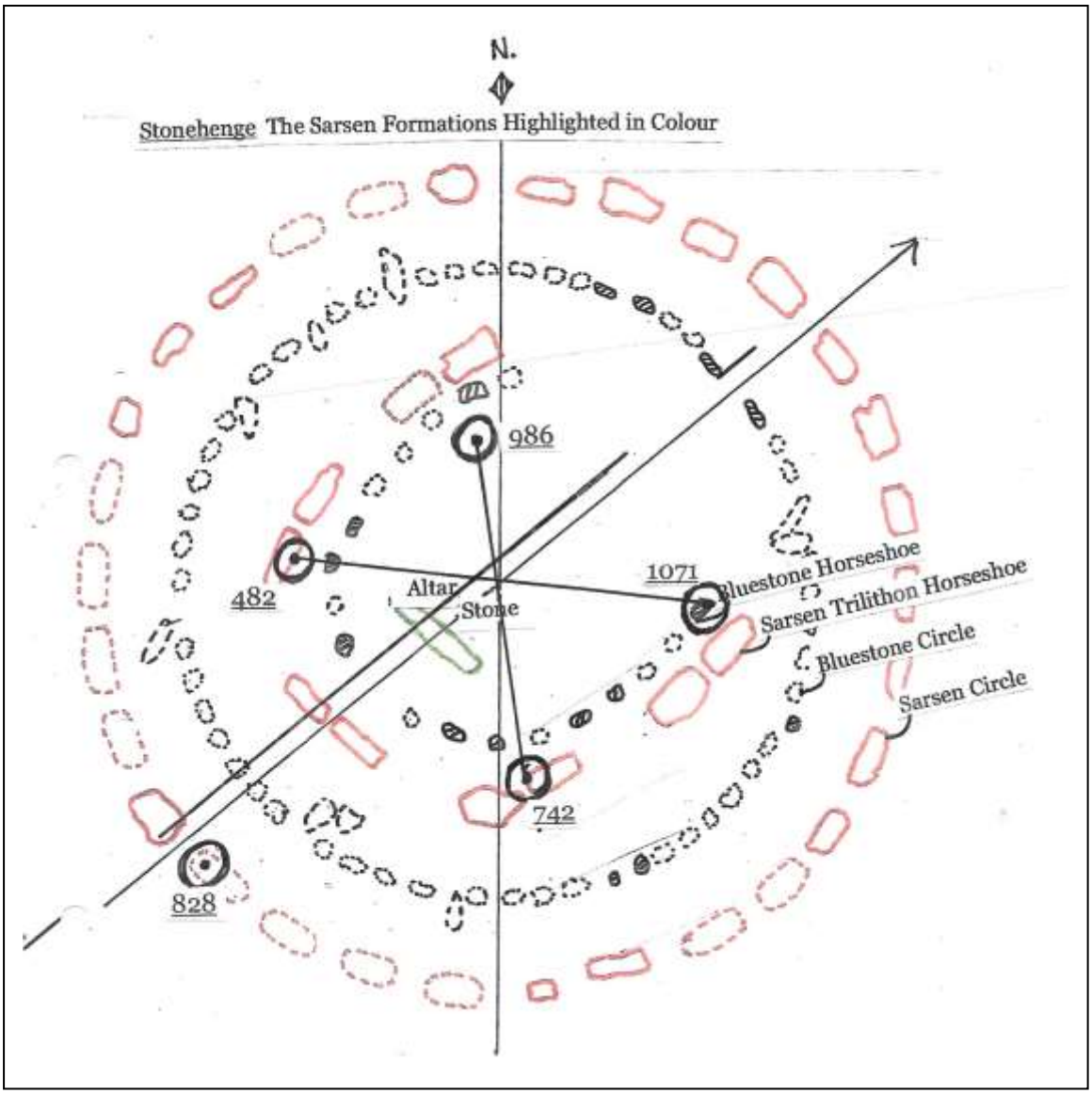
All may be very distant and appear very faint and insignificant from Earth. But as a group it may be possible to exploit their form. Date is BC 2341. Location in the Cosmos is given by 31 Leo.



Star map for dec. 23° 4′ Showing the closest stars to this Declination from the Regulus Group. 31 Leo is for Orientation of sky. (BC 2341)

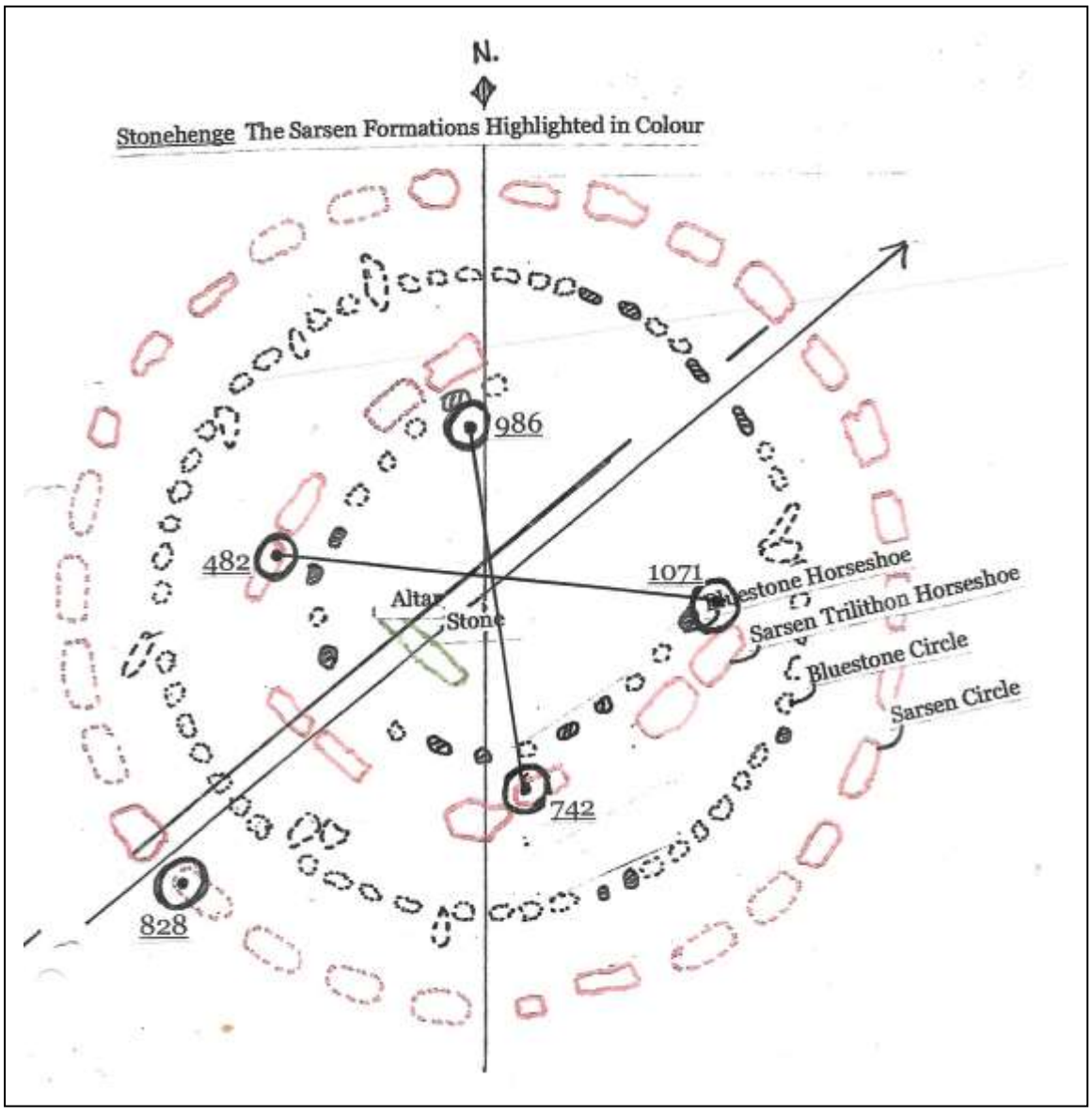
All stars prefix H833.

The Over-lay of stars on to stones. The group of five stars, with H833.828 at its 'head', overlaid on to the Sarsen formations. Considering that the star group is a natural feature and seen as it is purely due to unplanned and uncontrollable natural forces, there is a remarkably close correlation between stars and stones. The layout and relationship of the stone formations was completely a planned and man-made format. It would be very exciting to feel that one had found one of the key factors that caused the designer of Stonehenge to finalise the design in the way that we now see it!



The Over-lay at a slightly different scale.

Obviously there is no particular guidance as to what may or may not be a correct scale at which to carry out this kind of exercise. Therefore this is the same exercise as the previous one but, with an altered scale, the two plans can be aligned even more favourably. It is very easy to play around in this way and, maybe, 'see' a 'picture' that was played with by our Stonehenge designer perhaps 5000 or more years ago. It is a great conceit of the modern human race that most believe, and our science implies, that we are the only intelligence that ever existed in the Cosmos, - ever.



A kind of 'End Chapter', - Some sort of summary (Jan. 2020)

I can, now, begin to see a narrative – a summation – coming out of my work that may finally summarize the overall background idea that is the intention of Stonehenge. An overall broad understanding of its content, and its function as part of the record of the achievement and of the 'creation', management, and future for our intelligent, Earth-based civilization. Possibly proof that the human race has been created and managed by superior external intelligence and should not fear its 'fate', or climax, in the fast approaching future. This summation is drawn from the results of many years of work, described in much greater detail in my main manuscript.

The two Sarsen formations were the first stage of construction for final Sarsen Stonehenge. Therefore they were the priority, they received far more work and care than the later two Bluestone formations. There was an urgency because of the impending meeting and union of Sun and Regulus Group at mid-summer solstice.

(A) The Tri-lithon Horseshoe.

Binary value 23405 – set the framework for the monument and for the development of the human race within a defined time frame. 23405 gives an obliquity value for the sun which is the mean of obliquity from B.C. 2340 to 2340 A.D. This is a very prime, 'hard', immutable value because the obliquity of the sun changes very slowly but very definitely – constantly – through the epoch of this story. 23405 also gives, very accurately, the time span in years – 2340 before mid-point and 2340 after. Mid-point is marked by the birth and life of Christ and the beginning of the Christian religion.

It is useful, here, to recall this primary interpretation of this major number feature given by the Sarsen Trilithon binary value.

Stonehenge – Great Trilithon Horseshoe (B.C. 2340)

Sarsen stone arrangement:- $\overline{I}\,I \;\; \overline{I}\,I \;\; \overline{I}\,I \;\; \overline{I}\,I \;\; \overline{I}\,I$

Gives binary expression:- 101101101101101

Gives number expression:- 2 3 4 0 5

Astronomically:-

	Year	Obliquity
	B.C. 2340	$23^{o}\ 57.373'$
	A.D. 2340	$23^{o}\ 23.582'$
Mean of the two		$23^{o}\ 40.477'$ = $23\ ^{o}40.5'$
		Binary 23405

B.C. 2340 is therefore set as the 'start-point' and is marked by the union of sun and Regulus. Regulus, as dominant star of the Regulus Group, is the

priority star of the Cosmos. It marks its group which contains the distant and un-seeable H 833... 'Little star' cluster from which emanates the intelligence that is responsible for starting-up, and managing the whole gigantic enterprise of setting a new civilization on its way. A new civilization that will travel a route through growth, development, and maturity to become one more advanced society within the Cosmos. The Regulus Group contain their home. It is where they live and where they come from.

The union of sun and star at summer solstice B.C. 2340, and its coincidence with the pattern of numbers within the binary groups was extremely fortuitous. We cannot yet know how far into our ancient past this was first known by external intelligence, and settled upon as the way forward to bring our civilization to fruition. But it is a sobering thought that it may well have been a very, very long time ago. Perhaps one day we can be told.

The same sharp intelligence settled upon the location of Stonehenge to produce a rising azimuth / Heelstone horizon marker system based upon the key azimuth value of 50° 43.2' (which is 23405 reversed) , for the summer solstice rising of the united Sun / Regulus group at the chosen date of 2340. (A typical example of a very significant numerical value being transmitted with absolute economy.) And then, later in the course of human development and history, caused a world dating system to come into existence that fitted so neatly on to these astronomical events and the passing year count. The same intelligence super-imposed into a new and developing astronomical knowledge the sexagesimal counting system of degrees – arc minutes – arc seconds that is so versatile and suited to the circular and spherical geometry of astronomical recording and calculation, but yet ties in so well with the number expressions derived from the binary numbers (themselves the basis for all digital technology). Indeed it seems reasonable to assume that the calculation, counting and number systems, and the resulting mathematical processes are actually inspired and derived from the highly intelligent external minds that set everything up for homo sapiens on Earth in the first place.

So the single binary value of 23405 has provided: -

- Date of commencement of the specific time-span.
- Date of completion of the specific time-span. (Therefore duration of time-span.)
- Rising azimuth of Sun / Regulus Group.
- Focus upon (and therefore identifying) of the Regulus Group as that tiny part of the Cosmos upon which we must now direct our search for final answers to so many of our questions.
- A very effective means of fixing the huge amount of information within the design and form of Stonehenge in time and place.

(B) The Sarsen Circle Binary Value 768 614 336 404 564 650 .

This circle provides the necessary data to locate, connect, and communicate with the external intelligence at a time in the future when human, Earth-bound technology has advanced to a point where such communication will be possible. That time has now arrivedp.

The Binary value 768614..... is a direct definition of the frequency of radio signal at which we will identify their transmission to us. 7.68614 GHz is a very high frequency, one that needs highly developed technology to transmit and receive, and one that exists just low enough to reach Earth surface through the natural oxygen and water vapour of our atmosphere. (More explanation will be found further on in section (D) dealing with the Bluestone Circle.)

With the application of the natural physical value of the velocity of light we can also define the wave-length of such a signal.

This value of light velocity is inherent within the design of the Sarsen Circle. The velocity value is numeral 3 and correct number of powers / order of magnitude. The units that we use are based upon natural features of our Earth-bound system (and no doubt their existence and adoption has been influenced by external intelligence).

The Sarsen Circle also contains an inherent basis of 3 in its design – 30 lintels / 30 uprights – also only requiring us to manipulate the order of magnitude.

The form of construction as a circle is easily directly modified to represent a sine wave – as per an electro magnetic wave. I have demonstrated, in my section on Radio Astronomy, how the combination of circle diameter and acquired value for wavelength immediately and easily provides a value corresponding to my acquired frequency of 7.686... GHz as given by the Binary Value of the Sarsen Circle stone total.

The two Sarsen formations, their form, combined arrangement, and geographical and landscape context, combine to provide, along with the 'picture' of solstice sunrise within the Regulus Group upon the pointer of the Heelstone, a complete framework to describe the direction and intended time-frame for the formation, process, and ultimately completion of the beginning of the intelligent and sophisticated entity that will become the race of homo-sapiens upon planet Earth. At the same time these stones identify the home and contact details for the intelligent beings who have set up the whole process. But in such a way that it would be incomprehensible to Earth-bound civilization until knowledge, technology and method had developed sufficiently to understand and focus upon this picture. Now we <u>can</u> do it. It just needs the will!

Eventually we will become a civilized, intelligent and <u>peaceful</u> race of hominids that can develop into an inter galactic, even inter stellar, race. Then we will be able to take our place amongst other, similar civilizations upon other worlds. Thus the creation – convoluted, painful, slow-growing. But always following the thread of intelligence and always moving forward.

We can rightfully ask how many other world civilizations out in the Cosmos have endured a similar process as they grew towards maturity. I would guess many. Perhaps, in the future, we may come to know. It seems to me that planet Earth and every member of homo-sapiens is now at a tipping point. As a group, a multitude. we are poised to move into an existence that will possibly

not know war, famine, greed as we finally see that our future is going to be good. It only needs now for science and technology to take this story outlined here on board and turn its focus out to where I have demonstrated. The future success of the planet and billions of people now depends upon the scientists. As long as science and scientists hesitate to take up this story, so will those billions continue to suffer!

The two Bluestone formations, horseshoe and circle, also function along almost identical principles as the Sarsen formations but to a slightly different purpose. They were. to the builders of Stonehenge, for the future – for us in the here and now.

C). The Bluestone Horseshoe

This was the neatest, most accurately laid out of the two. It is well ruined in our modern era but there has been much archaeological examination during the 20th century attempting to establish its final form. The received wisdom for much of the 20 th century has been that the final form contained 19 Bluestone uprights and no lintels. I take issue with this. A 19 upright Horseshoe (or any odd number) implies an upright central to that part of the arc of the Horseshoe between the front of the Great Trilithon and the Altar Stone, and straddling the Main Axis on a line from C. azimuth 50° to c. azimuth 230°, passing through the archway of the Great Trilithon.

Obviously an upright in this central position would immediately obstruct and eliminate the sight-line of the main Axis. As my work overall has demonstrated, many principles and purposes within the design of Stonehenge that are based upon and built around the Main Axis Group, it would be pointless to accept an upright anywhere along the Main Axis that obstructs the sight-line. It may be the case that there are the remnants of ancient holes here that suggest ancient erection of uprights, but there has been very much digging here, stone erection, re-design, and removal through the centuries. My concern is with the final form of the Horseshoe and I have to take the decision on numbers and position one way or the other. Therefore it seems to me that the final form of the Bluestone Horseshoe in Sarsen Stonehenge c. B.C. 2340 and later towards B.C. 2000 was an eighteen upright formation with no central stone. This also preserves the symmetry of the monument about the Main Axis Group that is essential to its decipherment.

Interestingly, in the last few years there has been a noticeable increase in the number of commentators who favour the view that the mid- winter sun-set solstice was an important event to the Stonehenge builders and to be marked along the alignment of the Back Axis through the archway of the Great Trilithon at azimuth c. 230°. Obviously it is essential that the Back Axis

provides a clear sight-line for this and therefore there could be no place for a central Bluestone in the Horseshoe.

An 18 upright formation gives Binary Value 262144.

The Horseshoe formation has beginning and end and suggests a finite quantity. It is visually the lesser child or sibling of the larger Sarsen Trilithon Horseshoe and contained by that formation. Therefore the logical understanding is that it echoes the principle of the Sarsen Horseshoe.

The first and primary function of the Trilithon Horseshoe is to identify a specific date (and time frame) by applying its binary value to the Obliquity of the Sun.

Therefore the Bluestone Horseshoe binary value (262144) is interpreted in the same way and within the same context.

A solar obliquity of 23º 26.2144' translates to a date of c. A.D. 2000 / 1 / 2. (In other words the dawn of the new millennium and the beginning of a new age of digitalisation and spectacular scientific discovery).

Whilst it could be argued that this date does not immediately have any obvious significance for the world at large in terms of any monumental single event, I can say that it is central to the period of a handful of years when I finally began to come to an understanding of all that I have written concerning the story within Stonehenge that is contained within the pages of my manuscript. (I have actually been working on the interpretation of Stonehenge since the early 1960's which covers most of my life.) I would argue that the relevance of this date at the beginning of the twenty-first century is that it marks the point when understanding of Stonehenge and its significance is finally moved into the realm of understanding of man – homo sapiens. And if that understanding with all its implications for our future is not significant then I don't know what is! If Stonehenge has been a closed book for so long then the book is now opening.

The information and understanding within my manuscript, and for the world at large, is unique, new, startling beyond belief. It has the potential to answer so many of the 'Big' questions of our human existence, our history, and where we are going. Furthermore it has the potential to mark the beginning of a new and better era for the whole of the human race. If that also is not significant then what is?

Therefore this date, from the binary value, from the Bluestone Horseshoe formation, is of the greatest importance to the human race quite apart from other information to be gained from other aspects of Stonehenge. Its all about numbers – within a context!

In a nutshell binary value 262144 gives a date c A.D. 2001, and this is the 'tipping point' in the development of the human race. It is broadly the point when digital technology becomes allied to science, particularly astronomy, to set up the situation whereby homo sapiens can now reach out and transmit

into the Cosmos and also seriously begin to seek evidence of other worlds and other intelligence that is doing likewise. It is also at a point in our development when mankind has cracked the mysteries of genomics, DNA, and manipulation of the human gene. Developing technology will soon allow mankind to produce the first 'designer' humans. This may be good or very bad for the human race but is certainly a significant point in our history. We are at the point where humans will cease to be 'Little Earthlanders' and become Cosmic beings.

D). The Bluestone Circle.

This was the last of the four main formations to be built within Sarsen Stonehenge. Precise dating is uncertain but is taken to be in the period after the critical date of B.C. 2340 when the union of Sun and Regulus occurred at the solstice. Estimate of dating is between c. B.C. 2300 and 2000. It is also concluded that it was built later because of the irregularity of shape. The impression is given that the circle was built as an afterthought or as a feature that just missed the B.C. target date. It is also likely that the sixty or so Bluestones used in its construction were already on site from an earlier construction of Stonehenge and a use was thought of for them later in the period.

The total of stones in the circle is uncertain and so far has been arrived at partly by stone remains and partly by archaeological excavation of the very disturbed ground within Stonehenge. It tends to be conveniently described as sixty but for the kind of number work that I have tried to apply to my research over many years it has also been necessary to work with a small group of options for the binary values based upon stone totals either side of sixty.

For numerical reasons explained within my main manuscriptI have settled on a circle total of sixty-one upright stones.

[One very notable reason shown in the section on Radio Astronomy is that the binary value for a sixty-one stone circle combined with the factor of 3, for the reasons explained in that section, gives a product that is exactly the binary value of the Sarsen Circle. This is an absolutely exact result and it seems to me that a project seeking the ultimate scheme that was to become the final Sarsen Stonehenge, and using the numbers I have so far described in the way that is implied, could not fail to have become aware of this impressive number relationship described below.

To remind myself, the simple arithmetic with very large numbers is thus:-

Bluestone Circle Binary Value:-

$$\frac{230\ 584\ 300\ 921\ 369\ 393\ 1}{3}$$

$$= 768\ 614\ 336\ 404\ 564\ 650$$

and 768 614 336 404 564 650 = Sarsen Circle Binary Value.

This is an outstanding result coming forth from the stones of Stonehenge. Either it is purely fortuitous, or it is intended. If it is fortuitous – just good luck – then there is no point in going on. If it was planned then we can begin to search for the reason.

These numbers can in fact be fitted together in a way that can be explained by some relatively simple physics concerning electro-magnetic radiation – in particular within the radio frequency part of the spectrum.

Here, as a possibility, I show one way of interpreting these numbers. It produces an actual physical picture – a possible explanation for their purpose.

$$\frac{(\ 2.30\ 584\ 300\ 921\ 369\ 395\ 1\ \times\ 10^{p18}\ )}{(\ 3.00000000\ \times\ 10^{p8}\ )}$$

$$= (\ 7.68\ 614\ 336\ 404\ 564\ 650\ \times\ 10^{p9}\ )$$

and 768 614 336 404 564 650 is the Sarsen Circle Binary Value

The factor $(3.00000000\ \times\ 10^{p8}\ )$ corresponds to the velocity of light, rounded to a factor of 3 to be useable within the Stonehenge design which has to accommodate very large numbers into a very limited choice of stone numbers and formations. 3... or 30 is the number of uprights in the Sarsen Circle, or the number of lintels, or the number of archways. 30 is the basis of the Sarsen Circle.

By using the value for the velocity of light in this way, it implies that there may be an association with radio waves at a very high frequency.

($7.68614...\ \times\ 10^{p9}$ equates to 7.68614... GHz which is a legitimate value within the radio spectrum that is well above the great mass of Earth sourced transmission but is technologically achievable by a fairly highly advanced source. It also comes in just below the part of the spectrum where absorption by oxygen and water vapour in Earth atmosphere would become a serious problem.

This may look ridiculously 'fantastic' theory excepting that it has directly arisen out of consideration of some 'fantastic' arithmetic that I have demonstrated lies within the stones of Stonehenge. It is necessary to be guided by the context.

A more detailed discussion of the background and reasons for the manipulation of these numbers in this way, and the choice of using them, can be found in the section on Radio Astronomy in my main manuscript.]

Astronomically the binary value of a sixty-one stone circle (23058...) can be applied in the following way:- The rising horizon azimuth value for Regulus and hence for the Regulus Group as a whole circa B.C. 2340 was at azimuth 48° 4.7' (level horizon). This value effectively does not change for purposes of simple observation throughout one year, or several decades, or even for the typical lifetime of an observer. (Unlike our Sun and Moon that travel extensively on a cyclical basis, backwards and forwards along the horizon throughout each year.) The azimuth value for horizon rising point does, however, change steadily and by a significant amount over the time span of several millennia that is covered by the life-time, so far, of Stonehenge. The change is due to Precession of the Equinoxes whereby the Poles of the Earth appear to move steadily against the background of the Cosmos over many thousands of years. Because the Cosmos and all celestial bodies appear to follow broadly circular / spherical courses in their movement, the value of apparent change of position of different points of the Cosmos against landscape features on Earth is variable depending upon the position of individual points within the Cosmos.

The mathematics involved in calculation of changing position is very complex but modern digital technology has now made it relatively simple to consult an appropriate computer programme and instantly obtain answers to quite complex questions. It is now easy to compute the position / time data for Regulus into the future. As shown above, the horizon rising azimuth for Regulus B.C. 2340 was 48° 4.7'. (Just slightly left-hand or before the north-west edge of the Heelstone on the main Stonehenge Axis.) In the intervening millennia from B.C. 2340 to our modern epoch of 2020 A.D. the rising poimnt for Regulus has moved steadily eastwards along the horizon through more than 23° and is now in the broad vicinity of azimuth 71°.

Interpreting the Binary Value of the Bluestone Circle in a parallel way to the Bluestone Horseshoe but as a change of star rising point over the period rather than Sun rising point (Circle for Regulus rather than Horseshoe for Sun), gives the following possible interpretation:-

	48° 04.7'		48° 4.7 '	
+	23° 05.8'		23° 0.58'	
	---		---	
	71° 10,5'	(A.D. 2060)	71° 5.28'	(A.D. 2049)

This has now yielded a narrow 'bracket' of date between A.D. 2049 and 2060 by a parallel route to that used for the Bluestone Horseshoe. The binary

values for the other three stone formations can be explained as components of a broadly common theme and begin to form the framework of some sort of scheme with events, dates, or place that have happened or can be tested with modern science and technology. Whether this interpretation of the Circle is correct, I cannot prove. I can only comment that the Bluestone Horseshoe yielded 2001, and therefore the combined effect of the two Bluestone formations is to yield a very narrow slot in time of c. 59 years of which we have so far seen c. 19. This period has started in what can only be described as a very turbulent episode in the history of mankind. So far it appears, on the one hand, to be bringing forward monumental progress in science, technology, and human development; on the other hand the potential for monumental disaster for the human race and planet Earth on an apocalyptic scale that is hard to conceive.

