1. NAME OF PROPERTY

Historic Name: **VAN HISE ROCK**

Other Name/Site Number:

2. LOCATION

Street & Number: State Highway 136, approximately .75 mile north of State Highway 154 Not for publication:__

City/Town: Rock Springs Vicinity: X

State: Wisconsin County: Sauk Code: WI079 Zip Code: 53961

3. CLASSIFICATION

Ownership of Property		Category of Property	
Private:	__	Building(s):	__
Public-Local:	__	District:	__
Public-State:	X	Site:	X
Public-Federal:	__	Structure:	__
		Object:	__

Number of Resources within Property

Contributing	Noncontributing
__	__ buildings
1	__ sites
__	__ structures
__	__ objects
1	0 Total

Number of Contributing Resources Previously Listed in the National Register: N/A

Name of Related Multiple Property Listing: N/A

4. STATE/FEDERAL AGENCY CERTIFICATION

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this ____ nomination ____ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property ____ meets ____ does not meet the National Register Criteria.

Signature of Certifying Official Date

State or Federal Agency and Bureau

In my opinion, the property ____ meets ____ does not meet the National Register criteria.

Signature of Commenting or Other Official Date

State or Federal Agency and Bureau

5. NATIONAL PARK SERVICE CERTIFICATION

I hereby certify that this property is:

___ Entered in the National Register
___ Determined eligible for the National Register
___ Determined not eligible for the National Register
___ Removed from the National Register
___ Other (explain): _____

Signature of Keeper Date of Action

6. FUNCTION OR USE

Historic: LANDSCAPE Sub: natural feature

Current: LANDSCAPE Sub: natural feature

7. DESCRIPTION

ARCHITECTURAL CLASSIFICATION: N/A

MATERIALS: N/A
Foundation:
Walls:
Roof:
Other:

Describe Present and Historic Physical Appearance.

Van Hise Rock is a monolith of Baraboo Quartzite located on the east side of State Highway 136, west of the Chicago & Northwestern Railroad tracks in the gorge of the Baraboo River Valley, here commonly referred to as the Upper Narrows or Ableman's Gorge. The Baraboo Quartzite, which is predominantly a massive pink to purple quartzite, comprises rocks that were originally deposited as marine sediments, mostly sands, approximately 1.5 billion years ago during the Precambrian Era. These sandstones were subsequently altered to quartzite during a lower greenschist phase of regional metamorphism. Poorly exposed elsewhere in the area, the Baraboo Quartzite and other Precambrian rocks form an elongate ring of hills known as the Baraboo Range in Columbia and Sauk Counties of south-central Wisconsin. These 700-800 foot-high hills are part of an ancient mountain chain which may have risen 1000-1600 feet above the surrounding plain. All of these Precambrian rocks have been folded into a complex double-plunging asymmetric syncline, which is approximately 25 miles long in an ENE-WSW direction and about 10 miles wide. The north end, or limb, of the syncline is nearly vertical and the south limb dips to the north at a low angle.

Van Hise Rock is an erosional remnant of the cliff on the other side of the highway. Standing nearly 14 feet high and 6 feet wide, the Rock is composed of two main vertical layers, one of pink quartzite on the south, a darker phyllitic quartzite on the north. The quartzite layer shows evidence of cross-bedding, and ripplemarks indicate that top of original bedding was to the south. During movement caused by folding, the phyllitic layer yielded by fracture cleavage, whereas the quartzite yielded by jointing. Orientation and relationship of these cleavage and jointing patterns indicate that Van Hise Rock is located in the north limb of the syncline, and these features played a key role in Van Hise's interpretation of the structural complexity of the entire Baraboo District.

On the north side of the monolith is a bronze plaque (16" x 20") bearing a dedication to Charles Richard Van Hise, which was erected in 1923 by his friends at the University of Wisconsin. The inscription reads:

> The material of this rock was once sand on the sea bottom and has since hardened into quartzite. It was tilted to the present position by a slow earth movement, and then separated from the adjacent cliff by erosion. The vertical light and dark bands represent the original layers. The inclined cracks in the dark layer were caused by the readjustment in the layers during tilting. This rock is pictured in geologic books as a type illustrating important principles of structural geology, and has been a point of special interest to many investigators in geology visiting this region. President Charles R. Van Hise of the University of Wisconsin was one of the first and foremost of these.

