WYOMING JADE

A PIONEER HUNTER'S STORY

By Russell P. MacFall, Editor



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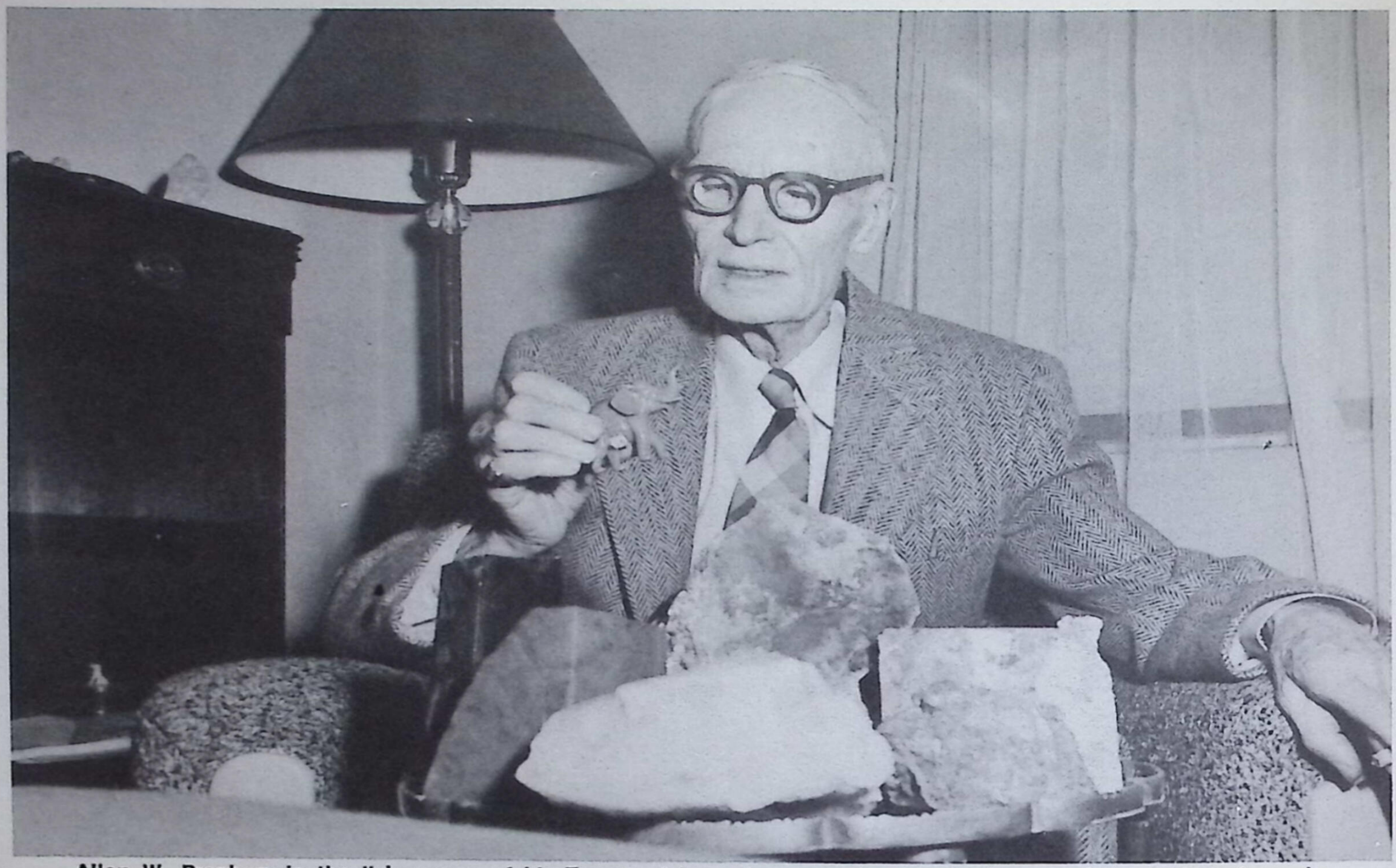
By Russell P. MacFall, Editor
with
Marcia K. Branham, Consultant

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Allan W. Branham in the living room of his Tucson, Arizona home, as he examined a gray jade carving of an elephant. Blocks of similar jade in the foreground were later carved into 10 elephants.

COVER TRANSPARENCY, COURTESY OF
THE WYOMING TRAVEL COMMISSION, CHEYENNE, WYOMING 82002

PREFACE

THE FAIREST OF STONES

"Jade is the fairest of stones. It is endowed with five virtues. Charity is exemplified by its luster, bright yet warm; rectitude by its translucency, revealing the color and markings within; wisdom by the purity and penetrating quality of its note when the stone is struck; courage in that it may be broken but cannot be bent; equity in that it has sharp angles which injure none." (From a Chinese lexicon of the 2nd Century A.D.)

Why Jade?

Despite its oriental mystique, jade gets its name not from Asia but the New World. Spanish freebooters in Central America brought back Mayan jade in the belief that it had the power to cure or prevent kidney disease. Hence they gave it the name of *piedra de ijada,* stone of the loins or kidneys. Presently this was translated into the French *pierre de l'ejade,* from which it was only a question of time until the name was shortened to its present form.

In the 18th Century, however, the famous German mineralogist A. G. Werner Latinized the French name to *lapis nephriticus* (kidney stone) which again was shortened to nephrite. A century later, the French mineralogist A. A. Damour discovered that Burmese jade reaching Europe was an unrecognized mineral. He named it jadeite. It is probable that the original Mayan material was also jadeite.

Jade, however, whether nephrite or jadeite, to the Chinese is *yu,* which John Goette in his book *Jade Lore* translates as "the stone possessing the cardinal virtues—pure, precious, valuable and beautiful." The Mayans called their jade *chalchihuitl,* a word that seems to have been applied as well to turquoise and other green colored stones.

The Two Jades

Nephrite — calcium magnesium silicate, an amphibole, either tremolite $Ca_2Mg_5Si_8O_{22}(OH)_2$, or actinolite $Ca_2(Mg\ Fe)_5Si_8O_{22}(OH)_2$ or a mixture of the two minerals; Mohs' hardness about 6½, specific gravity 2.9 to 3.1, texture felted and very tough, no cleavage, hackly fracture, colors white, gray, red, brown, black.

Jadeite — sodium aluminum silicate, a pyroxene $Na(Al\ Fe^{+3})Si_2O_6$, Mohs' hardness 6½ to 7, specific gravity 3.3 to 3.5, cleavage obscure, fracture splintery, crystalline texture, colors white, pink, lavender, gray and green.

For comparison quartz is a silicon oxide, SiO_2, Mohs' hardness 7 (cannot be scratched with a knife blade), specific gravity 2.65, no cleavage but fractures readily to a conchoidal (shell-like) pattern.

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INTRODUCTION

Many words have been written about jade by many wise men—anthropologists such as Berthold Laufer, collectors such as Heber Bishop, cultural and art historians such as John Goette, S. Howard Hansford, and Herbert Whitlock, and by such eloquent interpreters of oriental life and thought as Pearl Buck.

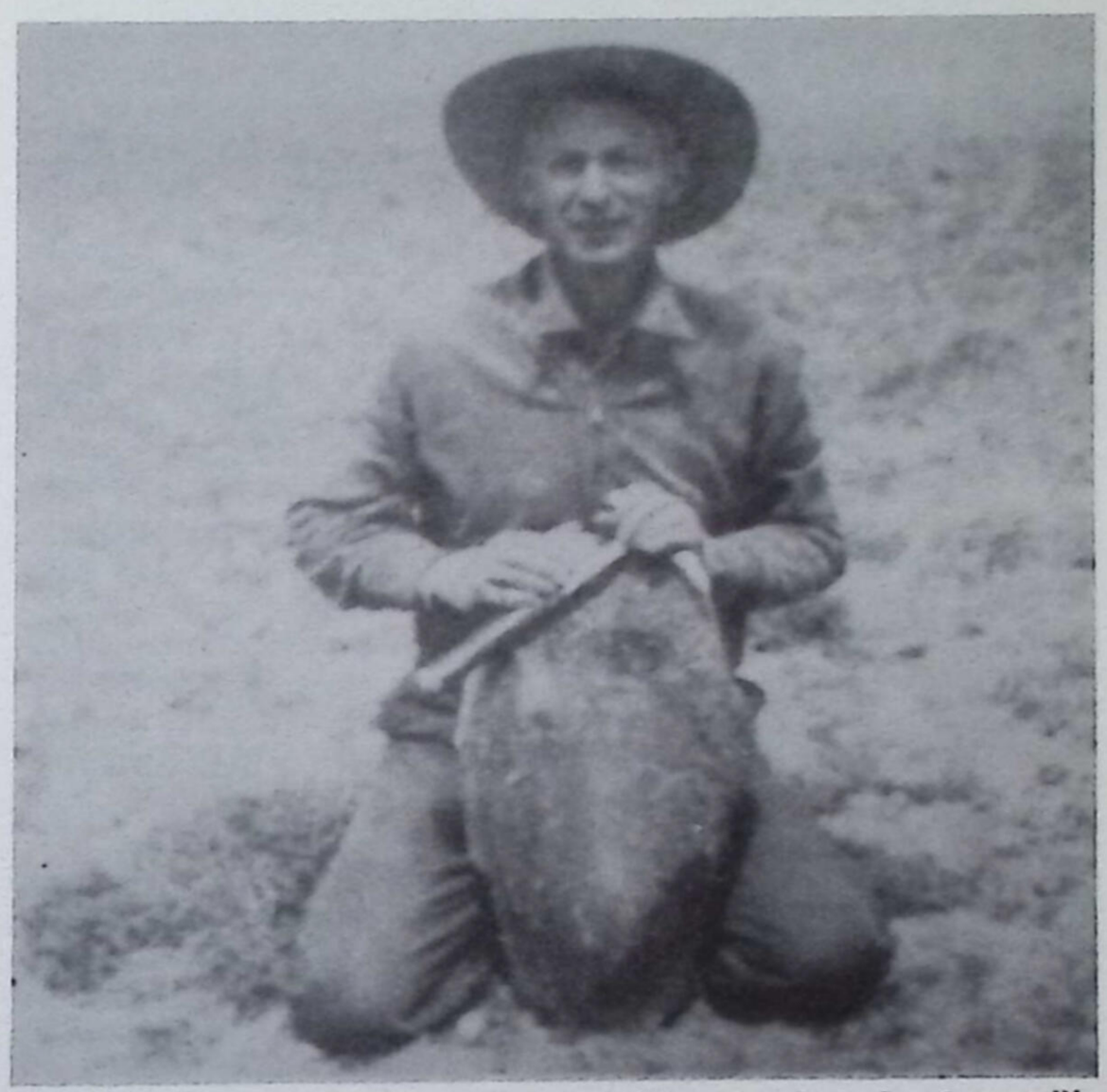
Allan Branham, whose reminiscences make up the substance of this book, is entitled to stand high in this distinguished company, but for his own reasons. To him alone do we owe a record of the joys and tribulations of a jade hunter's life and a unique picture of the stampede to Wyoming in the 1940's for the green treasure of its hills.

