

# Re: The Vinland Map's Ink

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*Source:* <http://sci.tech--archive.net/Archive/sci.archaeology/2005-04/msg00189.html>

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- *From:* "Steve Marcus" <[smarcus\\_spamout\\_@xxxxxxx](mailto:smarcus_spamout_@xxxxxxx)>
  - *Date:* Wed, 6 Apr 2005 20:47:04 -0400
- 

"Eric Stevens" <[eric.stevens@xxxxxxxxx](mailto:eric.stevens@xxxxxxxxx)> wrote in message  
[news:m9h8519orh89tu7hn578foaieksgppgi24@xxxxxxxxxx](mailto:news:m9h8519orh89tu7hn578foaieksgppgi24@xxxxxxxxxx)  
> On Wed, 6 Apr 2005 05:31:34 -0400, "Steve Marcus"  
> <[smarcus\\_spamout\\_@xxxxxxx](mailto:smarcus_spamout_@xxxxxxx)> wrote:  
>  
>>  
>>"Eric Stevens" <[eric.stevens@xxxxxxxxx](mailto:eric.stevens@xxxxxxxxx)> wrote in message  
>>[news:fct551dgs6f2pgoe35igdbfdikn7qsui53@xxxxxxxxxx](mailto:news:fct551dgs6f2pgoe35igdbfdikn7qsui53@xxxxxxxxxx)  
>>> On Tue, 5 Apr 2005 05:32:23 -0400, "Steve Marcus"  
>>>> <[smarcus\\_spamout\\_@xxxxxxx](mailto:smarcus_spamout_@xxxxxxx)> wrote:  
>>>>  
>>>>>"Eric Stevens" <[eric.stevens@xxxxxxxxx](mailto:eric.stevens@xxxxxxxxx)> wrote in message  
>>>>>[news:ivt351p7dvje3edkn9dvgp93fk5ea0vbq9@xxxxxxxxxx](mailto:news:ivt351p7dvje3edkn9dvgp93fk5ea0vbq9@xxxxxxxxxx)  
>>>>>> On Mon, 4 Apr 2005 20:34:04 -0400, "Steve Marcus"  
>>>>>>> <[smarcus\\_spamout\\_@xxxxxxx](mailto:smarcus_spamout_@xxxxxxx)> returned to the subject and wrote:  
>>>>>>>  
>>>>>>>> ---- snip ----  
>>>>>>>>>>> I know. But I understood you to be making the case that there are no  
>>>>>>>>>>> detectable mistakes such as one would expect to see from re-inking  
>>>>>>>>>>> on  
>>>>>>>>>>> the  
>>>>>>>>>>> VM. If that's incorrect, let me know. I haven't been following this  
>>>>>>>>>>> as  
>>>>>>>>>>> closely as I might, as some of it has been in your posts to Steve  
>>>>>>>>>>> Marcus,  
>>>>>>>>>>> which, after considering that life is short, I mostly skim or skip.  
>>>>>>>>>>>  
>>>>>>>>>>>>One point that Eric neglects is that any "detectable mistake" that  
>>>>>>>>>>>>would  
>>>>>>>>>>>>occur as a result of reinking a quill pen would also show up on a map  
>>>>>>>>>>>>in  
>>>>>>>>>>>>which the lines were not traced one over the other. That is, when  
>>>>>>>>>>>>drawing  
>>>>>>>>>>>>a  
>>>>>>>>>>>>map as extensive as the Vinland Map, even a single line drawn directly  
>>>>>>>>>>>>on

