



The Kensington Rune Stone: A Scientific Examination

According to American Petrographic Services (a company that specializes in “material forensics”), the controversial Kensington Rune Stone was obviously prepared for the inscription by first splitting the stone along natural fault lines. The glacial sides of the stone (characterized by scratches caused by the ice sheet), which were not split by human effort, exhibit only slightly more weathering than the two inscribed sides, according to APS. Shown above is the “face side” of

the stone, one of the glaciated surfaces. Shown below is one of the more narrow “split sides,” where it was broken off by human hands from the mother slab of rock. Runic inscriptions are clearly seen on both of these surfaces. The inscription starts on the front, and continues on the split side. According to APS, these two surfaces are the only non-glaciated sides of the stone. The top, bottom, back and one of the two narrower sides are all glaciated.



The Kensington Rune Stone

A Minnesota Mystery Solved?

BY STEPHEN J. MARTIN

Even the establishment now admits that Leif Eriksson and other Vikings reached at least as far as what is now Canada and made settlements there. But controversy continues to surround claims that the Vikings penetrated to Minnesota, perhaps by way of Hudson Bay. The main evidence that they may have done so is the Kensington Rune Stone (KRS). But the stone has been widely pooh-pooed. Is it real or is it a fake? Is the famous and oft-debated artifact a legitimate historical record of the travels of Scandinavian adventurers into the heartland of America in the mid-14th century? Some new developments, according to the author, have “proved conclusively to all but the most stodgy establishmentarian academics the absolute legitimacy of the KRS.”

Recent advances in the understanding of the Kensington Rune Stone consist of a conclusive paper on the linguistic aspects of the runes and the words used by the carver and an equally irrefutable study of the geological aspects of the stone itself. Less has occurred recently within the third milieu, that of historical documentation from elsewhere—yet, nothing has been found to challenge the spectacular advances within the past few months in the century-old effort to exonerate the KRS from the hasty and ill-informed initial opinions of skeptics. Perhaps the most impressive indicator of the importance of recent advances has been the almost total silence from the KRS’s nay-sayers. In the past, claims by proponents of the stone’s legitimacy were almost always countered, often very quickly, by an army of court historians desperate to prop up their ill-conceived and erroneous notions of the progression of New World exploration and settlement by Europeans.

The linguistic advances have come in the form of an exhaustive 74-page article by Dr. Richard Neilsen in the journal *Scandinavian Studies* (spring 2001). This paper annihilates all of the linguistic objections made against the KRS on the basis of supposedly modern grammar and word forms

found within the inscription. It also answers all of the previous complaints directed toward some of the rune forms utilized throughout the 74-word message as being unavailable in the 14th century. Dr. Neilsen has a broad résumé of both academic achievement and life experience (as opposed to purely academic insularity and narrow-mindedness), which establishes his ability to speak authoritatively on the linguistic aspects of the stone. He began his career after graduation from the Coast Guard Academy as a member of a 1957 circumnavigation of the Arctic Ocean in search of a deep water channel. He earned an M.S.E. in ship design from the University of Michigan in 1961, and an M.S. in mathematics from that same institution in 1964. He earned a doctorate of technology from the University of Denmark in Copenhagen in 1965.

He became fluent in Danish and began a nearly 40-year infatuation with Scandinavian cultures and languages. He then went into the oil exploration business, which took him to 150 countries, where he became conversant in many languages. Returning to Scandinavia for various stints (Oslo in 1978, Denmark in 1979-82 and again in 1983-85), he continued his study of Scandinavian languages and became fluent in Norwegian, Swedish, Finnish and Icelandic. As an

employee of the Bechtel Corporation back in the States (1985-87), he continued to be sent back to the region three times per year and kept his languages fresh by examining and studying various Scandinavian artifacts and ancient writings in his spare time.