J. L. Kraft, the cheese magnate and himself a devotee of jade, in his *Adventures in Jade* wrote: "No one has ever written a proper book about what it is that makes a prospector tick. I wish someone would." His voice calling in a literary wilderness was answered. Branham wisely made no attempt to write a scholarly treatise. What he did was far better, for he succeeded in capturing the atmosphere, the excitement and the driving competitive spirit that animated him and the other jade hunters. Faith that fortune lies over the next hill inspires the prospector. Branham also brought to his book a rare ability to picture the rocky, brush covered, lonely wastelands where he hunted, dawn and sunset, the fragrance of a campfire, and the weariness and disappointment of a fruitless trip. An unexpectedly poetic strain enlivens many of his paragraphs.

Branham's account here republished first appeared in print as a series of 15 articles in *The Lapidary Journal* in 1965 and 1966. Its value as a history of a memorable episode of the pursuit of chance fortune as well as its innate values have been felt to justify preservation in book form, especially for those who may be curious about collecting days they were too young to remember. As a dealer, Branham also has much to say about jade from other places, Turkestan, Burma, Alaska, British Columbia among them, that he handled and sold.

As a supplement to Branham's reminiscences appear two articles from *The Lapidary Journal*. One by Richard A. Crippen, Jr., formerly of the California Division of Mines, describes the geology of Wyoming jade, and one by Lawrence J. Bergsten, jade dealer, prospector and collector, brings his own point of view to the personalities and events of those memorable days.

If the book is important, so is the author. Allan William Branham was born in Springfield, Illinois, on January 5, 1878, shortly before the family moved to Minneapolis, Minnesota. Employment after school running errands and making deliveries for a grocery acquainted him with that business and led to his employment as salesman in South Dakota and Montana by a wholesale grocery company. He met Estelle Carlson and they were married in Rapid City, South Dakota.

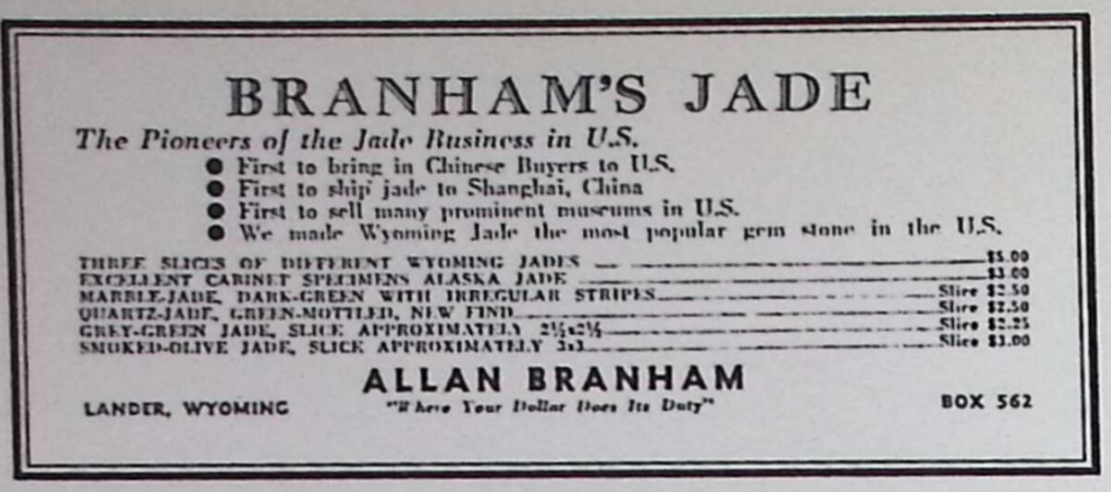


Bert Rhoads, one of the most active Wyoming jade hunters, with a jade boulder he had found.

Branham was always an outdoor man. While traveling on his grocery route in Montana, for example, he would stop occasionally to hunt agates. Married and the father of a daughter Janice, he was attracted to the wide open spaces in Wyoming and got a job as manager of a grocery in Lander there in 1920. After the death of Janice in infancy, the Branhams had another daughter Marcia, who now lives in Tucson, Arizona. Marcia also has a half brother Robert who lives in Minneapolis.

Lander was all that Branham had hoped it would be. Fishing, hunting, collecting agates and other stones provided an active outdoor life for the whole family. When the presence of jade in the nearby hills became known in Lander, Branham was one of the first to search for it although he was 60 years old at the time. A salesman for the Kraft cheese company, stopping on his regular schedule, asked Branham about the rumor. Aware of Kraft's interest in jade, he notified his boss, and the chance contact of cheese, grocery and jade developed into a warm personal and business relationship between the two men.

Meanwhile, Branham had bought a grocery in Laramie, Wyoming, and moved there. Kraft, interested in having a



An early advertisement for Branham's jade. It gives a contemporary list of prices on those happy days.

personal representative present for the jade rush, persuaded Branham to return to Lander and helped him financially to open one of the first jade shops in 1946.

Branham and Burt Rhoads, a hardware store owner, became the leaders in selling jade and spreading word of its discovery. Branham's advertisements appeared in 1939 and 1944 in *Rocks and Minerals* and *Minerals Notes and News,* predecessor of *Gems and Minerals* magazine. According to a magazine photo, he sold his first large piece in 1940. He offered Alaskan and Turkestan jade for sale besides the local product.

As one example of his enterprise, he sold the Union Pacific railroad a block of jade which it exhibited in cities along its route, and he tried to sell a similar piece to Marshall Field & Company, in Chicago, at $10 a pound. He also sold some of his best rough material to Chang Wen Ti, Los Angeles jade merchant, who shipped it to China.

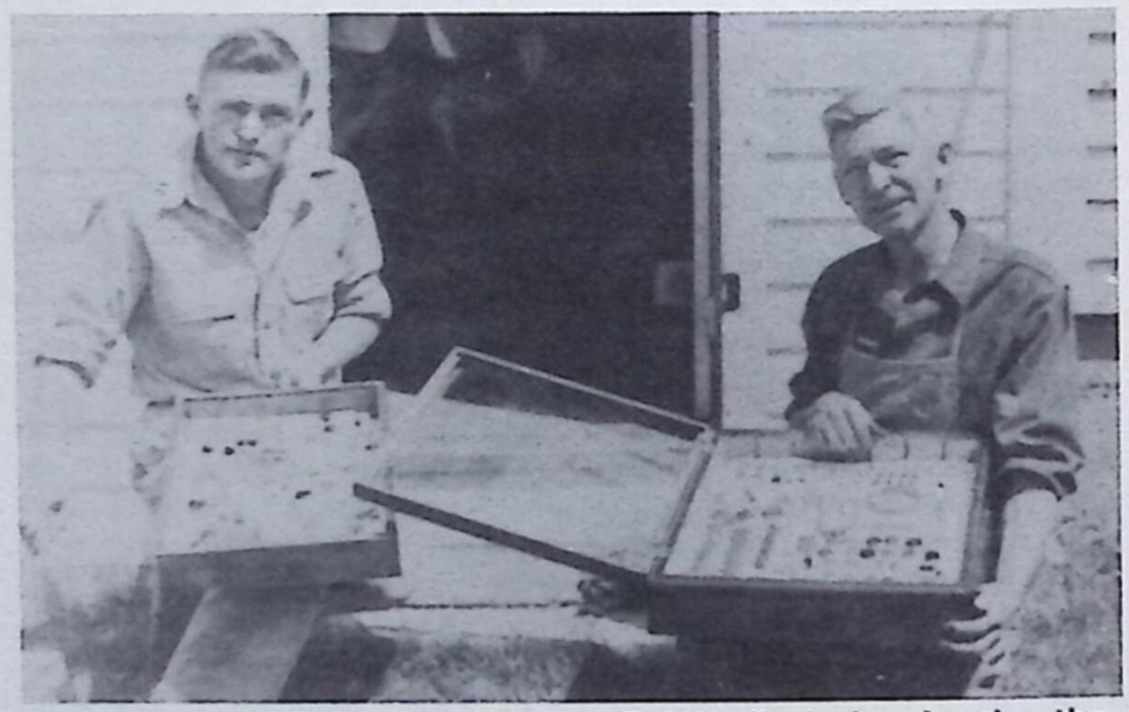
Through this connection, Donal Hord obtained the 460-pound piece of jade that Marcia Branham found in 1943 and from which Hord carved his statue "Thunder." Hord later did another statue, "Lady Wang," in jade.

Rhoads and Branham both wrote about jade for hobby magazines, such as *The Mineralogist, Rocks and Minerals,* and *The Lapidary Journal* and were interviewed frequently after World War II when Wyoming jade became news.