This all looks very science-fictionalistic, very imaginative, very much bending and twisting of fact to concoct some highly 'daft' scenario, but it all does appear to be happening, and no person on Earth can say where things are going or where they will end – only that the whole thing seems poised to go out of control!

There is another detail worthy of note concerning the obtained Binary Value for a sixty-one stone Bluestone Circle of 23058... ;-
The Main Axis Group for Stonehenge has an azimuth value for the Back Axis, towards the mid-winter solstice sunset of c. 230°. For my primary and dominant Main Axis forward value on to the centre of the Heelstone, the value is c. 50° 43'. The reverse value to this for the Back Axis of 230° 43' is very close to the Circle Binary Value of 230° 58'. The similarity between

230° 58'
230° 43'

000° 15'

is noteworthy and further reinforces my case for a sixty-one upright circle. The numbers involved in constructing a particular stone formation with significant hidden binary value from a relatively limited choice makes the whole projected arithmetic very unwieldy. Therefore to settle on stone numbers that give Binary Values employed as I have here demonstrated is extraordinary.

There is another comment worthy of note concerning the Bluestones used to construct the Horseshoe and Circle. It is generally accepted that the source of these stones was in the Prescelly Hills of South-West Wales. There is a small range of variety of stone, notably spotted dolerite and rhyolite which are a type of granite and very durable. There are also a few stones of volcanic origin which are less physically attractive than the granitic type and more prone to weathering away over time.

The granitic dolerite and rhyolite are generally 'spotted' with inclusions of white quartz. Hence the names 'Spotted Dolerite' for instance. They also can have a blueish colour generally when worked and polished or freshly broken. I have written within my manuscript that it is my opinion that the choice of

stone for the central Alter Stone was largely because it contained many inclusions of mica which also gave it a white spotted effect. I state that I believe that the builders selected the Altar Stone because they saw in it a representation of the Cosmic night sky, star-filled and wondrous. I suggest that they also chose these spotted granitic stones for the same reason.

One could debate whether the architect who actually took the decision that these stones would be used was in awe of this visible effect and thought that these stones had magical qualities because they had 'captured' the Cosmic sky. I would say that he chose these stones because he wanted to create a 'manuscript' that said that this monument was involved with, and directed to, matters astronomical, and that the subject matter was the Cosmos, stars, heavenly movement, etc. He wanted to pass on information about motivation and context into the future. We are foolish to discount or ignore information that helps to open the door further into this great monument.

We should not be surprised to find that the stones of the Bluestone Horseshoe are all of the granitic type, many of them worked and polished. Again this must tell us something of the thinking involved if we could only try to see it. I have said earlier that it is generally given that the horseshoe was constructed as the first of these two features. It was part of the original plan for Sarsen Stonehenge and planned, driven and supervised by the same intelligence responsible for the Sarsen construction. There is quality here above that of the Bluestone Circle. Possibly there is also priority in the Binary Value ahead of that of the Bluestone Circle. Possibly the information within the Circle was the result of a slightly later development in thought, insight, knowledge acquired by a slightly later group of designer. Possibly it was the result of a steadily developing situation, developing acquisition of knowledge of which we can, for now, only conjecture.

In our time the Circle is dated later. It was irregular ('lumpy' and distorted). And it used all of the remaing Welsh stones including the poorer quality ones of volcanic origin. This variation of stones seems to have been erected in a variable mix. Many have vanished and so it is difficult to ascribe any purpose or priority to any particular part of the circle based upon stone quality. Although, not surprisingly, those at the point of the passing of the Main Axis group through the main Stonehenge sunrise 'Entrance' were of Granitic material and have survived.

To summarize this point it seems that there are two possibilities. Either the Circle construction 'got behind' on the original schedule and was not built until after the critical 'Main Event' of the union of Sun and Regulus in B.C. 2340 and so was therefore done in a rush as it was now of less importance. (Least likely – the time and effort required to survey and mark out a properly neat, accurate circle would still have been insignificant compared to the time and labour required to haul and erect sixty-one stones.) Or the idea, purpose and construction of the Circle was not thought of, planned and put into effect until after the Main Event, its builders and the early enthusiasm had passed. Something had changed in the motivation within the population at large but the thread of idea was still very much alive and developing within somebody's mind. In other words the population at large had experienced the 'Main

Event' and could not find enthusiasm for more stone hauling and erection. The Main Event was becoming history – folklore.

Therefore this confirms that the Main Event had passed Therefore it was an event that came and then went, i.e. a great celestial happening, rather than a permanent feature of the spiritual/ mythological culture ('religious' belief). There was little interest within the population to create information for a following race of people in a very, very distant future. Only the mind that kept the 'thread' alive could see any point to the final Bluestone Circle. It is a moot point how much control this mind was able to bring to bear upon this new, fresh population compared to what had been achieved several centuries earlier. Was this because nothing could match the importance of that first 'Event'?

Squaring The Circle

It is almost exactly, to the day, 50 years since I first became interested in – 'switched on' – to the Bronze Age in Britain. To be precise it was c. 1970 when I first obtained a copy of 'The Bronze Age Round Barrow in Britain', (Paul Ashbee). (Just after our babe no. 2 was born in 1970.) Soon after this I acquired a copy of 'Stonehenge Decoded' by Gerald Hawkins and the journey began.

Fifty years later I have learnt the rudiments of some basic astronomy, basic archaeology, basic arithmetic and geometry, and tried to tie all of this together in the middle of Stonehenge!

Early attempts at understanding Stonehenge began with simple numbers for stones and simple arithmetic trying to fit what was within the monument to what happened above in our solar, lunar and stellar sky. (Necessarily simple because the people who created the idea and built Stonehenge were necessarily primitive, simple and of little knowledge. This must be so because we, in our modern era and ways, are properly sophisticated – science knows all.) This simple approach was broadly where the rising movement of archaeo-astronomy had got to during the earlier part of the twentieth century, up to the publication of 'Stonehenge Decoded'. There was a wave of people and ideas coming forth in print and on radio and T.V. Also people such as Von Daniken were trying to make sense of ancient monumental buildings and artefacts around the world. I have to say with no help whatsoever from the world of science and acadaemia, only contempt, derision, and complete and utter vicious dismissal.

(As an aside I have found this – and still do – a quite disgusting attitude by the large body of so-called intelligent and visionary scientific minds that are reputedly the 'leaders' of human research, development, and the quest for new knowledge to progress human civilization. The attitude is still there, as strong as ever. Very little has changed. And all of this from a body of 'intelligent' seekers of knowledge, largely paid for and cosy within their academic worlds with easy long lives and large pensions to look forward to thanks largely to investment from the world's taxpayers and from public money. Disgusting – yuk. Humility – no way. Need a good kicking – yes. The spirit of Charles Darwin's learned detractors lives on as strongly as ever.)

My quest began in a simple way, attempting to seek and assemble some sense of order from the jumble of stones that is the modern day remains of Stonehenge. Also from the assorted remains scattered across the United Kingdom and further afield. Always it has involved number. Early attempts by main-stream archaeo-astronomers involved primarily trying to re-create alignments. Alignments from ground level to celestial events above using standing stones as a basis for these visual pointers. There were, and still are, many serious ideas – theories – developed along these research lines, generally always susceptible to criticism and ultimately demolition by the learned detractors – mathematicians, archaeologists, astronomers representing 'establishment' science. Much argument and insult has come

forth from these 'professionals' – but sadly not too much inspirational new thinking concerning finding a solution to the Stonehenge question. Now, at the beginning of the 21st. century circa 2020, the academic well seems largely to have dried up. There is no new thinking, no daring vision of what happened in a remote past of which there does not seem to have been kept any record. Perhaps the world cannot see what is so easy, in front of its eyes. Perhaps it just does not want to because it might cut across ideas that are not acceptable to the world's 'experts'.

The 'experts' (academics and research scientists in the various fields) have a deep responsibility to encourage all ideas to be brought forward and seriously explored in depth. It is not for them to rubbish, condemn and block ideas from amateurs, non-academics, the interested general public at large because such ideas do not correspond to their own pre-conceived view of what is 'acceptable' explanation. They should have learnt long ago (after Galileo, Darwin, and many similar) that truth will out, and ultimately the 'experts' will become the lesser regarded in this saga. There could be a suspicion that they really prefer to support a 'closed shop' in acadaemia where they and their ideas dominate. They and their ideas will move quickly to squash any potential new outside thought or discussion.

Fifty years ago my quest began with simple numbers, quite simple ideas and background knowledge of the stones and the circles. There has been, at various times, a steep learning curve into the key departments – archaeology, astronomy, number. Parallel with this during the second half of the twentieth century has been a steady increase in definite answers on many aspects especially of the dating / construction sequence at Stonehenge, and of prehistoric remains nationally. This has been of great importance to the Stonehenge study, firstly because any solution which is date and time related must agree with the general dating framework that is built up by a variety of sources. Clearly a solution that did not fit the dating sequence could not be the correct solution. Secondly a necessary divergence into astronomy is very dependent upon being able to assess the form of the sky at the correct date because the form of the visible Cosmos changes steadily with the passage of time. In this current era there is much greater certainty concerning such matters and it is possible to proceed with confidence.

Consequently for the last ten years I have been able to pull previous knowledge together into the full manuscript that precedes this final section. The confidence in dating has allowed much confidence in my conclusions. (Even in the 1970's / 1980's considerable uncertainty concerning correct dating led to much wasting of time and effort. The present situation is vastly improved.)

From a basic introduction into geometry and number work at Stonehenge it became possible to assess and employ many significant parts of the design and layout that much research by others has failed to notice, and work back into the original intention – motivation – of the designer.

Measuring accurately and establishing the important Main Axis Group and seeking the significance of their variation rather than writing off the

vagueness, here, as potential error by the builders, led to the very important realization of the use of the Heelstone as a vertical horizon to describe a celestial sky and celestial event at a critically important date and time rather than just a woolly 'maybe' towards a generalised 'sort of solstice' sunrise.

This ties in with the astronomical sky at the appropriate date (B.C. 2340) to demonstrate the primary focus of the monument – a star group rather than a sunrise.

As all of this astronomy began to produce lots of numbers it became possible to tie it to the Binary Values derived from the various stone groups. Once again, this time from the Binary Values – particularly that of the Trilithon Horseshoe - emerged a very precise picture both for dating, and also demonstrating the precision that had gone into the astronomical data that was coming forth from Stonehenge.

Now that this picture of great precision and great knowledge was beginning to emerge, it became acceptable to apply it to the other Binary Values for the other stone formations.

From the Sarsen Circle Binary Value came necessary information to apply modern knowledge of physics and astronomy sufficient to yield an understanding of the purpose of this circle. The information yielded has given a route, combined with actual physical construction information in the layout and plan of Stonehenge, to locate and make contact with the External Civilization from whence came the inspiration, data and knowledge that has given rise to Stonehenge itself.

Suddenly the whole monument has now become a very sophisticated construction containing very advanced knowledge and evidence of the ancient presence, on Earth, of some very highly developed intelligence. Furthermore we have been given the means and direction to make contact at a time in the future when mankind is able and ready. (Now – somebody must do it!)

From the two Bluestone formations have come two more Binary Values, both leading towards dates in our modern current era when we will be able to read and understand the purpose of the monument. It is notable that we are now in the time of these dates and Stonehenge is 'opening'. It is also a time of monumental event and decision for the human population of our planet at large, a time that seems to have dawned upon human awareness with great suddenness – unexpectedly for the great majority.

With a story such as this it would hardly be surprising if it did not go full circle and finish up back at the beginning. After all, the whole journey has been about circles and going round in them! (And round, and round, and round…) My manuscript has delved into quite sophisticated areas in places – numbers, astronomy, etc. Quite precise and large numbers requiring digital technology for manipulation. But back at the beginning, fifty years ago, it started with more simple numbers and simple arithmetic. I can finish up on this note of simple arithmetic with the following simple summary:-

The basic Sarsen Stonehenge had four main structures. From centre to outer they were:-

1). The inner Bluestone Horseshoe – eighteen vertical upright pillars.

2). The Trilithon Horseshoe – five trilithons, or archways, each arch formed of two uprights and a horizontal lintel across the top.

3). The Bluestone Circle – formed with sixty-one vertical uprights.

4). TheSarsen Circle– encompassing the other formations. Formed of thirty upright pillars spaced around the perimeter and with a continuous circle of thirty horizontal lintels on top.

To summarize each of these formations in order of priority by size rather than position.

The Trilithon Horseshoe:- Five trilithon archways correspond to the near five millennia (5,000 years) for which the monument is intended to serve. Five millennia is a rounded off, 'simple' description for the 4680 years that the Binary Value from this formation is describing when applied to the change in Solar Obliquity over the period. (Giant rocks and pre-historic buildings and methods are necessarily unwieldy. There could not be any better way of producing precise information, integrated as a Binary Value, into a single stone formation that represented a rounded off summary of that same time period.)

The Sarsen Circle:- Constructed of thirty uprights and thirty lintels that made thirty archways. This formation has yielded the necessary information, along with the information to be gained from the Heelstone and Axis Group of the layout, to locate and make contact with the source of knowledge that was the inspiration for Stonehenge.

The Sarsen Circle Binary Value can be interpreted as a frequency value of 7.68614...GHz From this, using the equation :-

wavelength = velocity of light / frequency

can be calculated a value for the wavelength of 3.9cm. This is the data needed to receive a specified radio transmission, all derived from the Binary Value.

Having introduced this calculated value for the wavelength of 3.9 cm., it seems worthwhile to return to the original design of Stonehenge to seek this wavelength value within the actual physical layout. (If I had been involved in creating the original design and embedding the amount of information already shown, I would certainly have attempted to achieve further correlation within the physical design.)

The physical form of the Sarsen Circle involved a 60 digit Binary code arranged in a circular form with 30 vertical '1's alternating with 30 horizontal '—'s (or 0's). The arrangement is such that the 30 horizontal '—'s visually create a continuous, unbroken circular form. A circle thus created can represent two halves of a sinusoidal wave if cut across the centre, along a diameter, and the second half re-positioned such that the first end of its circumference continues on from the end of the circumference of the first half. This is a very simple, unambiguous process to represent and a very simple form of a wave.

The object of the exercise is to try to identify, within the design, some sort of a representation of a component of the equation that will yield a wavelength value of 3.9 cm. The most obvious prospect is that this wavelength value is to be derived from the actual physical dimension (diameter or baseline) of the wave 'picture' described above.

Actual diameter of circle / wavelength

Internal	29.4m (Smooth, finished surface)	2940cm / 3.9cm	=	753.8 (ratio)
External	32m (Rough, unfinished surface)	3200m / 3.9m	=	820.5 (ratio)
Mean	30.7m	3070cm / 3.9cm	=	787.2 (ratio)

(Note that the results are ratios and do not require units.)

Clearly 2 of these results are very close to the number form of the frequency value of 7686... obtained from the digital format of this very circle. Reversing this sum: - 7686... x 3.9 = 2993.5 (cm?), or almost exactly 30 metres.

30 metres falls well within the range above for the diameter, and closest to the interior measured diameter of 29.4m. The Sarsen Circle is very old and very badly damaged in places. There is plenty of scope to argue about the precise dimension of the actual intended diameter within very narrow limits. It seems to me that a diameter of 30 metres that is within the group above, and so close to the mean and the interior dimension confirms my suggestion that here is the physical dimension intended to underlie the calculated wavelength of 3.9cm.

(It could be argued that the calculation is the result of using metric units of measurement that are a relatively recent invention. The value, here, of 768.6 is a ratio of two values of centimetres and does not, Itself, need units. If I repeat the calculation using feet and inches, I get the same result. I.e.:-

30 metres x 39.375 inches = 1181.25 inches

3.9 centimetres / 2.54 inches = 1.5354 inches

1181 25 / 1.5354	=	769.3 (ratio)
		768.6 (frequency digits or binary code)
Difference		0.7 (insignificant)

Therefore, in this one stone circle, as designed, I have derived the two values of :- Frequency 7.686...GHz
and wavelength 3.9 cm.

The calculation has eliminated the significance of metres and seconds as they can be cancelled leaving only cycles, or waves, of electro-magnetic radiation. The same basic calculation can be carried out using the values for wavelength and velocity of light in any system of units but the result will be the same. Regardless of where we are in the galaxy and what units of measure our particular civilization has derived to measure physical phenomena, these waves exist and are out there somewhere travelling at the speed of light from point A to point B. I believe that they exist and that we are now ready to intercept them at point B. I believe that my main text interpreting Stonehenge has identified point A.)

(How clever is that, huh. A whole solution based on just one supposition – that intelligence is older than our modern human race?)

The Bluestone Horseshoe By employing the same method here of interpreting the Binary Value as describing a value for solar obliquity (i.e. the 'tilt' of solar travel) as was used for the Trilithon Horseshoe, then a very modern date of c. 2001 A.D. is obtained. The beginning of the twenty-first century could be said to mark the beginning of a time of great technological change in just about every field of human research and endeavour. It has become a time of great importance to the survival of the human race. There are also very great problems and decisions facing all of us. And many of these seem to be rapidly coming to a climax.

The Bluestone Circle. It appears that the Bluestone Circle is echoing the Bluestone Horseshoe in its purpose. By describing the change of horizon rising position of the Regulus Group since the original starting date of the critical period at B.C. 2340, it has given a date into the future of c. A.D. 2049 – 2059. This ties in very closely with the Horseshoe date of A.D. 2001.

The time period of about half a century between A.D. 2001 and 2049 / 59 may be sufficient for mankind either to put its house in order towards a secure future, or to blow itself out of existence.

This circle appears to be the last of the four main Stonehenge formations to have been constructed. Therefore, perhaps, it may be implying that the date contained herein is the last significant date for the present phase of the story of mankind on Earth?

The two Bluestone formations, within their stone totals also appear to demonstrate a further link with astronomical fact that I describe below.. A simple link that might induce an enquiring mind, in early investigation, to follow along the route of seeking to link Stonehenge with astronomy.

Early research had frequently attempted to link the design and purpose of Stonehenge into investigation and marking of the behaviour of the moon as well as the sun. Lunar movements and timing in our sky are rather more complex than solar. However the combination of the two cycles – lunar and solar – into some sort of calendar system, seems to have been one of the objectives of early civilizations. Even today we see this attempt and the result of the awkwardness of combining these two cycles in the moving date of Easter each year.

The moon appears to circle the Earth on a slightly variable tilted plane to that of the sun. Early civilizations appear to have attempted to order this into some sort of system, in order to predict where and when the moon would appear / travel going forward. One suggested reason is that it is this variable motion between sun and moon that leads to the variable timing of eclipses, both solar and lunar. It is suggested that early observers wished to be able to understand and predict these events.

Because the two bodies travel on orbits slightly tilted to each other, these two orbits intersect (cross over) each other regularly. The crossing over happens on two occasions each year and the crossing points are known as 'nodes of intersection'. It is when sun and moon are both in the region of these 'nodes' that there is a risk of eclipse by one or other. The crossing over points – nodes – travel slowly around the Earth, completing a circle – cycle – once per year. However, due to relative encirclement speeds of sun and moon the node direction of moving around Earth is opposite to the direction of the sun moving around the Earth on its annual path.

Therefore, because it is opposite, it is described as 'retrograde'. (An impressive word for a simple concept.) This gives us the full name for this process – 'Retrograde Nodal Cycle' (or 'RNC'). The RNC has a precise value, as sun and moon journey on their respective paths, and it repeats at regular time intervals. This concept of the moving nodal cycle is an essential component of eclipse prediction and has been a much sought after theme for archaeo-astronomers for many years working on theories to try and prove the purpose of Stonehenge and Neolithic astronomy generally. It has been thought by many that if evidence could be found within Neolithic / Bronze Age construction of knowledge of this cycle, then this would be very strong evidence for the purpose of these structures as part of a very ancient discovery and exploration of this aspect of celestial mechanics. (This has frequently been a disputed area between the archaeo-astronomers who have tried to prove this ancient success in astronomy and the scientific community at large who have generally tried their hardest to disprove such ideas.)

The Retrograde Nodal Cycle has a precise value. The value is 18.61 years – not an easy value to discover, measure, contemplate, or even describe for many modern inhabitants of our planet let alone 'prehistoric persons' nearly 5000 years ago!

Retrograde Nodal Cycle:- 18.61 years

Stone pillar totals for the 2 Bluestone formations 18 and 61.

If that is not co-incidence, far-fetched, daft – well, it must be intentional!

The Bluestone Circle gives one more nugget of information:-

(The 'lunar month' of c. 29½ days is one of the basic units used to understand and describe motions and cycles of the moon. As important to studies of the moon as an ordinary year is to studies of the sun.)

Binary Value for 61 stone Bluestone Circle:- 230 58…

Lunar months in Retrograde Nodal Cycle:-
(18.61 years or 6797.3 days / 29½ days) = 230.4

(Bear in mind how unwieldy are stone formations when transmitting information with Binary Code.)

A second co-incidence in one place? Or yet another clue for a serious searcher for links with astronomy within Stonehenge?

SOME FINAL THOUGHTS. (26 02 2020)

REGULUS----------REGULUS

(Some final, possibly dis-jointed, thoughts that seem to bring the matter to a close for now.)

(1). Stonehenge was the end of the beginning. Summer Solstice B.C. 2340 is the end of the 'animal' phase of creation, the beginning of completion. 'End of the beginning and the beginning of the end'.

(2). The Bluestone Horseshoe gives 2001 A.D. Conjunction of Sun, Regulus, Venus and Jupiter give 2003 A.D. (The difference of two years is easily within a reasonable range of difference if dates are based upon such phenomena as changing value for Obliquity when measured over more than four millennia.) If this interpretation of the Bluestone binary value is correct and if this bracket of dates is the correct understanding, then this dating is clearly very important. It is the only 'modern era' dating to be obtained. In view of the total background scenario and level of 'modern' knowledge, etc. that has been needed to interpret Stonehenge, then clearly everything has come together within a single unified context, - a single broad picture.

Therefore it can be assumed that this dating is very important. Possibly the beginning of the final phase of an 'end' phase.

(3). Aside from the dating described above, the whole target of the astronomy from Stonehenge onwards is to locate the Regulus Group. Hence Stonehenge, the Great Pyramid, and the Nebra Disc. There are probably other artefacts around the world. The Regulus Group is the celestial focus.

(4). I can detect in Newgrange and the Irish Megalithic tradition, and also in Orkney and the Scottish Islands tradition of Neolithic constructions, a thread of development of a search for solar / lunar knowledge that was beginning to build towards the stellar knowledge that would be needed for Stonehenge. Stonehenge represents stellar knowledge – seeking the Regulus Group.

(5). It is possible to find Regulus at more or less any time of night – in the winter sky. Regulus cannot normally be found in the daytime sky, i.e. late spring / summer / early autumn. But Venus can be seen in daylight – therefore seek occasions when Venus is in conjunction with the Regulus Group during the summer half of the year. That is the value and use of Venus – conjunction of Venus with Regulus during summer daylight. Once again Regulus is the objective. (Prediction of the occasional occurrence of this conjunction is probably buried within the design and numbers of Stonehenge. I have not particularly looked for it, probably because of the ruinous state of Stonehenge which would mean that any attempted reconstruction of relevant alignments would be 'murdered' by the army of Stonehenge detractors.)

(6). But the circle of planets in the sky marks the ecliptic (path of the sun) which also marks the path of Regulus. Therefore any planet can probably be used to find Regulus, during daylight, at the correct conjunction – if visible.

Therefore there is a need to learn / study / develop a knowledge of planet behaviour and cycles.

(7). A special (unique?) event is the 'meeting' of the Sun and Regulus. A very special event is meeting of Sun / Regulus / Planet (Venus and Jupiter are the most visible). This was summer solstice B.C. 2340.

Possibly a very, very special event is the conjunction of Sun / Regulus / Planet when the Sun is suddenly 'switched off', i.e. a SOLAR ECLIPSE. Therefore one of the very cleverest achievements would be to forecast and see a solar eclipse event when a planet became visible, by day, as it marked Regulus. For a Stonehenge man the crème de la crème of astronomical forecasting. Possibly this would explain and justify a pre-occupation with eclipse prediction!

(Motion of Sun and Regulus and Planets) All at the same time. !!
(AND eclipse prediction)

(8). DATA B.C. 2340

Mid WINTER Solstice:- 07/01/B.C. 2340 // 4h 02m 36s. P.M.
Sun declination -23° 57.63'
Altitude 0° 0.096' // azimuth 229° 37.58'

Reg.) Regulus Altitude 0° 41.88' // azimuth 49° 13.83'
Group) 31 Leo Altitude -1° 12.66' // azimuth 49° 43.78'
Target 'Little Star' is somewhere in between these two.

As the sun goes down at winter solstice sunset, the Regulus Group ascends, keeping close to the ecliptic. Regulus, and its Group is the star of the winter sky.

MID WINTER Regulus Group and 'Little star' are in the ascendant. Hence the pre-occupation with a Mid Winter Sun SET alignment paired with the Mid Summer Sun RISE alignment. Always looking for the Regulus Group and 'Little Star'.

A.D. 2020 The situation in the present epoch.

Mid Winter Sun Set:- 21/12/A.D. 2020 // 3h 55m 12s P.M.
Sun declination -23° 26.31'
altitude 0° 0.034' // azimuth 230° 37.00'

Regulus altitude -26° 49 53' which is far below the horizon and several hours away from rising. Therefore now hopeless at winter solstice sunset in our present epoch. (Sun and Regulus have both to be on horizon at same time, in opposite directions and zero altitude.
Regulus rises:- 9h 12m 34s P.M.)

Time in present epoch when Regulus rising DOES match winter sunset.

Example A.D. 2020

Mid Winter Sun Set:- 18/02/A.D. 2020 //5h 21m 49s.
Sun altitude 0° 0.026' // azimuth 251° 13.58'
Regulus altitude 0° 14.97' // azimuth 70° 31.22'

Sun Set / Regulus Group Rising are together and in opposite directions (but far Some Later from the original Main Stonehenge Axis, and far from Mid Winter SOLSTICE Sun Set) .