Early in his examination of the KRS, Dr. Neilsen was able to eliminate the old objection to the KRS pertaining to the appearance of an Arabic “10” in the inscription. This was just one of many usages that scholars (beginning with Prof. O.J. Breda at the University of Minnesota in 1899¹) with their limited knowledge of forms available to 14th century Scandinavian scholars and clerics had used to bolster their contention that the inscription was a modern forgery. Dr. Neilsen pointed out many years ago (and within two weeks of his first examination of the KRS) that the medieval Scandinavians had translated a huge Arabic text on mathematics by the 14th century,² a fact then unknown to detractors. This piqued Neilsen’s interest in the KRS controversy and initiated a decade-long study of the stone and its fascinating message.

In his previously mentioned paper, Neilsen takes all of the other criticisms and devastates them by showing in detail how each of the supposedly modern forms appear in ancient writings that predate the KRS elsewhere across Scandinavia. Many of these sources were also apparently unknown to, or at least never utilized by, the critics. While a complete summary of his masterful silencing of the critics is beyond the scope of this paper (interested parties may view and download the entire article by visiting www.byu.edu/sasslink—choose “minimum graphics,” choose “Scandinavian studies,” choose “supplemental materials”), a couple of examples will suffice.

One of the major criticisms of the KRS inscription prior to the Neilsen article had been the supposed appearance of the word “*opdagelse*” (a word meaning “discovery”) that critics have always said did not appear in the Scandinavian lexicon until many decades after the 1362 date in the KRS inscription. Neilsen points out in his paper that the correct translation ought to have been “*ophthagelse*,” meaning “acquisition.” The problem lay once again with early 20th-century limitations in the understanding of medieval rune forms. The rune for “th” had been incorrectly translated “d” for decades. Neilsen’s most up-to-date translation, as provided by the curator of the Rune Stone Museum in Alexandria, Minnesota,³ now reads:

Eight Goths and 202 Northmen are on acquisition business from Vinland far to the west. We had encampment by two shelters one day’s time north from this stone we were fishing one day. After we came home I found 10 men red from blood and dead (death). Hail Mary deliver from evil. I have 10 men by the sea to attend to our ship 14 days’ journey from this wealth. Year of Christ 1362.

The next example consists of the strenuous objections regarding the appearance of double dots throughout the text of the inscription. Critics smugly pointed out that the Germanic umlaut did not come into usage until well after

1362. Dr. Neilsen shows⁴ that these are properly understood as word break markers used to signify where one word ends and another begins. The article contains many startling and exciting discoveries of this type. In short, Neilsen’s work eliminates any objection from a linguistic perspective to the inscription being precisely what it purports to be—a frantic record of a besieged party of Scandinavians in the center of the North American continent 130 years before Columbus.

Other developments within the field of geology—when combined with Dr. Neilsen’s thus far unchallenged linguistic work—serve as the second of back-to-back homers in the bottom of the ninth (after being down one) for supporters of the KRS’s legitimacy. Scott Wolter of American Petrographic Services got his degree in geology from the University of Minnesota-Duluth in 1982. In 1990, he founded a company that specializes in material forensics. Engineers, architects and municipalities are the chief customers of the firm, which has done extensive microscopic examination of the stone and begun the process of chemical analysis which should have been started decades ago. The majority of geologists who have examined the KRS over the years have either gone on record in favor of its authenticity or adopted a wait-and-see attitude. This is in stark contrast to the linguistic academicians who have merely echoed, for the most part, the initial errant conclusions of their forebears up to the present.