In the early 1950's, Branham developed cataracts. After they were removed, the family moved back briefly to Minneapolis and then to Tucson in September 1953. Now in his 80's, he continued dealing in jade but occupied himself principally with writing his recollections of the Wyoming jade rush and his worldwide involvement as a trader and importer. In a personal letter, he expressed a longing to go back to Lander, but before he could do so he died in Tucson in December 1969. His wife, Estelle, followed him in death two years later.

Like the discovery of America, the exact circumstances of the discovery of Wyoming jade are far from clear. It appears fairly certain that in 1931 a sheepherder brought to Lander a piece of jade he had found in the Crooks Mountain area, where so much of the fine green gem material was later collected. In May 1936, William L. Marion, Lander hardware dealer, and Lloyd B. Curtis, a Lander science teacher, discovered an outcrop of olive green and black jade while they were looking for asbestos in the Granite Mountains. Asbestos is mineralogically related to jade. This claim, which they worked for many years, lies almost due north of Jeffrey City (Sections 13 and 18, Township 30 N and Range 92 and 93 W) and not far from the famed Sweetwater agate beds.

Branham himself gives credit to the Abernathy brothers for the first mining of jade in the Granite Mountains. Their claim is in the same general area (Township 30 N, Range 96 W). Both Branham and Rhoads later held claims not far from these mines. Francis and Kathleen Countryman appear to have become aware of float jade on their ranch in the Sweetwater Station area in 1936, and opened a shop to sell it. Float is jade that is loose on the surface. It is also known as a slick if the wind and sand have polished the surfaces of the specimen.



Bert Rhoads (right) and his son Ralph displaying jewelry they made of Wyoming jade they collected in the field.



PHOTOGRAPH COURTESY OF GARDINER E. GREGORY

Black jade mine of Chester Humphrey in Granite Mountains area near the Sweetwater River agate collecting area, Wyoming.

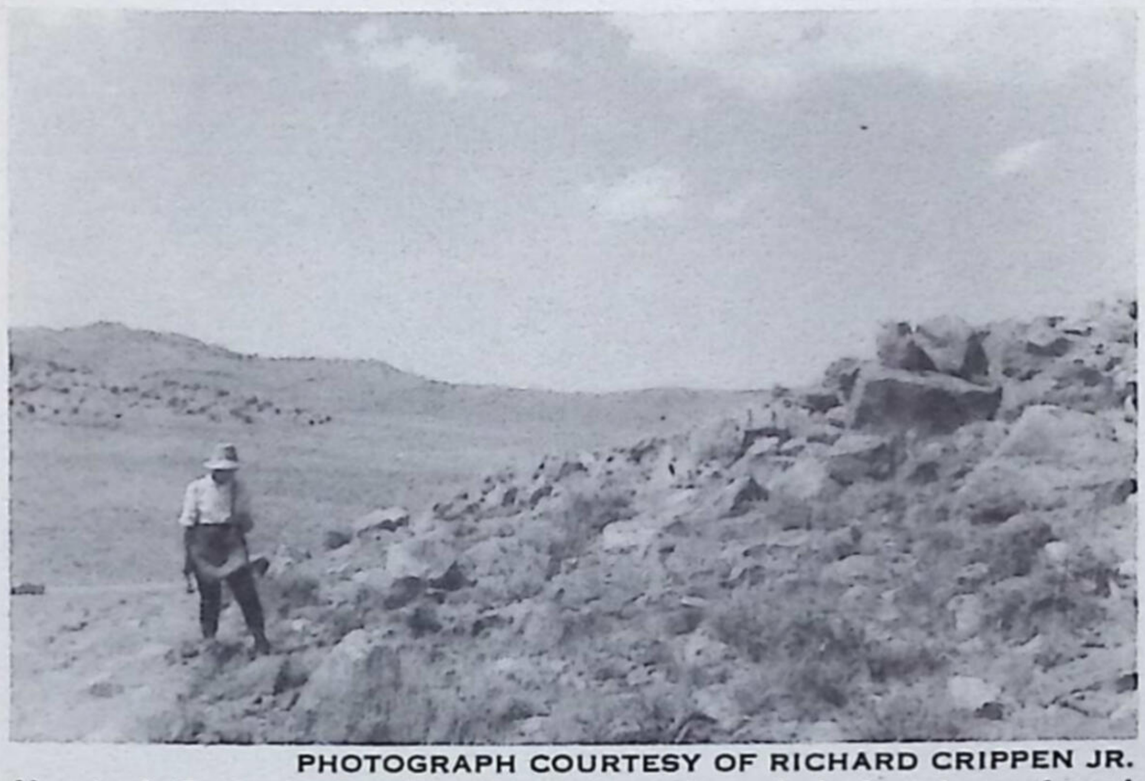
Ted Graham, whose ranch straddled entry to all the area north of Jeffrey City, allowed prospectors free access to the mountains behind his ranch. In 1946, he sold mining rights to the Imperial Jade Company which exploited a deposit of bright green material marked by white cloudy areas which it sold under the name of snowflake jade.

According to the Wyoming State Journal, Cheyenne, in its April 5, 1945 edition, first official recognition of the authenticity of Wyoming jade was given by Dr. John Marble of the National Museum, Washington, D.C., who visited the Lander area in the fall of 1939 and made positive identification of the material on his return to the capital. Another interested visitor was Chang Wen Ti, who has been previously mentioned. He came in 1944 to examine the jade fields and make arrangements to buy from Branham and others. He bought Branham's Turtle boulder, which has been described as the finest large piece ever found in Wyoming.

By the early 1940's, word about Wyoming's new-found treasures had begun to spread beyond Sweetwater County, but World War II restrictions on travel held back the rush

for a while. The rush was set off by an article, "Green Gold of Wyoming," that appeared in the February 1945 issue of *Popular Science.* A few quotations will explain its explosive power:

"Fortunes lying around loose on the ground in Wyoming have been passed up by generations of residents . . . Now those green rocks, scattered at random among the sagebrush, have turned out to be nothing less than jade. The rush for the 'green gold' is on . . . Only the surface has been touched . . . there is doubtless an immense amount to be discovered . . . Allan Branham discovered a hunk of jade weighing 2,410 pounds. It was bought at once by James L. Kraft . . . he told them the jade was as high in quality as any that comes from China . . . Bert Rhoads . . . got hold of some cutting and polishing equipment and started making pendants, crosses and cabochons . . . After a while, it dawned on him this was better than the hardware business. He sold out and gives all his time to hunting the precious stones . . . One day Allan Branham took a notion to send some of the green rocks east . . . People laughed at his idea of wrapping up stones and shipping them. But soon the checks started coming in . . . Word spread around Lander and the rush started . . . Current selling prices for the rough material are somewhere in the neighborhood of $15 a pound . . . How much of it (jade) there is can only be imagined, but there is every reason to suppose that it is a prodigious amount, possibly the richest jade find in all history." The article is signed by a Goldy Sanders.

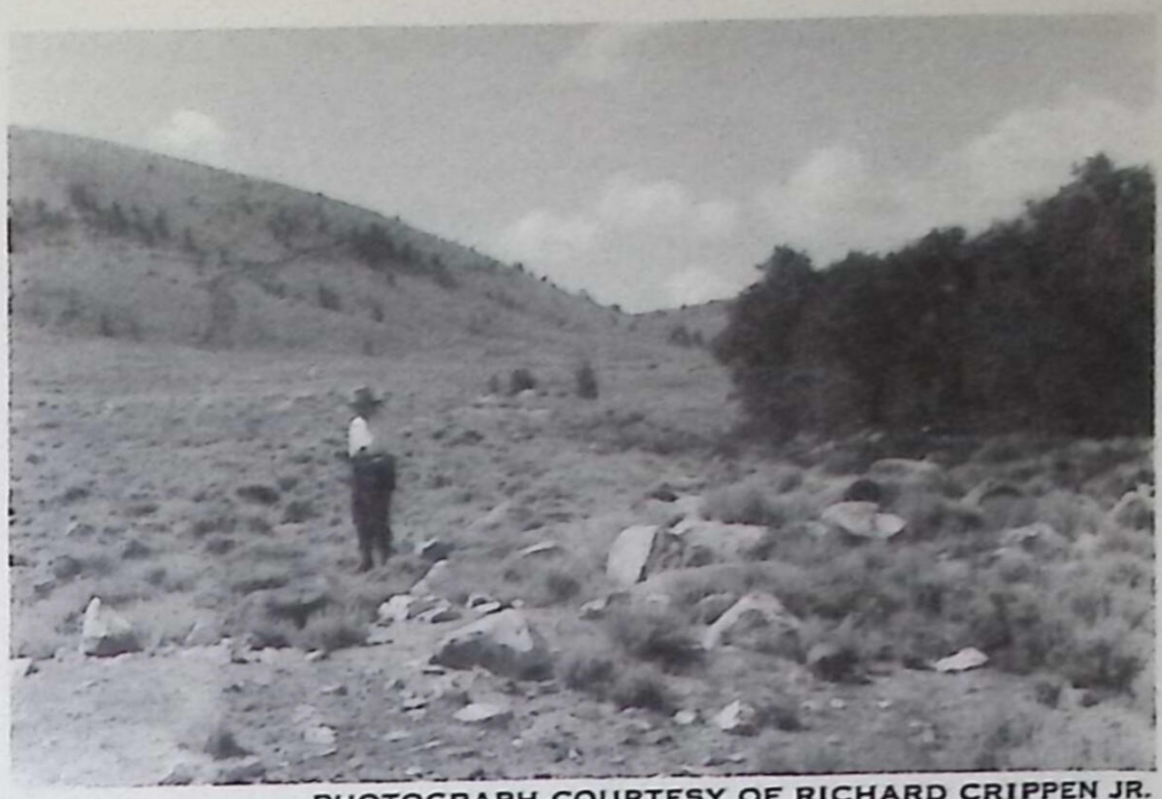


PHOTOGRAPH COURTESY OF RICHARD CRIPPEN JR.