Van Hise Rock is easily reached from State Highway 136, which was specially designed with the outcrop in mind. Cars may be parked in a special paved parking area at the shoulder of the road a couple hundred feet south of the Rock. A paved walkway extending from the parking lot to the Rock makes the site wheelchair accessible. The outcrop is protected from traffic by the two-lane highway by a guard rail. The surrounding Upper Narrows area is quite scenic where cliffs of pink Baraboo Quartzite, heavily wooded with pines and hardwoods, rise several hundred feet above the level of the nearby Baraboo River and road. This locality is so picturesque that it was commonly featured on picture postcards

around the turn of the century.

8. STATEMENT OF SIGNIFICANCE

Certifying official has considered the significance of this property in relation to other properties:
Nationally: X Statewide:_ Locally:_

Applicable National Register Criteria: A X B X C_ D X

Criteria Considerations (Exceptions): A_ B_ C_ D_ E_ F_ G_

NHL Criteria: 1 and 2

NHL Criteria Exclusions:

NHL Theme(s): VI. Expanding Science and Technology
3. scientific thought and theory

Area(s) of Significance: Science

Period(s) of Significance: 1911-1947

Significant Dates:

Significant Person(s): Van Hise, Charles Richard

Cultural Affiliation: N/A

Architect/Builder: N/A

NHL Comparative Categories:
XIII. Science
B. Earth Science
2. Geology

State Significance of Property, and Justify Criteria, Criteria Considerations, and Areas and Periods of Significance Noted Above.

Summary
Located in the picturesque Upper Narrows of the Baraboo River near Ableman, Wisconsin, Van Hise Rock stands as a natural monument to Charles R. Van Hise, one of America's preeminent nineteenth-century geologists, conservationists, and educators. This small, but important, outcrop provides an inordinate amount of geologic information about metamorphism, Precambrian rocks, and structural geology—all subjects to which Van Hise made early, significant contributions. The work by geologists such as Van Hise made the Baraboo area famous among structural geologists around the world, and Van Hise Rock is still used regularly by universities to train geology students. The Baraboo district has as much to offer geologists today as it did more than a century ago when the earliest structural interpretations were made. This is especially true because both ductile and brittle forces of a regional stress field are in evidence and because metamorphism did not entirely alter crystals within the rock, providing an opportunity for structural geologists to study a whole range of features even in the small area of Van Hise Rock.

History
As a geologist, conservationist, and University administrator, Charles Richard Van Hise was one of Wisconsin's most outstanding leaders. Born on a farm near Fulton, Rock County, Wisconsin, on May 29, 1857, Charles was the first child of Mary Goodrich and Henry Van Hise.[1] Charles received the best education available, attending the Academy in Evansville, where the family had moved, and the University of Wisconsin where he received a degree in Metallurgical Engineering in 1879. At the University of Wisconsin, Van Hise became the student of the eminent geologist Roland Irving, and together, they became the first Americans to conduct petrographic studies and the first anywhere to use this important new technique to formulate important geological principles and to study the ancient crystalline rocks that are found in many mountain regions of the world, including northern Wisconsin, in detail. On the basis of this work, Van Hise received his bachelor of science degree in 1880, his master of science in 1882, and in 1892, the first academic doctorate granted by the University of Wisconsin. His work on the crystalline rocks of northern Wisconsin was included in the classic Geology of Wisconsin volume published by the Wisconsin Geological Survey. In 1883, Van Hise became an assistant professor of metallurgy at the University of Wisconsin and undertook the task of making a detailed survey of the Penokee-Gogebic iron range of Michigan and Wisconsin for the United States Geological Survey (USGS). Based on this and work on rocks of the Wisconsin River Valley, which included Van Hise Rock, he established some of the fundamental principles of structural geology, metamorphism and Precambrian rocks. One of his most important works was his Treatise on Metamorphism (1904).

Following Irving's untimely death in 1888, Van Hise assumed his role as Chief of the USGS Lake Superior Geological Division and as Chair of the University of Wisconsin Department of Mineralogy and Geology. Van Hise was a founding member of the Geological Society of

[1]Vance, Maurice M. 1960. Charles Richard Van Hise, Scientist Progressive. The State Historical Society of Wisconsin, Madison, 246 pp.