To actually repeat the original Stonehenge Mid Winter Solstice Sun Set effect, one should go to Stonehenge c. 18th February (2020) and jump up and down (dance?) and sing to celebrate the original purpose which is that on this day, and at the moment of Sunset on the west-south-west horizon. Regulus rises on the east-north-east horizon. On this night Regulus and the Regulus group own the whole dark sky from horizon to horizon.

(9). B.C. 2340 Mid Winter Solstice Sunset:- 07/01/B.C. 2340

On this day, B.C. 2340, as the sun set on the south-west horizon, on the Stonehenge Back Axis, Regulus and the Regulus Group (Regulus, 31 leo, 'Little Star') rose at the same time over the Heelstone on the north east Forward Axis. On this night of winter solstice day, Regulus had the whole sky from horizon to horizon and did not have to share with the sun. Regulus and its Group were dominant and 'owned' the sky. On all other nights the sky was lit as daylight for some of the Regulus Group journey, but on this night it was Regulus' night.

The 'Regulus Obsession' -- Plan, design, layout, dimensions both horizontal and vertical, motivation, achievement of creation, construction and completion of Stonehenge.

F I N I T

Some Later Thoughts Concerning The Central Bluestone Formation.

-The' two-joined-together-to-make-one' effect of Bluestones 66 and 68 was not used in the final Horseshoe formation of Stonehenge 3 (c).
-Presumably it was therefore intended as part of the Bluestone Oval formation of 3 (b).

If we are dealing with Binary expressions then I have described an 18 vertical, single pillar horseshoe as the final result for 3 (c), and described and used the resulting binary. I.e. I I I I I..... x 18.

From the archaeological evidence and from the condition and description of some of the Bluestones within the Stonehenge remains, it looks more than likely that the Bluestones of 3 (b) and earlier were arranged somewhat differently as an oval with the possibility of one or more trilithons. Also with at least one 'joined' pair where two stones were set with the tongue-and-groove effect to stand. 'united', as one stone. Why would this tongue-and – groove effect have been planned?

There are a number of possible reasons:-
1). The inner Bluestone formation needed to contain a specific number of upright pillars combined with a very few trilithons to give a desired binary expression. But the number total did not permit of the desired actual physical numerical arrangement of pillars. For instance:- a symmetrical visual setting was needed with equal numbers on either side of an axis. But the Binary expression was formed of an asymmetrical, odd number of uprights. Therefore put equal numbers of uprights each side of the axis but 'double-up' two stones together as a joined pair to give an actual odd number total. I.e. 20 stones will occupy 19 positions. (19 = 20. Or is it 20 = 19.) We can immediately see that this will surely be completely confusing. It certainly will be at a very distant date in the future. Wherever the joined pair is in the formation (and the trilithons as well) there will be serious confusion as the formation becomes damaged with the passage of millennia.

2). There was a desire to include, within the inner formation, a symbolic 'union' between stones. This could have been for 'religious' / 'ritual' demonstration of meaning to the local population at the time. That is, the pair of joined stones would have represented some type of male / female, or 'positive' / 'negative' chthonic meaning. Hard to prove in our modern time.

3). This inner formation required a central stone to its setting in front of the opening of the Great Trilithon to 'block' the axis through the slit, perhaps to a certain height. (As the height of the Bluestone pillars c. 2 metres.) This required a wider but tall stone but there was not one available of sufficient size within the available assortment of Bluestones. Therefore the solution was to 'join' two slender stones to make a wide one. This is uncertain because the typical width of each Bluestone pillar (the taller and more elegant ones) is circa two feet, but the slit through the Trilithon archway was only circa one foot wide or less. Theoretically it could be obstructed with only one existing pillar. In practise it may be that, because the passing, declining sun was a moving light source, then light rays would have changed their direction as

they passed behind the Trilithon and potentially still penetrated past a single pillar. It would really need a practical set-up of the relevant items to test this. (This detail also causes me to reflect upon whether the Altar Stone, at c. one metre wide, was ever intended to be set upright to obstruct the Trilithon slit. As I have frequently stated, I do not believe it was ever intended to. The Altar Stone is a different proposition to one of the Bluestones in so far as it is c. 16 ft. long and, on end in front of the Great Trilithon, it would have almost completely covered the slit, and also obscured a large part of the Trilthon which seems pointless. One of the primary and principle features of the whole Stonehenge design was the primacy and importance of the principle Axis through the monument from N.E. horizon at Durrington Down and then the Heelstone, to the distant barrow G 15 away in the S.W. direction.

4). In Stonehenge 3 (c) the two stones of the pair, 66 (tongue) and 68 (groove), were eventually erected in complimentary but separated and opposite positions forward of the front corners of the Great Trilithon (obviously a very 'privileged' / important focal point) but with their common t-and-g joint facing away from each other. To me its seems clear that this was to emphasise the fact that the original idea and purpose of 'two being able to represent one' had been firmly dumped. Therefore firstly there was NOT to be any attempt to have a physical arrangement of a particular number of uprights that actually represented a DIFFERENT number for the purpose of a Binary Expression. Secondly a tall, wide upright was not needed or intended in the final arrangement because it was not now planned for the main Axis through the Trilithon slit to be partially obstructed.

Can I then deduce more about the thinking that was implicit in all of this detail?

The Possible Effect Of a Pillar Erected On The Axis Immediately In Front Of The Great Trilithon.

If we are attempting to reconstruct the light beam through the slit of the Great Trilithon, between uprights 55 and 56, on the occasion of the setting sun at winter solstice, then we can see that a pillar in this position would effectively 'raise' the bottom of the light shaft that formed on the inner side of the Trilithon. The darkness below the beam would be 'raised'. This would reduce the beam's effective total vertical height. The most obvious reason for trying to do this was to 'tweak' the focussing of the light shaft as it rose across the face of the Heelstone around winter solstice. We can see, in the passage at Newgrange in Ireland, how the beam was focussed through the light box above the entrance so that, as well as being narrow sideways, the vertical height was limited rather than allowing the beam to enter through the whole height of the doorway.

I do not think that 'tweaking' the light-shaft in this way was a particularly the attempt to improve on the original plan for the light show across the face of Heelstone once the monument was completed to the point where the profound or intellectually advanced idea on the part of the Stonehenge architect. It seems to me that trying to 'manage' the effect of the winter solstice 'light show' in this way is a purely natural development; a natural

overall effect could be seen. It would be very difficult to calculate how high a pillar to install, possibly not even obvious that such a refinement would be useful, until after the light show was operational. But after this point it would be fairly easy to play around with a wooden barrier to represent a central pillar until it could be decided what was the actual size of pillar needed to focus the light shaft exactly as required. This may well be what happened in period 3(b) at the time of the Bluestone Oval.

Nevertheless, for several reasons I believe that the central pillar idea was discontinued in period 3 (c) when the final Horseshoe arrangement was fixed.

The primary reason for eliminating the central pillar, if it had been installed in Period 3 (b), was because the stone total of eighteen upright pillars was settled upon for the Horseshoe. This was to be the most important, over-riding fact of the Horseshoe. The point of a central pillar then ceased to be critical. It could be removed without destroying the primary function of exploiting the winter solstice light-show.

A second effect of re-designing the 3 (b) oval into the 3 (c) Horseshoe was that the visible remnants of the Oval in the form of obsolete Bluestone Trilithons and tongue-and-groove jointed pillars would allow, at a point in the future, for these remnants to be intellectually questioned and, hopefully, reconstructed as I have done here. This permits more investigation of the thought process that had gone into the design of Stonehenge during its development.

There has, for many years, been a lively debate amongst Stonehenge followers as to whether the priority view from the central area of the monument was intended to be towards mid-summer solstice sunrise towards north-east, and the direction of the Heelstone and Avenue, or towards the mid-winter solstice sunset between the uprights of the Great Trilithon and south-west.

The supposition implicit in these two viewpoints is that Stonehenge was created and built to view – celebrate – one of these events as priority over the other. Mid-summer solstice would have been a celebration of life and the power and joy of the sun, and the reliance and debt that the people owed to its existence and repeated life-giving summer warmth. Mid-winter solstice would have been a celebration of the turning point of the year when the gloom and darkness of dismal winter were reversed, the days began to lengthen, and spring could be eagerly anticipated.

Both of these situations rely on the usual viewpoint of archaeologists and Stonehenge commentators, repeated in countless works upon the subject of Stonehenge for many years. That is that the great celebration of Stonehenge, its function and practice, involved a few priestly representatives observing the particular solar event from within the stone circles and carrying out solemn ritual at the correct moment of sunrise or sunset. The great God of the sun is satisfied, propitiated, accepts the due prayers and homage offered and can now be relied upon to continue through its regular annual cycle of seasonal growth, harvest and prosperity for its subjects.

This seems to be the very common, unspoken and undescribed but generally implied method and purpose to any and all solar ritual that may have been performed. The standard overview of the term 'ritual' that is so beloved of archaeologists and routinely applied to the purpose and creation of so many ancient structures including Stonehenge.

It seems to me that so many commentators whilst giving this subject very little thought and being happy to repeat this old, oft-repeated description of the possible ritual purpose of Stonehenge, garnered from previous writing on the subject, have collectively failed to look the other way.

The collective opinion that ritual at Stonehenge, at either solstice was focussed outwards towards the particular solar event on the particular horizon is actually the wrong way round. The purpose of Stonehenge, the skill and precision within its design, and the intellectual objective of the monument was to bring the sun INTO the monument, not to direct the thought, desire, ambition of its human user OUTWARDS.

I have described at great length, in earlier pages, how the main and principle axis of the monument passes from mid-winter solstice sunset at the south-west horizon atop Barrow G 15, through the monument, out to to a very specific 'target' on the Heelstone, and beyond to the north-east horizon at Durrington Down where the mid-summer solstice sun rises. I have described how the precise point of mid-summer sunrise is not critical because the solstice sunrise sky at the time of sunrise is described across the face of the Heelstone and the horizon point will vary according to the observer's precise height, position on the axis, etc.

I have also described how the declining rays of the setting sun, as the sun approaches mid-winter solstice, progressively strike, in a light beam, through and between the uprights of the Great Trilithon and on to the inner face of the Heelstone.

The objective always, from the first day of building at Sarsen Stonehenge, was to create this effect of bringing light INTO the monument by a controlled and particular focus. It was always to be a play on the power of the sunlight to pin-point and illuminate the one and only specific target that I have so clearly described in previous pages of Regulus and the Regulus Group – specifically the distant, obscure, visually tiny and insignificant group of stars between Regulus and 31 Leo described in earlier pages – the star H833.828 and its neighbours. Stonehenge was designed to function at this one point in time – B.C. 2340 – when sun and Regulus were in the sky together at mid-summer solstice but in exact opposition at mid-winter solstice.

At mid-summer solstice, sun and stars rose together and the group is depicted by the face of the Heelstone as this happened.

At mid-winter solstice, sun and stars were in direct opposition and, with almost exactly level horizons in both directions, at the moment of sunset in the south-west, and a suddenly darkened sky, Regulus and the Regulus Group rose to the north-east as marked by the Heelstone. Completely invisible to the

naked eye at the horizon and Regulus only becoming more visible as it rose above the lintel of the Sarsen Circle just before the first Trilithon. To the mind that knew, position was marked in three dimensions.

Probably inevitably there was thought and attempt at improving the winter solstice light show. Could the sun's light beam be reduced and more specifically focussed? This was the effect in the passage at Newgrange (and possibly other Irish passage graves as well. It is curious how so many of the passage grave remains seem to suggest single standing stones just outside entrances that would therefore block the view from within but still allow a light beam to enter over the top from an elevated sun at a particular season.)

At Stonehenge 3 (b) the inner Bluestone formation appears to have been erected as an oval and there is suggestion (but no archaeological proof whatsoever has yet been found) that there may have been a central pillar in front of the Great Trilithon slit. The proposition of the existence of a pillar may be correct or it may just be the hopeful 'tidy-mindedness' of some writers who feel that this is the 'correct' way for great monuments to look when complete. Currently no writer has ever provided either proof that a central pillar stood here, or any kind of valid purpose for such. If there was, for a short time, a central pillar it would have obstructed human view from the central area towards the south-west winter solstice sunset. So therefore this would have meant that the setting sun, at this time, was not the visual objective of this aspect of the Stonehenge design.

However a central pillar would have reduced and targeted more precisely the size of a light shaft entering the monument. It would almost certainly have focussed the light shaft on to the face of the Heelstone and caused the lower edge shadow line to rise across the Heelstone face more sharply in a rising line to follow the Heelstone slit. Much more specific to a certain narrow time frame at winter solstice. If this was the case then the light shaft had been focussed – 'tweaked' – after Stonehenge was complete.

But in Stonehenge 3 (c) the central Bluestone arrangement was re-worked – rearranged – and the previous formation that shows the remains of trilithons and tongue-and-groove jointed stones was scrapped in favour of a much simpler arrangement of single vertical pillars. The fact was that the first formation of 3 (b) was complicated and would never be able to be recreated accurately at a distant future date after the predictable depredations of millennia that were likely to occur. But the more simple 3 (c) formation would eventually be recoverable. The central pillar in front of the Great Trilithon was not vital and did not form a part of the new requirement in the Bluestone formation for 3 (c).

Therefore it appears that we are all correct when we discuss the existence or not of a central pillar. But the discussion only works if we accept that the objective of the creation of Stonehenge was to bring sunlight INWARDS, and not for human eyes to worship to the sun OUTWARDS from the stone circles.

SUPPLEMENT A

CHAPTER 1. INTRODUCTION. 'Radio' no. 2 (revised 13-8-2017)

Channel 9 (Thursday 6 – 7 – 17) . Horizon – 9-00 p.m. 'Strange signals from outer space'.

- Fast Radio Bursts

-'Project Ozma' – Frank Drake / 1960's / Failed – obsolete.

- Yuri Milner – Russian in London, 2015. Put up 100 million dollars to look for alien signs / signals. (London). 'Breakthrough Team'.

- 'Tabby's Star' - KIC 8462852 – Halfway between Deneb and δ Cygni (part of Northern Cross). South of 31 Cygni / northeast of NGC 6866. Magnitude 11.7

Tuesday 11-7-17.

Astronomical radio wavelength – region of 1 cm. To 1 km. Therefore frequency range is 30 gigahertz to 300 kilohertz.
30 ghz - 300 khz. (Radio spectrum is very broad.

Hydrogen line 1,402,405,751.7667 ± .0009 hz. Wavelength is 21 cm. line.
1420.4050 mhz
$(1.420 \times 10^{*9})$ hz
1.4204050 ghz.

Radio Spectrum (International) is 3hz to 3,000ghz.

Radio Signals / Radio Waves / SETI etc. / - Some Thoughts (13-7-17)

1). Astronomy and astronomers have changed dramatically over the last 20 or so years. Now – in 2017 – almost the whole focus and driving force of astronomy is to find alien life – not officially spoken but clearly underneath is an urgent search for INTELLIGENT alien life.

WHAT a change since the end of the 20th century.

It follows that, if it IS out there, and if we are not alone, then it is only a matter of time before it is detected, the link is made, and Earth will be in communication.

2). It appears that all searching for radio type signals or the outwash from older civilization is being conducted on, or close to, the hydrogen line at frequency 1420. 4050 mhz. (1.420 ghz). Wavelength 21 cm.
The reason was set out when SETI started work about 40 years ago.

The idea is that, if an advanced civilization wished to send out signals into deep space to demonstrate its existence to others such as planet Earth, then it would choose this band because it is a universal and basic band. Hydrogen is the first and basic element of creation and would be recognised by nascent and developing civilizations as a starting point for all things in creation. This appears to be the principle reason that SETI has chosen this frequency value.

This may be one point of view but I am not sure that I agree. Why not choose a line for an element such as carbon or nitrogen or oxygen, all essential for life to develop? Nobody in the scientific community seems to question this choice of hydrogen. If we are seeking signs of comparable or more advanced intelligence why not expect something a bit more high tech?

The resulting silence from Space for 40 or more years of searching at the hydrogen frequency has been spectacularly deafening.

There may be some obvious conclusions to be drawn from this:-

(a) There is nobody else out there.
(b) Wrong frequency. <u>We need to search elsewhere.</u>

So far as (a) is concerned – I don't believe it. I know (fact, proven, own experience, seen and heard, can communicate now, etc., etc.) that (a) is completely wrong.
Considering (b), obviously then this has to apply. The hydrogen line is wrong and, <u>as soon as</u> the correct frequency is found, then 'wonderful things will be seen'. (Thanks to Howard Carter.) All of this bearing in mind that the world of astronomy and astronomers is now, or has just recently bought on line some absolutely new, state-of-the-art, gigantic listening devices for radio astronomy. These designed for just exactly the purpose of detecting distant radio signals.

Therefore the key to this greatest of mysteries is to find the correct frequency. <u>(Probably an even bigger problem is to then sell it to the astronomers!)</u>

<u>It depends from where one's thoughts are coming</u>

Consider what facts I already know:-

(a) 'They' have been frequently for many millennia.
(b) They are in full contact with us all of the time. They do not need radio to keep in contact. Thought communication is instant – but only when and if appropriate.
(c) They did set up, create, and set in motion, the human race and its course to travel, building on the natural situation and the already existing life and ecology that was here when they first came. There <u>is</u> a plan, it <u>is</u> working out, and it <u>is</u> nearly done.
(d) The plan will soon be complete. As completion approaches there will be a time when Earth-type (i.e. radio-type) communication will happen. The way in which science, astronomy, physics, knowledge, human use of intelligence (biological as well as digital) are all

converging at high speed is quite obviously demonstrating that a physical, real-time link up between 'they' and humans is imminent.

(e) The route, at this point in time, does seem to be pointed up by the sea change in developing astronomy and science attitude as I have previously noted.

(f) Therefore it is time for the link.

4). If, as seems logical, they did set up a plan and a route for the future development and completion of the 'humanising' of the human race, then besides all of the infinite number of details, stages, ways of producing an intelligent and civilized end product that have been involved since, there has to have been an exact way to finish off the 'end game'. Bring everything to a satisfactory conclusion.

If the great moment for the human race is to be when 'they' are found and connected with, then this stage- this event and this moment – has to be superbly climactic – spectacularly seen. It has to happen in a dramatic and never-to-be-forgotten way. moment, instant. After all 'they' are our progenitors and we are almost certainly very close copies of 'they'. As humans we love drama, excitement, big surprises (pleasant) , etc. We are also close copies in emotion, desire to please others, love of fellow humans and of life, desire to give and receive pleasure and happiness.

Therefore we should probably expect a dramatic moment resulting from a dramatic scenario.

As this was all planned and set up eons ago by a highly intelligent but emotional and sentimental high intelligence, we should be looking for a correspondingly dramatic 'big' event.

The search on the hydrogen line is not working – it must be the wrong place. There has to be a correct place – how to identify it. The correct number for the correct frequency. This is the key. There is a key – a number. There may be a keyholder! I have numbers.

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16 – 7 – 17 Radio Spectrum 3 Hz -- 3000 GHz
Mega = millions Giga = thousand millions (billions)

Hz		
10	tens	
100	hundreds	10^{p2}
1000	thousands	10^{p3}]
10,000	tens	10^{p4}] KHz
100,000	hundreds	10^{p5}]
1,000,000	thousands	10^{p6}]
10,000,000	tens	10^{p7}] MHz
100,000,000	hundreds	10^{p8}]
1000,000,000	thousands	10^{p9}] [1420.405751 MHz
H_2 1,420,405,751		hydrogen [1.420405751 GHz
10,000,000,000	tens	10^{p10}] GHz[1.420405751 x 10^{p9}
100,000,000,000	hundreds	10^{p11}]
1,000,000,000,000	thousands	10^{p12}] GHz
3,000,000,000,000		

Astronomical Radio Wavelength 1 cm. - 1 km
Frequency Range 30 GHz – 300 KHz
$(3 \times 10^{p10}) – (3 \times 10^{p5})$

Some Needs For a Key Frequency

1). Long range – Long wavelength / Low frequency. Really applies more to Earth-bound communication reflecting inside the ionosphere.
2). Digital capable – Small wavelength / high frequency. To hold and carry much information then the smaller and higher the better. up to physical limits. Very, very fast smacks of very, very high tech, i.e. very, very advanced civilization.
3). High tech. / advanced tech. – to only come available when technical abilities are well advanced.
4). The form, comprehensibility and survivability of a key has to be such that it will endure for a very long time but yet be in a universally comprehensible format for the epoch when it is due to be seen.
5). Related to some natural phenomena – possibly but what phenomena. Might need to be rather obvious or could be too obscure.

It looks as though nos. 2, 3, and 4 will need priority over the others.

Looking for artefactual evidence for a precise point on the Electro-magnetic spectrum – that is 'radio relevant' (i.e. within possible radio transmission / reception zone).

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17 – 7 –17 WAVELENGTH = λ

$\lambda = v/f$ $v = \lambda f$ $f = v/\lambda$

v = phase speed (magnitude of phase velocity)

f = wave frequency

for this discussion v = speed of light = c. 300,000,000 m/sec.
$= 3 \times 10^{8}$ m/sec

$\lambda = (3 \times 10^{8}) / f$

Example:- H2 : - $\lambda = (3 \times 10^{8}) / (1.420 \times 10^{9}) = 0.21$ m = 21 cm
Which is correct – well done!

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21 – 7 –17 The Bins

234 05 } Group 1

524 287 } Group 2
262 1 42 } do.

576 460 752 313 423 487 } Group 3
1152 921 504 606 846 975 } do.
2305 843 009 213 693 951 } do.

768 614 336 404 564 650 } Group 4

First attempt – was looking for some significant dimension or significant marking that would possibly translate into the representation or dimension of a wavelength. Or possibly some marking that could be interpreted as the representation of a sinusoidal wave perhaps. Either there was nothing that fitted this situation or there were too many possibilities, and this illustrated, exactly, the problem as it might have been seen by our intelligent designer in the distant past. Furthermore, if the solution was to be in VHF or beyond than wavelengths in sub-millimeters or microns could not be represented in this way.

A similar situation arises for low frequencies when wavelengths become many meters or into kilometres. They cannot be easily represented for a distant epoch.

It took several days consideration and a few pages of rough notes to explore this line of thought and dispose of it.

CHAPTER 2. (21 – 7 –17) NUMBERS

I have the Bins – just a small group. The number of digits in each is very suggestive of the size of order of magnitude where radio wave frequencies are found. Their form, as left to us, is very high tech and modern, advanced, implicit of a level of achieved knowledge and ability of number manipulation that must be acquired before they became comprehensible. All of the indicators are pointing the correct way for them to 'fit the bill'. Ostensibly, here is an intriguing looking pool of information in which we might well dip our toes and in which our advanced ancient mentor may well have paddled with great satisfaction.

Group 1 - number sequence – 23405 - has so far been shown to be the greatest focal point and with the most significant numerical implication for the whole artefactual scenario. Up to now it appears to be the central fact about which the whole interpretation is based. It seems a good place to start.

23405 - Fortunately the numerical options to play about with are quite limited. (Again, a restricted choice leads one along a very short and narrow path that severely limits the options for wrong interpretation. All very cleverly designed.)

The obvious, and really the only, route is to apply the wavelength/frequency equation to the number sequence.

i.e. λ (wavelength) = v (velocity of light in m./s.) / f (frequency in herz)

$$\lambda = v / f \quad \text{or} \quad f = v / \lambda \quad \text{or} \quad v = \lambda f$$

It is a simple enough matter, then, to play around with the number and try this and that to achieve something that looks useful. The number fails because it is not big enough. There are five digits only. Read as a frequency 23405 Hz yields a wavelength of beyond 12 kilometers – classified as VLF or Very Low Frequency. Such a frequency is technically very unwieldy, unsuitable for external communication across the cosmos, and physically incapable of carrying hardly any digital input. It is totally unsuitable for radio astronomy as it cannot penetrate our planet's ionosphere, is absorbed by solar radiation and, presumably, by similar things throughout outer space generally.

The equation is very simple. There are only two possible unknowns – frequency and wavelength. But when we consider the concept of wavelength we realise that measurement and representation involves bringing in the idea of units of length. These are not universal. Any units we use are purely the product of our local civilization whether they be meters, or feet and inches, or the length of a random wooden stick cut from a random tree. There is no universal fixed constant of measure that would be recognised from one galaxy to the next or one epoch to the next. Therefore we can discard any expectation of wavelength being a direct interpretation of any of these number groups. The search has been narrowed even more and so made even more direct and certain.

Group 2 - number sequence - 524 287

- 262 142

Applying exactly the same thought process and rules to these two number groups as above yields a very similar conclusion. They are both too short and result in frequencies that cannot be practical and applicable in our radio context.

Group 3 – number sequence - 576 460 752 313 423 487

- 1152 921 504 606 846 975

- 2305 843 009 213 693 951

These are fairly big number groups and, recalling the conclusion for the previous two groups that they were too short, these possibly appear to be more hopeful. The reason for the three options in this group is simply because the actual physical artefact, as is now, is so badly damaged by the ravages of time that is difficult to be categorical about which of these three was intended purely from its appearance. It is to be hoped that, as this work proceeds, a more in-depth investigation of other possibilities will help to reach a conclusion as to the original intention of our designer.

Having played with these number groups extensively, I can say that a conclusion has been reached and that it actually involves one of these from group 3 in combination with the number group from group 4. The two successful groups need to be manipulated together to get a result.

Group 4 - number sequence - 768 614 336 404 564 650

Two details:-

(a) The designed physical form that actually yields the number group 4 consists of total 30 single vertical lines (digitally '1'), alternating with 30 horizontal flat bars (digitally '0'). The combined result of this as a digital form yields the decimal number value as above of group 4. (768 614 336 404 564 650). The physical form is 30 and 30. The emphasis physically is on number 30. This is the original design of the artefact.

(b). I have long been aware that the number group for group 4 can be converted to one of the number group 3 by the use of a factor of 3 (or 30).

I.e. 768 614 336 404 564 650 x 3 = 2305 843 009 213 693 950

Alternatively - 2305 843 009 213 693 951 / 3 = 768 614 336 404 564 650.

The result is spectacular. The numbers are just about absolutely exact. No digit is changed, except the 1 on the end, from artefact remains to calculator to result.

It is the number 3 that is key to this simple arithmetic with very big numbers.