Haystack Butte in Granite Mountains where jade has been found among the quartzite boulders.

The Denver Post, in an article published February 1, 1948, gave credit to the Rhoads family for making known the jewelry possibilities of Wyoming jade by their own example. Rhoads, born in Colorado and brought as a child to Lander in a covered wagon, had tramped the Wyoming countryside for 30 years searching for Indian artifacts and gemstones. Having found his first piece of jade in 1936, the *Post* reported, he traded a washing machine, perhaps from his hardware store, for lapidary equipment. With it, he made jewelry for friends and later for sale in his jade shop. The Rhoads back yard was described as being piled high with 15 tons of jade, including a 3,336-pound boulder found by Mrs. Rhoads and Mrs. Ray Morgan. This claim was supported by a photograph showing a child sitting on the heap. Biford Foster was mentioned, too, as Lander's "master craftsman in fashioning jade into jewelry."

Other accounts of jade hunters then and later include the names of William Kane, Chester Humphrey, and Lewis Vandrasek of Muddy Gap.



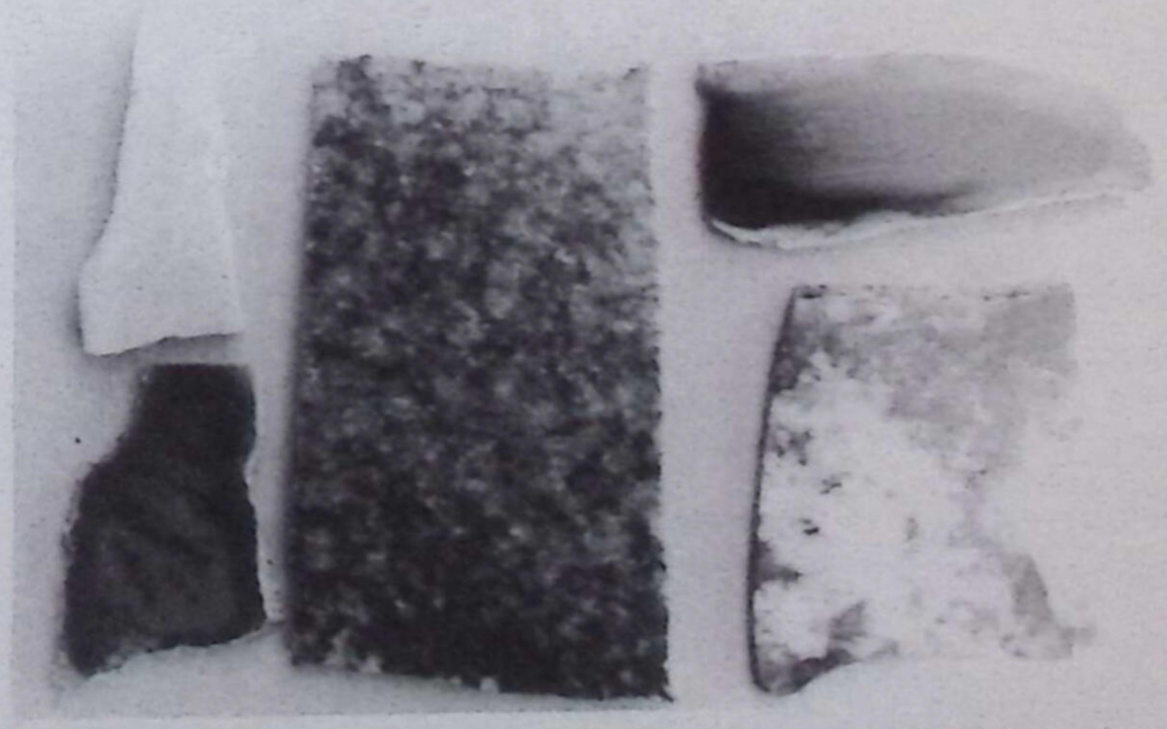
PHOTOGRAPH COURTESY OF RICHARD CRIPPEN JR.

Near the campground at the base of Crooks Mountain (in the distance at left) with bulldozer trail up its side where effort was made to uncover more jade in the most productive Wyoming area. Rocks in the foreground are granite and hornblende schist.

The competitive spirit which Branham has described in his reminiscences began to get out of hand as it was fanned by commercial interests and an influx of eager collectors. Branham once recalled in a personal conversation that he left his wife and daughter sitting on a desirable boulder while he drove to Lander for help in removing it. Marcia and her mother spent several hours hiding behind the boulder to avoid being struck by stones hurled at them by jade hunters eager to jump their claim. Rhoads mentioned in one published story that, after he left his wife to guard a 300-pound boulder, a man and woman drove up, threatened her with a revolver, hoisted the boulder into their vehicle and drove away. How they could kidnap such a huge rock without help was not explained, but Rhoads said he had them arrested and recovered the rock.

After the first discoveries of jade in place and then in the basins south of Jeffrey City, it became clear that jade could be found over much of central Wyoming, from Lander east as far as Casper and Douglas, and south into the Great Divide basin and the Red Desert. This is an area 140 miles wide and 60 miles deep.

The heart of the jade country, however, lay in Fremont County. Most of the float material, including the apple



Varieties of Wyoming jade. Top left, creamy white; lower left, dark green with dendrites; center, "snowflake" jade; top right, black with light green rim; bottom right, thulite in nephrite.

green gem jade such as Branham hunted, was found south of Highway 287 between Sweetwater Station and Jeffrey City. This includes Crooks Mountain, Bull Canyon, and Warm Springs as well as the Green Mountains to the east and Bison Basin to the west, a region of moderate relief, fairly high altitude, not far from the Continental Divide and the Rocky Mountains. Black boulders of what is usually described as diorite, an igneous granitic rock, are commonly associated with the jade.

Highway 287 is bordered on the north by the Granite Mountains with its deposits of jade in place. A dike of hornblende schist, a dark metamorphic rock, and aplite, a white sugary igneous rock, runs for a half mile through the low hills of the Granite Mountains north of Jeffrey City. In the general area of this dike lies several jade mines, such as the previously mentioned snowflake jade deposit, the Marion-Curtis Mine, Branham's brownish-green nephrite claim, and the Vandrasek and Humphrey workings operated in recent years for olive green jade. Some of this jade is associated with a pink thulite.

The hilly country east of the Granite Mountains and near the Fremont-Natrona County corner has also excited the interest of prospectors. Branham in a personal letter mentions a ledge of gray jade in the Rattlesnake Hills, and gem-quality, medium green jade has been collected along Horse Creek. Branham had seen jade containing quartz crystals from the Shirley Basin east of Seminoe Dam. This is not far from Kortes Dam and Pathfinder Dam, where some of Wyoming's finest black jade has been found on the Halsey Kortes ranch and the Edwards claim near Casper.

In his reminiscences, Branham has described the chance finding of fine black jade in the Wind River Mountains. In recent years, another deposit of green jade has been reported near Grannet Peak in that same range.



PHOTOGRAPH COURTESY OF LANNY REAM

Botryoidal nephrite nodules from Cultus Mountain area, east of Mt. Vernon, Washington. The large specimen is 3 inches long.

Interest in Wyoming jade has gone far beyond the thrills and tribulations of collecting it. Geologists have studied the mineralogical processes that formed it and the convulsions of the earth that placed it where it lay. Jade is an indefinite word, for it is used to describe two mineralogically unlike minerals, nephrite and jadeite. Wyoming's jade is nephrite, a tough, compact rock made up essentially of fine hair-like fibrous crystals of a family of calcium magnesium silicates—tremolite and actinolite. Tremolite is a white to gray mineral with little or no iron in its formula; actinolite is darker and contains iron as a replacement of some of the magnesium. One variety of asbestos is another fibrous form of the same two minerals. In asbestos, the fibers lie parallel,



A wind-polished small boulder or "slick" from the Granite Mountains in Wyoming. Buried surface at the top is grayish, polished bottom, left, is a rich dark green. It is 10 inches long, 7 inches high and 2 inches thick.

but in nephrite the bundles of fibers are woven, twisted and intergrown at random, like the texture of a felt hat. This characteristic texture results from simultaneous crystallization from many centers.

Nephrite's identity, as well as its value as a gemstone, depends on texture as well as color and freedom from inclusions. Much of the field run of material will be coarsely fibered, poorly felted and spotted, marked by black inclusions and other undesirable materials. This has been true of Wyoming jade as well as that from Alaska and British Columbia.

The evidence that geologists have discovered appears to show that Wyoming's jade had its origin in the mountains where it is found in place. The Granite Mountains, their investigations indicate, once rose several thousand feet above the Wind River Basin to the north and the Great Divide



PHOTOGRAPH COURTESY OF HARRY J. STREET

Shovel and pick mark width of the nephrite vein in a deposit found near Gold Bridge, British Columbia. Two boulders lying side by side also appear between the tools.



PHOTOGRAPH COURTESY OF RON PURVIS

A boulder 4 feet long of nephrite jade from Lillooet region in British Columbia. This weathered mass has been called the Buddha's foot from its shape.

Basin and other basins to the south and east. Faults further set off the mountains on the north and south, while erosion scattered granite, gneiss and nephrite boulders in the basins. As the mountains were worn down and downwarped, the landscape assumed much the same appearance about 50 million years ago that it has at present, although it was raised somewhat. Fans of loose conglomerate at the feet of the mountains were washed further south by mountain torrents. New sediments hid the conglomerate, only to have it exposed by further faulting.

The prized light green jade of the Crooks Mountain area appears to have been formed in the southwest end of the Granite Mountains and moved in this way to the collecting grounds about 3 million years ago. Bull Canyon's jade may have come from deposits in the south end of the Wind River Mountains. It and other rocks were washed eastward, buried by later sediments and exposed by faulting. Some float jade is found north of the Granite Mountains but the best went south. The geological history of the Laramie and Seminoe Mountain areas is believed to be much like that of the Granite Mountains.

