

Re: KRS – artificial weathering

Source: <http://sci.tech-archive.net/Archive/sci.archaeology/2004-09/2102.html>

From: Eric Stevens (*eric.stevens_at_sum.co.nz*)

Date: 09/17/04

Date: Fri, 17 Sep 2004 21:54:48 +1200

On Fri, 17 Sep 2004 06:11:45 GMT, "zolota" <zolota3@REMOVEshaw.ca> wrote:

>
> "Martin Reboul" <martin.reboul@SPAMFUKvirgin.net> wrote in message
> news:Joo2d.361\$YE3.166@newsfe6-win.ntli.net...
>>
>> "I E Johansson" <ingerxjohanssonx@telia.com> wrote in message
>> news:W4o2d.103488\$dP1.373031@newsc.telia.net...
>>>
>>> "Eric Stevens" <eric.stevens@sum.co.nz> skrev i meddelandet
>>> news:envjk0tfv5c3s7c9j8rfidcvbsepgagkc3@4ax.com...
>>> > On 16 Sep 2004 13:02:13 -0700, trolleyfan@earthlink.net (David
>>> > Johnson) wrote:
>>> >
>>> > > Eric Stevens <eric.stevens@sum.co.nz> wrote in message
>>> news:<2qtik0pbvlk7du6s6c3f4ke6ffjsh6q81bv@4ax.com>...
>>> > > On Thu, 16 Sep 2004 04:45:43 GMT, "Martin Reboul"
>>> > > <martin.reboul@SPAMFUKvirgin.net> wrote:
>>> > >>
>>> > > >
>>> > > > "Daryl Krupa" <icycalmca@yahoo.com> wrote in message
>>> > > > news:c70365ef.0409151557.51d3e94b@posting.google.com...
>>> > > > > "zolota" <zolota3@REMOVEshaw.ca> wrote in message
>>> > > > news:<7fU1d.418855\$M95.214117@pd7tw1no>...
>>> > > >>
>>> > > > > <snip genuine scholarly discourse, for a welcome change>
>>> > > > >>
>>> > > > > Z:
>>> > > > > Finally, some meat to chew on.
>>> > > > > Thank you very much for elevating the standard of discussion;
>>> > > > > very useful and interesting you have been, with this artificial
>>> > > > > weathering material.
>>> > > > >>
>>> > > > > > Does anyone here see an error in my thinking, or
>>> > > > > > a way that such artificial aging could be detected?
>>> > > > >>
>>> > > > > > Not yet, but I'm trying to play Devil's Advocate and wear away

>>> >>> >> *at it until a few pieces fall away.*
>>> >>> >> *But here's a poser:*
>>> >>> >> *is there some commonly–available sticky substance that is immune*
>>> >>> >> *to the effects of sulfuric acid, that might have been used to*
>>> >>> >> *mask the calcite and so protect it from degradation?*
>>> >>> >
>>> >>> > *Bitumen, but that would be hard to remove. Good old butter or lard*
>>> *would do the*
>>> >>> > *job quite well ...*
>>> >>>
>>> >>> >>> *Nope. They would be hydrolysed by the acid.*
>>> >>>
>>> >>> > *... and be easily removed with soap and a good scrub. That's what*
>>> >>> > *I'd go for.*
>>> >>>
>>> >>> >>> *... and you would fail.*
>>> >>> >
>>> >>> >>> *I doubt if they were that sophisticated however. Zolota's*
>>> >>> >>> *'weathering*
>>> *plan'*
>>> >>> >>> *sounds like the sort of thing that might well have been done.*
>>> *Basically, just an*
>>> >>> >>> *acceleration of the natural weathering processes using empirical*
>>> >>> >>> *and*
>>> >>> >>> *indetectable methods – all available in the C19*
>>> >>>
>>> >>> >>> *What are these indetectable methods?*
>>> >>>
>>> >>> >>> *.... without needing a laboratory.*
>>> >>> >>> *The use of salt and ice (to lower the temperature to almost –32C or*
>>> *zero F) is*
>>> >>> >>> *also hardly rocket science, and would have been well known back*
>>> >>> >>> *then.*
>>> >>>
>>> >>> >>> *Its also a good antifreeze. Was that quite your intention?*
>>> >>>
>>> >>> >>> *I see someone's never made ice cream...*
>>> >>>
>>> >>> >>> *Salt and ice makes a freezing mixture with a lower freezing point. Get*
>>> >>> >>> *the three together and you get a lower temperature mix. But to do that*
>>> >>> >>> *you have to have liquid present. What Martin is looking for is solid*
>>> >>> >>> *ice, not a sluch of water and ice. Adding salt will not help him*
>>> >>> >>> *unless he does it in a separate bath which is somehow going to freeze*
>>> >>> >>> *the KRS by conduction. Its a pity they didn't have plastic bags in the*
>>> >>> >>> *19th century. :-)*
>>>
>>> >>> >>> *Since I was one had the responsibility delivering salt to put on*
>>> *ice–roads*
>>> >>> >>> *here in Western Sweden 1976–79 I can confirm that between –6 degrees*
>>> *Celsius*
>>> >>> >>> *and +5 degrees Celsius(when supercold rain falls on ice–roads) the result*

>>> *when salt is spread on ice–surface will be melting water. As Eric*
>>> *indicated*
>>> *the air around helps the salt melting the ice and there will be no*
>>> *reaction*
>>> *alike David's imaginary weathering scenario. So I agree with Eric: What a*
>>> *pity they didn't have plastic bags in 19th century :-)*
>>
>> *And they put you in charge of delivering road salt – in Sweden!?*
>> *No wonder Volvo's are built like tanks!*
>>
>> *It's nothing to do with the air, it's simply that salt water freezes at a*
>> *lower*
>> *temperature than fresh.*
>> *Cheers*
>> *Martin*
>
>*A salt–ice–water mix will have a depressed freezing temperature but mixing*
>*the three can only be the sum of the sensible heat of the mix.*

Sorry, you have forgotten both latent heat and heat of solution.

>*If you*
>*started with 1 kg of ice at –9 degrees C, 500 g of ice water, and 100 grams*
>*of salt you will arrive at –6 C or so. If I was faking a surface I'd just*
>*drop the hot rock in ice water, it's the rate of cooling that does the most*
>*damage. A rock left outside overnight on a three dog night then hit with*
>*boiling water would also spall! If anything these methods may be too strong,*
>*but the serious forger would never have left something she was not satisfied*
>*with.*
>
>*It also seems to me that some stone masons must have traditionally had some*
>*some methods of artificially aging rocks. Say for example that a church*
>*wants to put an addition onto one side. The master with the reputation who*
>*could age the rocks to look like the originals would be in demand. It's*
>*probably a lost art today. Shall we all experiment with rocks using our*
>*freezers and kettles?*

More likely confirm that my experience that stone masosn would rather freshen up the entire church to look like new is the more common practice.

>
>*Despite what others say, a rock that had been in salt water would show no*
>*evidence of the salt later.*

I never said that. What I was trying to pint out that Martin's attempt to induce frost cracking by using salt to create a freezing mixture is fraught with practical problems which he doesn't really understand.

Eric Stevens