It can be argued that this combination of these two large numbers is fortuitous. Either their presence, next to each other, is coincidence, or it was intentional and the root of the final form. It may be possible to calculate the chance of it happening without the knowledge of the designer but I think that such a rare event is nigh on impossible. If one is prepared to accept that it is intentional and designed and constructed for this meaning then one can go forward and explore the potential and purpose within these numbers. Much more interesting. Much more fun. The implication is that one of these two number groups is here to lead into, or emphasise and underline the other group. To prove that the other group is the whole focus and point of this exercise.

The velocity of light is correctly 299, 792,500 m/s. A close working value is 300,000,000 m/s. So far as representation within an artefact is concerned then the constraint of design into large and enduring material dictates that simple numbers have to be used. There is a strictly limited choice of simple number of the order of 3 or 30 – not even 300 – too large.

If, just at this point and for a few moments we abbreviate the two big numbers to make a quick assessment easier on the eye (and on the pocket calculator), we can pick up the full big numbers in a moment again. We can say:-

(a) 23058 x 3 = 69174 or 23058 / 3 = 7686

(b) 7686 x 3 = 23058 or 7686 / 3 = 2562

I would say that two of these results are significant. They are :-
23058 / 3 = 7686 and 7686 x 3 = 23058. The other two results do not relate to one another and can therefore now be discarded.

If we now bring the number groups back up to full size and expand the no. 3, as used, into the value of the velocity of light, (3.00000000 x 10^{p8}), we get :-

© (2.305843009213693951 x 10^{p18}) / (3.00000000 x 10^{p8})

= (7.68614336404564650 x 10^{p9})

(d) (7.68614336404564650 x 10^{p17}) x (3.00000000 x 10^{p8})

= (2.305843009213693950 x 10^{p26})

We started this quest seeking possible information related to frequency suitable for radio transmission / astronomy between points in the galaxy / universe. There are well established parameters within which such derived information must fit. That is, there is a well known broad zone within which

frequency must lie to work (broadly indicated on previous pages). Of the two results, © and (d), shown above, clearly (d), with a number to the twenty-sixth power is way beyond any potential radio frequency and can be discarded. However ©, with a value to the ninth power, is within the parameters. Also, the representation, within the artefact, of the group 768614… is far, far more explicit / dramatic than for the group 23058…, which, again, points to the result of © being the objective. Therefore we can go forward.

In situation ©, above, we have used the two number values 768614… and 23058… and a rounded value for the velocity of light. For the two numbers, as displayed within the context of their artefact basis, there is no particular indication whatever that either of them relates to any cosmological / electro-magnetic waveform context as seen in their existing form. Firstly it is the curious and unique way in which such very large and cumbersome numbers have been represented, manipulated, and combined to interchange with each other, that marks them out as an extraordinary statement by whoever created and designed the idea in the beginning.

Second it is just as extraordinary that the number groups were then converted and physically represented in a form, within the artefact, that was a form of digital code that would not be interpreted by human understanding until this modern digital age.

Third it is an act of faith, a gamble, a hunch that has caused me to draw from this narrative, so far, the conclusion which I have that the process I have followed does contain this information about radio frequency. Clearly it needed a very, very clever brain involved in the design, assembling, and execution of the original artefact form that has provided this material and these numbers, arranged in this way. Science, knowledge, progress, civilization cannot move forward without a constant flow of hunches that can then be tested by those with the gadgets, and the money, and the curiosity to do so.

Fourth, it may be relatively easy to obtain a 'special' number to mark a feature such as a radio frequency because the frequency range is so vast. It is very ingenious to create a way of demonstrating and 'transmitting' the knowledge of the fact through time in an enduring design. It then remains, only, for the advanced mind to establish a transmitter elsewhere set to transmit on the described frequency and wait for the technological 'penny to drop' at the other end for technology to arrive at the recipient end, and for transmission to be received and recognised! Recognition is far more likely to happen if it is known that transmission of signal is happening, and where to look. I hope that my work, so far, can be a pointer towards this imminent and great event.

The fact of transmission at the particular frequency of 7.68614…GHz is a fairly high tech concept. This area of the radio spectrum is classified as 'EHF' – 'Extra High Frequency' – and is not an area that will have been explored until our modern epoch. Transmission / reception at this point may be subject to Earth atmospheric absorption and may be detected better at very high altitude

and arid climate under exceptionally favourable conditions, or by satellite observatory.

However it is not an area that is likely to be in heavy use by Earth-bound transmitters and will be less cluttered by human technology. It may be that this will not be the case as our technology advances. It may be that this local, present day epoch is the best time to detect 'alien' activity. We should start looking soon whilst the 'coast' is relatively clear and uncluttered. I also have a target location, a defined position in the cosmos.

SUMMARY Part A.

THE BINS. Group (3) 2305 843 009 213 693 951

Group (4) 7686 143 364 045 646 50

SUMMARY Part B.

SUM OF THE TWO 9991 986 373 259 340 451

==========

VELOCITY OF 2.9979 245 80 m/s

(2.997924580 x 10_{p8})

LIGHT - v

Difference in fraction 0012 740 57 (0.12767 %) more accurate

========== l

WORKING APPROX. 3 000 000 000 l

FOR v l

l

Difference to correct 002 075 420 (0,2080 %) less accurate

Value ==========

(Closeness of these two difference values co-incidence (accidental) or known?)

SUMMARY Part C.

NUMBER GAMES

(A) Group (4) 7686 143 364 045 646 50 x 3

= 2305 843 009 213 695 950 Group (3)

Alternatively Group (3) 2305 843 009 213 695 951 / 3

= 7686 143 364 045 646 50 Group (4)

It is the number 3 that is the key to this simple arithmetic

==========

(B) As (A) above but abbreviated for convenience of handling (3) and (4).

(a) 23058 x 3 = 69174 or 23058 / 3 = 7686

(b) 7686 x 3 = 23058 or 7686 / 3 = 2562

Two results are taken as significant because they relate to each other;- i.e.

23058 / 3 = 7686 and 7686 x 3 = 23058

The other two results do not relate to each other and are discarded.

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© Now bring the groups (3) and (4) back up to full size and expand the factor 3 to the value of v. (The velocity of light at 3.0 x 10^{p8}).

Group (3); (2.305 843 009 213 695 950 x 10^{p18}) / (3.0 x 10^{p8})
= (7.686 143 364 045 646 50 x 10^{p9})

Group (4); (7.686 143 364 045 646 50 x 10^{p17}) x (3.0 x 10^{p8})
= (2.305 843 009 213 693 950 x 10^{p26})

The quest is for possible information related to frequency suitable for radio transmission. The results for group (4) at 10^{p26} is too high and is discarded. Therefore we are left with the other result derived from group (3) of (7.686 143 364 045 646 50 x 10^{p9}), which is exactly the original number group from group (4) as described in the original text. This is therefore taken as the significant result of this exercise. The whole point.

I submit that the correct frequency to identify alien transmission is ; -

7.686 143 364 045 646 50 GHz. (7686 143 364 045 646 50 Hz)

SUMMARY Part D COMMENT

(a) It is clear from the original manner and form in which the two separate number groups (3 and (4) are displayed in the original text, that group (4) is far more significant and should have far more priority than group (3). This helps to confirm that the value 7.68614.... x 10^{p9} is the objective of this process.

(b) I have to make assumptions (hunches) to proceed. (This applies to just about any new idea, theorem, thesis, of life.) It is how progress is made and this has been so since the beginning of the human race. Only final testing of the application of this work can prove one way or the other. Fortunately such testing should be far, far easier than the alternative currently in hand with SETI, Breakthrough, etc. The technology is now to hand. The scanning equipment is now in place. It just requires the will.

The overview – Is SETI currently out-dated?

Have you ever queried whether the H2 radio frequency at circa 1.42 GHz is the correct frequency for your search? C. 50 years of searching at this frequency have resulted in just about exactly zero result. Is this not almost conclusive proof that this frequency is wrong? Does this not prove that there is nobody out there transmitting our way at this frequency – or that there is nobody out there at all? Two options – one may be correct. I submit that your search frequency is wrong. I fear that your time and very much money will yield nothing at this frequency. They may be wasted whilst we all grow older!

You have two choices – you can continue to search a frequency zone that has yielded nothing so far, obtaining enormous data streams to be analysed by very expensive experts with very powerful computing power, and still have the same zero result in ten, twenty, thirty years forwards.

Or you can, imaginatively, consider other aspects, other reasons why a more advanced civilization might be transmitting on a frequency elsewhere that may seem to you too high tech but that may not be so to them. SETI has done much, over these 50 years, to launch and establish the idea and the means of exploring for alien intelligence. To condition the human psyche generally to expect alien civilization out there. But it may now be time to take a fresh look at possibilities and look elsewhere on the radio spectrum.

You seek a technologically advanced civilization. By implication this suggests the use of radio waves at and above the earlier ability of Earth technology.

Also, by implication, an advanced civilization transmitting signals that would eventually be received by another up-and-coming civilization may have worked out for themselves that the recipient civilization (Earth) would reach a point where;- (a) Their own radio transmission at many levels would crowd the obvious parts of the spectrum: (b) It would be wise if the recipient civilization (Earth) did not receive / register / identify, external, in-coming transmission easily until they were sufficiently technologically mature to receive and cope with the new knowledge of such external civilization. After all, if and when an advanced alien existence is confirmed, it is going to be a tremendous shock to our present-day Earth-bound psyche, both individually and collectively. There could be unpredictable, possibly unpleasant reaction amongst Earth population.

If this all seems ‘wordy’ it is because the implications of this imminent discovery by Earth are very great. The resulting effects may be unpredictable! This knowledge of other, more advanced civilization may well be ‘Earth-shattering’ in some quarters, not least amongst some very dogmatic and rigid

adherents to some faiths / religions of which, even in this modern day and age, there are probably many, many millions in total. In 2017 we cannot fail to be only too well aware of the effect of extreme religious belief amongst even comparatively small numbers of our human race even within our current era. To release proof of superior intelligence, advanced aliens within contact distance in our galaxy could be potentially to demolish at a stroke the ancient faiths and beliefs of millions around the world. Have you people at SETI considered that an advanced alien civilization would have worked out that 'softly softly', 'slow and careful' was an essential policy towards us? By implication, making the technological progress required to make contact 'not too fast and easy' has given Earth chance to begin to accept when contact is made. These are some of the considerations that need to be reflected upon by SETI searchers and those who would lead them.

I believe that it is likely that you are all looking in the wrong part of the frequency spectrum. I have a very specific, very exact frequency value to submit for investigation. It was compiled and described some time before Frank Drake and the SETI movement began. It has been sitting, unnoticed, for some years and should now be investigated. As it is a specific value the cost in man-hours and money should be miniscule compared to your present potential outlay.

CHAPTER 3 A Different Route

7 – 8 – 2017 Since writing the previous pages based upon the calculations with the two large number groups, modified with a factor of 3 to convert the one to the other, there have been some slightly worrying details that have bothered me. Therefore I have re-worked the maths via a slightly different route.

The basic wave formula is; - $\lambda = v / f$ where λ = wavelength (metres); v = velocity of light in vacuo (metres / sec.); f = frequency (Hz or cycles /sec.)

The formula can be varied to; $f = v/\lambda$; or $v = \lambda f$

These can then be modified to; $1/v = 1/\lambda f$ which then becomes $\lambda f/v = 1$

The values now used are; $f = (7.686143 \times 10^{p9})$ Hz (cycles/sec.)
λ is derived using $\lambda = v/f$. $\lambda = (3.9 \times 10^{p-2})$ metres
$v = (2.997925 \times 10^{p8})$ metres/sec.

The equation is; $(3.9 \times 10^{p-2}) \times (7.686143 \times 10^{p9}) / (2.997925 \times 10^{p8})$

$= (2.997595 \times 10^{p8}) / (2.997925 \times 10^{p8}) = 1$

(Difference above or below is insignificant ant the result is effectively correct.)

This has clarified the problem because we now have;

(meXres) x (Hz or cycles/sXc.) / (meXres / sXc.)

This calculation has eliminated the significance of metres and seconds as they can now be cancelled leaving us only with cycles (or waves) of electro-magnetic radiation. The same basic calculation can be carried out using the values for wavelength and velocity of light in any system of units but the result will be the same. Regardless of where we are in the galaxy and what units of measure our particular civilization has derived to measure physical phenomena, these waves exist and are out there somewhere travelling at the speed of light from point A to point B. I believe that they exist and that we are now ready to intercept them as point B. I believe that I can identify point A.

From the calculation above, it cannot now be argued that my original result for frequency of 7.686 GHz was based upon arbitrary modern units. The only factor within the calculation that needs to stand alone is the frequency, which is a natural, universal, physical phenomena of wave propagation and transmission. The only 'introduced' value is the value that I am using for frequency of 7.68614 GHz. This value is obtained from the old text that I have used and is the only number group of significance for this particular context within that text, purely because of its form and the way by which it can be fitted into the processes that I have described within these pages.

This number is now ready to be tested.

CHAPTER 4. Yet Another Route.

Having introduced a value for the wavelength (3.9 cm.) derived from the frequency of 7.686143 GHz, it seems worthwhile to return to the original form of the text to seek this wavelength value within the actual physical design. (If I had been involved in creating the original design and embedding the amount of information already shown, I would certainly have attempted to achieve further correlation within the physical design.)

The physical form of this part of the text involves a 60 digit binary code, arranged in a circular form with 30 vertical '1's alternating with 30 horizontal '—'s, (or 0's). The arrangement is such that the 30 horizontal '—'s visually create a continuous, unbroken circular form. A circle thus created can be adjusted as two halves of a sinusoidal wave if cut across the centre, along a diameter, and the second half re-positioned such that the first end of its circumference continues on from the end of the circumference of the first half. This is a very simple, unambiguous process to represent and a very simple form of a wave.

The object of the exercise is to try to identify some sort of a representation of the wavelength value of 3.9 cm. within this design. The most obvious prospect is that this wavelength value is represented in the actual physical dimension (diameter or baseline) of the wave 'picture' described above.

Actual diameter of circle / waveform

Internal	29.4m	(Smooth surface)	2940cm / 3.9cm	=	753.8	(ratio)
External	32m	(Rough surface)	3200cm / 3.9cm	=	820.5	(ratio)
Mean	30.7m		3070cm / 3.9cm	=	787.2	(ratio)

Clearly 2 of these results are very close to the number form of the frequency value of 7686, obtained from the digital format of this very circle. Reversing this sum - 7686 x 3.9 = 2993.5 (cm?). Or almost exactly 30 metres. (30 metres falls well within the range above, for the diameter and closest to the interior measured diameter of 29.4 m.) My original text is quite old and very badly damaged in places. There is plenty of scope to argue about the precise dimension of the actual, intended diameter within very narrow limits. It seems to me that a diameter of 30 metres that is within the group above, and so close to the mean and the interior dimension, confirms my suggestion that here is the physical dimension intended to underlie the calculated wavelength of 3.9cm.

It could be argued that the calculation is the result of using metric units of measurement that are a comparatively recent invention. The value, here, of 768.6 is a ratio of two values of centimetres and does not, itself, need units. If I repeat the calculation using feet and inches, I get the same result.

I.e. 30 meters x 39.375 inches = 1181.25 inches

3.9 centimetres / 2.54 inches = 1.5354 inches

1181.25 / 1.5354 = 769.3 (ratio)
768.6 (frequency digits / binary code)
_____
Difference 0.7 (insignificant)

Therefore, in this one circular device, as designed and formed, I have derived the two values of: - Frequency 7.686143.... GHz
And: - Wavelength 3.9 cm.

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How clever is that, huh, a whole solution based on just <u>one supposition</u> – that <u>intelligence is older than the human race</u>?
Is there <u>anybody</u> that can think outside of the box?

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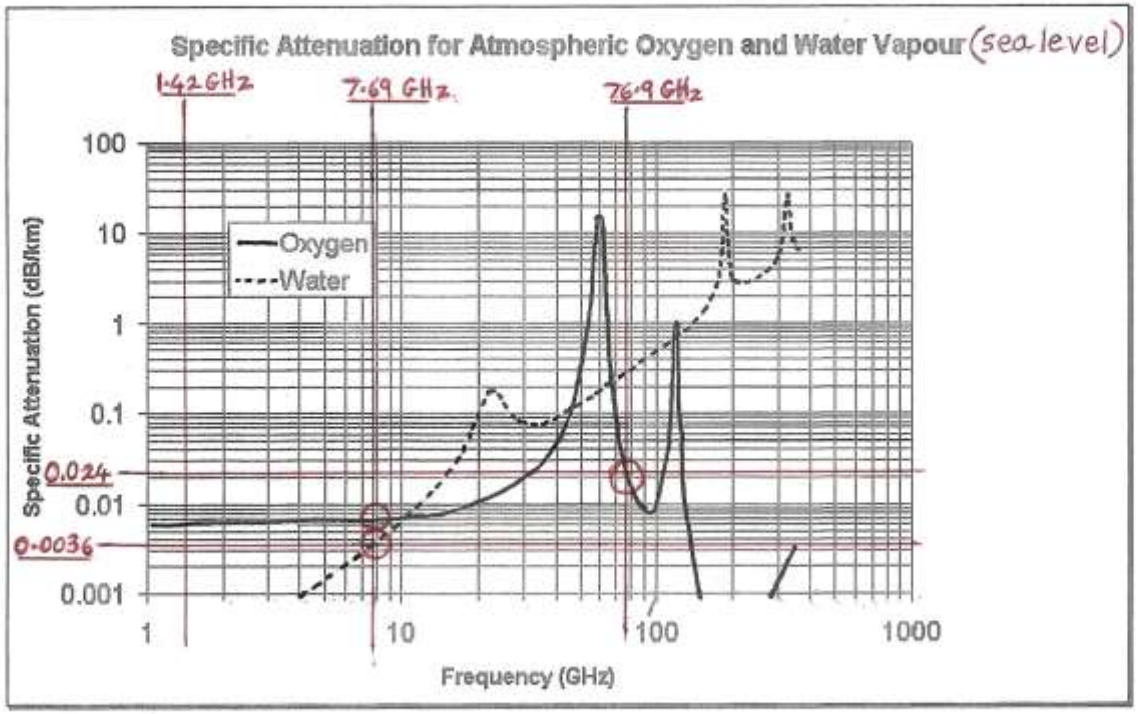
Oxygen has strong bands of resonances around 57-60GHz and 119GHz. At sea level, the losses can amount to15 decibels per km at between 57GHz and 63GHz.

Water vapour has a resonances at 22GHz. 183GHz and 324GHz. The attenuation changes with the amount of water vapour in the atmosphere. A typical figure for the water vapour density at sea level in Europe is 7.5g per cubic metre.



Calculating Atmospheric Attenuation

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SUPPLEMENT B

Other Situations Arising From The Stonehenge Project – The Great Pyramid.

It would be logical, having made so much progress with Stonehenge, and having uncovered such new and significant results, to look elsewhere for comparable results, especially if a successful result could be obtained using parallel thinking and technique. And the first and possibly most obvious place to look would seem to be in Ancient Egypt, at Giza. Here, at the same epoch in pre-history, even greater construction was attempted and successfully achieved, extracting, transporting and raising up enormous quantities of living rock to build the pyramids of the Giza group and all of their surrounding structures. The result, as with Stonehenge, but on a staggeringly greater scale, was to create a monumental landscape that equally has impressed and puzzled all who have contemplated these works for as long as they have existed.

That they were created and built by human effort is not in doubt, but at the back of this great achievement there must have been very powerful motivation at work, not only to start the project, but to sustain the effort through to completion. Whether the workers who gave much of their lives to completing the task were working under duress from authority or whether they worked because of their belief is difficult to prove. But modern thinking seems to be that much of the labour force was made up of dedicated and highly skilled workers who were well fed and well cared for. Hardly the massive army of foreign slaves brought home as booty from biblical style foreign battles who would have been badly fed, insignificant, and easily dispensed with as work proceeded. And who would probably have taken any opportunity, as it proceeded, to sabotage the job in a multitude of great or small ways.

In all the surveys and investigation that have gone on at the pyramids in modern times there do not appear to have been any reports at all of evidence being uncovered that implies that there were dis-affected workers employed on any of these great works. But it is fairly certain that this would have shown up by now in some way. The conclusion has to be that the labour force throughout the construction was generally contented and happy to continue. The implication is that they were working because of great motivation due to very strong belief in the purpose of what they were doing. If this is so then it is immediately a comparable situation to that which must have prevailed whilst Stonehenge was being built, amongst the workers employed upon that project. And that leads on to the question whether the motivation was the same in both cases.

The parallels, at a general level, are strikingly significant.

First there is the similarity of date for what seems to have been the most important part of construction at each site. At Stonehenge the most monumental and impressive parts of the final Stonehenge Phase 3, the two Sarsen features of outer Sarsen Circle and inner Sarsen Tri-lithon horseshoe, were started and completed in what is now believed to be a relatively short time period of perhaps one and a half centuries, or even less, starting at about 2550 – 2500 B.C. The evidence for this is deduced from the fact that the main

occupation site for the labour force during construction was the nearby site of Durrington Walls close to the banks of the River Avon, about two miles to the north-east of Stonehenge. And evidence from the recent extensive excavation of this site suggests that it was only occupied for this comparatively very short period that coincides with the first and main construction phase of Stonehenge 3, before it was abandoned and the occupants seem to have dispersed.

100 to 150 years may, in our modern epoch when technology develops so quickly, sound like a long time. But within the context of the massive amount of labour needed to extract, transport, shape and erect the Sarsen stones, all with the most primitive of technology and equipment, then this time frame does not actually sound particularly long. (As an aside, and in consideration of the fact that work on this part of Stonehenge 3 continued for this time period, it must represent upwards of six or seven generations or more from the families or tribes that worked on the project. And for so many generations to sustain their effort continuously proves yet again that there was a tremendous motivation at work behind this project. Also there must have been a very settled and peaceful environment in the sense of a lack of warfare between tribes or nations, such that people were able to come together to achieve a common aim of completion of the construction without the distraction of tribal strife. Perhaps we can correctly speculate that the same cause was at the root of the motivation to complete the construction task and largely responsible for this widespread period of peaceful co-existence between neighbouring tribal areas!)

The dating and time-scale for Stonehenge therefore seems to be:- Start of construction (major Sarsen components of Stonehenge phase 3) circa 2550 – 2500 B.C.; completion circa 2400 B.C., with the other, less significant components, the Bluestone Horseshoe and Circle, trailing away through to 2000 B.C. or later.

At Giza the Great Pyramid was the first to be constructed of the group of three major pyramids. Its construction has long been ascribed to the reign of Pharaoh Cheops (also known as Khufu). The dates for the reign of Khufu are 2547 –2524 B.C., and the date for completion of the Great Pyramid is accepted as c. 2525 B.C. which is within the era when work was well under way on Sarsen Stonehenge.

The Great Pyramid had differences to its predecessors that have singled it out for exceptional attention amongst archaeologists and students of many other disciplines during modern times. It was the first pyramid to use enormous quantities of sold rock within its construction. Previously the standard material had been mud brick, hence the generally largely collapsed state of most earlier pyramids. The use of so much rock, from limestone for the core to polished granite for the important chambers and features of the structure has echoes in the use of comparable material for the construction of Stonehenge. Indeed the technique of shaping and smoothing the surfaces of Sarsen and granite blocks would have been very similar in both projects.

The Great pyramid has long been famous for the phenomenal accuracy of its orientation to the cardinal points of the compass and for much astronomical information that seems to have been incorporated into its design.

It is known that the Egyptians of this period had developed their religious belief with the sun god, Re, at its head, and much of their religious ritual was based around the daily journey of Re across the sky , and of his seasonal routine throughout the year. To the Egyptians mid-summer and summer solstice were of great importance when the sun was strongest. Many of their lower orders of gods owed their creation and existence to the power and actions of Re. There is little doubt that the sun, its cycle, and summer solstice were also of the greatest importance to the people of the time of the building of Stonehenge. As we have seen earlier in this account, the whole astronomical function of Stonehenge is based around the regular annual cycle of the sun and especially the mid-summer solstice. Indeed it would not be possible to interpret Stonehenge without detailed knowledge of astronomical data concerning the sun at the epoch of building. And as I have shown earlier, the sun is depicted centrally upon the Heelstone as it rises at summer solstice on an azimuth that takes it across the Heelstone to emerge, visually, above the real horizon. It would be a strong argument indeed that was able to take the involvement of the sun out of Stonehenge.

Comparing:- Stonehenge Solution	Pyramid Solution
1). Dates:- Start build c.2559 B.C. (Complete Sarsen S.H. c. 2400 B.C.)	Start build c. 2550 B.C. Complete Great Pyra. c. 2525 B.C.
2). Oriented on Summer Solstice and implies solar deity.	Egyptians study summer solstice and start to learn astronomy. Sun God Re is top God.
3). Massive stones transported, shaped, finished.	Ditto (previous pyramids were mud brick mostly).
4). SH designed and stones erected with great precision where needed.	Obsessively precise.
5). Much astronomy incorporated in many parts of design and function.	Ditto
6). Built with volunteer labour, strongly motivated (by belief?).	Ditto
7). Solved by parallel techniques, 'As Above So Below' in circular grid form. Tracks of sun/Regulus in Great T.L.	Ditto Track of sun/Regulus in coffer of KC.

So far as the astronomy within the Great Pyramid is concerned, it should be fairly easily followed leading on from the astronomy in Stonehenge. Hopefully the following diagrams all make it fairly straightforward.

Some comments:-
1). The basis of the astronomy is absolutely parallel to that of Stonehenge. Both monuments are based around the annual cycle of the sun and particularly mid summer solstice when the sun is at its highest and dominant. The sun is the central feature and it is at the heart of planning.

It is visually plain, in my illustration of the enlarged cross-section of the King's Chamber (Fig. Pyra 4) and the alignment of the sun vertically, up through the Pyramid, how the track passes, top centre, through the 'point' of the top arched beams of the Relieving Chambers. This construction feature has been exploited to demonstrate the alignment pointing up almost vertically (at altitude 83° 58´) towards the mid-summer sun at its maximum height as it crosses the meridian. If we can assume that this alignment was not accidental – was intended, then we can move on with the interpretation. (By the same process it can be noted that the similar 'archway' effect above the Queen's Chamber closely corresponds with the vertical alignment of the Altitude Circle Grid System Centre at the centre of the Pyramid base plan, rising to 90° Zenith at the apex of the Pyramid. Surely too close to be coincidence?)

2). The construction dates for the two monuments are almost identical and they both represent outstanding achievement in so far as monumental tasks of construction were undertaken and just about completed, in a very few years considering how much work was involved and with what 'primitive' tools and methods.