Just as the jade itself is extraordinary, so are the circumstances that created it. Mineralogists identify a rock called amphibolite as the mother rock of this jade. Amphibolite, sometimes called hornblende schist, is a metamorphic rock itself, formed by natural processes from other rocks. It is largely hornblende, a black mineral that belongs to the same mineral group as nephrite jade.

Presumably proper conditions existed in the Granite Mountains where intrusion of dikes of diorite and pegmatite, igneous rocks, had fractured the native granite and gneiss. Stress caused by the intrusion together with migration of certain elements from quartz and other rocks in the presence of the proper amount of water at the proper temperature brought about a series of changes in the rocks. First crystalline tremolite and actinolite formed, then nephrite as their fibrous form and finally, if the reaction did not stop at the nephrite stage, talc and serpentine would be the result. Happily, in this part of nature's laboratory, all things worked for the best. For much of the jade of the Pacific Coast, serpentine is virtually the host rock of the nephrite.

Whether Wyoming jade is to be classified as tremolite, actinolite, or a mixture of the two minerals appears to rest on definitions. Paul Bartholomew of the University of British Columbia in Vancouver found the level of iron as ferrous oxide (FeO) in light green Wyoming jade to be 1.73 per cent against 26.6 per cent of magnesium oxide (MgO), while black jade ran 7.78 per cent ferrous oxide and 20.62 per cent magnesium oxide. Michael E. Madson, Wyoming geologist, interpreted this to place Wyoming jade in the tremolite end of the tremolite-actinolite series.

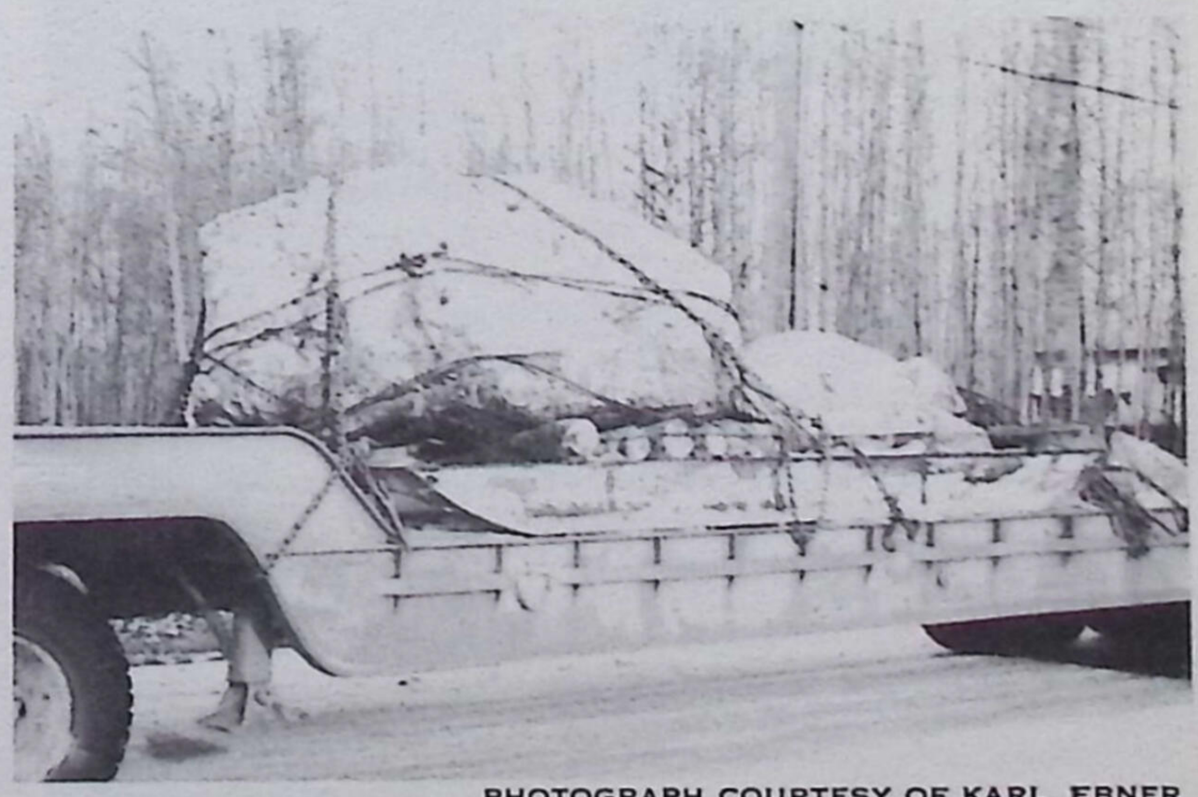
Less than 1 per cent of the jade was described as highest quality: "emerald" green, apple green or dark "emerald" green color, of fine texture that takes a good polish, and free of inclusions, veins and black spots. In 1975 such material was listed at from $100 to $450 a pound. About 15 per cent of the jade was classified as acceptable quality. This would be green, olive green, and grays without objectionable texture or inclusions. The rest, about 84 per cent, was brown, very dark green, snowflake, or "pink jade" coarse in texture and flawed or full of inclusions. One dealer has broken down Wyoming jade into 22 grades by color and quality, which he divides into gem quality, commercial quality and substitutes. Fine black, red, bluish and creamy jade, as well as chatoyant, dendritic and other uniquely textured jades sell, of course, well above the market.

What is commonly called "pink jade" is thulite, a variety of the mineral zoisite, which is related to nephrite. Most of the white "jade" is a quartz-feldspar-epidote rock. Snowflake jade contains nephrite but also epidote and other foreign minerals.

Jade has not only its poor relations but also a great many imposters. Several materials are frequently misrepresented as jade or mistaken for it. A green compact serpentine called bowenite closely resembles nephrite; it is almost as hard (Mohs' 5½-6) and has a clear translucent color. So has some soapstone, but it is so soft a knife blade will scratch it. Zoisite in such forms as pink thulite and green saussurite is often intergrown with nephrite. It is about the same hardness (Mohs' 6-6½) but slightly heavier (specific gravity 3.25-3.57). Zoisite is a hydrous calcium aluminum silicate. Epidote is frequently found with zoisite; it is green, as is vesuvianite, another calcium aluminum silicate. Vesuvianite is often called idocrase. These materials lack nephrite's toughness and hackly fracture.

Grossular garnet and several forms of quartz such as chalcedony are harder than nephrite and have a more glassy or vitreous luster. They are also brittle. Glass is near the hardness of nephrite but may show tiny bubbles in the mass. Glass imitations are usually cast rather than cut.

A host of commercial names have grown up for some of



PHOTOGRAPH COURTESY OF KARL EBNER

A huge jade boulder arriving from the Yukon at Fort St. John, British Columbia. It was found 100 miles in the mountains from Watson Lake, and was dragged out to the highway on the sled on which it appears on the trailer.

these lookalikes. African or Transvaal jade is grossular garnet; much of the "California" jade is vesuvianite (idocrase); Mexican jade is dyed calcite; quartz spangled with a green mica is aventurine; and green microcline feldspar is amazonite. Few of these materials except soapstone, a soft talc-like mineral, and serpentine have the soft luster of good quality polished nephrite.

Branham mentions the unique Wyoming nephrite that contains large well-formed quartz crystals, their hexagonal cross sections outlined in white against the green. The hypothesis that the jade formed around the already-existing crystals appears to be the most reasonable one. Branham himself arrived at this conclusion through practical experience rather than book-learning. In this instance and some of his other surmises, Branham proved himself a shrewd observer.

Besides the rare quartz crystals, Wyoming nephrite may include feldspar, epidote, calcite, the black spots of magnetite and red and black mossy patterns (dendrites).

From Wyoming, the roving eye of the treasure hunter has swept west and north and found jade. Dr. Richard Coleman of the U. S. Geological Survey, speaking at the American Federation of Mineralogical Societies convention in Pleasanton, California, in 1978, suggested that stress generated when the Pacific plate thrust oceanic crust against the American plate from Alaska southward caused favorable conditions for nephrite to form. At any rate, nephrite is found from Alaska's northernmost reaches down through the Yukon, British Columbia, Washington, and California. All the deposits are situated near the coast and in areas of earthquake and volcanic activity.