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>>>>>the parchment would ultimately run the quill out of ink to the point  
>>>>>where  
>>>>>it would have to be reinked.  
>>>>>  
>>>>>So the start/stop effect that Eric is going on about has nothing at  
>>>>>all  
>>>>>to  
>>>>>do with whether the Vinland Map was drawn by tracing black "ink" over  
>>>>>yellowish "ink." One would expect to see evidence of the quill having  
>>>>>been  
>>>>>lifted from the parchment and reinked, (or reinked without being  
>>>>>lifted  
>>>>>in  
>>>>>accordance with one of Eric's posts), whether the ink was traced over  
>>>>>a  
>>>>>previously drawn line or layed down directly on the parchment.  
>>>>>  
>>>>> You seem to have missed my point. To be indetectable, the pen drawing  
>>>>> the black line would have to be refreshed at the same point as the pen  
>>>>> which drew the yellow line beneath.  
>>>>>  
>>>>>You have now dredged that one up for the first time.  
>>>>>  
>>>>> I first raised it on Date: Mon, 04 Apr 2005 09:00:04 +1200  
>>>>> Message-ID: <gni051p3areh5qd99b851epi6is1moot2@xxxxxxx> in response  
>>>>> to Ken Towe's on the subject of writing on rice when I wrote  
>>>>>  
>>>>> "that [to] retrace/reink the map indetecatably he would have to lay  
>>>>> down the second layer of penstrokes so that they do not discernably  
>>>>> differ from the first. I think the odds against doing this  
>>>>> successfully are very high, especially if it needs a low power  
>>>>> microscope to make out the details of pen strokes of the first  
>>>>> layer"  
>>>>>  
>>>>>Yet another example of your inability to write what you mean. Do you see  
>>>>>the difference between what you are quoting from 4/4/05 and the much more  
>>>>>specific way you specify refreshing the pen used for the upper layer at  
>>>>>the  
>>>>>same point that the pen for the lower layer was reinked? In case you  
>>>>>don't,  
>>>>>"discernably differ" can refer to a lot of different parameters other than  
>>>>>the refreshing point of the pens used to draw the two supperpoed lines.  
>>>>>  
>>>>> I'm not really interested in dealing with these continuing quibbles  
>>>>> raised by you. Of course I can see the difference between the two  
>>>>> statement. You either missed or failed to understand what I was  
>>>>> getting at when I wrote it the first time in response to Ken Towe.

If you can see the difference between the two statements, then you ought to understand that there was nothing to "miss" or to "misuderstand" when you wrote the first statement. The first statement may have nothing at all to

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do with refreshing the pen, it can be easily read as simply speaking about the ability to lay down one line over the other; something that you have continuously raised objections to on the grounds of it either being "impossible", or of vast difficulty.

> I

> spelled it out in greater detail the second time round to help make  
> clear to you exactly what I was talking about.

Which was kind of you. Writing precisely what you mean the first time you write it would be even kinder.

> Now you want to take

> exception to the fact that I have raised this matter twice, the second  
> time in terms more detailed than the first. I don't know what your  
> purpose is in raising such an objection but it is entirely unhelpful  
> to the subject of the discussion.

I'm not taking exception to your having raised the same matter twice. I merely noted that you had raised something once, and then changed the specificity of your argument such that it differed from the first statement. Surely you can understand what I'm saying; even if you don't like it, you essentially just admitted that this is what you did, even if it was inadvertent.

>>

>>>

>>>>And I'll respond by

>>>>asking "why"? The lines aren't all that wide anyway, so how much of the  
>>>>yellow line would extend beyond the width of the black line, and what  
>>>>makes

>>>>you think that the "refreshing points" of the yellow line would be  
>>>>easily

>>>>observable?

>>>

>>> The finishes may not be but the starts almost certainly would protrude  
>>> beyond the black, even when they are produced by the same pen stroke.

>>

>>Ipsa Dixit. Why would the starts and stops of the underlying layer

>>"almost

>>certainly ... protrude beyond the black"? And if so, by what measure;

>>that

>>is, what is the width of the amount of underlying layer that "would

>>protrude

>>beyond the black" on either (or each) side of the black line?

>

> As for the why, because in the genuine article the underlying yellow  
> layer is caused by the diffusion of selected elements of the ink  
> through the paper.

But without any specific degree of uniformity with respect to the width of the yellow layer, or to the extent that it extends past the black layer.