3). 'Wrapped around' the process of mid summer sun is the small group of stars that I have labelled the 'Regulus Group'. Both monuments are designed and built to incorporate the Regulus Group into their Structures. Both can be interpreted as demonstrating and underlining the presence of Regulus at midsummer very close to the sun, within their design. And both can also be interpreted as implying the presence of the obscure, distant companion of Regulus, H833.828, (or a very close neighbour), that may well be the reason for the construction of the two monuments in the first place. That is why the monuments were erected when they were, after BC 2500, in widely separate locations, Presumably in isolation from one another.

4). If both monuments are based upon the same astronomy and are so close in their times dates, and methods of construction, then it is suggestive that the motivation for their construction is also very close. I have already suggested that there was a very strong motivation within the separate labour forces to proceed and continue until completion of construction. But we need to seek this motivation. (I do think that this is quite important.) This we can do initially, only by speculation, putting forward suggestion, idea, digging more deeply into the possible causes, and rise of civilization, culture, belief – none of which are easily acceptable to most scientific minds or disciplines. But these scientific minds and disciplines are going to have to stretch to this route if we are ever to understand this motivation.

The question is asked, 'Are human minds 'hard-wired' from birth to accept and develop certain traits such as our morality and behavioural norms, language / communication., such aspects as mathematical ability and logical thought processes?' To this can be added the question, 'Are human minds currently hard-wired, from birth, to dismiss all ideas / suggestions of that which might lay at the heart of human thought development which cannot easily and instantly be proven by the same human (scientific) minds applying human constructed test / experiment, to prove the existence of such idea?' In other words, is the collective human mind hard-wired to rubbish all idea/ suggestion that does not immediately fall into the existing frame of human experience and knowledge? Are humans, from birth, hard-wired to only accept that which they find acceptable? If these questions are answered positively then humans of an enquiring disposition must accept that, from birth, they have an enormous intellectual 'millstone' around their collective necks. They are going to need great bravery and effort to recognise their intellectual impediments and break out of this sad state of affairs. - Use their imagination, as 'unscientific' as this may seem! (But I digress.)

5). There is no obvious motivation written upon these tablets of stone that form these monuments. We have to deduce possibility. At Stonehenge, the main focus after the rising Summer Solstice Sun, that fitted on to the scenario was the rising of the Regulus Group led by Regulus, but in particular also the rising of obscure, distant 'Little Star' H833.828.

Some of the reasons for this deduction that I have made are:-

a). The notable coincidence of the dating of the construction of the two monuments, Stonehenge and the Great Pyramid, allied to the fact that this dating coincides with the 'uniting' of Regulus and sun at Summer Solstice – all of these astronomical factors almost certainly of great importance to the two separate civilizations.

b). The position, astronomically correct, and possible potential 'human' shaping (or 'improving') of the Heelstone Slit that is a primary feature of this stone. Also by the focus of the exit of the Slit on to the main Stellar Axis across the Stonehenge landscape and through the monument itself.

c). There is no particular indication that the specific Regulus asterism itself (Regulus is actually a localised group of stars that we see by the naked eye as one) occupies a 'primary' position within either monument. Rather there seems to be something more obscure that is the focus. I would say that Regulus acts as the naked-eye visible marker to lead to this particular area of the sky. Hence its very ancient tradition amongst many of the civilizations of the world as the 'royal' star representing kingship.

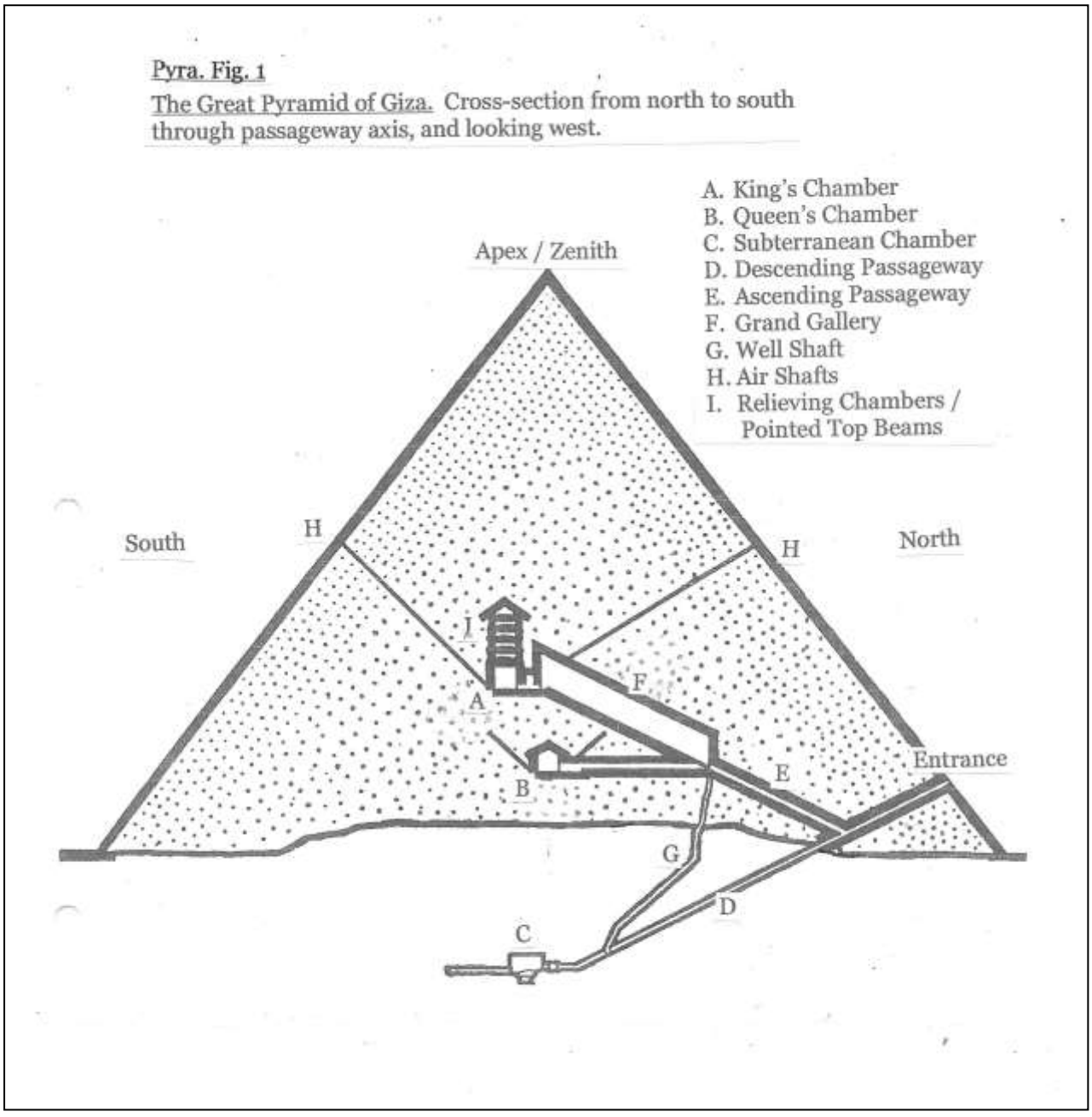
d). The dimensions (particularly width) of the King's Chamber are such that it was possibly built to accommodate a 'balanced' group with the sun at the centre of the group. Therefore we can deduce that we should seek star position / alignment / trajectory within the King's Chamber.

From the illustrations following it is clear that the sun, on its passage through the King's Chamber at Summer Solstice, was also accompanied by the Regulus Group c. late twenty-fourth century B.C. (For instance B.C. 2341.) And only at this period in our history did they all travel together at Summer Solstice, just as at Stonehenge.

At this time Sun and H833.828 travelled exactly as a pair with Regulus just ahead. (Is this yet another example of 'Little Star .828 having priority of place over Regulus? Was it being 'escorted' carefully by the Sun?) It is possible to 'tweak' around with this date of B.C. 2341 and get fractionally different arrangements of the Sun with the group, but the principle holds. The Regulus Group would be 'as one' for a few years around this date, the individuals with no change in their positions relative to each other. Only the sun would appear to gently 'wander' and alter slightly, this way or that for the same date each year, until it began to steadily move away from the group. The close meeting between Sun and Regulus Group would continue each year but, due to Precession, at steadily changing date away from summer solstice. In our time this union between the two now occurs after mid August – nearly two months on from late twenty-fourth century B.C. (Perhaps this is why. In our part of the Northern Hemisphere, August has become the 'holiday' month for so many – an echo of the celebration that might have accompanied mid-summer in ancient times. Perhaps we still celebrate this celestial 'union' and the celebratory feast of a distant, obscure star, without even realising it!)

Illustration 'Pyra Fig. 1' is a cross section of the Great Pyramid showing its form and the main features within. The Great Pyramid itself has been extensively surveyed, measured, plotted by a number of people over more than two centuries for which there are records. Many of the surveys have been meticulous, very precise. It is thanks to this fact that there are now such detailed and, hopefully, accurate plans easily accessible. (Even so it is possible to find slight variation in different features from one survey to another: but usually only slight.) It has always seemed to me that the fact of measuring at all such a vast monument, difficult of access to the interior, battered by time, elements, earthquake, and man, has been a monumental achievement in its own right! But in this current epoch I can take advantage of, and safely lean upon, the work of these pioneers.

From a constructional and astronomical point of view it has been clearly demonstrated that there was an obsessive degree of precision shown by the architect and builders. The structure was very precisely built with the four flat faces oriented towards the four cardinal points, north, south, east, and west. The ground plan is very square and therefore exactly accommodates the circular form of the Altitude Grid Scheme. Following from this a notional Meridian exactly bisects the Pyramid from north to south and through the apex / zenith. From this general form can be deduced the exact altitudes that were intended to be marked by the position of the King's Chamber. The King's Chamber itself, whilst not located exactly centrally to be exactly bisected by the central Meridian, is of sufficient east-west length to accommodate it. It appears that the empty stone coffer within the chamber is positioned either on, or very close to, the Meridian although I have not yet seen any surveys that confirm this.

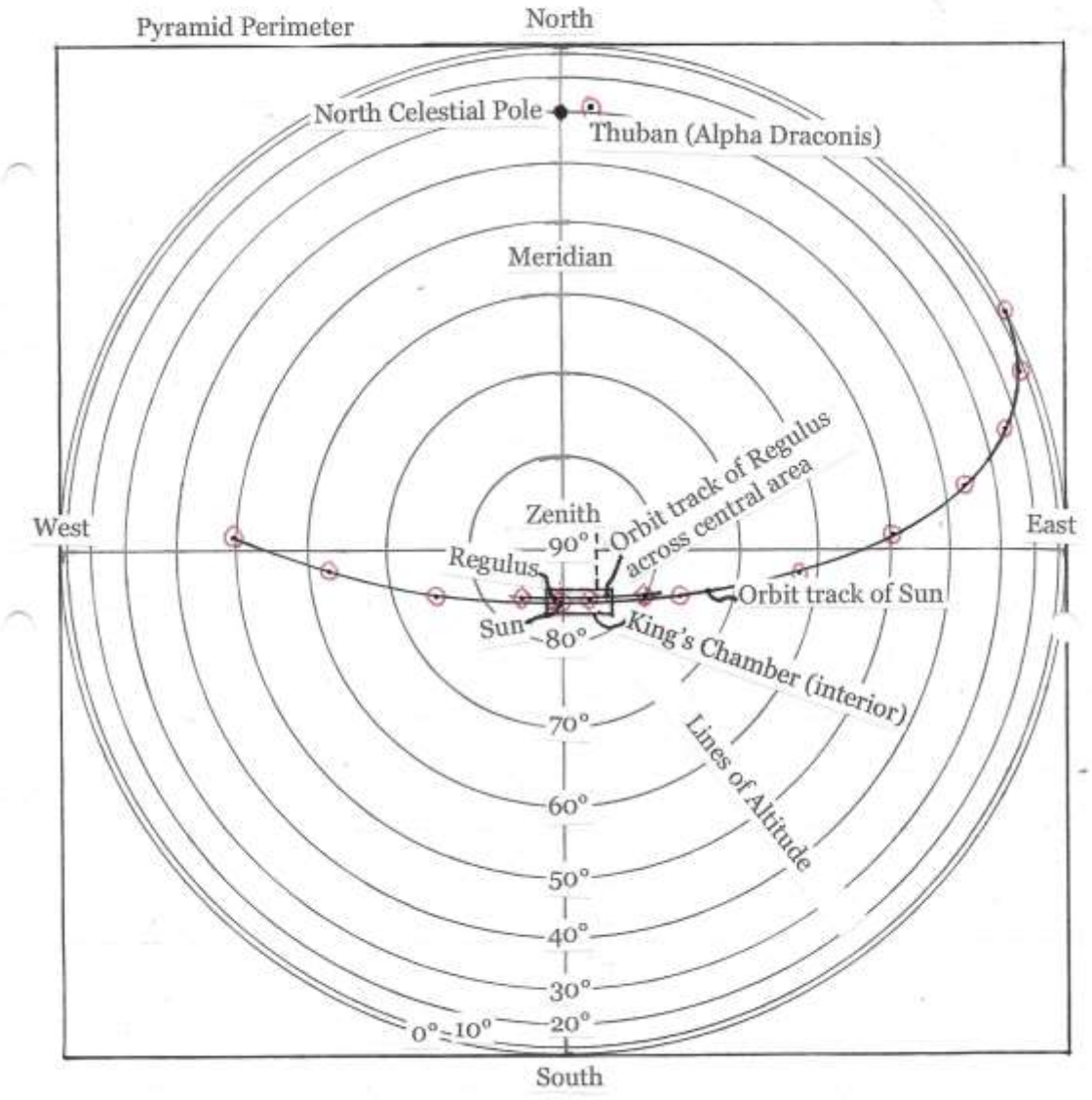


Traditionally the Great Pyramid was originally built as a tomb to accommodate the Pharaoh Khufu (or Cheops) after his death. There has never been any evidence whatsoever that this is true. No human remains or the remains of any artefact connected with death or burial have ever been found within. The main reasons for ascribing its intention to be a burial tomb are, - firstly that other Egyptian Pyramids were used for this purpose (i.e. a circumstantial deduction). (It could be said that other pyramids were not like the Great Pyramid in so far as they were not built as substantially and solidly,

or obsessively accurately. Furthermore they did not contain the quality of monumental features to such a scale as those within the Great Pyramid. They were either prototypes or 'copies'. The Great Pyramid was the 'pinnacle' even as Stonehenge was the pinnacle of stone circle construction within the British Isles.) Secondly no other reasonable purpose has been put forward for it being built.

Pyra. Fig. 2

Combining Celestial Hemisphere, c. BC 2341 and Great Pyramid.
(Grid system is 'As above, So Below.)
Summer Solstice – Sun at maximum.



Therefore it comes back to motivation. What motivated the architect and builders to sustain so much effort? Were they all in awe of something, in fear, or just overwhelmed by enormous 'desire'? (Science, unfortunately, has great difficulty acknowledging such mass, crowd emotion. And this is very difficult to measure and prove in current times let alone historically.)

Pyramid Fig. 2 demonstrates the Altitude Circle Grid applied to the ground plan. (The Altitude Grid is drawn as a representation of the Cosmic Hemisphere – 'As above So Below'. Lines of altitude, as observed on the Cosmic Hemisphere above, are marked perpendicularly on the horizontal flat ground below. (A curved form above is being represented on a flat surface below.) Consequently the Grid lines are close at the horizon, or outer limit, and become further apart as altitude increases upwards towards the Zenith point.)

On to the Altitude Grid the orbit track of mid-summer sun is shown exactly as shown earlier in this text for Stonehenge, The location of the track, here, is somewhat higher (closer to the centre) than at Stonehenge reflecting the fact of Giza being at a lower latitude i.e. closer to the Equator. At Giza at summer solstice, c. B.C. 2341, the sun crossed the Meridian at a maximum altitude of almost 84°.

Accompanying the sun is shown the track of Regulus for the Regulus Group, slightly higher with a maximum altitude of nearly 85°. For Summer Solstice c. B.C. 2341 the pair crossed the Meridian with Regulus slightly ahead. Six months later (mid-winter) they would cross the Meridian half a day apart with Regulus in the middle of the night, probably easily naked-eye visible under a cloudless desert sky. The position of Thuban (alpha draconis) is shown towards north. This is reputed to have been the 'Polestar' for ancient Egypt because it was the nearest naked-eye visible star to the North Pole at this time. It was actually nearly four degrees off of the Pole and described a small orbit about Celestial true North, but there was no better guide star at this date. The minimum altitude for Thuban as it crossed the Meridian on its tiny orbit, c. early twenty-fourth century B.C., was between 26° 30´ and 26° 18´.

Famously the Descending Passageway of the Great Pyramid is inclined, extremely accurately as a very precisely straight sight-line at an altitude of 26° 18.2´, and the whole Passageway system , as previously described, is built very accurately on a north-south axis parallel with the main Pyramid Meridian. Effectively the Passageway system is on its own Meridian, independent of the main one, but equally accurately built. With so much 'deviation' from the obvious in the design, but yet so accurately done, we cannot fail to accept that the designer is trying to convey information. It is deduced that the objective of the Descending Passageway was to align on Thuban at its lowest point, as it crossed the Meridian. By this means it would be possible to obtain a 'target' date for the Descending Passageway and therefore the significant date upon which the Pyramid was focussed in its design.

With no changes at all in Passageway alignment or position of Thuban relative to its surrounding Cosmic sky, a date of c. B.C. 2305 is obtained. (Thuban –

B.C. 2305 – Azimuth 00° 00.00´// altitude 26° 18´.) This date can potentially be subject to slight adjustment due to possible change of position of Thuban because of Proper Motion. There is no evidence of any change in the inclination of the Passageway. The top one-third of the Passageway is man-made as part of the lower structure of the Pyramid, whilst the lower two thirds are part of the solid limestone plateau upon which the Pyramid was built. Any ancient Earthquake type of incident sufficient to disrupt this form of construction would almost certainly have shown as a visible dislocation between the two different construction zones.

(This whole matter of the construction of the Descending Passageway is worthy of a detailed debate in its own right. There are a number of quite unexpected aspects to it. For instance, the lower two-thirds of the Passageway, built into the solid limestone, appears to follow a single, natural plate of limestone, several metres thick, two thirds of the length of the Passage, but yet just happening to have been tipped at the correct inclination to the horizontal to give the precise alignment on Thuban at the correct date. I find this quite remarkable and that the builders had spotted it, and that they sensed how deep it went below the surface., and then designed and built a Pyramid on top of it! How inexplicable, how clever, how spectacular is that? Just one of so many details, each one breathtaking by itself!)

The whole interior Passageway System and therefore entrances to the Chambers, and the three Chambers themselves (King's, Queen's and Subterranean) are notable for the fact that all are offset on a vertical alignment parallel to, but some distance eastwards (c. 7.3 m) from the principle Meridian of the Pyramid. Consequently the principle Meridian only crosses the King's Chamber. A cross section, north to south, on the principle Meridian will only intersect the King's Chamber. No other features are visible.

This seems 'strange' at first. Why was not the initial plan designed to place the whole system exactly central within the Pyramid? Close examination does not seem to give any sound astronomical reason. Therefore it is reasonable to postulate reasons, even if they ate difficult to prove.

One good reason could be that the whole emphasis and the whole 'raison d'être' of the Great Pyramid was to focus upon the crossing of the Meridian by the Sun / Regulus Group together as previously described, and therefore all subservient features had to be designed away from this event on to the 'second' Meridian. It seems to me that, if any Pharaoh had intended his body to be entombed within the Great Pyramid, then the Queen's Chamber would have been intended for this purpose. Notwithstanding the modern and probably misplaced name for this Chamber, I believe that, whilst actually placed on the second vertical, zenith alignment, it is intended to be 'beneath' and subservient to the main Chamber, as the Pharaoh would have been in life, 'beneath' and subservient to the absolute power that passed regularly through, and took up residence for a few minutes in the King's Chamber. In death the Pharaoh would have been forever close to the 'Absolute Heavenly Power' and would have permanently enjoyed the close protection of his 'God'. It cannot be proven that this was the reason but it seems logical, and in this situation one theory seems as good as another.

(This gives yet a further motivation to the overall decision to build the Great Pyramid, targeted at the meeting of Sun and Regulus Group at summer solstice on this rare occasion when both are at maximum altitude together. If the relationship of the two Chambers, King's and Queen's, was indeed one of 'superior' Chamber above 'subservient' Chamber, to reflect superior 'God' power above subservient mortal Pharaoh power, this implies that such a relationship attitude / belief did exist at this time in Egypt, and was at the heart of the national system of religion and rule. And if this was so then the rapidly approaching, and never again=to-be-repeated event of the meeting of Sun and Regulus Group needed to be marked, monumentally, in a way that was spectacular beyond anything that had ever been done before. Thus came the idea of the Great Pyramid, built very skilfully and very accurately, but very quickly.)

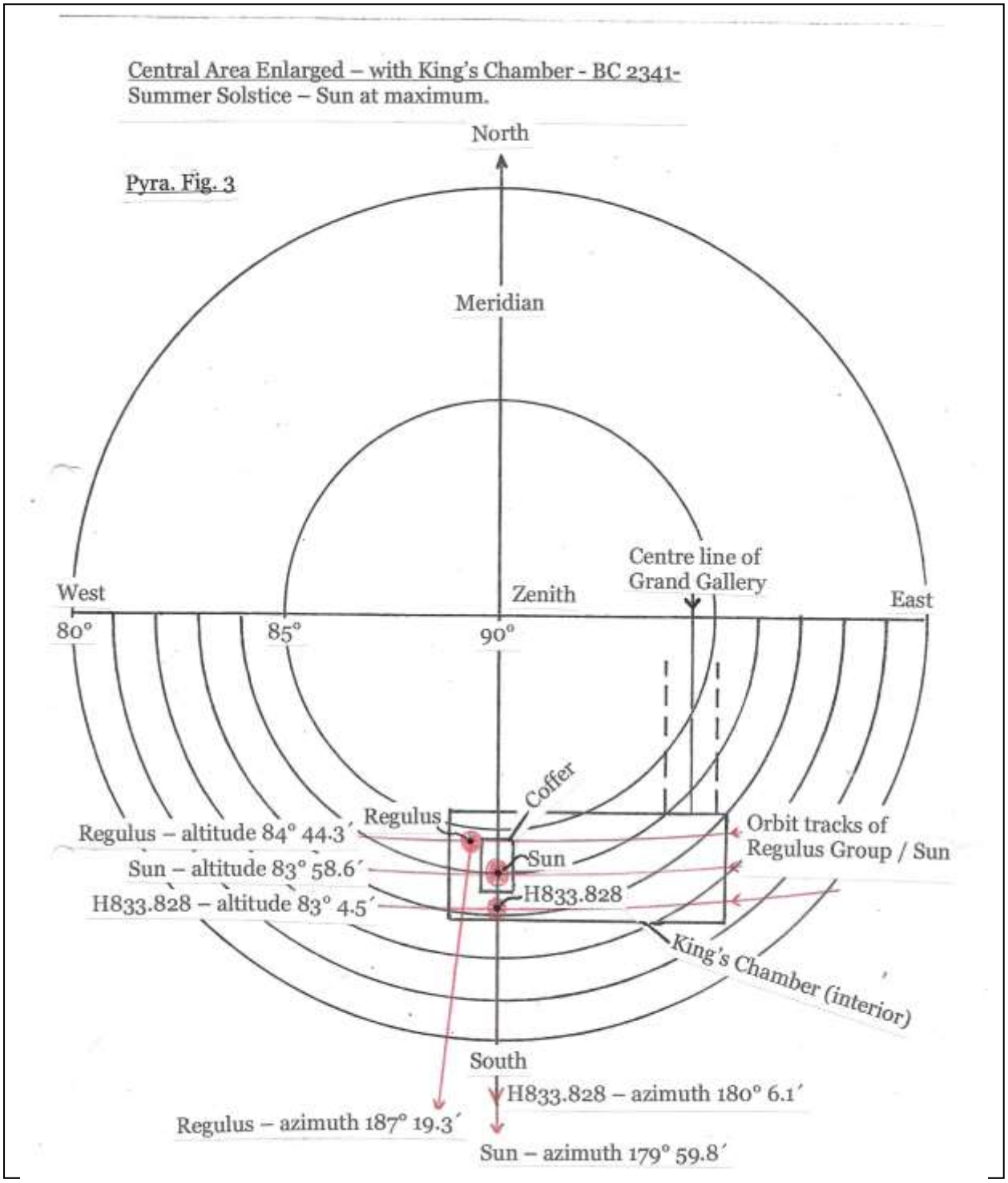
A second possible reason was that the astronomical information contained within the design 'as built' would be very clear. It is clear that altitude values for different parts of the design all contribute to an interpretation of the final 'text', 'picture', or 'message'. All astronomical focus has to be upon the one central feature that is the King's Chamber. No ambiguity. This is good. From this viewpoint it absolutely makes sense that the Passageway System was NOT on the central Meridian even if it was intended that the Descending Passageway could be a means to date the Pyramid. The Passageway System is therefore exactly parallel to the Central Meridian, far enough away not to intrude into the central and principle 'message' of the King's Chamber, but close enough that the King's Chamber can actually link to the whole design.

Every detail of the design of these ancient monuments seems to contain yet more information about the way in which their architects considered and resolved the means by which they wished to describe and pass on their thoughts upon the various aspects and features within their designs. 'Ask and it shall be given', 'Seek and ye shall find'.

For Pyra. Fig. 3 I have enlarged the central area of the Altitude Grid and superimposed the plan of the King's Chamber with its position based upon published Pyramid dimensions. The dimensions used are broadly those of the survey of Petrie. The 'Central Line of the Grand Gallery' corresponds to the axis (Meridian) of the Passageway System, and therefore it can be seen that the length of the King's Chamber is such as to neatly tie together this axis with the main Pyramid Meridian.

The position of the Coffer as shown is very slightly uncertain. It is correctly placed close to the western end of the Chamber and centrally to north and south sides. But the distance from the end is not absolutely described. It would also be reasonable to question whether it has been moved, possibly more than once, through the life of the Pyramid. Once again, though, we can question the possible implication of what we should 'read' here. The Pyramid, with all of its dimensions and features, as a representation of the Cosmos, the accompanying Grid System, Meridian, etc,, is a representation of all that is fixed within creation. But the Coffer is NOT fixed. It can be mobile. Its position can change. And so can the observed positions of Sun and Regulus

Group. Therefore, even though they are the central 'heart' of this structure, their Earthly representation must also be mobile – unfixed. The Coffer and this principle were VERY important to the Egyptians. The Coffer is bigger than the passageways and so cannot be removed except by breaking it apart. But who would bother. All that would result would be a heap of rubble and a very difficult task removing it. There is plenty of rubble outside and so the Coffer has survived. (More foresight!)