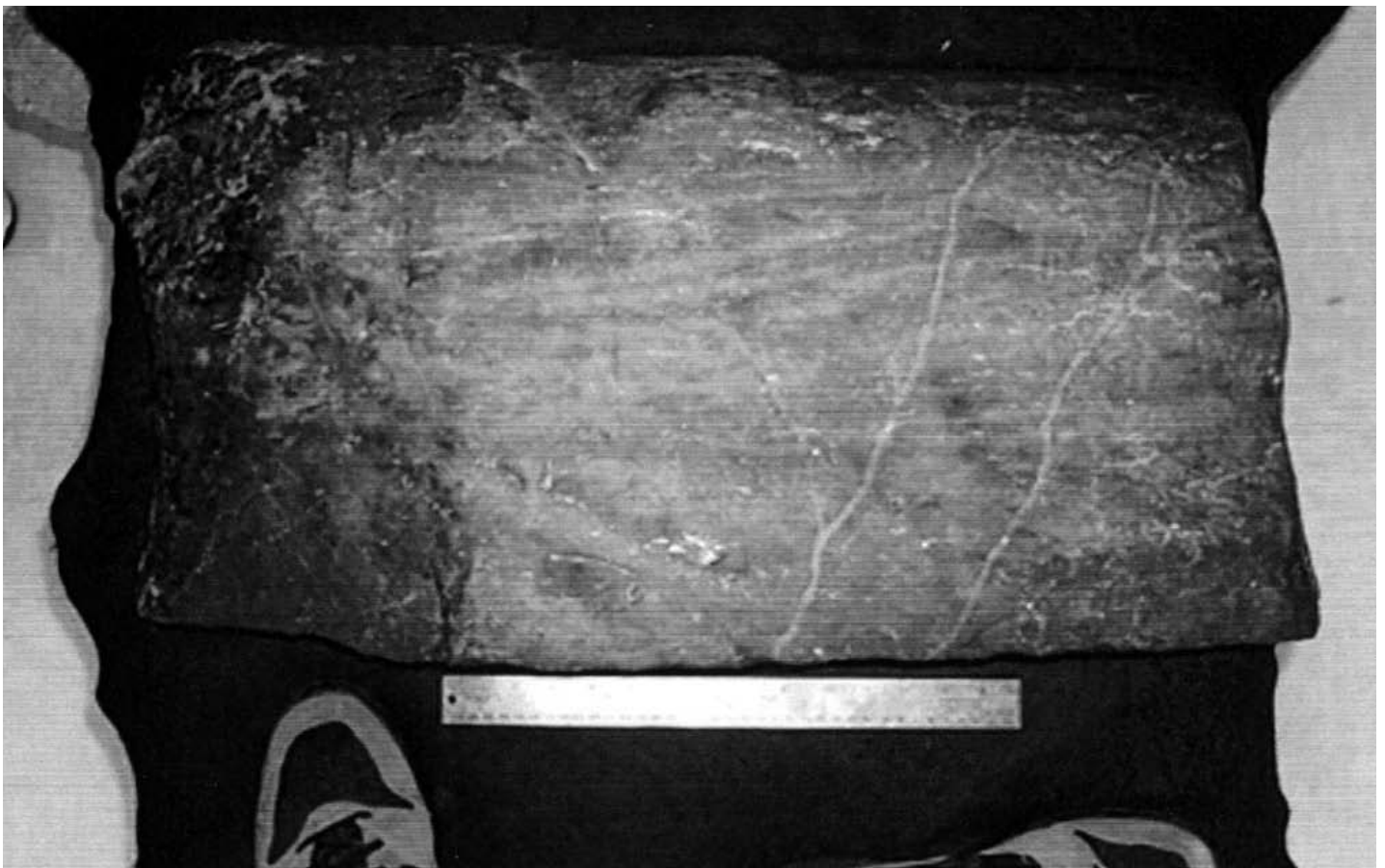
Twelve years after Olaf Ohman found the stone entangled beneath the tree roots of a 40- to 70-year-old poplar at his farm in Kensington, Minnesota, the Midwest’s most prominent geologist, Prof. N.H. Winchell, put his signature to a document of a committee put together by the Minnesota Historical Society for the purpose of examining the stone. The report, dated April 21, 1910, reads:

Resolved, that this committee renders a favorable opinion of the authenticity of the Kensington Rune Stone, provided, that the references to Scandinavian literature given in this committee’s report and accompanying papers be verified by a competent specialist in the Scandinavian languages. . . .⁵

Given that Dr. Neilsen has, 91 years later, finally provided the answer to the committee’s caveat, it remains only to echo and expand earlier geological opinions with state-of-the-art examination techniques. Before doing so, two more quotes from the same era as Winchell’s committee serve to set the tone for understanding the geologic community’s response to the KRS to date. Prof. W.O. Hotchkiss, then state geologist of Wisconsin, wrote (also in 1910) the following:

I have carefully examined the various phases of weathering on the Kensington Stone, and with all respect for the opinions of philologists, I am persuaded that the inscription could not have been made in recent years. It must have been made at least 50 to 100 years ago and perhaps earlier.⁶

This statement is extremely important in light of the fact that the first white settlers from Scandinavia (the most frequent targets of the forgery theorists) did not settle in that part of Minnesota until much after 50 years prior to the



Shown here is one of the “glacial face” sides of the Kensington Rune Stone, in this case what would be considered the back side, as there are no runes visible. A notable feature is the pair of undulating, parallel whitish lines. According to material forensics experts, these appear at first glance to be bleached areas from prolonged root contact. The supporters of the Norse contact theory of the stone say that Scandinavian-American farmer Olaf Ohman found the stone entangled beneath the tree roots of a 40- to 70-year-old poplar at his farm in Kensington, Minnesota. These apparent root markings require further study by a botanist as part of the scientific investigation of the stone, which has now, belatedly, begun.

stone’s discovery in the fall of 1898.

The geologists’ qualification of their statements is understandable in light of the well-written (though now thoroughly moot) objections of skeptics. It took just as much courage to overrule the considered opinions of a phalanx of linguistic Ph.D.s in 1910 as it does for heroes like Neilsen and Wolter to do so today. After all, reputations built over many years are not easily gambled in the court of established academic opinion, given the well-known resistance to new discoveries which may challenge outdated notions.

Another early examination of the stone was undertaken by Dr. Warren Upham, an eminent glacial geologist. In 1910 he wrote:

When we compare the excellent preservation of the glacial scratches, shown on the back of the stone, which were made several thousand years ago, with the mellow, time-worn appearance of the face of the inscription, the conclusion is inevitable that this inscription must have been carved hundreds of years ago.⁷

Such is the tenor of the opinions of the early 20th-century geologists who examined the KRS.

This author knows of no eminent geologist who has

published any documentation of a viewpoint critical of Winchell, Hotchkiss and Upham within the last 90 years. Most geologists have simply refused to study the KRS as a result of the widely held and widely publicized negative opinions of the philologists. Enter Scott Wolter and American Petrographics. The results of geological analysis of the stone ought to be given far more weight in the discussion than any of the linguistic arguments, either pro or con. If the inscription can be proved to have been written prior to the 1830s—when the first white explorers of the modern era began to traverse central Minnesota on their way to points further west—it makes no difference whether Olaf Ohman had a book with some runes in it inside his farmhouse, or that papers about Scandinavian explorations to America predating Columbus may have been available to the Scandinavian settlers of Douglas County, Minnesota. It also matters not how numerous and well devised the arguments in favor of a possible forger put forth by detractors such as Erik Wahlgren in his *The Kensington Stone: A Mystery Solved* (University of Wisconsin Press, 1958) might be. Unless Wahlgren, and others, would argue that the American Indians had obtained an in-depth knowledge of medieval Norse by some divine revelation, the KRS could only have been made by just the type

The Geology of the Kensington Rune Stone

*Here is an official description of the Kensington Rune Stone (KRS)
by American Petrographic Services (APS).*



Below: The glaciated top end of the stone is seen, measuring about 15 inches across.

GENERAL GEOLOGY:

The KRS is a light- to medium-gray-colored meta-graywacke of probable Archaean age. Archaean age graywackes from Canadian Shield bedrock sources are commonly found in glacial deposits throughout much of Minnesota. The top face side of the stone contains a triangle-shaped, exposed hydrothermal calcite vein filling. The calcite vein is approximately 3 to 5 mm in thickness and exhibits a strong preferred orientation (sub-parallel to the long axis of the stone) of the medium-to coarse-sized (2-3 mm) calcite and chlorite minerals. The KRS exhibits well-developed joint fracture planes in at least three directions. These inherent fracture planes directly influenced the tabular shape of the stone.