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And this effect (basically a "burning in" of the ink) is controlled by many variables, as per:

<http://www.knaw.nl/ecpa/ink/inkcorrosion.html>

The one commonality in documents inked with iron gall ink is that they in fact display this sort of "corrosion" with age, and it appears that the ink on the VM was an attempt to simulate the appearance of iron gall ink that had been applied to parchment hundreds of years ago. But to suggest that there is any measure of what the yellow-brownish appearance of the ink would be, and the extent of its width beyond the remaining black of the lines, so that someone attempting to stimulate its appearance by laying a black line over a yellowish/brownish line while maintaining a more or less uniform extent of the yellow beyond the edges of the black is to ignore the reality of what iron gall ink is, and what it looks like in aged documents.

> You may recall that I have already raised the  
> subject of paper chromatography in this context. At the start of the  
> pen stroke, the pen is full and more ink is applied to the paper than  
> when the pen is about to run dry. That means that the diffusion will  
> be greater at the beginning than at the end. In fact, at the very end,  
> there may be so little liquid that there will be no diffusion visible  
> at all.

Which has what to do with the questions that I've raised?? Again, with respect to laying down a black layer over a yellow layer, one could conceivably start with a full pen and draw for a specific time (or if a straight line, for a specific length) and then reink the pen. Then one could repeat the process doing a black line. The full pen and less full pen points for the top and bottom lines could be pretty created to be pretty darned close to one another.

>

> As for the 'how much', there can be no hard and fast measure. It all  
> depends on the paper, the pen, the ink, how much ink is in the pen  
> etc. Have you never tried writing on blotting paper with an ink pen?

Then we are in agreement. There's no basis for holding that "[T]he finishes may not be but the starts almost certainly would protrude beyond the black, even when they are produced by the same pen stroke."

>>

>>>>

>>>>Then, there's the point that if you know this (likely, since you just  
>>>>made

>>>>it up), and it is correct (unlikely), so would a forger (or the scribe  
>>>>if

>>>>the VM is not a fake). The latter probably wouldn't care, except to the  
>>>>extent that it might become a matter of aesthetics. The former, were he  
>>>>concerned, could simply take care to start and stop ) the black strokes  
>>>>(at

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>>>>which point the pen would be re-inked) where he could see that he had  
>>>>started and stopped the yellow strokes.

>>>

>>> I can only requote " the odds against doing this successfully are very  
>>> high, especially if it needs a low power microscope to make out the  
>>> details of pen strokes of the first layer". Don't forget we are not  
>>> discussing the ease with which the black lines could be accurately  
>>> overlaid on the yellow but the ease with which they could be overlaid  
>>> \*indetectably\*.

>>

>>Again, ipse dixit. Why should the scribe need a low power microscope to  
>>detect the start/stop point of any portion of freshly laid down yellow  
>>lines?

>

> Because he has to be able to see the detail of what he is doing as  
> well as the person who is going to come along later and try and detect  
> what he has done.

You mean that when the ink is relatively fresh (drying time would be??), the scribe would have as much trouble discerning the start/stop points in the lower line as would someone who islooking for them hundreds of years later when there's an overlying line on top of the lower line?

>>

>>>>

>>>>

>>>>> Further, they would both have to  
>>>>> run out of ink at the same point also.

>>>>

>>>>Nope. The black ink need not runout at precisely the point where the  
>>>>yellow  
>>>>ink had, particularly if the \*forger\* took care to use short strokes  
>>>>when

>>>>applying the yellow ink. Then all the \*forger\* needed to do was just  
>>>>stop

>>>>the black stroke where appropriate in terms of where the yellow stroke  
>>>>had

>>>>been stopped.

>>>

>>> Stopping the stroke looks different from the pen running out of ink.

>>

>>But you haven't established that the VM shows evidence of the latter, as  
>>opposed to the former.

>

> As far as I know, no expert in penmanship or writing has looked at it  
> in this degree of detail. That's one of my concerns.

Concern, but not yet a fact.