I suggest that the Coffer should be astride the Meridian as shown. This seems the only logical position – the most important feature occupying the most important position. As can be seen from Fig. 3, at summer solstice the Sun passed through ('entered into') the Coffer and for a few moments was briefly 'captured' into the Chamber, Pyramid, and Nation. Even the Egyptians were unable to build a monument that could 'hold' and 'contain' the Sun for longer than this. Presumably they could only pray that it would return again on the same occasion in following years, and then offer thanks when this did happen.

Regulus and the Regulus Group were different. Unlike the Sun that rises and falls in altitude as it follows the annual cycle of moving along the tilted Ecliptic, the Regulus Group is part of the all-encompassing Cosmos that we see over the short term of a few years, or a human lifetime, as fixed – unchanging. Although the whole Cosmos is observed to gradually move relative to Earth due to Precession of the Equinoxes, this is a comparatively slow, long-term process that only begins to become apparent to human observers once a 'body' of observation knowledge starts to build up over several generations. It is an early mark of an interested society beginning to take note and pass on to new, rising generations their acquired knowledge and to ask questions as to what is happening in the Cosmos.

From this acquired observation knowledge it could be seen, first that stars - the Regulus Group included – follow the same constant path throughout the seasons of the year, only changing their daily timing relative to the Sun. Second that the fixed and immutable paths that stars of the Cosmos appear to follow, are actually changing over the longer term but very slowly due to Precession.

From this can be deduced that the orbit path followed by the Regulus Group, that came eventually to be the central astronomical feature of the design and location of the King's Chamber within the Great Pyramid, whilst it would hold good for several generations, was actually very slowly moving and altitude increasing, as the Sun's Ecliptic crept slowly toward the maximum altitude of Regulus, firstly close to, and then almost in contact with Regulus, at mid-summer solstice. And this close meeting would bring the Sun right into the middle of the complete Regulus Group.

It is interesting to try and picture the human situation as this astronomical event approached. Perhaps the knowledge of the forthcoming event was only newly acquired and understood by some very astute astronomer priests of the Pharaoh. Possibly their was also reigning over the nation a Pharaoh who was also very interested – intrigued – by this forthcoming event. How much excitement was there amongst these people as Sun God – Re – became ready to unite with Regulus Group? (I have not, here, investigated the very obvious question of why the Regulus Group <u>was</u> so important to these ancient people. It certainly also mattered to the designer and builders of Stonehenge. I leave this question open for the moment.) How could such an event be marked in an appropriate manner?

We can assume that national excitement was necessary from top to bottom to carry through the construction. The excitement certainly appears to have held

out until completion. It does appear, that, if a nation can be motivated – 'wound up' – to a high enough pitch of excitement and enthusiasm then, literally, mountains can be moved. It does underline how masses of seemingly intelligent humans can be led, pushed, persuaded, to all follow a common cause no matter what the effort required. Even in recent times we have seen enormous numbers of one nation leaning their shoulders to push hard against similar masses from other nations, for common cause, in war or in times of political or economic upset primarily due to believing in 'their' God or in 'their' perceived common cause against the contrary perceived common cause of the opposition. There is enormous power unleashed when a nation or civilization becomes obsessed to a unified end, for good or bad.

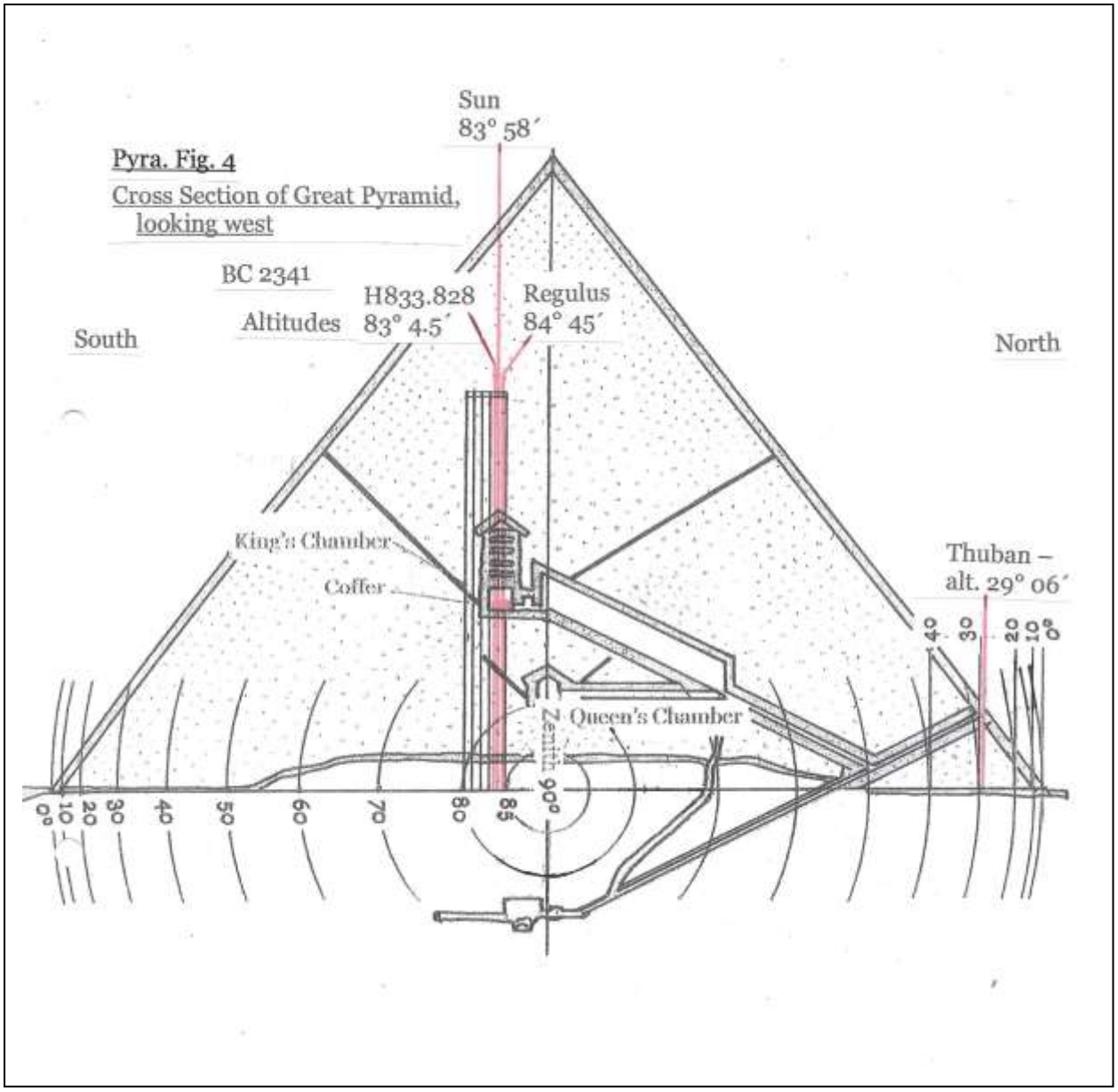
The resulting Great Pyramid and King's Chamber successfully 'caught' this 'moment' in Cosmic evolution as the two separate celestial objects – Sun and Group – came very close and, for a few seasons, passed through the Chamber together at summer solstice. At my chosen date for illustration (B.C. 2341), Regulus travelled just ahead of the Sun – it led the Sun as 'escort'. But in close parallel company with the Sun was 'little star', H833.828, central focus of the construction of Stonehenge and prominent feature of the ascending Slit in the face of the Heelstone at the same date.

It is worthy of comment that H833.828 did not travel through the centre of the King's Chamber as might be expected if it was to be the central feature of this event. The central alignments of the event, as shown, are the passage of Sun and Regulus. These two were the naked-eye visible part of this process – this may therefore have given them priority. The position of the King's Chamber, as shown here, is correct to encompass the three principle objects. It may be that the Chamber position is shown very slightly off of true position. It may be that the position can be #tweaked' slightly. This is all dependent upon published information from surveys that were made with little understanding of the necessity for absolute precision in this detail. The positions of the stars may also be very slightly altered due to Proper Motion. All of these potential adjustments are likely to add up to tiny changes. It may be that the position of H833.828 was not the primary concern of the Pyramid architect. I can only postulate the importance of this tiny, obscure star because of its priority at Stonehenge and the fact that the main Cosmic event is at the heart of both monuments.

It is worth commenting that the Great Pyramid, although vastly greater in concept, size and labour than Stonehenge, does not appear to contain nearly as much astronomical information (knowledge?) as the circular standing-stone monument. Both are famously precise. Both seem to have so much in common, despite their individuality, in the dating, effort, speed of construction, and durability. But Stonehenge seems as much greater in factual information as the Pyramid is in material bulk. The Pyramid seems to have been built to the glory of a Pharaoh and his civilization. This begs the question – to whose glory was Stonehenge built?

Pyra. Fig. 4 gives a cross-section through the Great Pyramid from east and looking west. It is a summation of the two Meridians – main Central Meridian and Passageway Axis Meridian for diagrammatic purposes. The two

Meridians are sufficiently close together that there is little effect on the way in which the Altitude Grid falls when super-imposed based upon the manner in which it fits on to the Pyramid ground plan (as Pyra. Fig. 2). An exact cross-section at the Zenith line will not show any of the interior features except the cross-section of the King's Chamber. And also the coffer if its position is correctly on the Meridian as I have described earlier.



The queen's Chamber is very close to being centralised on the vertical Zenith alignment and therefore central within the Pyramid on a north – south line. As I have noted, it is beneath the King's Chamber and the assumption is that its purpose was judged to be inferior, also confirmed by its more moderate manner of construction.

The Descending Passageway is also famously exceedingly straight for its full length. As noted earlier, tilted at an angle of inclination exactly corresponding to the altitude of Thuban at its lowest point, when this star served as Polestar in the era of the construction of the Great Pyramid. It could be claimed that the Descending Passageway served as an extraordinarily long sighting tube for Egyptian astronomer priests to watch for Thuban appearing so that they might confirm in which direction was north (why?, pointless?). Alternatively, that by the construction of the Descending Passageway at the inclination corresponding to the altitude of Thuban, the date of greatest significance for the purpose of the Pyramid could be found at any time thereafter (a very modern sentiment but probably more likely!). I have already described how this precise altitude can indeed be used to derive a completion / target / first use date for the Pyramid in early twenty-fourth century B.C.

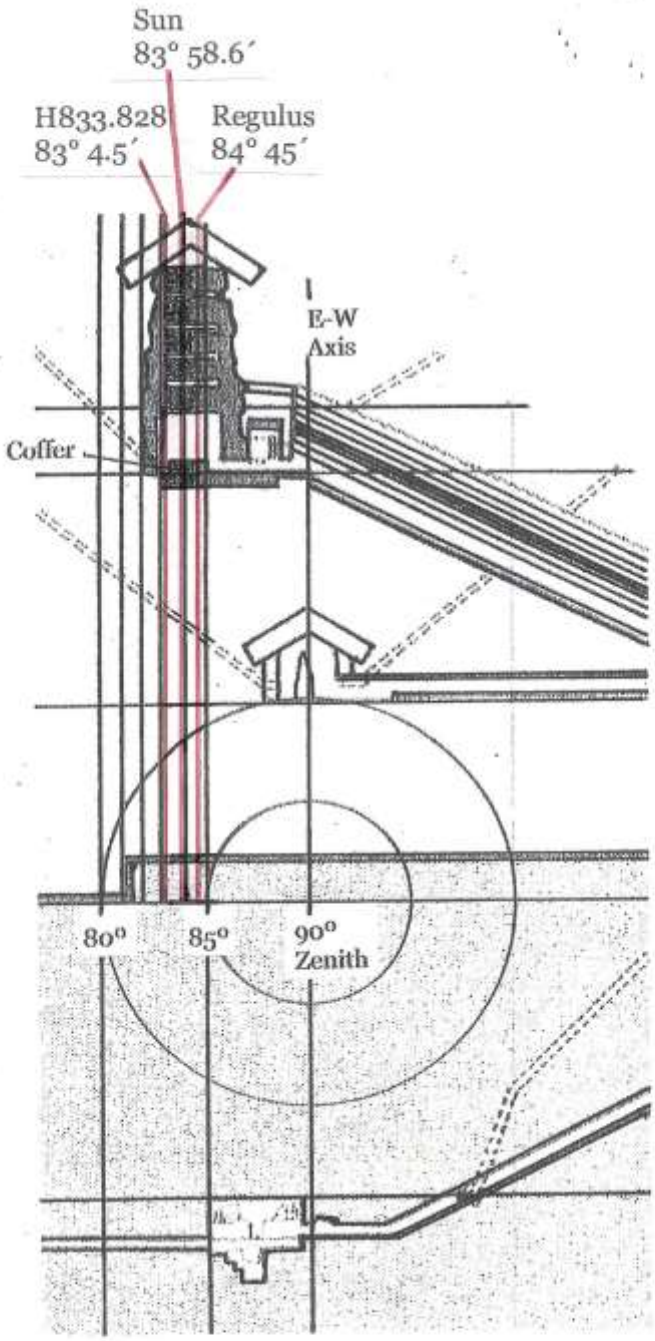
Thuban described a small orbit around true north, at this time, of about radius 3½° - 4°, centred on the Celestial North Pole as seen from Earth. The true North Pole was at an altitude just less than 30°. It is noteworthy that the single entrance into the Descending Passageway (and the Pyramid itself) sits above altitude 30° on the Altitude Grid. As the entrance position could have varied up or down from this position without affecting the final concept of the Pyramid interior, it seems reasonable to assume that this was intended by the architect.

One can play around with other altitudes in this way. For instance altitude c. 36°, at Giza, was correct for the solar minimum at mid-winter solstice. If the Altitude Grid circle for 36° is superimposed onto the cross-section it closely touches to the edge of the sloping Pyramid sides, thus encompassing the Pyramid within the range of the sun throughout the year.

The roofs of the two Chambers, topped with large granite beams formed into archways, in the cross-section resemble upward pointing arrows (pointing to the sky?). Obviously the constructional aspect of these archways is significant. But at the same time they may have symbolic value. The archway above the Queen's Chamber 'points' up towards the Zenith. That above the King's Chamber is bisected by, and points up towards the maximum mid-summer sun. It is actually quite spectacular and again, one must ask, accidental or intended?

There are probably other scenarios to be discovered. Certainly there are a number of this type of feature within the plan of Stonehenge.

Pyra. Fig. 5 is the central part of the vertical cross-section enlarged. The maximum altitude values of Sun, Regulus, and H833.828 are shown as they cross the Meridian within the interior of the King's Chamber. In plan view (from above) their orbit paths have a slight curve and therefore, as viewed from the end in cross-section, they each actually cover a narrow strip within the Chamber, requiring slightly more width than the cross-section would suggest.



Pyra. Fig. 5

Section Through Great Pyramid, Summer Solstice BC 2341, showing how the passage of the Sun, H833.828, and Regulus aligned through the King's Chamber and Coffer as they crossed the N-S axis.

This Fig.5 illustration of the central area summarizes what the Great Pyramid was all about and, ultimately, why it was built as it was. The other features contained within are all subsidiary to the astronomy contained within the position and form of the King's Chamber. Otherwise why would this picture that I have shown in these pages fit so well with the astronomy within the design of Stonehenge? The fact that a picture and information have not been demonstrated by others, earlier, is no reason to deny and ignore it now.

From this section on the motivation, construction, and planning within the Great Pyramid, there seems to be good correlation in many details, some of them very significant, with the Altitude Grid scheme. Also it is very striking how so many aspects have matched those within the design and background of Stonehenge. Also the dating and construction impetus. It is not the place here to explore how these constructions were possible both in terms of knowledge and physically. To some extent questions of 'how' it was done are irrelevant. The fact is that these monuments do exist and it was done. The question of 'how' may be of interest but cannot change their existence and the knowledge that is contained within.

The pictures drawn, and the information contained cannot all be 'swept under the carpet' and denied just because they do not easily conform to 'that which is expected of primitive people'. That is a stupid reaction – no more nor less. The scenarios described here for these two great monuments WILL emerge into the public domain – later if not sooner. Eventually this will all be common knowledge and, hopefully, lead to some form of debate that will move forward in large steps, our understanding of where our civilization came from, and to where it is headed.

The Nebra Sky Disc

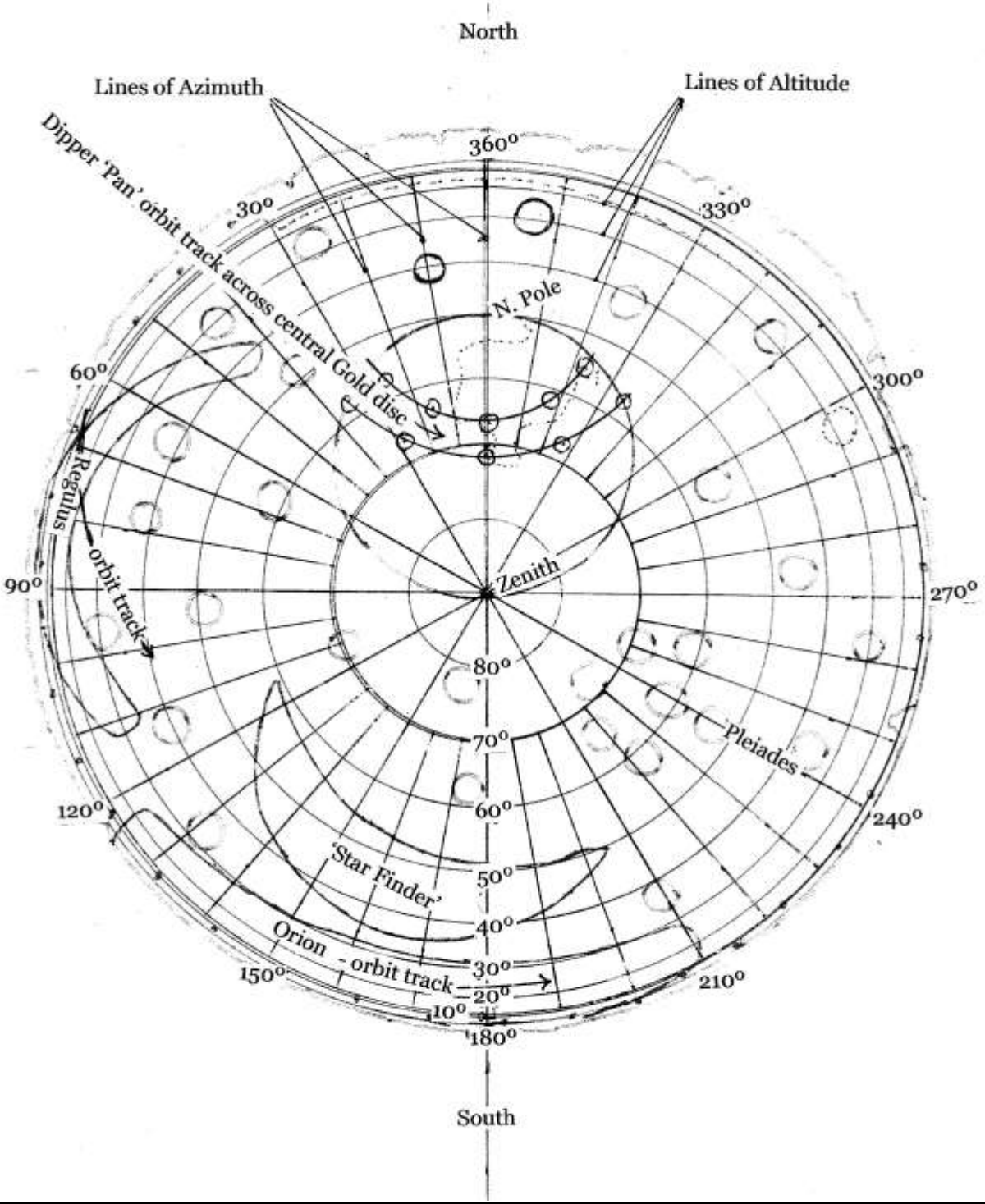
A unique artefact recently discovered in Central Germany and currently ascribed to the European Middle Bronze Age. Almost certainly with origin and purpose based in early astronomy. As yet with no clear purpose or function. Here I offer a new interpretation.

My proposition is that the disc, constructed using comparatively straightforward but accurate astronomical information obtained and applied by an astute observer, was designed to be a portable 'star-finder' for one specific star. The star was Regulus in constellation of Leo. The disc is simple in principle, very easy to use, works over a range of latitude centred around 51 degrees north, (Central Europe through to the U.K.), and, although made and used c. 2000 B.C., is still functional in modern times. The disc does not appear to have any purpose connected with sun / moon cycles or positions. The importance of the star, Regulus, is explained at great length in my manuscript concerning Stonehenge and also the Giza Pyramid.

Script created by David Dann

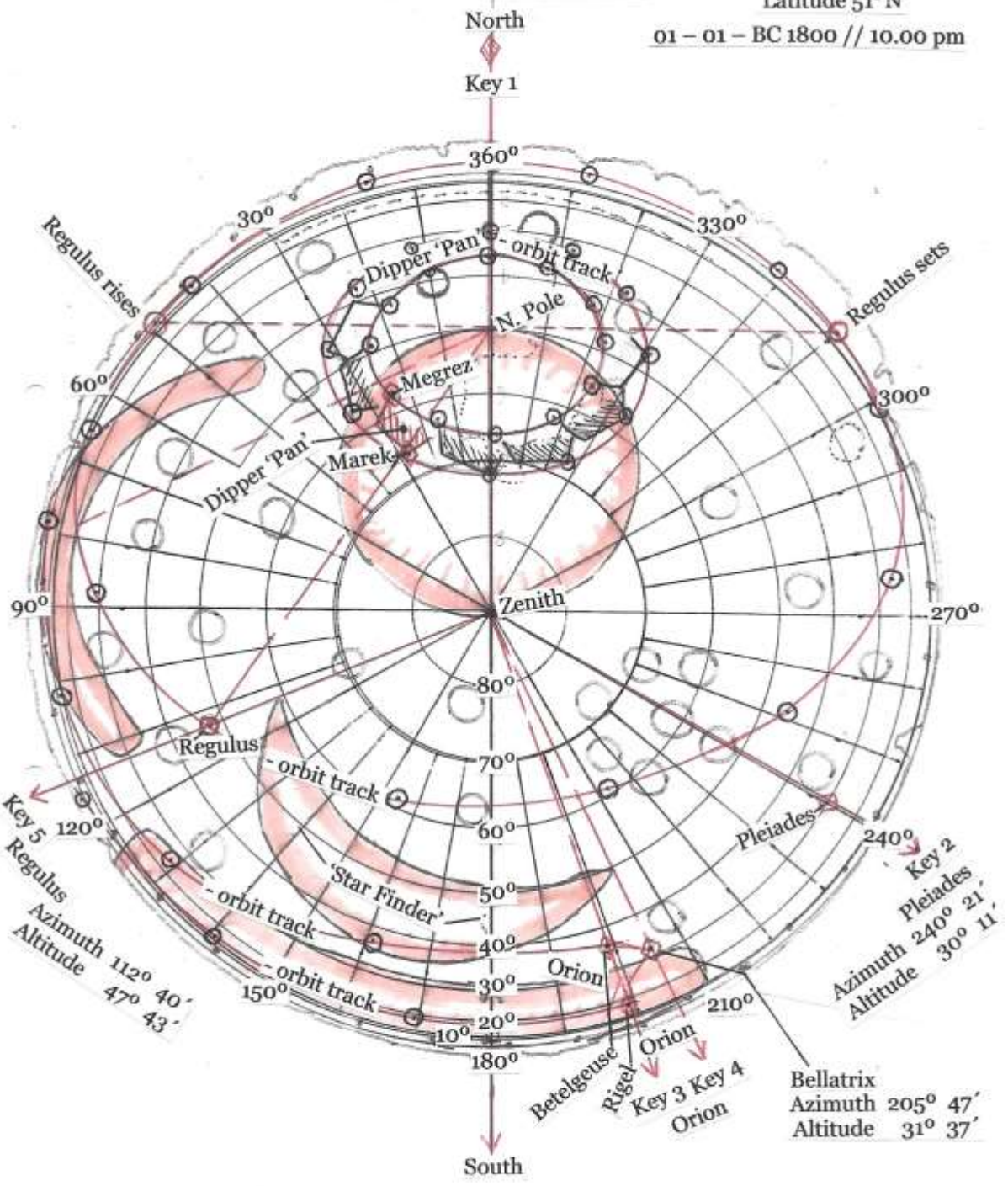
The Nebra Sky Disc

Nebra Disc overlaid with grids for azimuth and altitude. Illustration 1



The Disc, using some of the most well-known and easily learnt constellations as a 'locator' for Regulus.

Illustration 2.
Latitude 51° N
01 – 01 – BC 1800 // 10.00 pm



(Betel.) Azimuth 198° 48′ Altitude 36° 27′ (Rigel) Azimuth 199° 46′ Altitude 17° 52′

NEBRA – A 'Star finder' to locate a specific star.

Points arising from the plans.

1). The grids of azimuth and altitude are applied to the disc. Consequently, immediately Zenith point and N – S axis are defined. By applying the grids and adjusting star data to the epoch and location in which the disc is believed to have been originally created / used, the original cosmic sky can be applied to the features of the disc. Then we can see the sky more or less as the disc's designer saw it and applied it. I have not seen any other research that attempts to re-create a true sky situation on the disc in this way. All other approaches at interpretation appear to assume that a 'moon' shaped lunula equals moon, and a sun-shaped disc equals sun.

Unfortunately it is not possible to create a true cosmic sky in which moon and sun ever appeared and were related to each other and their positions were remotely as shown on the disc. Therefore a different and more imaginative way of interpretation is required whereby a true cosmic picture can be shown. The interpretation that I offer here is relatively simple to apply and understand, does not require any particular astronomical knowledge beyond what could have been achieved during the several millennia from late Neolithic to middle Bronze Age when it appears that there was intensive astronomical observation happening across Europe and the Near Middle East, and, above all, is astronomically correct and provides a clear purpose for the construction of the disc.

