



WYOMING JADE

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INFORMATION CIRCULAR

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*ABOUT THE COVER: These jade slicks are boulders of nephrite which have been naturally polished by wind and water.*

Jade was discovered along the Sweetwater River in southeastern Fremont County about 1936. In the years since, the mineral has attracted great attention as a gem stone.

## MINERALOGY OF JADE

The name jade is applied to two distinctly different minerals, both of which have somewhat similar colors and physical features, such as hardness and toughness. Both will take a high polish to produce gem stones or ornamental stones.

The mineral jadeite is a member of the pyroxene group of minerals and is a sodium-aluminum silicate. It is hard and tough and the color varies from white to greenish-white to emerald green. The Mogoung district of Upper Burma has been an important source for jadeite, but it is also found in Yunnan in southern China, in Tibet, Mexico and South America. No jadeite has been definitely identified in Wyoming.

The second variety of jade is the mineral nephrite and Wyoming jade is of this sort. Nephrite belongs to the amphibole group of minerals and is a lime-magnesium-aluminum-silicate. Nephrite has a hardness of about 6.5 on the Mohs scale; it is not quite as hard as quartz or agate. Nephrite is also very tough. The specific gravity is about 3.0. The color varies from olive-green to leaf-green to dark-green to black and the mineral may be translucent or opaque. The light-green color of nephrite is most in demand for gem stones and commands the highest price. In addition to the Wyoming occurrence, nephrite has been found in parts of China, Turkestan, Siberia, New Zealand and Alaska.

Wyoming nephrite varies in color from light-green and translucent, to dark-green, black and opaque. In addition to the color variations, there are differences in quality. Not all specimens will take a high polish. Frequently the jade contains small dark specks which are softer and leave pits in the polished surfaces. A considerable amount of jade found is of inferior quality because of this feature.

## GEOLOGICAL OCCURRENCE

The Sweetwater River flows from the southern end of the Wind River Mountains across a terrain made up of Precambrian granite hills protruding from a mantle of Tertiary sediments. The jade occurs in place in Precambrian rocks and as boulders in alluvial deposits. The jade originated in the Precambrian rocks and was eroded and transported by streams to form boulders in the Tertiary beds. Later erosion of the Tertiary conglomerates brought about the distribution of jade boulders along the present stream valleys. Jade also occurs as residual boulders on the inter-stream divides.

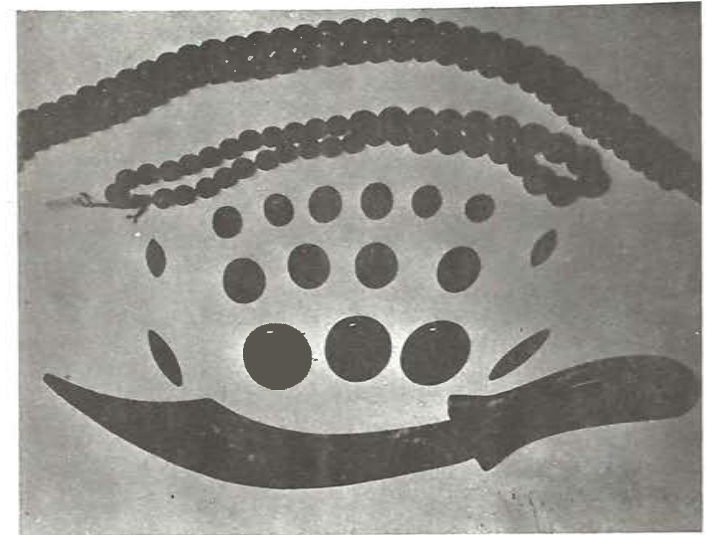
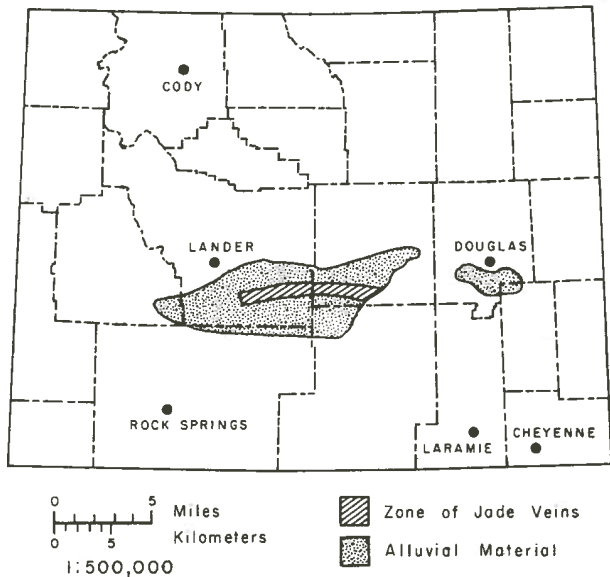
A number of jade deposits are known in the Precambrian rocks from the Wind River Range on the west to the Laramie Range on the east. Most of these deposits are dark-green or black nephrite. The jade is commonly associated with the contact between granite and dark mafic or ultramafic rocks.