America and its president (1907), served as president of the National Academy of Sciences (1915) and the American Association for the Advancement of Science (1916), helped to establish the present Wisconsin Geological and Natural History Survey in 1893, and was an editor of the Journal of Geology from 1893-1911. Because of his scientific stature, his dedication to the University, and his leadership abilities, Van Hise was named President of the University of Wisconsin in 1903, a post he held until his death in 1918. Presiding at a time when the idea of a modern university was just emerging, Van Hise was able to bring many advances to Wisconsin, especially during the terms of the Progressive governors Bob LaFollette, his former classmate, and Francis McGovern. Although his geologic studies slowed considerably, Van Hise remained in charge of the USGS Division of Precambrian and Metamorphic Geology for many years and contributed in writing The Geology of the Lake Superior Region. During this time, Van Hise also served as a trustee of the Carnegie Foundation and as president of the National Association of State Universities, among other offices, but he declined the directorships of both the Smithsonian Institution and the USGS. Having witnessed the environmental destruction caused by indiscriminate logging in northern Wisconsin and Michigan, Van Hise took a prominent role in the nationwide conservation movement as well. He emphasized that the most important work scientists could do was to popularize science so that the public would understand the need to conserve natural resources and support governmental policy to do so. President Theodore Roosevelt appointed Van Hise to the National Conservation Commission, and he served as chair of the State Conservation Commission and the State Board of Forestry, established the University of Wisconsin Forestry Products Laboratory, and published Conservation of Natural Resources in the United States, the first textbook in the field. His conservation concerns caused Van Hise to be interested in the governmental regulation of business and industry, and Roosevelt's proposal to create the National Industrial Commission, which later was adopted as the Federal Trade Commission, was a direct result of his recommendations. His political involvement continued into the World War I period, when he was one of the few figures to promote conservation during the war. Near its close Van Hise became heavily involved in plans to form a League to Enforce Peace (i.e., League of Nations) to foster international cooperation, including conservation efforts. Just a week after the armistice was signed, however, Van Hise died of complications from minor surgery. He was survived by his wife of 37 years, Alice Bushnell Ring, a young Evansville women he had known as a teenager, and several daughters, as well as a legacy of geological research, public policy, conservation advances, and an international reputation for the University of Wisconsin, which he had helped to shape. Van Hise Rock symbolizes his pioneering role in the fields of structural, metamorphic and Precambrian geology and his lifelong affiliation with the University of Wisconsin.

Van Hise Rock played a key role in the interpretation of the major structural features of the metamorphosed Precambrian rocks of the entire Wisconsin River Valley, or Baraboo District, which has long served as a hands-on field laboratory for professional geologists and geologists-in-training. The earliest geological observations in the Baraboo area were made during the original survey of the territory by David Dale Owen and his party.[2] In 1856,

[2] Shumard, B. F. 1852. Geological report of local detailed observations in the valleys of the Minnesota, Mississippi and Wisconsin Rivers. In: D. D. Owen, Report of a Geological Survey of Wisconsin, Iowa and Minnesota. Lippencott, Cranbo and Company, Philadelphia: 481-531.

James Gates Percival,[3] then Wisconsin State Geologist, recognized the relationship of the north and south parts of the Baraboo Range and realized that the rocks had been metamorphosed. James Hall, also a Wisconsin State Geologist, determined that the Baraboo rocks were Precambrian in age.[4] However, Roland Irving was the first to conduct an extensive study of the Baraboo District.[5] Like Thomas Chamberlin, Irving suggested that the Baraboo Quartzite had been uplifted into a broad anticline, but this interpretation was incorrect.[6] Van Hise was the first to understand fully the complex structural geology of the area.[7] He was able to do so by analyzing the relationship between the original horizontality of the rock layers and the directional forces that had deformed the rock, even on a petrographic (microscopic) level. On the basis of such data, he established principles that could be used to theorize about the original composition of a rock and the forces of deformation. In so doing, Van Hise effected a major advancement in geological thinking and helped found one of the basic tenets of structural geology. Many of Van Hise's ideas were codified by C. K. Leith in the first textbook on structural geology.[8] Van Hise's and Leith's work on the geology of the Baraboo and Lake Superior districts came to be known as the "Wisconsin school" of structural geology.[9] Van Hise published Principles of North American pre-Cambrian Geology in 1896, the first comprehensive treatment of these important rocks, which composed the entire Baraboo District. Some of the same forces that deformed these rocks had also altered their composition primarily from sandstone to quartzite in a process known as metamorphism. It was Van Hise who, in 1904, wrote the Treatise on Metamorphism, the first comprehensive treatment of this fundamental geological concept. This marked another major advancement in geology, moving it out of its purely descriptive stage and applying the quantitative principles of physics and chemistry to solve geological problems.[10] Van Hise had firmly established his reputation as the world's expert on metamorphic geology.

Van Hise and the other University of Wisconsin geology faculty used Van Hise Rock to demonstrate important properties of metamorphic rocks and structural geology to their

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[3]Percival, J. G. 1856. On southern Wisconsin, including the iron, lead and zinc districts, with an account of the of the metamorphic and primitive rocks. Annual Report of the Wisconsin Geological Survey, 111 pp.