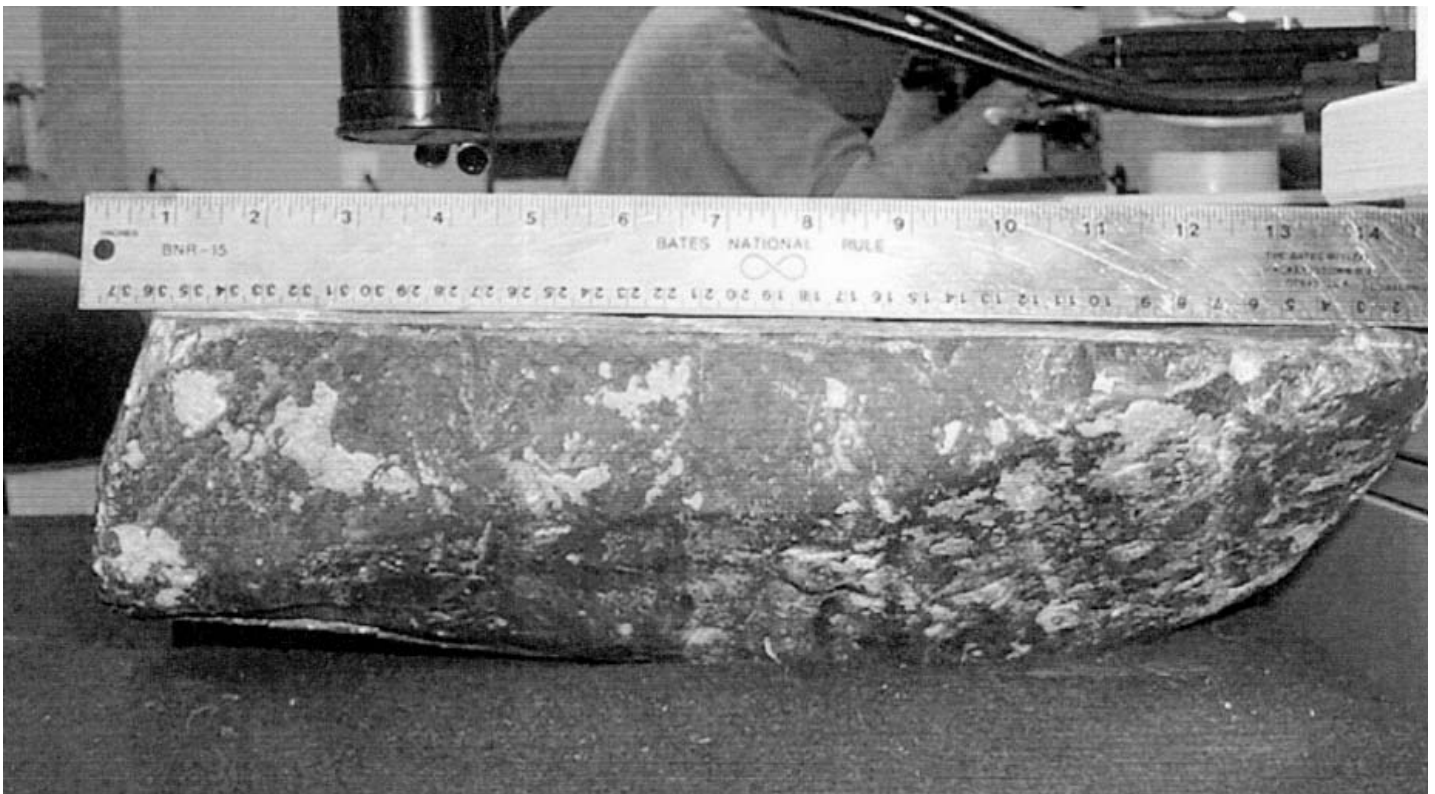
GLACIAL GEOLOGY:

The KRS is a portion of a previously larger glacial erratic. The glacial back side exhibits several large and deep striations running sub-parallel to the long axis of the stone. This length and depth of the striations suggest that they were produced at the base of a glacier moving over the stone while it was still a part of the bedrock. Also, many smaller and shallower groups of striations were also observed on the glacial back side, that were oriented in various directions. This suggests the striations developed during transport within the ice. The face side exhibits weathering consistent with the glacial sides but does not have striations. This suggests the slab may have broken off from a larger erratic near the end of its glacial transport.