>>

>>>>

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>>>>> This would apply not once but  
>>>>> for each of the many times for which the pen was required to be lifted  
>>>>> from and reapplied to the map as it was drawn, and then redrawn.  
>>>>  
>>>>>So? The \*forger\* (if, or course, there was a forger) was probably  
>>>>>working;  
>>>>>that is, earning a living. S/he was going to get paid for his/her time.  
>>>>>In  
>>>>>that case, s/he did not need to be miserly with the spending of it.  
>>>>  
>>>>>  
>>>>> I wouldn't expect the pen to be reloaded without lifting from the  
>>>>> sheet while drawing the map. This is a trick required when drawing a  
>>>>> straight line with the aid of a ruler when the line is too long for  
>>>>> one pen load of ink. There are two many opportunities to stop and  
>>>>> reload the pen while drawing the VM to require reloading without  
>>>>> leaving the paper.  
>>>>  
>>>>>Again, that is irrelevant when considering what I wrote above.  
>>>>  
>>>>>>>  
>>>>>>>  
>>>>>>> Second, that has been reinked is only a hypothesis. Another  
>>>>>>> possibility is that a yet as unidentified ink was used which  
>>>>>>> separated  
>>>>>>> into two phases on the paper. The first phase left the yellow  
>>>>>>> (possibly gelatin based) stain in the paper and the second formed a  
>>>>>>> black layer on top. The black layer was improperly fused to the  
>>>>>>> lower  
>>>>>>> layer and has since flaked away. This is not an altogether unknown  
>>>>>>> behaviour for carbon based inks.  
>>>>>>>  
>>>>>>> The case you raised was what might happen had the scribe used faulty  
>>>>>>> ink,  
>>>>>>> and not known it for some days. If that were the case with the VM,  
>>>>>>> then  
>>>>>>> re-inking would have been the only way to arrive at the current  
>>>>>>> situation.  
>>>>>>> Well, other than starting over with good ink.  
>>>>>>>  
>>>>>>>Which is what any scribe would choose to do, seeing as how re-inking  
>>>>>>>would  
>>>>>>>require at least as much effort as starting de novo, but would add the  
>>>>>>>additional task of having to carefully go over the previously drawn  
>>>>>>>line.  
>>>>>>>  
>>>>>>> Which is another reason why I think reinking by scribe is a  
>>>>>>> non-starter.  
>>>>>>>  
>>>>>>>You didn't think that when you discovered that Enterline was touting  
>>>>>>>such

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>>>>a

>>>>theory. Apparently, Enterline has now jumped ship on that, followed

>>>>closely

>>>>by you.

>>>

>>> Enterline was discussing a possible mechanism for the presence of

>>> anatase. Neither of us have 'jumped ship' as you call it.

>>

>>Do try to keep up with the thread. Dr. Towe has quoted an e-mail from

>>Enterline in which he disavows the whole proposed scenario of reinking

>>followed by subsequent cleaning. See: <http://tinyurl.com/3zm9r>

>

> That's not literally what Ken Towe said. To quote accurately "In

> short, the published Enterline theory is no longer the theory that

> Enterline now embraces." Enterline has not disavowed his theory but

> modified it on the basis of more recent information. After all, why

> should he not?

>From Dr. Towe's post wherein Dr. Towe quotes Enterline as follows (with "JIM" meaning to Enterline):

I'm also not quite clear why Ken repeated this passage after I stated in my previous message that I was willing to replace this scenario with Jacque's carbon separation hypothesis, which I will experiment with soon. This would leave the scenario with only one "unexpected event," the bleaching.'

Dr. Towe continued: "In short, the published Enterline theory is no longer the theory that Enterline now embraces."

As Enterline states that he was willing "to replace" his current scenario, I would suggest that saying that he no longer "embraces" that scenario is the same as stating that he has "disavowed" it.

>

> Only a few days ago Enterline told me in a private email that he has

> merely modified his theory to allow for the possibility suggested by

> Jacquelin Olin that the overlying carbon came not from a re-tracing,

> but rather from carbon mixed with the original would-be iron gall ink

> to make it visible before oxidation.