2). Grids are aligned (a) on N – S axis
. (b) azimuth 240° is through the centre of the 'seven-group' that is assumed to represent the Pleiades.

3). Time and date are therefore set such that the Pleiades azimuth axis is as shown. Therefore Date / Time is 01-01-BC1800 // 10h 00m. pm. (22-00 hrs).

4). Correspondingly, Regulus axis is azimuth 112°. This axis just touches the tip of the lunula labelled 'Star Finder' on its east end, and the tip of the left hand perimeter sickle (labelled as ' Regulus') at its lower, south-east end.

5). The objective is to locate Regulus (which is often rather obscure) at a time of night and time of year when it is easiest and most certain, i.e. in a winter sky. The Nebra device is a 'finder' for this purpose. It uses the positions of several of the most visible and easily recognised and located star features in the winter sky, i.e. Pleiades, Orion and the Dipper (or Plough, or Great Bear – Ursa Major).

6). On the disc the group of seven dots is assumed to represent the Pleiades. Most authorities seem to agree on this point. This then sets the azimuth through the centre of the group for the stated date and time. The actual azimuth value is;- c. 240°

Date;- 01 – 01 – BC1800. Time 10h 00m pm. (22.00h).

7). The bottom 'sickle' shape, labelled 'Orion orbit track', corresponds to the orbit track of Orion (the 'body' of the 'Hunter'). The west tip (right-hand) contains the azimuth for the western star, Bellatrix, of the body of the hunter Orion at azimuth c. 205/6°, and at my stated date and time. The sickle shape and position broadly encompass the orbit of the body, sufficiently to fix it in the sky by eye bearing in mind that it would be close to the horizon and possibly somewhat indistinct.

8). The left-hand and mid-perimeter 'sickle' labelled 'Regulus', encompasses, at its mid-point, the start of the orbit track of Regulus, as it would be becoming visible at an altitude above the horizon of c. 20° and azimuth c.76°. The full vertical width of this 'sickle' closely approximates to the width of the band across the central area of the disc that contains the orbit track for Regulus. If the sickle were longer to completely encompass the Regulus orbit, then its lower end would be further south and would miss the bottom of the azimuth for Regulus at the stated time. Because of the way in which sickle and Regulus orbit fit together, I feel that the sickle actually was intended to say 'Regulus'.

9). To use the disc is very simple. Lay on the ground flat on your back with the disc held straight above your eyes such that the disc centre is the Zenith. The vertical N – S axis of the disc should match horizon north – N pole – south horizon ('key 1'). Look for the time of night when the Pleiades is in direction 'Key 2' at c. azimuth 240°. Orion (the body of the hunter) will be low in the sky, above, or just past, the up-pointing toe of the right foot at 'Key 3' and 'Key 4'. Regulus will now be at 'Key 5' c. azimuth 112°. The position of Regulus is confirmed by a line projected straight from the N pole and through the leading edge of the 'Pan' of the 'Dipper' or 'Plough' (Ursa Major) You have found the target star – Regulus – using probably the three most easily recognised and remembered constellations in the northern night sky. (All at the stated date and time.). And once learnt always remembered.

In Greater Detail.

10). This device is a 'pocket finder' for a particular star. It was never designed to be precisely accurate It was sufficient to lead in one's eye. The eye and mind of the observer could do the rest, and once or twice would be sufficient for most people to learn the position of Regulus and remember how to find it at other times without the disc. We can, and do exactly the same in this day and age to find many cosmic features throughout the year. The pin-pointing of azimuth is sufficient Not defining altitude on these 'Key' alignments allows the disc to work over a range of locations in latitude and longitude across Britain and Central Europe, and over a range of time for several centuries.

11). The design is concerned with such detail as where and when, in azimuth, the particular cosmic features become visible.; i.e. Regulus at altitude c. 20°. Orion is given a broad marker across a range of azimuth because it is a main

feature of the sky but, again, not a precise spot location. The Pleiades are shown big and central because they are the 'key' to understanding and, again, could not be compressed into a tiny place close to the edge of the disc as their true altitude, c 30° might at first imply for correctness.
The information about the Pleiades, as shown, is sufficient to 'fix' the target sky for time of night and pinpoint the 'target' star as Regulus.

12). Once again it is not necessary to precisely fix the altitude of Regulus – the human eye can find it if the azimuth is shown. At the same time its priority is confirmed by its 'framing' midway between the tip of the 'Star Finder' lunula and the tip of the Regulus 'sickle'.

13). It is exciting to note how 'clever' is the shape of the disc in so far as the 'bulge' from its circular shape at the top, above the north horizon, corresponds with the part of the Regulus orbit that goes 'minus' as Regulus goes below the horizon for the northern part of its orbit circuit. This is a very 'clever' detail and others might have dismissed this lack of circularity purely as poor workmanship. The symmetry of this slight bulging about the polar axis is the clue.

14). The north pole is set at altitude c. 51° which corresponds to a latitude of 51° N. This may be slightly arbitrary as the location at which the disc was manufactured and therefore the intention cannot be certain, although it was found at latitude 51° N. Any chosen latitude has to be an intelligent guess. Latitude 51°N and onwards through to the mid 50's covers a lot of the U.K. and Central Europe. Because there are no altitudes indicated within the design of the disc it actually does not matter so much and the result from the disc of locating Regulus is not affected by a latitude range. It is a fact that latitude 51° N works well and would also be correct for southern U.K. which was such a central part of the development and application of this particular astronomy from the third millennium B.C. onwards. Also there is now a strong hint, from the discovery of certain mineral impurities in the gold used on the disc, that the origin of that gold is likely to have been Cornwall.

15). Latitude 51° N (and altitude of 51° on the disc) fixes the central gold feature on the complete disc very closely to encompass the interval between north pole and zenith. Therefore the central gold disc is involved in some astronomy that links in to this area of the sky that is contained within the circumpolar part of the Cosmic sky. It is hoped that there can be found more features on the disc to help an observer locate Regulus. Such features can be related to position or time, or a combination of both in the same way that the indicated position of the Pleiades gives both details.

Along with the Pleiades and Orion one other feature of the night sky that is very easily found and is always present because it is circumpolar, is the 'Dipper' or 'Plough' in constellation Ursa Major. The Dipper is very widely recognised and used almost universally, (and probably always has been) as an aid to locate Celestial North, the north pole, and the closest star to that point since humans first began to take notice of the stars above.

The orbit of the Dipper encircles the north pole once each day and night, whilst its most prominent feature is the 'Pan' or bowl of the dipper part. This is formed by the four stars Dubhe, Merak, Phaeda and Megrez. Superimposing the orbit of the Pan onto the disc, a section between azimuths 35° (E) and 325° (W) of the polar axis is across the central gold disc feature and therefore emphasised and so significant to the disc purpose. Closer examination shows that this prominent sector of the Pan orbit coincides with the section of the orbit of Regulus between visible rising and setting (c. 20° above the horizon) when Regulus is in the sky. (The alignment to Regulus rising also strikes the Regulus 'Orbit Sickle' feature at mid-way.) Once again a prominent and well-known feature of the night sky leads the eye to a significant detail of Regulus.

The position of the Dipper Pan can then be used to confirm the location of Regulus when the Pleiades are in their correct position at azimuth circa 240°. At this time Regulus is on an alignment from the north pole, through the star Merak of the Dipper Pan. And Regulus, as earlier stated, is in position between the tip of the 'Star Finder' lunula and the lower tip of the 'Regulus Sickle'

16). Constellation Orion obviously encompasses a reasonably large sized local area rather than a single point. It is also a well-known and easily found feature of the night sky. We can just consider the central feature of this constellation – the 'body' of the 'Hunter' - as a small, tight group of stars, with the belt of three stars at its centre. At the time of night when the other features already described are seen in their correct positions, it has travelled across the bottom of the disc and is broadly in position on an alignment to the tip of the 'Star finder' lunula at the opposite (W) end to Regulus, c. azimuth 205°. The 'body of the hunter' is now just contained within the right-hand or west end of the 'Orion Sickle'. The Orion Sickle started at azimuth 125°. As with the other features described, this is at about the point where the central body of Orion rose into view above the south-east horizon.

Therefore the Orion Sickle has shown the passage of this feature across the sky as far as the important focal moment when the Pleiades, the North-Pole - Dipper Pan – Regulus alignment, and star Regulus were all correct. After this moment the Orion Sickle ends because its purpose has been completed.

17). A further interesting detail of the disc is that there is an isosceles triangle formed from the central zenith point, radially outwards along the two azimuth alignments of 50° (E) and its matching opposite 310° (W). These two points mark, fairly closely, the rising and setting points of the orbit track of Regulus at the era of the disc and for several centuries each side. The third side of the isosceles triangle connecting these two points passes very close to the north pole at this latitude of 51° N. The triangle is a neat construct that can only work around this latitude and for Regulus at this epoch.

It begs the question – 'Who knew this, spotted its potential, and partly built the design of the disc around it?' Or perhaps it was just an accident!

18). As earlier stated, the disc is primarily a 'Star Finder' for Regulus – not needed to be precisely accurate, just reasonably, but with some very accurate and detailed knowledge.

Its date – its life – correspond to the time after Sarsen Stonehenge 3 (late 3rd millennium B.C.) through to mid 2nd millennium B.C. when the very important period at the 'Beginning of Knowledge' and human civilization was getting under way. across Asia and Europe. Clearly throughout this time the star Regulus had been identified and was very important. The Nebra disc and its implicit knowledge fits in very well with the greater astronomical knowledge of this distant time in our past that is now being re-discovered in our modern time.

The Nebra disc has also given us a window into the knowledge and mind-set of earlier astronomers – into archaeoastronomy, without the need for re-constructing half wrecked stone circles, avenues, or alignments to distant mountains. According to this interpretation that I have here described, it also has the potential to open a new chapter for research into archaeoastronomy that can focus on an ancient interest in stellar targets rather than our assumption that only lunar and solar matters were of interest. It has potentially identified a star – Regulus, and also constellations as a focus of interest. It also confirms that there was a successful ancient interest and knowledge of astronomy. Even this point is still contentious between archaeoastronomers and many archaeologists. Can it settle this argument once and for all?

Source for star data: - 'Starry Night deluxe, v.. 2.1
(Sienna software, Canada)

Submission by; - David Dann,

Certified: - all my own work.

SUPPLEMENT D

Sword (Dagger) in the (Heel)stone. (Done 2007 – 'Tidied' 2-2020)

Stonehenge in the early morning light of a misty morning in late summer. The lone Heelstone stands eternal guard and pointer at the entrance separating the ancient stones from the hurly-burly of the modern road. Hardly noticed by most visitors as they focus on the main monument, it tells a story that will throw much light on this most ancient of

I have been looking at the knife for several years now, trying to make my mind up whether or not it really is manmade, that I'm not just looking at a natural feature of the rock and imagining the blade into existence. I have so many photographs now, in close or from afar; copies of pictures from books (there is plenty of choice on the Stonehenge theme). Always the knife is there for eyes that would see beyond the present day, into a world of 4🗁 millennia ago when these stones were, for generation after generation, the centre of the lives of the builders of Stonehenge.

I feel that ancient eyes would have seen shapes and features that we would not look for. A feature on a big stone would have acquired symbolic or spiritual value over generations even as, in our time, our modern mind can set great store by features carved into stone to form statues or symbolic crosses and religious symbols.

To our eyes this may be a very 'crude' representation, but to those who made it and generations to follow it was probably very prominent and had great meaning. We must ask; What is it, and why is it there?

I believe it is unique within the British Megalith tradition, but yet it becomes very prominent once the eyes have focussed upon it. To my knowledge nobody in recorded history has pointed it out. Why this is so is a mystery in itself. What do people look at and see when they visit and discuss Stonehenge? Nobody seems to see with eyes that the ancient builders used 4,500 years ago.

The Heelstone stands solitary, seventy metres from the outer Sarsen circle, guarding or welcoming at the ancient entrance to Stonehenge at its junction with the Avenue. Seemingly insignificant against the backdrop of the

Fig.2 Stonehenge – The Classic View. The Heelstone stands remote and insignificant against the NE horizon. How many people bother to give it a close look?

ruined circles, it is actually impressively big. With 4.5 metres (15 feet) high above ground by 2.3 metres (5½ feet) wide and 1.25 metres (4 feet) below ground, it weighs in excess of 45 tons and is one of the heavier stones in the monument.

Sarsen is famously hard and resistant to natural weathering (witness the tenon 'bump' on top of the Great Trilithon, stone 56, still large and prominent after more than 4,000 years).

The Heelstone stands with a marked tilt of 30° out of vertical, 'bowing' towards the circles. Opinions vary as to whether this was intended by the builders. My own opinion is that this is how it was erected: it was built to tilt. I feel that tilting due to natural processes would have continued until the stone fell and destroyed an area of solid chalk in the vicinity, thus destroying the accuracy of its position, which has always been very important. Moreover, recorded history has never noted any sign of movement here.

Fig. 3 The Heelstone – Built to Tilt?

Fig. 3 The Heelstone – Built to Tilt?

There has been a certain amount of archaeological activity in the Heelstone vicinity, in modern times. Professor Richard Atkinson excavated against the stone itself in 1953, but few artefacts were found and their context was uncertain. He was able to establish the depth below ground level of about

1.2 metres. He concluded that the Heelstone was erected pre – or during the Beaker Phase 3 of construction of Stonehenge, contemporary with the main Sarsen construction.

The other feature here was a ditch centred on the Heelstone position and excavated by Pitt in 1979, about 10 metres in diameter and some 1.2 metres deep by 1.1 metres wide. This was quite a significant feature, presumably to mark,
delineate and protect
the Heelstone position. In modern times it had filled and was almost completely obscured but excavation supplied a scatter of Sarsen and Bluestone chips which helped to confirm the dating for the erection of the Heelstone at about 2,500 B.C.

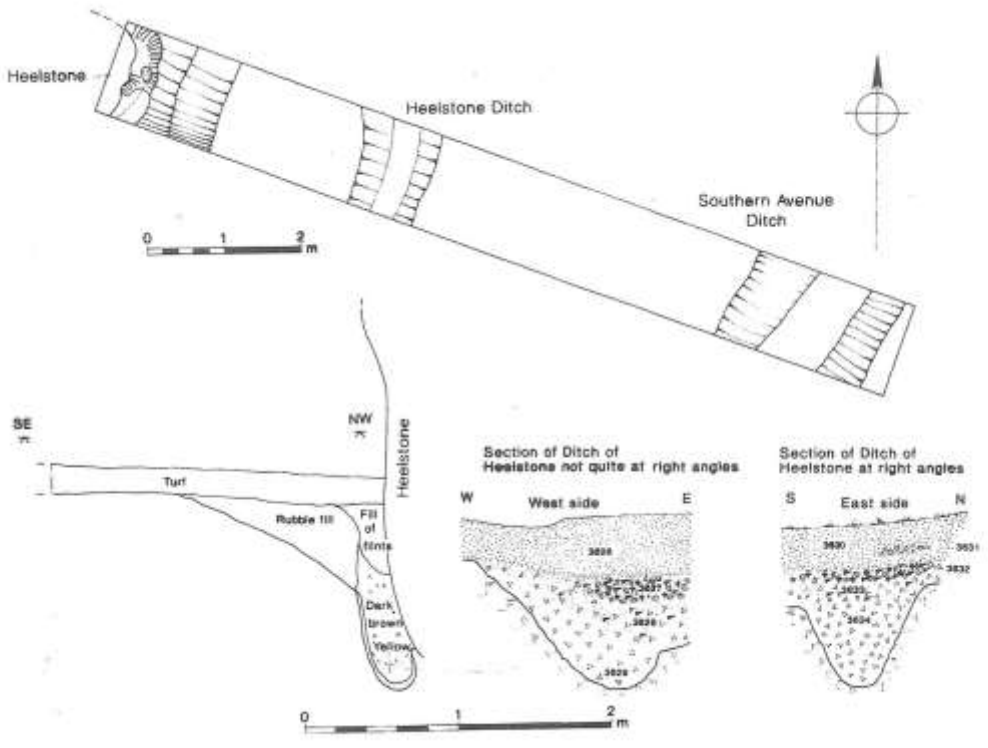


Fig. 4 The Heelstone – Twentieth Century Excavations.

The discovery by Pitt, during the same excavations, of a matching stone hole to the Heelstone and to the northwest, pointed to the fact that there was once a pair here. But this hole appeared to have been deliberately filled in antiquity. As it also clashed with the ditch position it can be assumed that it was a change of plan by the builders and was redundant very early on.

Most guidebooks describe the Heelstone as a large, undressed Sarsen. For most writers that is the end of the matter and they move on to the more interesting main monument. But there is much of interest, much information to be extracted from it.

Personally I have been observing and photographing Stonehenge for more years than I care to think of, back to a time when visitor facilities were a lay-by to park in and tickets were purchased from a man in a wooden hut. There is a constantly changing interplay of light and shadow on the stones, from the time of day, brightness of weather and season, or observer's viewing position. This effect has always existed from the time when the builders toiled so hard to erect the stones. Certainly they would have been well aware of how different forms could be seen on the stones in different light, it might almost have been magical to them. At the same time different

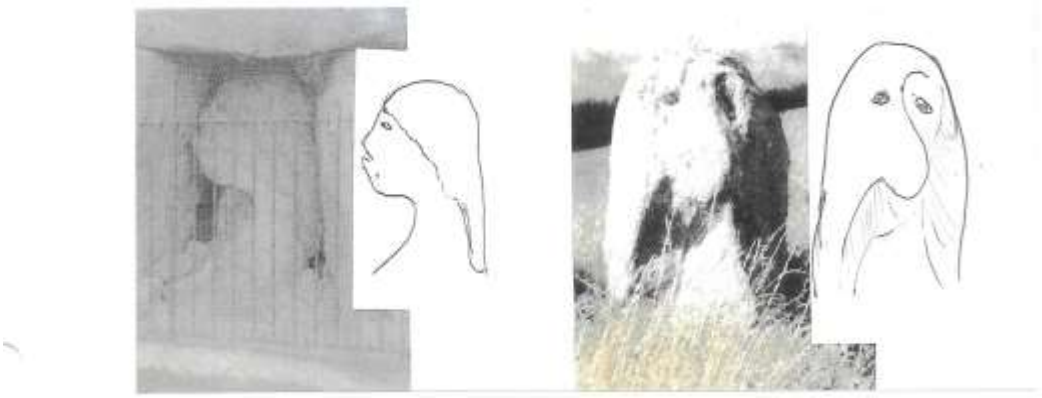


Fig. 5 Megaliths As An Art Form.

Kit's Coty, Kent. The Avenue, Avebury.

family groups may well have worked on their 'own' stones, which would have taken on association and 'life' to them. But yet time and the hardness of the Sarsen would have limited any opportunity to modify natural features, to create shapes or forms more recognisable to our modern eyes. Any attempt to 'engrave' a natural feature on a Sarsen would have to be compromised to using a feature which could be incorporated into the overall design of the monument in such a way that the 'improved' feature could be seen by eyes that 'knew', in a position relevant to its significance.

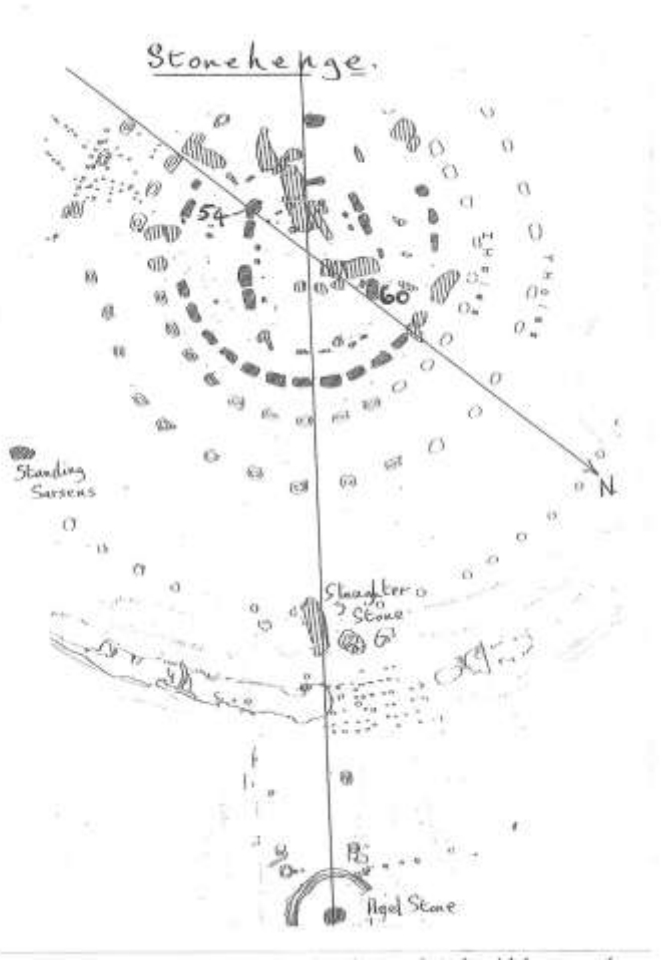


Fig.6 Plan of Stonehenge showing the N – S Axis which grazes the edge of Trilithon upright 60 towards N and uses the ridge on the

An example of economic use of natural features can be seen in the marking of the North-South polar axis through the monument. The plan of the Great Sarsen Trilithon Horseshoe

ıe the North-South

axis, passing through the circle centre, just grazes the outer edge of the last and most northerly Trilithon upright, Stone 60, towards North. It passes through the circle geometric centre and points South through Stone 54 of the Trilithon to the South side of the Great Central Trilithon. On the reverse or outer face of Stone 54 is a tall 'natural' vertical ridge in the Sarsen that is precisely the South point of the North-South Axis. Accident or design? I would suggest clever use of a natural feature.

The Heelstone also stands on a North-South axis as well as the main mid-summer solstice sunrise axis. Viewing it from due South there are several features which, taken together, give the impression of a 'face'. Two level and prominent pits, one each side, are the 'eyes'; the deep slit about halfway up is a very severe and serious mouth; below is a prominent lower lip and chin. Above the slit is a very pointed nose. Surely the builders noticed this face. Surely they discussed it. Possibly they endowed it

Fig. 7 The Heelstone. A face? - Whose face?

with god like properties. Is it coincidence that this face points towards South? Whose face are we looking at? Whose face were they looking at?

Above the pointed nose there appears the clear outline of a broad kite shape (or rhombus). The pointed tip is just above the nose; two long sides diverge symmetrically as they rise between the 'eyes' towards the 'forehead'. At a point level with the narrowing of the stone the kite is completed by two very clear straight edges which converge some 1.5 metres above the tip, just above a single, very deep and

Fig 8(a) The knife drawn out

Fig 8(b) A closer look

prominent narrow and circular hole. (Figures 8(a) and (b).) To a prehistorian this shape is clearly comparable to an early Bronze Age 'dagger' or knife blade. Closer study at the top of the apex reveals the impression of a handle or hilt continuing upwards towards the top of the Heelstone.

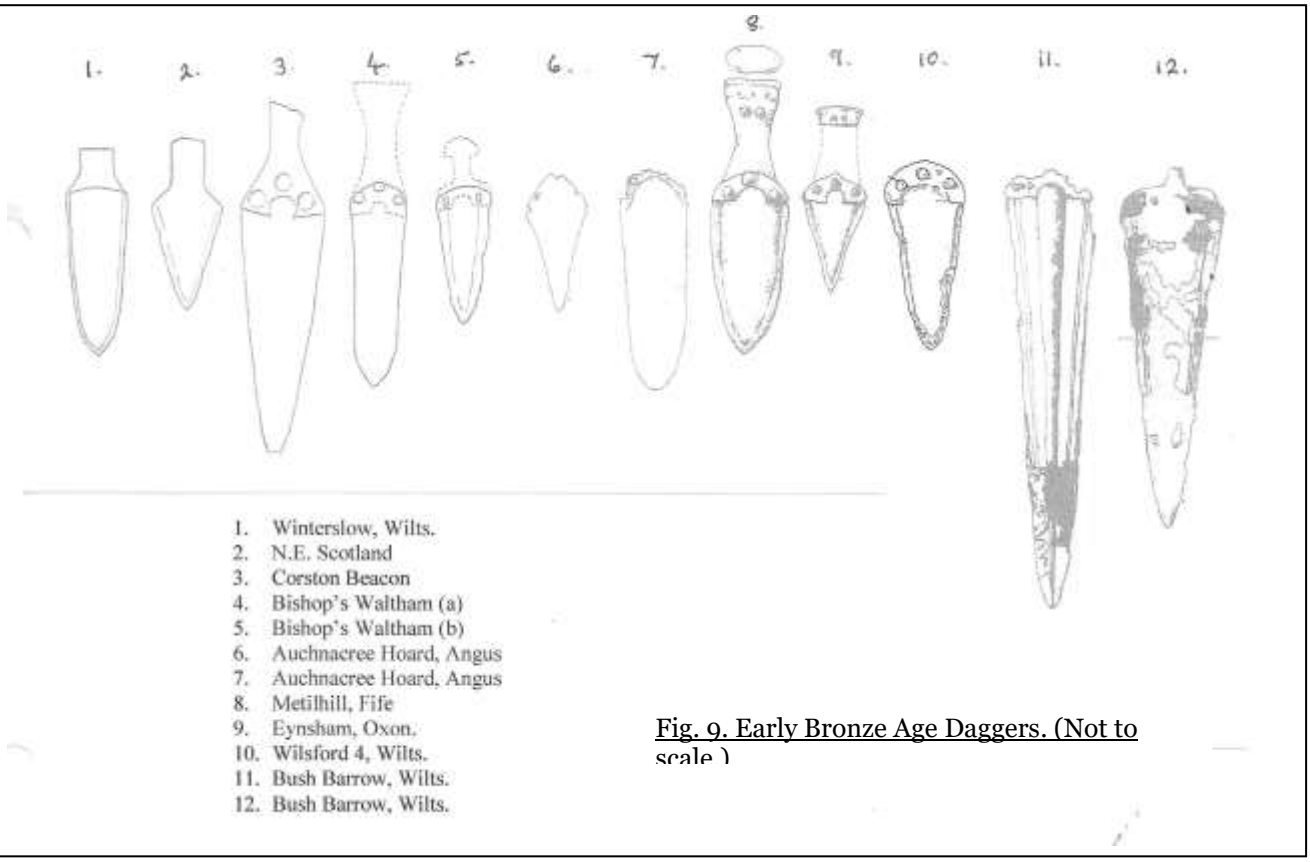


Fig. 9. Early Bronze Age Daggers. (Not to scale.)

