The Vinland Map: 15th Century Artifact or 20th Century Forgery?

Throughout history, the discovery of an ancient artifact has always brought with it much excitement. The idea that we are able to look at something that existed so long ago intrigues us. However, along with the excitement of new discoveries, there is often much controversy. One such discovery, the Vinland Map, has been the cause of much debate since 1957.

The Vinland Map, first presented to the public in 1965 in a book written by Skelton, was discovered in 1957 (Skelton 1965, p.3). In the 1960’s the map was bought and donated to Yale University where it remains today. The Vinland Map was originally thought to be a 15th century depiction of medieval Africa, Asia, and Europe. What is most striking about the map is that it depicts Iceland, Greenland, and a part of North America known as Vinland that was thought to have been unknown before Columbus’ journey to America (Skelton 1965, p. 3658). In the 1950’s the idea that people had traveled to the New World before Christopher Columbus was a new concept. However, since then we have found evidence that the Vikings did travel to North America before Columbus. If the Vinland Map is a true 15th century artifact, it represents the oldest known depiction of the New World to date. There were some aspects of the map that caused confusion. For instance, the map has no history of origin (Skelton 1965, p.228). No one knows who the author might have been and there is also no date written on the map. With such a lack of historical information on the map, it is no surprise that a controversy has ensued over the authenticity of the map. Because of this controversy, many experiments have been performed attempting to prove or disprove the authenticity of the map.

I will be focusing on the results of three of the most influential experiments performed on the Vinland Map in order to try to interpret its authenticity. The first of these three methods is microscopy, used most notably by Walter C. McCrone. As defined by McCrone, microscopy is “the use of any tool or technique that allows us to identify microscopic objects.” This includes the use of the light microscope as well as more advanced types of microscopes such as the electron microscope and x-ray diffraction (McCrone 1976, p. 676 A). McCrone’s methods using microscopy were desirable because they allow observations to be made on small samples so that no visible damage is done to the item being tested. When testing the Vinland Map, McCrone used a small needle with rubber cement on the tip to pick up ink particles. Particles were then observed, first using an optical stereo microscope, and then observed more closely with a series of more advanced microscopic techniques such as the electron microscope and x-ray diffraction (McCrone 1976).

The second method, used by Donahue, Olin, and Harbottle in their testing of the Vinland Map is radiocarbon dating (Donahue, Olin, Harbottle, 2000). Radiocarbon dating is based on the decay of a specific carbon isotope known as 14C. All organisms contain 14C and once an organism dies, scientists are able to measure how much 14C has decayed in an organism. By measuring this rate of decay, scientists are able to date the age of an organism (Higham). Since the Vinland Map is drawn on parchment (animal skin paper), scientists used radiocarbon dating to find the age of the parchment.
The third method, used by Katherine Brown and Robin Clark in their analysis of the ink of the Vinland Map uses Raman spectroscopy (Brown, Clark, 2002). According to Beverly Hassle in an article published by the American Chemical Society, in Raman spectroscopy a laser beam is used to scatter light off of molecules. “Every material has a unique scattering spectrum that acts as a fingerprint, allowing scientists to identify it,” (Hassel 2002). This method is non-destructive and enables the entire map to be tested instead of just small samples (Brown, Clark, 2002). Among other things, Raman Spectroscopy is useful in identifying the content of pigments, which is what Clark and Brown used it for during their testing of the Vinland Map.

The results of McCrone's experiments on the Vinland Map were first published in the 1976 edition of Analytical Chemistry (McCrone 1976). Initially using a stereo microscope to examine the sample, the group saw that the map appeared to have been drawn in black ink, with a yellow line surrounding the ink caused by staining. However, upon closer examination it was found that map was not drawn in just one color ink, but rather two. The first one was an outline of the map done in yellow ink, and the second traced the yellow line in black ink. This was the initial sign that the map may have been a forgery, suggesting that someone may have initially drawn the yellow line to give the map an aged appearance. McCrone then used electron microscopy techniques to get a more detailed look at the ink. These observations revealed that the yellow ink contained a rare form of titanium which was identified as anatase, a product that was not manufactured until 1920. McCrone found that anatase was present in 20 other samples he had tested and also that the anatase was restricted to the yellow ink and was not found on other parts of the parchment. Using the evidence from his experiments, McCrone concluded that the map was a modern day forgery. These conclusions have been generally accepted throughout much of the scientific community as proof that the Vinland Map is a forgery. However, some people have stated that McCrone's results are not enough to prove that the map is a forgery (Donahue, Olin, Harbottle, 2000). Some scientists believe that the age of the parchment on which the map is drawn is of more importance than McCrone’s experiments, but until recently, the parchment had not been definitively dated.

In the 2002 edition of Radiocarbon, scientists Donahue, Olin, and Harbottle used radiocarbon dating to definitively date the Vinland Map’s parchment (Donahue, Olin, Harbottle, 2000). This group performed a number of tests, including repeated radiocarbon dating of several strips from the Vinland Map. All of these tests dated the parchment to approximately the same date, 1411-1468 AD. The group pointed out that even if a forger was clever enough to obtain an authentic piece of parchment, there would have been no reason for them to choose parchment that matched the original estimated age of the parchment (Donahue, Olin, Harbottle, 2000, p.51). This seems to suggest that the author did draw the map during the 15 th century.

While the date of the parchment is of significant importance to the authenticity of the map, it is not enough to end debate about the authenticity of the map. In 2002, an experiment designed to identify the content of the ink of the Vinland Map was published in the 2002 edition of Analytical Chemistry (Brown, Clark, 2002). The experiments used Raman microscope spectroscopy to identify the contents of the pigments of the ink and possibly the specific name of each pigment. The results once again concluded that anatase was present
in the yellow ink, but also revealed that the black pigment was mostly carbon. Before this testing, researches had suggested that the presence of modern anatase in the ink could have been created during production of the ink, however this could only have come about if the ink was iron-based, and the group’s tests showed that main pigment in the ink was carbon. The group also noted that when iron based inks are used, there is often yellowing and discoloration of the parchment. However, carbon-based inks do not cause this type of discoloration (Brown, Clark, 2002, p. 3661).

From the multiple tests provided over time, it appears that there is substantial evidence suggesting that the Vinland Map is a modern, post 1920, forgery. However, tests dating the parchment have led to constant reevaluation of these conclusions. McCrone’s results showing that the map was drawn in two parts, first with yellow ink and then with black ink, as well as the presence of anatase in the ink suggests an almost indisputable attempt to deceive. However, the age of the parchment does present some need to reevaluate. The recent discovery that the ink on the map is carbon-based seems to be conclusive evidence that the map is a forgery. Clark and Brown suggested that a forger might have tried to simulate a yellow staining on the map since this type of discoloration is often seen in medieval documents, not knowing that the carbon-based ink that they were using would not produce such results (Brown, Clark, 2002, p. 3661). As of now the authenticity of the Vinland is still being debated, however it seems to me that the idea of the map being an authentic 15 th century artifact is unlikely. While the parchment has been dated to the 15 th century, the most recent examination of the Vinland Map has most likely proven that the map is a modern, post 1920, forgery.

Bibliography


