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Errors and omissions:

See *SHALE* 18, p.13 for important corrections.

N14°W left column p.46 should be W14°N (284°), corrected in Fourth Printing.

Later references:

*SHALE* 17 was a special issue on petroglyphs. See the *SHALE* Index.

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Author:

Nick Doe, 1787 El Verano Drive, Gabriola, BC, Canada V0R 1X6

Phone: 250-247-7858, FAX: 250-247-7859

E-mail: [nickdoe@island.net](mailto:nickdoe@island.net)

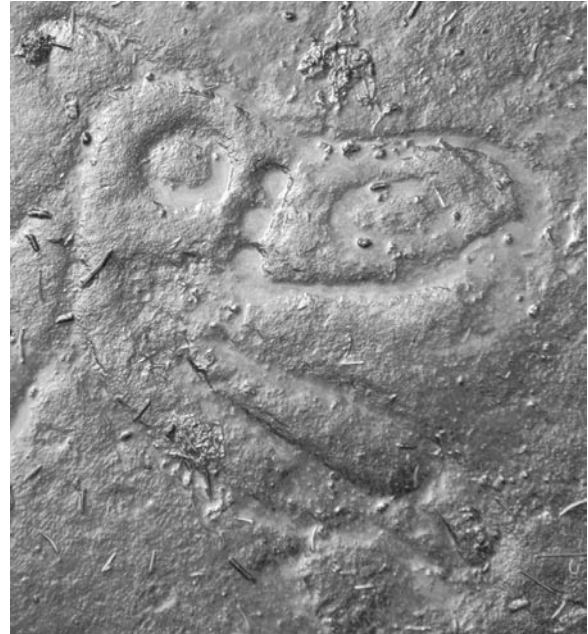


## Paleoastronomy at petroglyph site DgRw230

by Nick Doe

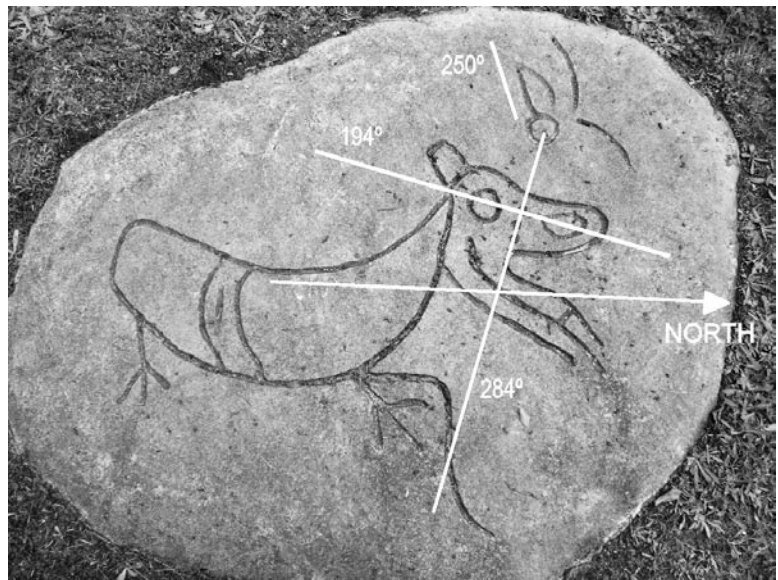
Archaeological site DgRw 230 is an “outlier” of the well-known Boulton site on Gabriola (DgRw 193). The site has been known to a few people for many years and replicas of glyphs of the site have been made by the museum. There are actually three glyphs there, though one is small and lies very close to the head of the main one, and the third is so faint, it is impossible to find without directions. The site is unusual geologically in that the sandstone is fragmented and there are no visible, well-defined, parallel fractures as there are at other sites in the area. This probably accounts for the simplicity, or perhaps deceptive simplicity, of the geometry of the glyphs.

The largest glyph faces north and is intended to be viewed looking directly west—this orientation is unequivocally precise.



Note the line of three small pits right of the eye.

The third glyph lies 1.98 metres exactly east of it, as measured from the eye of the creature. It appears to be a headless anthropomorph with a kind of apron around the top of its legs. Possibly, the lack of both a head and visible genitals is symbolic of the lack of geometry at the site as a result of a



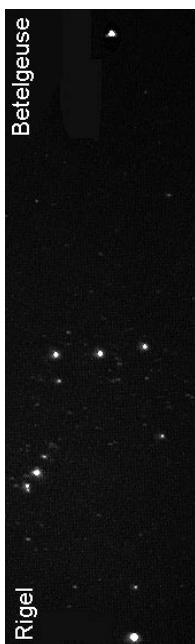


The leaf-shaped body of the smaller glyph is about 0.5 m. In the photo *right* it is partially covered by a remnant of moss cover left by wheeled traffic oblivious of its presence. The 36-inch scale at the top of the picture beneath the main glyph is set north-south. The axis of the glyph is exactly the same as the “ear” in the second glyph, 250°.