What Life May Have Been Like for the Viking Explorers



Above, an artist's rendering of an early Viking farm complex in the Shetlands, established by westward-migrating Norsemen. Left, a Viking girl trades cow's milk for furs at a New World settlement. According to the Viking legends, all contacts with "Skraelings," as the Vikings called the American Indians, were not so peaceful.



The grayish-white splotches (yellowish in reality) seen in this view of the stone are calcite material that developed on the surfaces of the stone after glacial deposition, and, according to APS, prior to the dressing and carving of the stone. Shown is the bottom end of the stone.

of people mentioned in the translation of the inscription.

Scott Wolter was asked by Luann Patten of the Rune Stone Museum in July of 2000 to conduct forensic analysis of the KRS in keeping with standard scientific procedure. Scott Wolter told this writer in an interview by telephone that he had never heard of the KRS prior to this request, and entered the project with no preconceptions either for or against its authenticity.

The 30-page APS report concludes with these words:

It is clear that the manmade surface types on the KRS exhibit weathering (primarily mica degradation) consistent with being buried in the ground for at least decades and probably centuries. This being the case, the logical conclusion is that the KRS is an authentic artifact, presumably made at the time it is dated.

Wolter says that his observations are conclusive, with regard to the above statements. However, he makes some suggestions for further study which might be helpful in pinpointing the age of the inscriptions with more accuracy. These suggestions include:

- 1) Tombstone studies to quantify the rate of mica decomposition: Gravestones of incremental known ages (5, 10, 25, 50, 100, 200 years) should be sampled for analysis using SEM in order to generate a timeline for mica degradation that could be used for dating the KRS inscriptions.
- 2) Location studies with the goal of identifying the bedrock source of the KRS graywacke: Samples taken from the bedrock source would then be used in accelerated weather testing (to include an autoclave and a freeze-thaw

chamber). Chips should then be subjected to reflected light microscopy and SEM.

3) The data achieved above (#2) should then be analyzed with the intent of projecting a mica-degradation timeline and a weathering time line to be compared with the results from suggestion #1.

4) A thorough microscopic digital photo library of the entire inscription should be produced under various magnifications.

5) A qualified plant specialist should be consulted to examine the chemical processes and timing involved to develop the root bleaching observed on the back side of the KRS.

It appears that Olaf Ohman, his descendants and the early defenders of the stone—such as Hjalmar Holand (who purchased the stone from Ohman and wrote several books on the subject) and Prof. Robert Hall, whose classic work *The Kensington Rune Stone Is Genuine* (Columbia: Hornbeam

Stephen J. Martin is a political activist and pianist, and is a native of Pennsylvania who now resides in Maine. Steve, a former teacher with a deep interest in politics, ran for state representative for Maine's 141st district, but narrowly lost. An expert on the history of the northeastern borderlands and Atlantic Canada, Steve authored a fictional 420-page historical manuscript called Oak, describing the machinations of the international banking community in North America during 1833-1882, and is planning a sequel to cover 1883-1913. (See his ad on page 70.) Martin will be speaking on the Kensington Rune Stone at the TBR THIRD INTERNATIONAL CONFERENCE ON AUTHENTIC HISTORY & THE FIRST AMENDMENT, June 14-16, 2002. See our insert in this issue for more.

Evidence That the Kensington Rune Stone Is Not a Forgery

The most salient points from the American Petrographic Services (APS) report are as follows (taken directly from the text of the report):

1) The KRS was obviously prepared for the inscription by first splitting the stone along natural fault lines. The glacial sides of the stone that were not split by human effort exhibit only slightly more weathering than the two inscribed sides, which differ primarily in the absence of glacial scratches.

2) There is a section of the prepared surface that was chipped off as the inscriber worked, forcing him to begin the second line of the inscription much to the right of where the first line of the inscription begins. This “oh shoot” section is weathered similarly to the rest of the split side, and, of course, similarly to the unsplit “glacial” sides.