There is a large corpus of Bronze Age knives known for the British Isles. Their arrival in Britain appears to be synonymous with the arrival of the Beaker people in mid 3rd millennium B.C. recognised by their characteristically shaped and decorated, bell-shaped beakers, some of considerable size. These people also brought with them the tradition of burying their dead within round barrows. Many of the copper and bronze artefacts which now make up our collections of these knives have

actually been obtained from excavation of these barrows, during the last 2 or 3 centuries. The Beaker folk are generally credited with the introduction of metal usage to Britain.

Although they are referred to as Early Bronze Age, this was an era of transition from Late Stone Age (Late Neolithic), stone and bone implements were still in wide use for everyday purposes and make up a fair proportion of artefacts recovered from excavation. Metal implements must have conferred great status upon the owners, possibly the larger or more impressive a particular item, the greater the status of its owner.

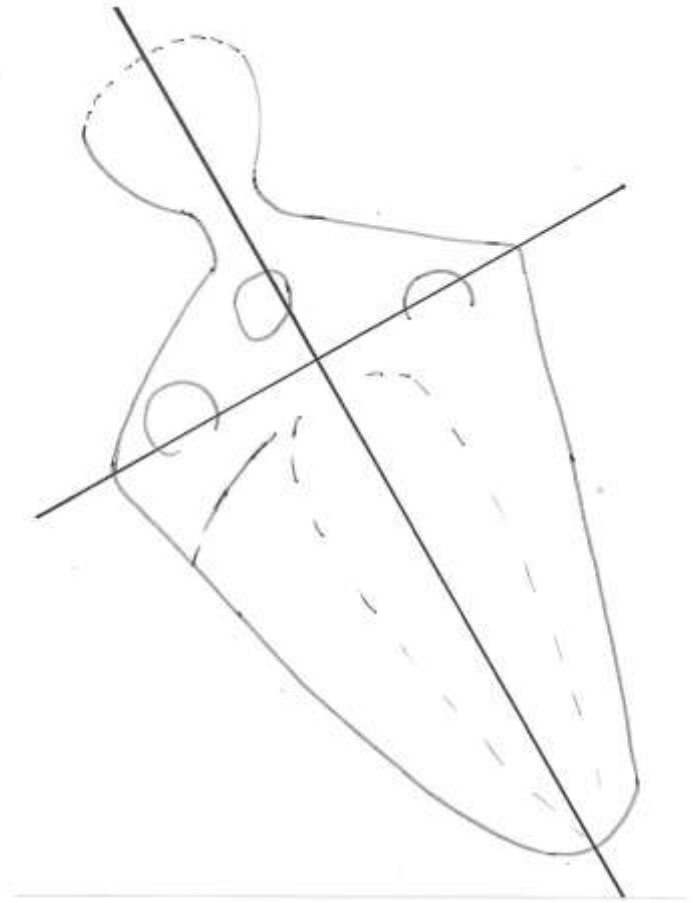


Fig. 10. The Great Heelstone Knife (Sword?) revealed

There are sufficient different shapes and styles of Bronze Age knives and daggers now catalogued, that individual new discoveries can reasonably safely be allocated into a place in the overall sequence of manufacture.

There is sufficient clarity about the shape of the

Heelstone knife to see the structure of hilt-plates across the top with one central rivet and one to the left-hand. The hilt to the right-hand has a slight confusion of markings, but it seems safe to infer a three-rivet attachment.

Above the hilt the handle can be seen with a substantial pommel nearly to the top of the Heelstone. The detail is less clear and the handle appears quite slender. It may be an area where the Heelstone was relatively natural and the sculptor compromised natural features into the design.

The blade itself is closest to Early Bronze Age in shape with slightly convex cutting edges and no sharp 'stabbing' point at the tip. There is little scope to show blade ornament in Sarsen.

The broadness of the blade is almost unique with a ratio of length to width of 1.5:1. There are few comparable ratios in the British Early Bronze Age. A tanged blade (illustrated) with straight edges, from Northeast Scotland, has a ratio of 1.57:1, whilst a three-riveted blade from Oxfordshire has a ration of 1.9:1. Several possibilities are raised. The broadness may be because the sculptor took advantage of a natural feature on the Heelstone. It may be that the sculptor was not concerned with true proportion but was keen to produce a spectacularly eye-catching effect on a special stone ('poetic licence'). Or it may be a completely correct depiction of a real knife of which we, now, know nothing. However the triangular, convex-edged blade form and three-riveted hilt are classic features of an Early Bronze Age hilted knife, probably of flat form (no central rib). This is quite correct for the date and period which archaeology has told us was the time of erection of the Stonehenge Sarsens and Bluestones. A date soon after 2500 B.

Compare this blade form with the two Bush Barrow blades that were much slimmer and longer and with multi-riveted hilts. This shows how knife technology

had developed by the period of Bush Barrow at the later date of transition from Early Bronze Age to Middle Bronze Age. Knives had generally become longer, slimmer and designed to stab. As a generalisation it is true to say that flatter and broader with fewer rivets equals earlier.

One of the most extraordinary features of this Heelstone knife is the form of the hilt and pommel that sets the whole thing apart from any other Early Bronze Age knife yet known. The shape is unique, with an elegance of form and proportion relative to the lower hilt and blade unknown in any contemporary knife. The complete knife, taken as a whole with hilt, handle and blade, forms a well-balanced and visually satisfying design of simple flowing curves, giving a result of great beauty.

It is possible to estimate the total length of a knife of these proportions. That part of the complete knife for which the handle and pommel account is about 20-25%, but of this more is pommel and the handle only accounts for about 10%. If the knife were handled in a conventional manner, then the handle would need to be about 100 mm long. This then gives a total length for the knife of about 1000 mm. This seems way beyond anything possible for the Early Bronze Age, but we can only judge by what we can see.

Alternatively, as a ceremonial implement, it may have been intended to be handled by gripping the whole handle and pommel area, as one piece in the palm of the hand. On this basis the 20-25% of total accounting for about 100 mm gives a total length of 400-500 mm (16 to 20 inches). This seems far more plausible. Even so, it would have been an impressive artefact; an unmistakeable symbol of power, wealth, authority. Possibly with finely detailed ornamentation on hilt and pommel.

If indeed it is reasonable to assume that handle and pommel were not designed for the simple utilitarian purpose for which knives and daggers are usually designed, that is to stab and slash, but were intended to be held with the pommel in the palm of the hand, then this seems to confirm that this is a ceremonial knife designed for status and beauty and to be carried as a mark of authority.

It seems that we may just be glimpsing a facet of the organisation of these people about which we previously had no idea. Ceremonial objects carried by leaders on occasions of state and great ceremony are a fact of life, which have been part of the tradition since civilization first began in Asia 7 or 8 millennia ago, and still continue to the present day. Are we actually looking at a very special artefact, one that was important enough to be represented in such an important place?

The matter of the Heelstone knife will raise many questions. I feel this story is only just begun. We may well, soon, see other unexpected information coming from the Heelstone. We should be wary of discounting and 'rubbishing' ideas because we, personally, cannot immediately feel comfortable with them. Few if any, of us really know anything at all about the time and people of Stonehenge. Otherwise how can this knife have sat here, looking down at us all for 4500 years, and yet have been completely unnoticed?

There is a second knife depicted on the Heelstone. It is less obvious until pointed out, but then becomes perfectly clear. Again it is a rather strange looking artefact in comparison to the known examples. But it bears areas of remarkable similarity to the big Heelstone knife.

The total size as measured on the Heelstone is about 540 mm (1' 9½"). Once again it has a very broad blade form in the region of 1.7:1 (length to width). There is insufficient visible detail to discuss any means of connecting handle to blade – one

could almost postulate that the whole implement was made as one casting, especially if the unusual form of the handle is taken into account.

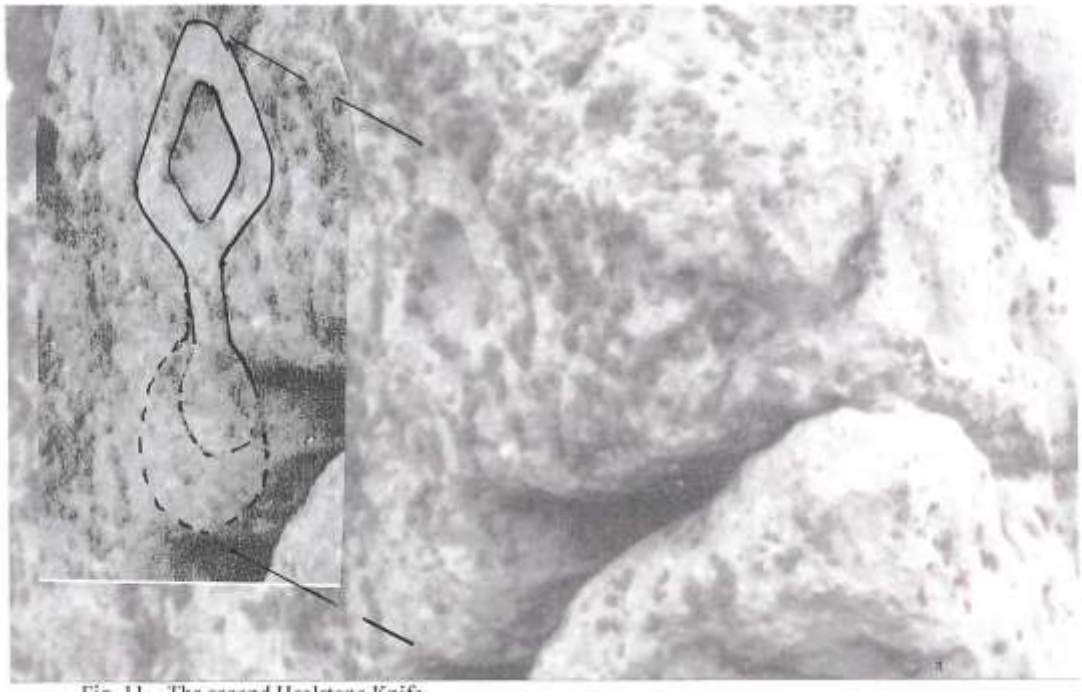


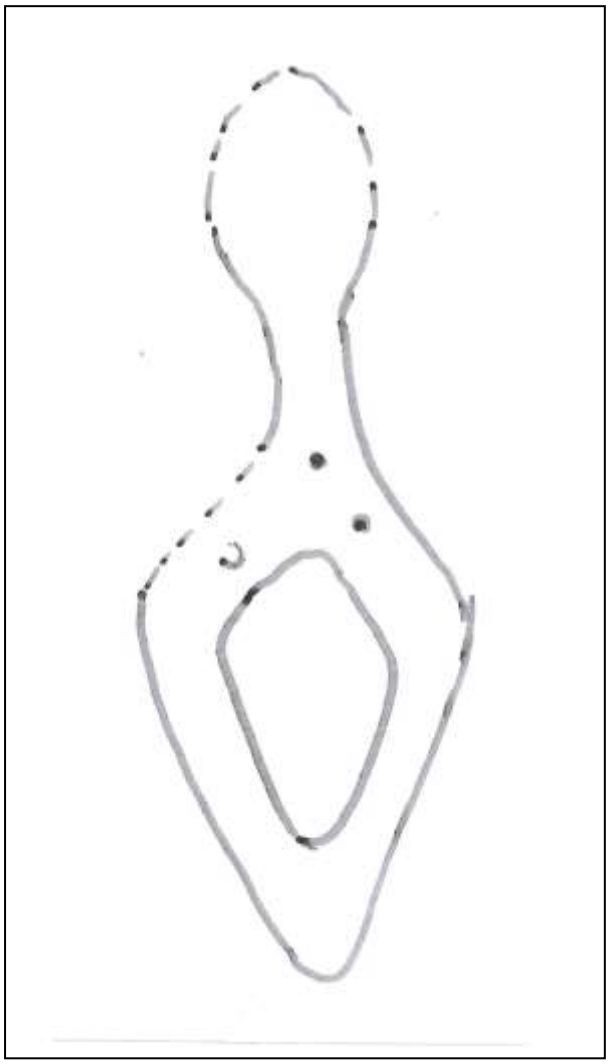
Fig. 11 The second Heelstone Knife.

Again, as with the main knife, there is an unusual form of handle and pommel. In this case the pommel is almost spherical in form and very large in proportion to the blade, in fact accounting for more that 35% of the total length of the artefact, whilst the blade accounts for nearly 50%. The remaining part (15%) is the grip part of the handle. If this is about 100 mm then we would have an implement of length about 660 mm (26") which is quite impressive. Alternatively, as with the main knife, it may be that the pommel was partly within the normal handgrip and then this knife would be somewhat shorter.

One other feature worth noting is the apparent form or ornamentation of the blade as demonstrated by a matching triangle shape within the area of the blade. Whether this represents an ornamental cutout effect or surface decoration is difficult

to say. But it does raise all sorts of intriguing possibilities as to what exactly was copied by the sculptor.

Fig. 12 Detail of The Second, or 'Small', Heelstone Knife



The Sword and the Heelstone

There is yet more information that can be obtained from further consideration of the sword – knife – dagger.

I have, earlier, described the shape and proportion of the blade. The actual representation is of a rather dumpy blade, perhaps not practical, in a real world sense, for the most obvious use to which blades are normally put , for slashing or stabbing another person or creature. But it can be demonstrated that the proportions are based upon, and firmly set by, the shape and proportions of the Heelstone.

The Heelstone, that rough, 'undressed', massive slab of Sarsen that tilts towards the main part of Stonehenge as though in deference to the monument, or what the monument represents. (There is a hierarchy here between monument and 'bowing' Heelstone. Even such a demonstration of rank within the monument itself tells us more about who or what is represented by different features!) The Heelstone does itself have a more regular shape than first impressions might give. It depends upon the direction from where it is viewed.

There is only one obvious viewing point in this context and obviously that has to be the centre of the monument. From here the Heelstone shape is actually quite regular and symmetrical. (if the notches and chips missing from the edges are discounted).

The fitting together of sword shape and Heelstone is very simple and obvious. Fig. 13 (a) shows the sword drawn out separately from the Heelstone. (if my outline is a little rough and bumpy it is because the stone itself also is.) The outline is rotated until the sword tip is upwards, and then scaled to the size of the Heelstone.

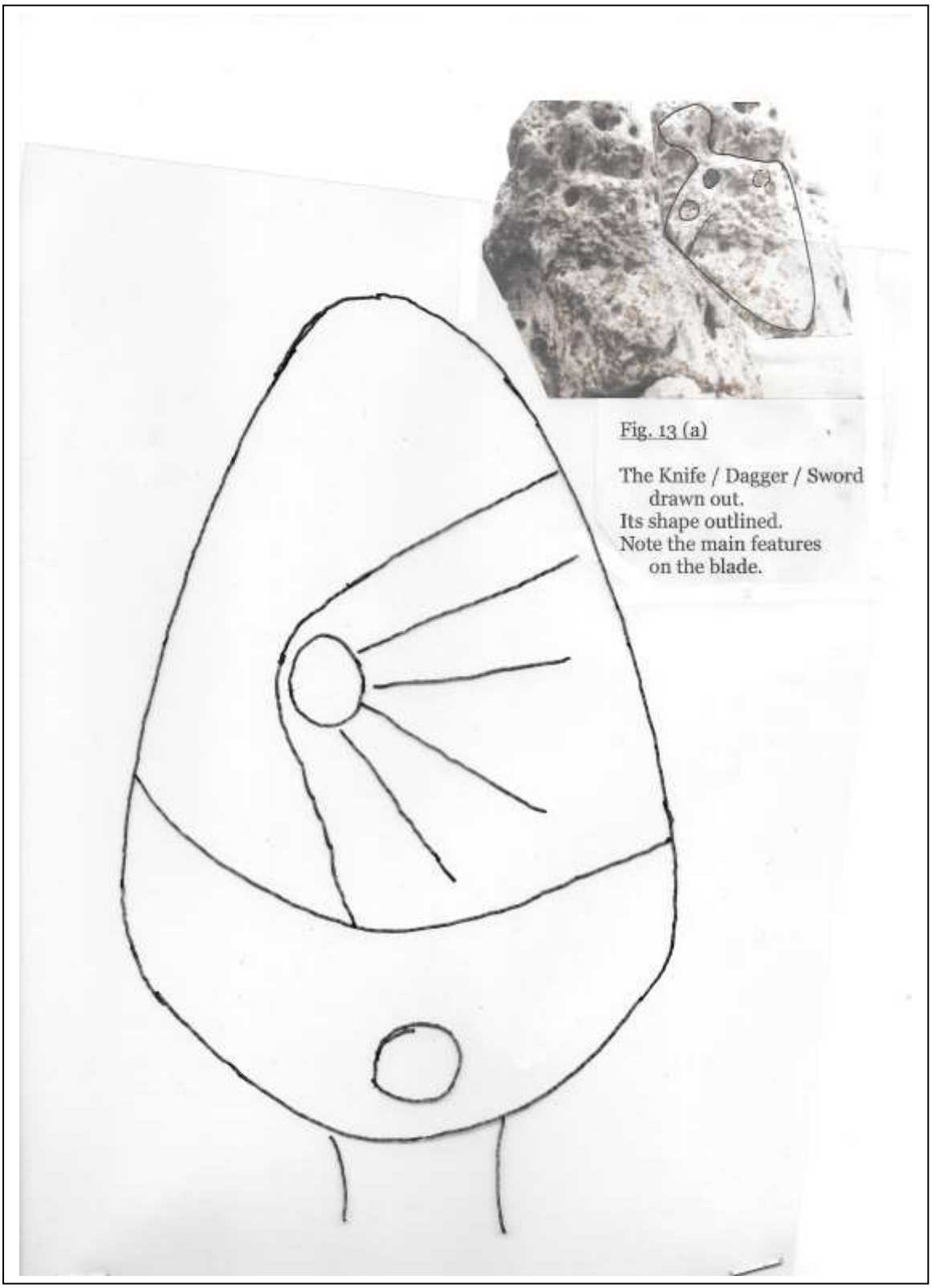


Fig. 13 (a)

The Knife / Dagger / Sword
drawn out.
Its shape outlined.
Note the main features
on the blade.

One of the most obvious and presumably most important features of the sword of which to take note, is the apparent representation, within the centre of the blade, of an apparently 'fiery' object with 'streamers' trailing out behind. An almost universal representation of a hot object such as a sun (or comet – an astronomical feature) travelling through the sky. As we are talking of an ancient era and presumably simple ideas, simple concepts, simple artwork, then it seems reasonable to equate this image with the sun – a sun symbol. The blade, and therefore the sword, begin to have some kind of symbolic connection with the power, light, energy of the source of these things to the Earth and all of life.

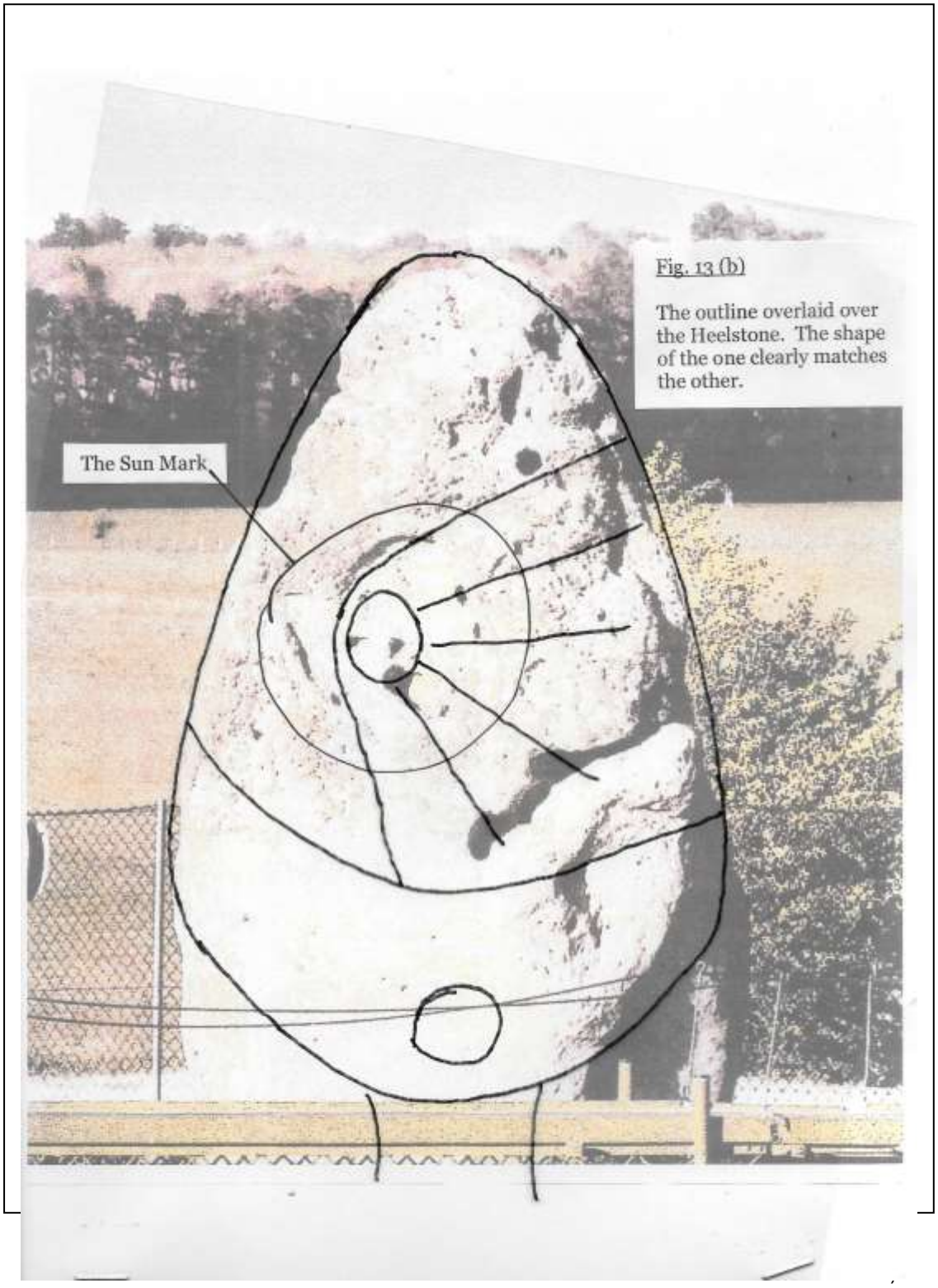


Fig. 13 (b) Shows the overlay of the sword offered on to the Heelstone. It fits extremely well. Unlikely to be coincidence, we can now see the reason for the 'dumpy' proportions of the blade. (easier to make a blade to match the stone than vice-versa.)

What is also spectacular within the overlay is the matching of the probable sun symbol on the blade with the 'Sun Mark' on the Heelstone. (The so called 'Friar's Heelmark' of the modern explanation for this large marking on the Heelstone.) It has seemed to me for a long time that this significant mark on the Heelstone should be related to the sun, and that this is the obvious purpose of this marking, to 'fix' the correct position of the sun here. Fixing the sun position here in this way then makes possible all further understanding of the purpose and function of Stonehenge – as I have described at great length and in great detail throughout my text.

'Friar's Heel' - The modern name and explanation for this significant marking. Hence the name 'Heelstone'. Daft!

'Ffrw yr Haul' (Pronounced almost exactly as the modern name but with Welsh intonation)– Welsh which translates into English as 'The Rising of the Sun', or 'The Crossing of the Sun')– Logical and obvious. Apparently the name has been correct for many centuries. It is just that no recent writer has considered more deeply the possible origin of this name

The sword, and its main decoration, matches and fits to the Heelstone with the sun symbol correctly positioned. By this fact it confirms the astronomical symbolism on the Heelstone and confirms that the Heelstone (which should now correctly be referred to as the 'Sun Stone') is within an astronomical, sun focussed context.

What I do find very impressive is the form and implication of the sword itself. This is a device of the greatest possible symbolism but with little intention of ever being used in an aggressive context. It is a device symbolic of great power – very, very great power. Behind this sword lays something – somebody perhaps – with great intelligence, foresight and wisdom through long periods of time. Some person who foresaw the beginning of the development and growth of civilization into bigger and then bigger and ever bigger numbers into the future. Who put the Heelstone and this representation of this sword there as a mark of the beginning of a process for humanity which would grow and develop more and yet more with the passage of time, into the future, But somebody who foresaw the need for the process to be controlled, sustainable, relatively safe and enduring until a time when this mysterious monument that we call 'Stonehenge' could be read and understood. This is now happening.

We should be very, very pleased and very grateful that such has existed and continues to do so.

I am aware that these final opinions of mine may well cut across the entrenched beliefs of some who read this. I suspect that there are many who may shy away from this because received scientific wisdom of our times is so

adamant that there can be nothing and nobody beyond the actual, temporal experience and belief of these people, many of whom have worked so hard throughout their lives to prove their point of view over that of any contrary views. Consequently there will be many who will dismiss this project and my results because, 'It just is not possible. We are the masters of science and knowledge and we say what is possible.' Well that's their problem. I have written what I have found and, generally, it works.

One other thought: - It seems to me a safe bet that the sword, as shown on the Heelstone, and that must have existed once upon a time a long time ago, still does exist and will again see the light of day. Watch this space! 'Absence of evidence is never evidence of absence'. (a statement that must also apply to intellectual artefact.)

29th June 1860. Annual Meeting of the British Association for the Advancement of Science, Oxford – Library of University Museum.

- A number of 'learned' scientists / gentlemen attacked and dismissed the conclusions of Charles Darwin.
- T.H. Huxkley – defending – 'A general audience in which sentiment would unduly interfere with intellect was not the public before which such a discussion should be carried out.'

[SENTIMENT would unduly interfere with INTELLECT? Now there's a thought! Hands up those who think that they could explain this, as a general statement, to an assembled audience.]

30th June - Bishop of Oxford, William Wilberforce: - (to Huxley) –

- 'Was it through his grandfather or his grandmother that he claimed his descent from a monkey?'
- Huxley replying to the Bishop: - 'If he had to choose between a miserable ape for a grandfather and a man highly endowed by nature and possessed of great means and influence and yet who employs these faculties for the mere purpose of introducing ridicule into a grave scientific discussion – I unhesitatingly affirm my preference for the ape.' [Plus ça change?]