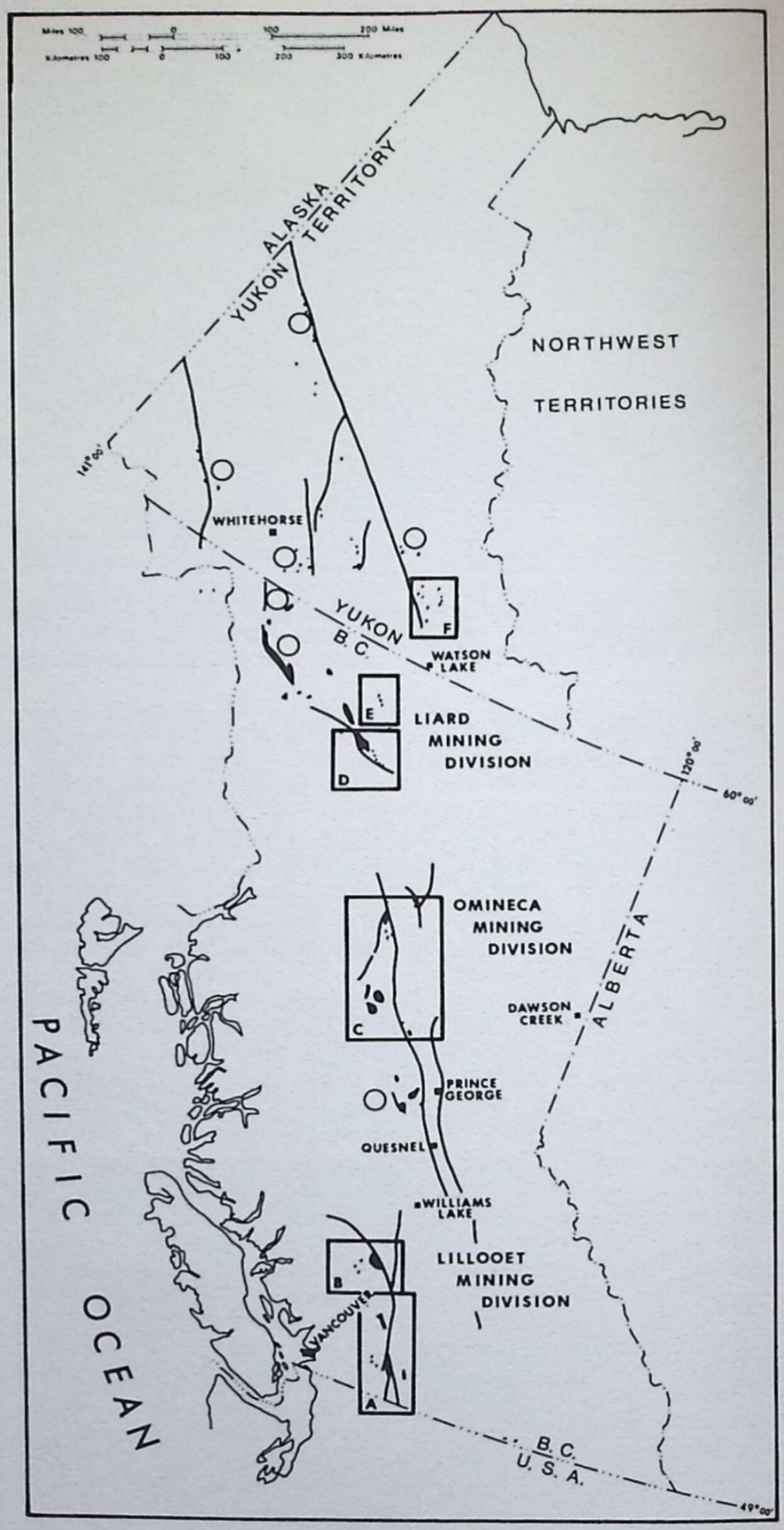


PHOTOGRAPH COURTESY OF LANNY REAM

Blocks of sawn nephrite from a mine in the foothills of the Cascades 7 miles west of Darrington, Washington. The material varies in color and texture.

Alaska's green gold rush has been centered on the remote region near Kobuk, east of Kotzebue, north of the Arctic Circle. Gold miners first found gray and dark green jade in Dahl Creek and the Shungnak River. But 30 miles north stood a mountain, a shining bright green peak of serpentine and jade, that presently would become a beacon to lure the treasure hunters north. An American company had mined asbestos there during World War II, and the Eskimos had long had a practical interest in its jade, for from it they fashioned tools for survival in a hard, cold land.

Arctic weather and the problems and costs of getting jade boulders from this remote spot to a flying field and then to the United States limited the development of Jade Mountain, although some of the most vivid accounts of jade hunting have been written by those who tried. Furthermore, appraisal of the quality of the jade before it was brought out was difficult, and much of that reaching the market was not well received by lapidary and commercial users. Some, however, was prized because it would show chatoyancy, a cat's-eye effect, when cut. Most of the Alaskan jade is a medium to dark green.



MAP COURTESY OF CANADA GEOLOGICAL SURVEY

Jade areas in British Columbia. A, Fraser River; B, Yalakom River; C, Omineca area; D, Cry Lake; E, Cassiar area; F, Frances Lake. The black areas are favorable areas for prospecting.

Chinese gold miners appear to have been the first to exploit the jade resources of British Columbia. It is recorded that they shipped 35 tons of jade boulders to their native country between 1850 and 1900. These boulders came from



PHOTOGRAPH COURTESY OF CANADIAN GEOLOGICAL SURVEY

Nephrite in place in the mining area near Provencher Lake in the Cassiar-Cry Lake area of British Columbia, where several companies are mining jade.

the Lillooet River, a tributary of the Fraser River. Perhaps 4000 years previously, however, the native Indians had found nephrite invaluable for chisels, axes and even ornaments and had traded it with other tribes. One black jade artifact has been found in British Columbia, possibly made from Wyoming jade.

S. F. Leaming, geologist in the Vancouver office of the Geological Survey of Canada, has taken a special interest in the discovery and development of nephrite deposits in British Columbia. In his 1978 report, *Jade in Canada,* he identifies six major areas of significant importance. They range northwestward along a belt of faults and serpentine rocks that follow the Pacific Coast from the United States border almost to Alaska. Two of these areas include the nephrite resources along the Fraser River and its tributaries, the Omineca group of mines north of Prince George, two in the Cassiar-Cry Lake Division, and one across the line in Yukon Territory.

Bars in the Fraser River from Chilliwack to Lillooet, in the Coquihalla River above Hope, and in the Yakakom and Bridge rivers and in Marshall Creek above Lillooet have been worked by amateurs and miners alike almost as long as the Wyoming hills. Winter's low water season has been a popular time to explore the channels for jade.



PHOTOGRAPH COURTESY OF HARRY J. STREET

Thirty-six inch diamond saw cutting a five ton nephrite boulder from a deposit near Gold Bridge, British Columbia. Paul Paulenkus and Harry Street Jr. watch. Street's father discovered the vein from which the boulder came.

One of the storied exploits in British Columbia's jade history took place in the Omineca area. A housewife, Mrs. W. Robertson, made a study of geological reports until she noted a serpentine-granite contact on Mount Sidney Williams. There she located a nephrite lode and flew out some tons of jade in 1969 from her Jade Queen Mine. The end of the story is that no production has been reported in the last 10 years.

Several companies have mined jade from Mount Ogden in the Omineca area; and one, New World Jade, is reported to have opened a carving and lapidary shop in Vancouver to market its material. Some of the Mount Ogden jade is rated by Leaming as the finest found in British Columbia.

The Liard (Cassiar-Cry Lake) segment of the British Columbia jade belt has been the home for many years of the Cassiar Asbestos Company, which got into the jade business when it found that the boulders it had been hauling to the dump were nephrite. Cassiar jade is distinctive because of its brilliant green color from inclusions of chrome garnet. Close by in the Cry Lake and Provencher Lake areas and along Wheaton Creek, nephrite boulders and nephrite in place are producing a considerable amount of commercial quality material. Nephro-Jade Canada Ltd. and Cry Lakes Jade Mines Ltd. are among the several companies here.



PHOTOGRAPH COURTESY OF KARL EBNER

Karl Ebner of Fort St. John, British Columbia, with a 31½ ton jade boulder found at Dease Lake, British Columbia, listed in 1979 Guinness Book of Records as the world's largest.

The jade belt extends into the Yukon, but comparatively little exploration for minable quantities of nephrite have been made there. Frances Lake is one of the areas east of Whitehorse which Leaming believes holds promise.

Taiwan, China, and Hong Kong are the principal markets for Canadian jade, with the United States and Germany taking a few tons annually. Top prices range from $15 to $40 a pound. Leaming estimates that Canada could sell twice as much if it could produce more commercially acceptable jade. He says that only about 10 per cent of the total production is salable. Such defects as fractures and layered structure, presence of black magnetite inclusions and other foreign material, unattractive color, and coarse texture that refuses to polish well are common to Canadian jade as they are to all jade.

Leaming has noted that several geological processes have been at work in creating North American jade deposits. Jade in the belt from Alaska southward occurs in dark serpentine associated with "white rock," a contact zone material between the serpentine and the country rock. In Wyoming, however, jade is primarily associated with horn-

blende-rich rocks in metamorphic environments like those found in Turkestan's jade fields.

Jade in Washington is much like that of its immediate neighbor to the north. A serpentine belt winds from Leavenworth southwest to Ellensburg, then north on the west side of the Cascades to the Canadian border. One nephrite deposit has been worked on Mount Higgins 7 miles west of Darrington in Skagit County. An area of botryoidal jade is known on Cultus Mountain east of Mount Vernon, Skagit County. Nephrite is also known from Curry County, Oregon.