An artist traces runes from the Jelling Stone in Jutland, placed there about 980 by Harald Bluetooth to honor his parents.

3) While someone obviously rescratched most of the inscription with a nail or other sharp object within perhaps days of the 1898 discovery, there are places above these retoolings still within the inscription “valley” which were not retouched, and there are some letters on the side of the stone (where the second portion of the inscription was made) that were not retooled at all. In each case, the untouched portions of the inscribed (sub-facial) surfaces are weathered to the same degree as the split surfaces of the stone.

4) The tree roots that were wrapped around the top (glacial side) of the stone as it was found *in situ* have left a very apparent chemical displacement on the back side of the KRS. The age of these (up to 1.5 mm depth) intrusions by chemical leaching from the roots into the body of the rock should be measurable.

5) Scanning electron microscopy (SEM) analysis of the “inside” surfaces of core and chip samples that were taken from the KRS by APS show a comparatively smooth surface, indicating low degradation of the mica in comparison to any of the exposed surfaces of the rock. The split side and inscription areas should appear similar in degree of weathering to the base of the core sample, were the KRS a forgery. ❖

Press, 1982) anticipated Neilsen—have finally been fully vindicated. The Ohman family, to the fourth generation, still bears the onus of rebuke from dozens of neighbors and academic skeptics who now owe them a full apology for their crass and insensitive insinuations. Cognizant Americans should now put the Kensington Rune Stone in the place it deserves in our nation’s history. The little museum in Alexandria, Minn. now deserves to be on everyone’s travel itinerary as much as does the Plymouth Rock.

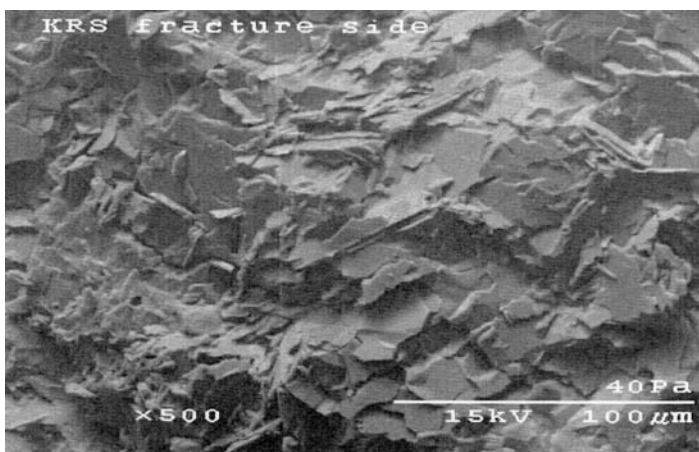
For those interested in further reading on this topic, Holand’s most interesting book (*Westward from Vinland*, New York: Duell, Sloan & Pearce, 1940), on a possible historical explanation for why the Kensington Rune Stone carvers may have been in the American heartland in 1362, is a must. Interested individuals should also visit the web sites of current researchers such as the Massey twins (Keith and Kevin), Michael Zalar and Yuri Kuchinsky. ❖

FOOTNOTES:

- 1 Wahlgren, 17.
- 2 Neilsen, interviewed by telephone, September 5, 2001.
- 3 Brochure from Rune Stone Museum, Alexandria, Minn.
- 4 Neilsen, 6.
- 5 Holand, 105.
- 6 In *ibid.*, 130.
- 7 *Ibid.*

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Surfaces of the stone as seen under a scanning electron microscope show evidence that the artifact is genuinely centuries old. Here, a freshly fractured surface is characterized by sharp, well-defined mineral grains, mostly micas. A manmade surface dating from when the runes were inscribed would be highly weathered, and display what the APS experts say are protruding quartz and feldspar grains. The mica particles, although they are “relatively slow weathering,” are virtually gone from the Kensington Rune Stone surface, indicating an age of approximately 500-1,000 years. This would of course rule out the establishment theory that the stone was created as a hoax in the late 19th century.