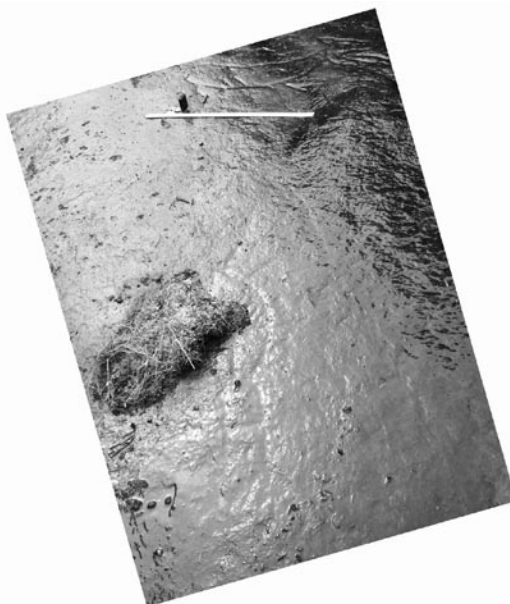
*Museum replica is mirrored.*

lack of fractures—the carver is portraying a kind of “lost geometrician” whose talents are hidden because he has nothing to do.<sup>1</sup>

The face of the main glyph has three deeply-carved pits on its face. As at other sites, these are 20–22 mm in diameter and span about 100 mm. They run, as best as I can measure, W14°N (284°), and a line at this angle passes through the centre of the circle in the second glyph, best seen in the



<sup>1</sup> At 4.75 m east of the main glyph’s eye is a pit with two associated pits, one 360 mm away @ 230° and another 686 mm away @ 167°. No lines. Possibly the framework of a glyph never carved or faded away. [See *SHALE* 18, pp.7–17]



museum replica. The pits are always visible, even in the worst of viewing conditions.

Without fractures to give another coordinate system, it is difficult to say with certainty what, if anything, is the significance of

the orientation of the pits and the second glyph. But here are my speculations.

Whenever I visit DgRw 230, I’m struck by the resemblance of the pits to the three bright stars of Orion’s belt ( $\zeta$  Ori, *Alnitak*;  $\epsilon$  Ori, *Alnilam*; and  $\delta$  Ori, *Mintaka*). Together with *Betelgeuse* ( $\alpha$  Ori, the creature’s eye?), and *Rigel* ( $\beta$  Ori, the creature’s nostril?), these five stars form a striking asterism that is the centre of attention in winter skies over Gabriola when looking south at night.<sup>2</sup>

The second feature worthy of attention is that isolated “deer’s ear” in the second glyph above the main glyph’s head. This petal shape looks like one of the petals of the calendar at DgRw 228, and also occurs in some glyphs at the Church site (DgRw 192). This naturally leads to the surmise that the orientations of these petals or ears are significant, and that they indicate a particular season of the year. If true, the figure at the Church site has something to do with May 12, or 40 days before the summer

<sup>2</sup> Rigel and Betelgeuse are the 5th and 7th brightest stars in the sky at midnorthern latitudes.

solstice, while the glyph at DgRw 230 has something to do with the beginning of March, (30 days before April 2, which in turn is 80 days before the summer solstice),<sup>3</sup> give or take a day.

So now the question is, does anything special happen to the constellation of Orion at the beginning of March when viewed from Gabriola? There is great scope for arithmetic creativity in answering this question, but the answer I like best is, yes—very much so.

Orion is positioned in the sky not far from the path of the sun against the background of stars and it is also close to being on the opposite side of this path to the sun, which is why it appears so spectacularly on frosty nights in midwinter. In the spring, Orion crosses the southern meridian earlier and earlier each night, so that by April, it is hard to see in the glare of the setting sun. Thereafter, we won't see it again until October when it appears in the east, late at night. Orion is thus a powerful and abiding symbol of winter.

Unlike the sun, the altitude of a star as it crosses the southern meridian remains the same throughout the year, so if we are looking, as we are, for some seasonal variation in the position of Orion, we have to look for something that varies with time of day, and this is difficult for us to imagine in the clock-free world of the petroglyph designer. One daily event though that would have been easy to monitor is the setting of the sun. So with this in mind, I calculated where Orion would be in the sky just after