Float boulders of dark-green or black jade have been found over a rather large area along the Sweetwater River between Crook's Creek on the east and the Wind River Mountains on the west. The average size of the boulders is from six inches to a foot in diameter, although many large boulders have been found.

Boulders of the light-green, translucent variety of jade have been found in abundance in only two relatively limited areas. The largest boulder of this type of jade so far reported weighed about 3,200 pounds. On the basis of the general geological structure, it appears that the original Precambrian source of the light-green jade may have been buried by later sediments and thus may never be located.

Black jade deposits in the vicinity of Kortez Dam, Carbon County, and Daniel, Sublette County, have been reported.

#### PRINCIPAL JADE OCCURRENCES OF WYOMING



*These gemstones, beads and an ornamental letter opener illustrate only a few of the uses for Wyoming jade.*

#### LAND STATUS

The area over which the jade occurs comprises private and federal land, and a small amount of state land. A number of placer claims have been filed, especially in the area where the light-green jade is found. Lode claims have been filed on deposits of dark-green jade where it occurs in place.

#### FUTURE POSSIBILITIES

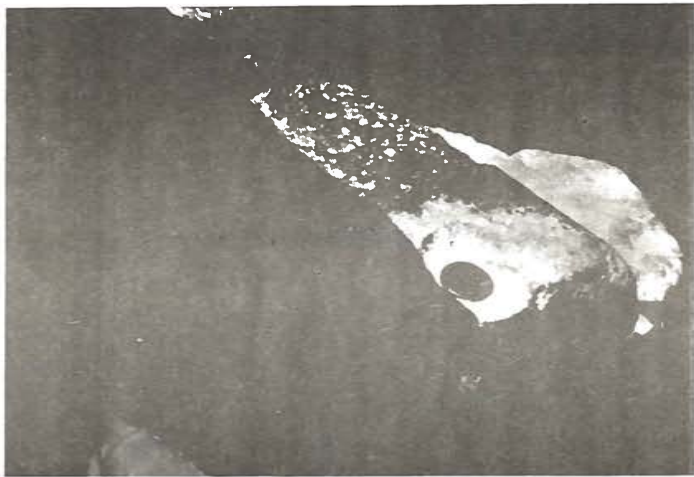
Gem quality jade occurs in the Sweetwater district in an area comprising about 700 square miles. These areas have been so thoroughly picked over that today the light-green jade of Wyoming is largely depleted. New finds of dark-green and black jade have been reported, however, in recent years. Even then, polishing tests must be made to determine the quality of the jade, and a considerable part is of inferior quality.

In addition, there are two other green rocks which occur commonly in the area and which superficially resemble jade. The abundance of these rocks, coupled with the fact that they are so often mistaken for jade, has given rise to exaggerated stories of the abundance of jade in the area. Truckloads of green serpentine have been transported for miles only to be found worthless. A green quartzite is also found in the area and has frequently been confused with jade.

It is possible, of course, that new areas containing gem quality jade will be found, but the entire region has been fairly well combed by present prospectors. None of the jade collectors depend entirely on collecting and selling jade as a livelihood for any length of time. The average jade hunter has simply found it to be a pleasant way to spend spare time.

## LAPIDARIES AND COLLECTORS

The towns of Lander and Riverton are the centers of jade collecting and lapidary work. Persons interested in purchasing uncut jade, jade jewelry or art objects may obtain the names of reputable dealers by writing the Chamber of Commerce in either town.



*This large block of emerald green nephrite shows the buff colored ring which develops from weathering.*

## REFERENCES

- Anonymous, July, 1939, Nephrite in Wyoming: Rocks and Minerals, vol. 14, no. 7, p. 210-211.
- Anonymous, September, 1944, Chinese Order Wyoming Jade: The Jewelers' Circular-Keystone, p. 154 and 228.
- Anonymous, April, 1946, Rare Wyoming Jade Find: The Mineralogist, vol. 14, no. 4, p. 167-177.
- Branham, Allan, March, 1941, Jade Found in Wyoming: The Mineralogist, vol. 9, no. 3, p. 79-80.
- \_\_\_\_\_, January, 1944, Jade - Wyoming and Oriental: The Mineralogist, vol. 12, no. 1, p. 9-10.
- \_\_\_\_\_, December, 1945, The Jade Rush: The Mineralogist, vol. 13, no. 12, p. 514-515.
- \_\_\_\_\_, December, 1946, A New Discovery of Jade (near Lander, Wyoming) that Resembles Fraser River British Columbia Material: Rocks and Minerals, vol. 21, no. 12, p. 838.
- Dake, H.D., September, 1942, Jade in Wyoming - New Discoveries: The Mineralogist, vol. 10, no. 9, p. 275-276.
- Keenan, J.E., 1964, Common Gemstones of Wyoming, in Highway Geology of Wyoming: Wyoming Geological Association, p. 9-12.
- Rhoads, Bert A., December, 1943, Hunting Jade in Wyoming: The Mineralogist, p. 371-373.
- Root, Forrest K., 1972, Minerals and Rocks of Wyoming: Wyoming Geological Survey Bulletin 56, p. 17-19.
- Sanders, Gold V., February, 1945, "Green Gold" of Wyoming: Popular Science, p. 112-114; 208.