[4]Hall, James. 1862. Physical geography and general geology. Report of the Geological Survey of the State of Wisconsin, volume 1, 455 pp.

[5]Irving, R. D. 1872. The Baraboo Quartzite Ranges. Geology of Wisconsin 2: 504-519.

[6]Chamberlin, T. C. 1873. Some evidence bearing upon the methods of upheaval of the quartzites of Sauk and Columbia counties. Wisconsin Academy of Sciences, Arts and Letters Transactions 2: 129-132

[7]Van Hise, C. R. 1893. Some dynamic phenomena shown by the Baraboo Quartzite ranges of central Wisconsin. Journal of Geology 1: 347-355.Van Hise, C. R., and C. K. Leith. 1911. The Geology of the Lake Superior Region. U. S. Geological Survey Monograph 52: 359-364.

[8]Leith, C. K. 1913. Structural Geology. Henry Holt and Company, New York, 390 pp.

[9]Dalziel, I. W. D. and R. H. Dott, Jr. 1970. Geology of the Baraboo District, Wisconsin. Wisconsin Geological and Natural History Survey Information Circular No.14, 164 pp.

[10]Vance, Maurice M. 1960. Charles Richard Van Hise, Scientist Progressive. The State Historical Society of Wisconsin, Madison, 246 pp.

students and colleagues, and after nearly a century, it continues to serve as an extremely important field laboratory. It has been, and will continue to be, used to train numerous generations of geology students from more than 100 different colleges and universities in the complexities of structural geology, the features of metamorphic and Precambrian rocks, and the resolution of geologic problems and the formulation of geologic principles.[11] Geologists from around the world have been drawn to Van Hise Rock and the Baraboo District by the work of Van Hise and the Wisconsin school of structural geologists. The site must be preserved to stimulate future research and so that scientists can understand how Van Hise used it to establish basic principles of structural geology. Therefore, it is most fitting that Van Hise Rock be designated a National Landmark in the History of Science as it epitomizes the geologic features of an important region of metamorphosed Precambrian rocks in North America, has been used in the establishment of fundamental geologic principles by Charles Van Hise whose pioneering geologic work it symbolizes, and it continues to be used as an educational and research tool by professional and student geologists.

[11]Dalziel, I. W. D. and R. H. Dott, Jr. 1970. Geology of the Baraboo District, Wisconsin. Wisconsin Geological and Natural History Survey Information Circular No.14, 164 pp.

9. MAJOR BIBLIOGRAPHICAL REFERENCES

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Minnesota, Mississippi and Wisconsin Rivers In: D. D. Owen, Report of a Geological Survey of Wisconsin, Iowa and Minnesota. Lippencott, Cranbo and Company, Philadelphia: 481-531

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Van Hise, C. R., and C. K. Leith. 1911. The Geology of the Lake Superior Region. U. S. Geological Survey Monograph 52: 359-364.

Vance, Maurice M. 1960. Charles Richard Van Hise, Scientist Progressive. The State Historical Society of Wisconsin, Madison.

Previous documentation on file (NPS):

__ Preliminary Determination of Individual Listing (36 CFR 67) has been requested.
__ Previously Listed in the National Register.
__ Previously Determined Eligible by the National Register.
__ Designated a National Historic Landmark.
__ Recorded by Historic American Buildings Survey: #
__ Recorded by Historic American Engineering Record: #

Primary Location of Additional Data:

__ State Historic Preservation Office
__ Other State Agency
__ Federal Agency
__ Local Government
__ University
__ Other (Specify Repository):

10. GEOGRAPHICAL DATA

Acreage of Property: Lesss than one acre

UTM References:		Zone	Easting	Northing
	A	16	264260	4819080

Verbal Boundary Description:

Van Hise Rock is a natural rock monolith located between the Chicago & Northwestern railroad tracks, on the east, and State Highway 136, on the west, just where the road turns to the northwest in SW1/4, SW1/4, NW1/4, Section 28, T12N, R5E, Excelsior Township, Rock Springs 7.5' quadrangle, one-half mile north of Rock Springs, Sauk County, Wisconsin. The northern boundary is chosen as 10 feet from the north edge of the rock; the southern boundary is the north edge of the parking lot.

Boundary Justification:

These boundaries to encompass Van Hise rock were chosen to include features that are readily recognized at the site or on a map.

11. FORM PREPARED BY

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Date: July 24, 1994