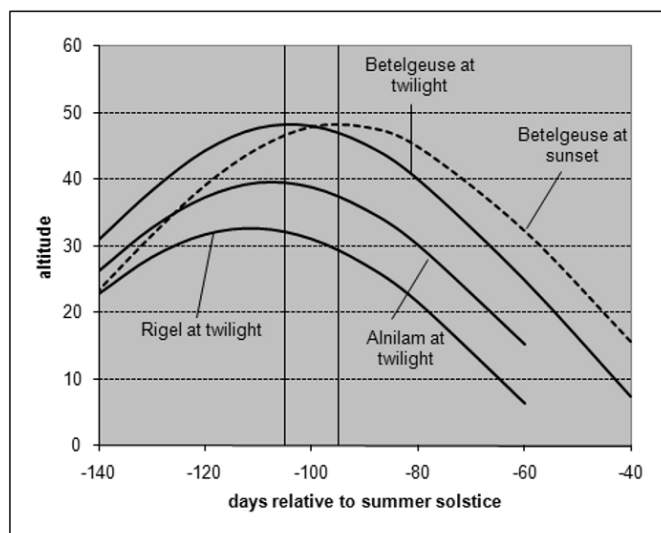
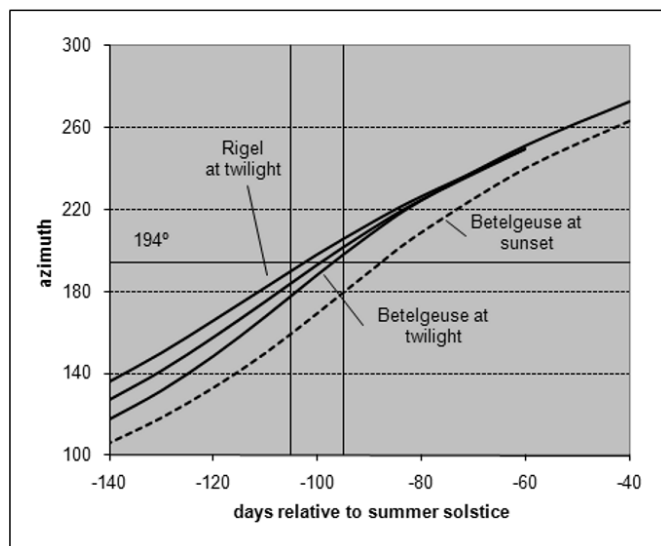
<sup>3</sup> The petal points at 250°, which is 110° off the summer solstice at 360°. Reckoning one degree per day as the petroglyph designer did puts us at around March 3. Coincidentally, 250° is the azimuth of sunset on this date when viewed against the mountains of Vancouver Island which raise the horizon about 6° at False Narrows.



*Above:* The calendar at DgRw228. The “petal” parallel to the “ear” below is at 323°.

*Below:* Glyph (I think unregistered) at DgRw 192. Note the similarity between the design of the “petals” at DgRw 228 and the “ear” of the creature at DgRw 192. The ear points at 324°.

sunset, at the time when it first became visible in the gathering twilight. And here was the answer. As the accompanying graphs show, if you watch for Orion each evening in the spring before the beginning of March, you will first see it after sunset at



an increasingly higher position in the sky. After the beginning of March, the first appearance will be increasingly lower in the western sky. Measuring the heights of bright stars by lining them up with the tops of tall trees is easy—it's how I've learnt to calibrate my compass.

The petroglyph designer at DgRw 230 has recorded not only the date that this peak occurs, but the direction (azimuth) you have to look to see it. I may not have got details right, [see *SHALE* 18, p.13 for corrections] but my hunch is that the glyph is celebrating the time of the year when Orion follows the sun and relinquishes its position as the dominant feature of the southern night-time sky as summer approaches.

If it is right that the three pits represent the stars in Orion, it is also possible that the rather ill-defined band around the creature's waist represents the Milky Way. It all seems geometrically right, and the symbolism "feels" right too.

This interpretation links DgRw 230 with other sites in the area, particularly the calendar at DgRw 228. ◇

The three solid curves in the graphs show the directions (azimuths) and altitudes of the stars in Orion as soon as they became visible after sunset. 180° on the top graph is directly south and numbers higher than this are west of south. The horizontal scale in both cases is the count down of days before the summer solstice in June. The three curves are for the star *Rigel*, which appears at the bottom of the cross as you look at it in real life, *Betelgeuse*, which appears at the top, and *Alnilam*, which is the middle star of the three stars in Orion's belt. I have reckoned "twilight" as being 50 minutes after sunset.

If you stand with the three "pits" in the glyph at DgRw 230 arrayed in front of you, you are facing azimuth 194° (just west of south). According to the top graph, this will be the direction to look for Orion in the evening, 100 days before the summer solstice, that is around, March 13, plus or minus 5 days. What is significant about this date is that, as the second graph shows, this is the day of the year when *Betelgeuse* appears highest in the sky at this particular time in the evening. Now the glyph itself, indicates that the significant date is not March 13, but about ten days earlier, but as you can see this would simply change the particular star that was highest from *Betelgeuse* to Orion's belt and the azimuth would require us to look about an hour later at night at the end of astronomical twilight when the stars become brighter than the sunken sun. Either way there's wriggle room. Some might say too much room, but I'm convinced that it was the designer's intent to record in his work the "chasing away" of winter as seen by the stars. Being "chased" is also a theme of a similar large petroglyph at DgRw 198 (Stokes Road).