That's a pretty precious position he's taking. His original hypothesis relied upon the re-tracing; to say that he no longer relies upon re-tracing is more than a mere modification. As to mixing carbon with would-be iron gall ink, I think that it's plain that the idea that this scribe knew that the iron gall ink was "defective" before using it, and so mixed carbon with it, is pretty silly. There were medieval formulations that relied upon carbon; why not use one rather than risking doing the work with a "would-be" but not (and therefore defective) iron gall ink modified with carbon?

> Apparently Jacquelin Olin

> believes a significant amount of such carbon would be squeezed out to

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- > the surface upon drying, Enterline's underlying hypothesis that
- > anatase might have been transferred to the VM during a modern
- > bleaching operation remains untouched.

Frankly, with all due respect, to date Ms. Olin (I do not recall if it's Dr. Olin, and if it is, I apologize) has not been a shining light of forthrightness and scientific acumen in her published papers on this subject. Dr. Towe has pointed that out here:

<http://webexhibits.org/vinland/paper-towe04.html>

and has added to those comments in at least one Usenet posting to sci.archaeology.

>>  
>>>>  
>>>>But of course the theory that a scribe used reinking when creating the  
>>>>Vinland Map was always irrelevant to the issue of whether the Vinland  
>>>>Map  
>>>>is  
>>>>a fake. The point is not whether a scribe creating the thing circa 1440  
>>>>would have engaged in re-inking; I've been arguing (as have others,  
>>>>including Dr. Towe) that to believe that is to believe in nonsense.  
>>>  
>>> You will find that I have several times said much the same thing.  
>>  
>>>>The  
>>>>reinking issue arises only as one plausible explanation for why the  
>>>>Vinland  
>>>>Map lines are what they are; apparently comprised of two separately  
>>>>applied  
>>>>"inks", one yellowish and lying beneath the other, which is a black  
>>>>pigment  
>>>>containing "ink", and \*\*wherein the yellowish line contains modern  
>>>>anatase  
>>>>while the rest of Map, and certainly to the the black pigment containing  
>>>>material, do not.\*\* Even Enterline only argued "medieval" reinking to  
>>>>explain why the lines on the VM are what they are; part two of his  
>>>>argument  
>>>>was to explain how the anatase got where it is on the VM.  
>>>  
>>> Without hunting far and wide, the strongest statement that I can find  
>>> by Enterline is in the midst of a paragraph of his appendix in which  
>>> he is discussing McCrone's findings etc. Enterline wrote:  
>>>  
>>> "A different explanation \*could\* be could be that this black layer  
>>> which is now almost completely flaked away, it (sic) merely the  
>>> remains of an imperfect resoration attempt sometime during the  
>>> intervening centuries. It \*could\* even have resulted from retracing  
>>> by the original scribe after he realised that his original ink was  
>>> not turning black."

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>>>>

>>>> The emphasis on 'could' is my own. Enterline discussed the  
>>>> possibility. He does not argue for it as far as I know.

>>>>

>>>>Indeed. See the link added above to Dr. Towe's post.

>

> With respect to Ken Towe, he is not James Enterline.

Are you now you're accusing Dr. Towe of misquoting Enterline, or of misrepresenting his position as per one of Enterline's e-mails?

> Eric Stevens

Steve

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The above posting is neither a legal opinion nor legal advice, because we do not have an attorney-client relationship, and should not be construed as either. This posting does not represent the opinion of my employer, but is merely my personal view. To reply, delete \_spamout\_ and replace with the numeral 3

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• *Follow-Ups:*

- ◆ **Re: The Vinland Map's Ink**  
◇ From: Eric Stevens
- ◆ **Re: The Vinland Map's Ink**  
◇ From: Ken Towe

• *References:*

- ◆ **Re: The Vinland Map's Ink**  
◇ From: Eric Stevens
- ◆ **Re: The Vinland Map's Ink**  
◇ From: Steve Marcus
- ◆ **Re: The Vinland Map's Ink**  
◇ From: Alaca
- ◆ **Re: The Vinland Map's Ink**  
◇ From: Eric Stevens
- ◆ **Re: The Vinland Map's Ink**  
◇ From: Tom McDonald
- ◆ **Re: The Vinland Map's Ink**  
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