PHOTOGRAPH COURTESY OF LEON D. PHILLIPS

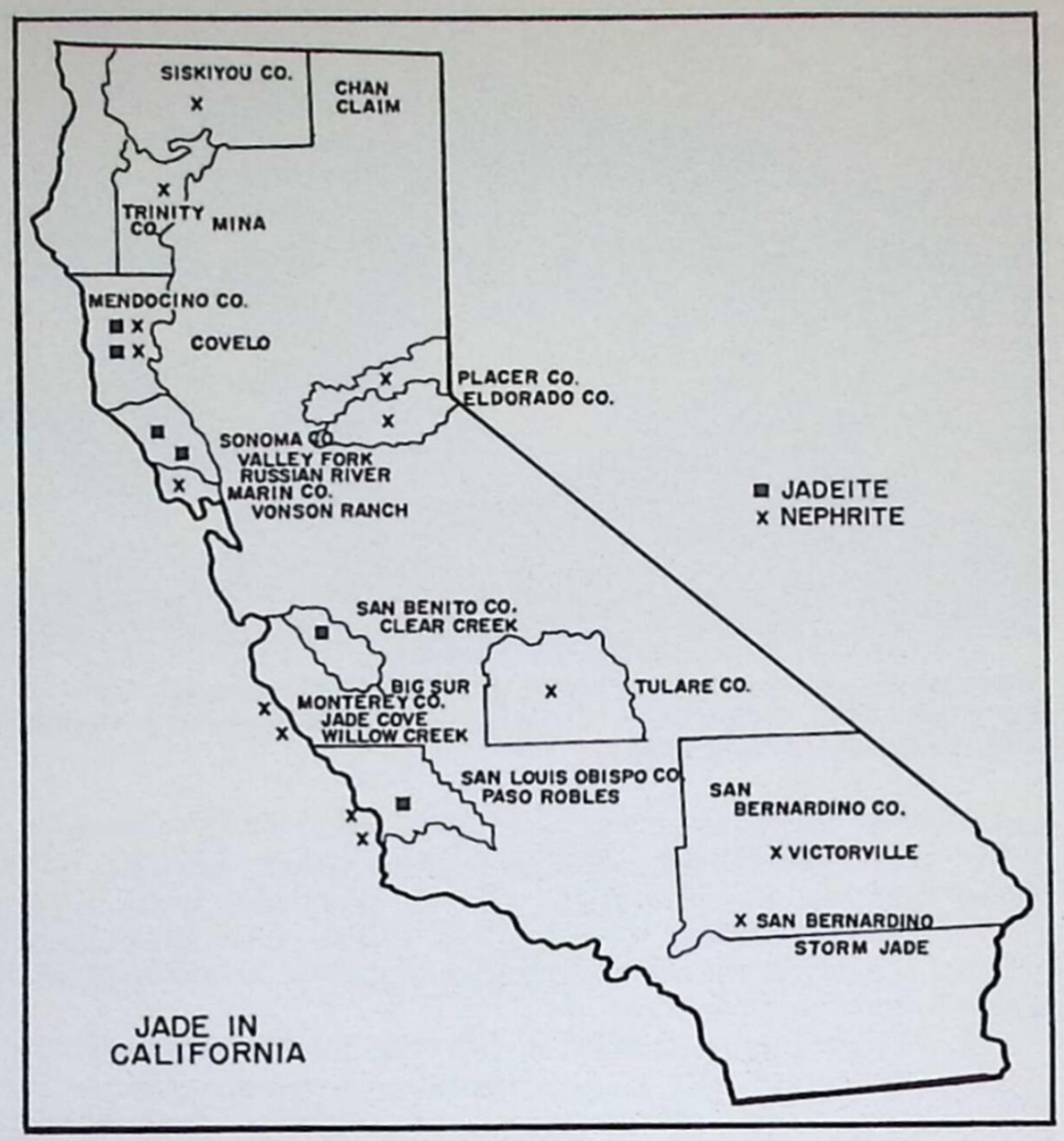
Rugged cliffs and sloping beach which are characteristic of the nephrite collecting area in Monterey County, California. This is the north beach at Willow Creek, a source of botryoidal jade nodules. It is about 2 miles south of Jade Cove, Monterey County, California.

James L. Kraft, Branham's benefactor and customer for jade, kept a boulder of green nephrite from Monterey County, California, in his office in the Kraft company headquarters in Chicago. Of it he wrote, "I like to look at the boulder myself—I like to touch it. But more than that I like to have that boulder close at hand because the waterswept cave at Monterey from which it came makes a special appeal to my imagination. Could any pirate's store of treasures equal a cave of gems carved out by Nature herself?"

Kraft was not alone in his adoration of Monterey jade, which set off a California treasure rush comparable only to that of the 49ers who came for gold. Much has been written about Monterey jade by those who dived into the sea for it and by those who climbed the cliffs and strolled the beaches to find it. The authoritative geological description by Richard A. Crippen, Jr., was published by the California Division of Mines.

Most productive of the Monterey coast localities is at Jade Cove south of Plaskett Point. Pebbles torn by the sea from the outcrops in the cliff-like shoreline at one time could be picked up from the beach. Boulders, one of nearly five tons, were recovered from the ocean floor and underwater caves. Another collecting site exists less than two miles south of Jade Cove and just south of Willow Creek near Cape San Martin.

The Monterey material occurs in or near serpentine and gray schist. Most of it is dark green; some is black; and, like the Canadian material, it is often flawed by parting planes and schist-like texture. Most prized of the Monterey nephrite specimens are the grape-like or botryoidal masses of a light green color. They range in size from small pebbles to 30-pound masses. As it is slightly less hard than other jade, this botryoidal material has often been described as



seminephrite. Similar material has been reported from the Klamath River region in northern California.

Quite in contrast to the physical challenges that attend jade collecting in such areas as Monterey was the good fortune of the late Magnus Vonsen, rancher and noted mineral collector. He discovered nephrite 5 miles southwest of Petaluma, Marin County, on his own ranch where it had formed in outcropping serpentine and schist in Massa Hill. Although the amount is relatively scanty, this jade is exceptional for its often bluish-green color, excellent texture, and occasional chatoyancy.



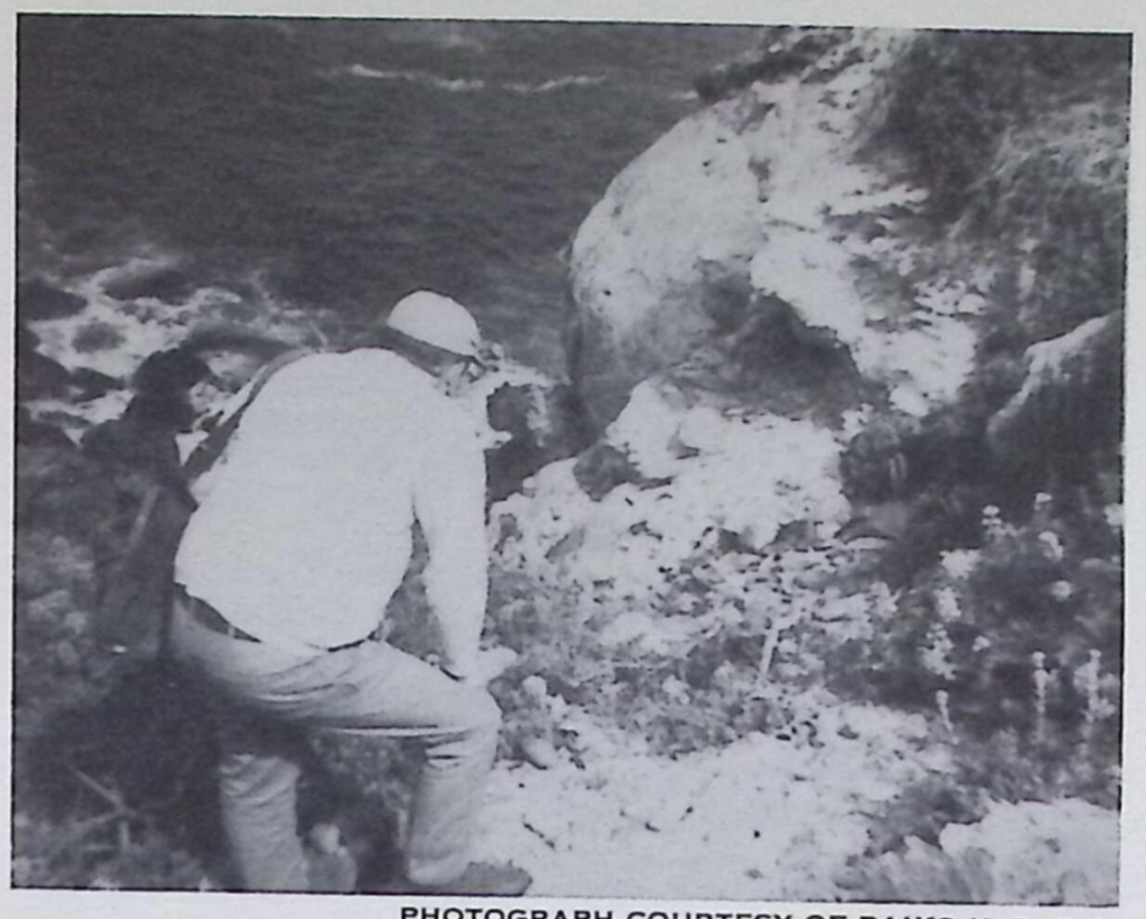
PHOTOGRAPH COURTESY OF RAIKO H. RUZIC

Nephrite pebbles found by Rodger Curtice and Leon Markham at the Jade Cove locality in Monterey County, California. They are reddish, brown, and green in color.

Jade mined at Lewis Hill, 2 miles north of Porterville, Tulare County, as a commercial enterprise has been described as some of the best ever found in California. It is darker than typical Wyoming material and has an oily luster.

Among other California deposits is jade in place 5½ miles northeast of Placerville on the north bank of the American River; as well as the Stifle Memorial claims be-

tween Placerville and Georgetown, El Dorado County; another 2½ miles northwest of Bagby, Maricopa County, in a formation that extends to 2 miles north toward Coulterville; black jade in the Mohave River and mined in the desert northeast of Victorville, San Bernardino County; and the Storm Jade mines in the Eagle Mountains east of the Joshua Tree National Monument in Riverside County.



PHOTOGRAPH COURTESY OF RAIKO H. RUZIC

Collecting in the cliffs above the sea at Jade Cove, Monterey County, California.

California also holds two other jade deposits that have excited wide interest. The first of these is in and near Clear Creek, San Benito County. It is remarkable for being the only major jadeite deposit in the United States. First noticed in 1936, about the same time the Wyoming excitement was beginning, it was largely ignored until 1950. Clear Creek jadeite lies in heavily fractured serpentine, from which boulders have eroded into the stream. Specimens are white inside with a dark green rind. While the Clear Creek jadeite is of considerable mineralogical importance, little of it has been found to be suitable for lapidary use.

Several other occurrences of jadeite exist in California. One is in a stream near Paso Robles, San Luis Obispo County; others in the Santa Lucia range between Point Sur and the Salmon Creek Ranger Station; in the Eel River with nephrite near Mina, Trinity County, as well as farther downstream; in Williams Creek near Covelo, Mendocino County, and as crystals from a deposit at the head of the Russian River, near Cloverdale, Sonoma County.

Historical associations make a second California location important. This is the Chan Jade claim on the south fork of Indian Creek, north of Happy Camp, Siskiyou County. Chan was a Chinese gold miner who celebrated the discovery of nephrite on his claim, so the story goes, with a big party so hilarious that he did not survive it. Kraft bought the claim to mine a beautiful vesuvianite, often called californite or "California jade;" the nephrite came with it.

Kraft, in his book *Adventures in Jade,* describes a visit to a placer gold mine in Placer County. The owners had discovered that, above an upper stretch of the stream, an occasional piece of jadeite could be found, but that below that point, where the stream had been worked by Chinese gold miners long ago, no jade could be found.

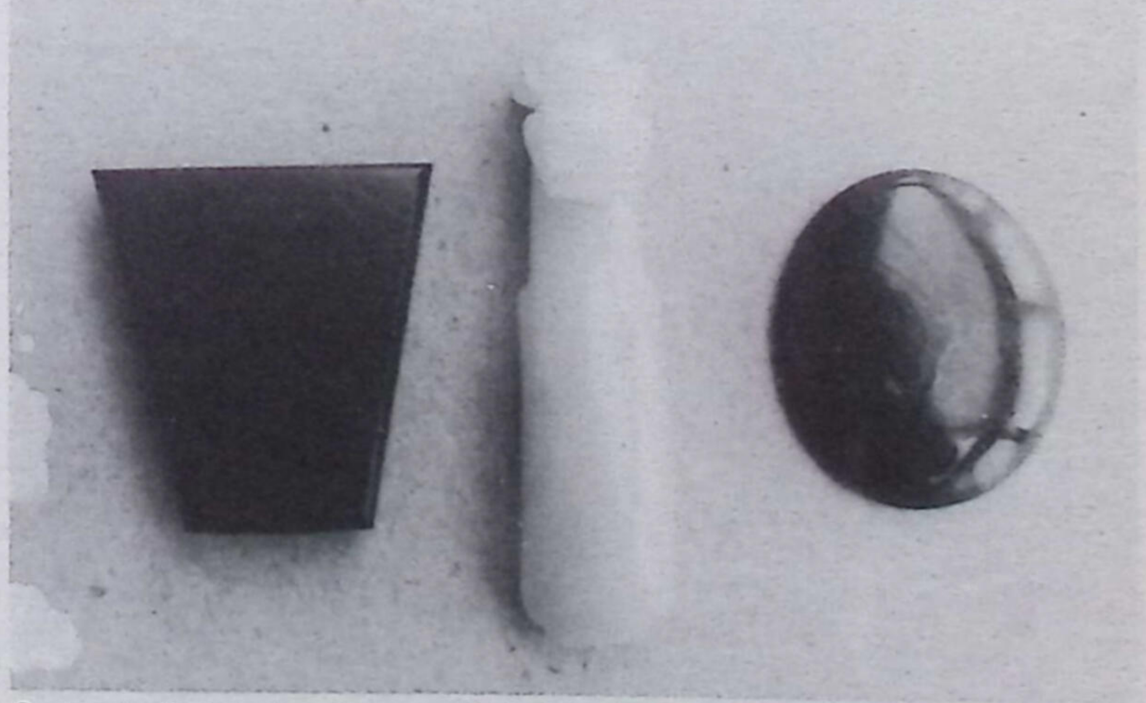
"It may be," Kraft wrote, "that the search for gold had been merely the polite pretext for a search of far greater importance to the Chinese miners: the search for jade."



The baffling variety of rind or exterior surface of Wyoming nephrite. Left, reddish gray rind on top quality apple green jade; top right, white coating on dense black jade; bottom right, rough brownish gray rind on a small boulder.

Discoveries of nephrite have been reported from several midwestern and a few other western areas besides those that have been mentioned. A dark green jade-like material from the Rib River near Wausau, Wisconsin, has been the subject of several magazine articles. Although they say it has been identified as jade by the University of Wisconsin, apparently no commercial development of the material has been made. A piece found at Kettle Point, Ontario, on Lake Huron may have been a glacial erratic. A tough gray rock outcropping south of Red Lodge on Hell-Roaring plateau in Montana, and deposits north of Milford and in Millard County, Utah, have been identified by their finders as jade. Dark green to black pebbles of poor quality have been taken from Bitch Creek a few miles north of Tetonia, Fremont County, in Idaho across the state line from Yellowstone Park.

North America, of course, was a latecomer to the jade world. Jade artifacts of perhaps 2,000 B.C. have been found in the Swiss Lake dwellings, and the Turkestan deposits have been worked at least as long. Jade from west of Lake Baikal and north of the Mongolian border in Siberia has been long utilized; and Burma, Turkey, Japan, New Zealand, North Italy, Taiwan, Poland, Switzerland, Rhodesia, Brazil, Guatemala, as well as isolated deposits near Disko



Several finished pieces of jade. Left, a black nephrite bola cabochon; center, a garment fastener or frog carved of white Burma jadeite; right, a cabochon of green Wyoming nephrite.

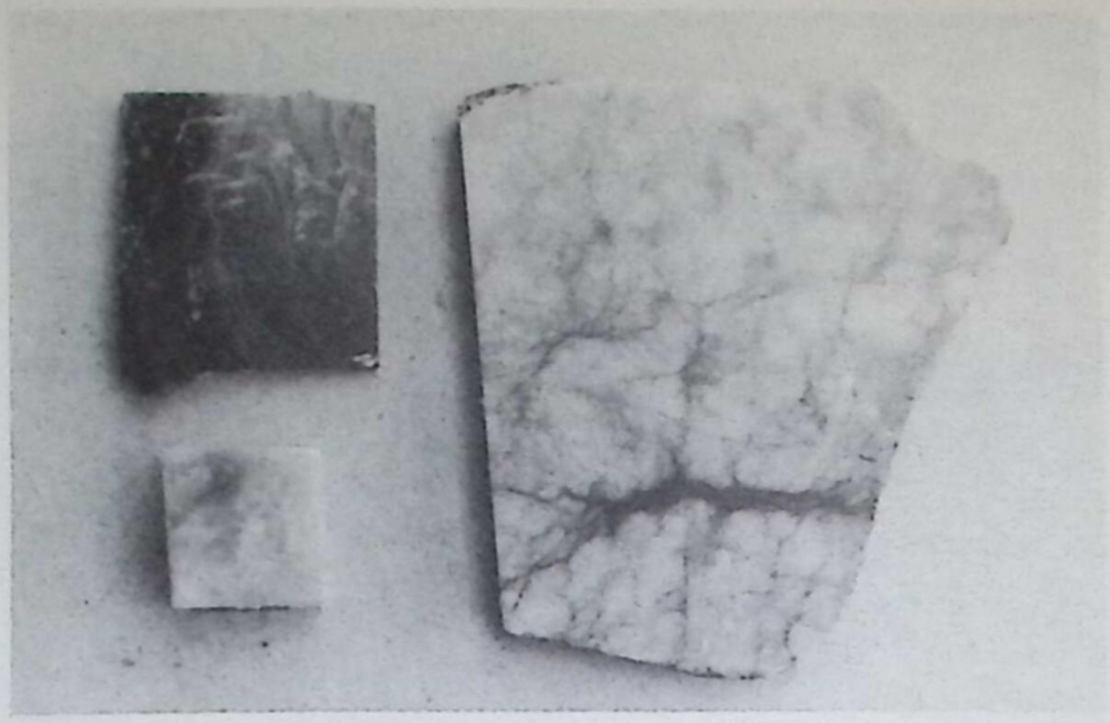
and Godthaab in Greenland, have all contributed to the world's treasury of jade. More recently, nephrite has been discovered in New South Wales and South Australia.

Turkestan's Karakash and Yarkand River Valleys were the main source of China's favorite stone. Carved examples exhibit the wide variety of color from white to green that it provided for artisans to exploit. Lake Baikal's nephrite, much used by the Chinese, is a deep rich green, so flawless in fine examples that it can be cut into thin-walled bowls. New Zealand's nephrite is a fairly dark green. Occasionally it will show the cat's-eye effect that lapidaries fancy. The major deposits are worked near Mount Cook and on the west coast of the South Island. Elsewhere in the Pacific, New Caledonia, New Guinea, and the Celebes are perhaps too isolated to develop a rush to their nephrite deposits, but Taiwan has made its material the basis for a flourishing carving and jewelry export industry. So has Japan with its green-mottled white jadeite from the island of Honshu.

Burma's jadeite enjoys the first place, but interest in recent years has also turned to jadeite from Guatemala, partly because it may provide an answer to an archaeological mystery. For a long time, artifacts of jadeite had been turned up by explorers of the ruined Mayan cities in Mexico and Central America. No trace of a source for the jadeite could be found, although it was conjectured that it must lie near Oaxaca south of Taxco and southern Chiapas. These conclusions were based not on source evidence but on ancient records of the cities that had paid tribute in jade to the Mayan rulers.

Jadeite deposits apparently worked long ago, however, have been found in south central Guatemala's Motagua River Valley near Manzanal. The jadeite ranges in color from white to a pale green; it is translucent, and rather coarsely crystalline, including crystals of diopside, the calcium magnesium silicate, and of albite feldspar. The deposits have been mined and around them a lapidary industry has grown up. Whether from these deposits came the jade of Mayan artifacts is a question that is still denied a clear answer.

Finally, this book would not have been possible without the cooperation of Marcia Branham, who gave not only permission to republish her father's reminiscences, but also



Right is jadeite from Guatemala. Upper left is chatoyant nephrite from New Zealand; Lower left is white Burma jadeite with a spot of green.

supplied much family information. Herself the discoverer of the Kraft boulder as well as the piece of jade found near it from which Donal Hord carved his "Thunder," she lived the incidents that her father has chronicled. The book also owes its existence to the interest of Pansy D. Kraus, Editor of *The Lapidary Journal,* and to Virginia A. Englebright for retyping the Branham manuscript and retrieval from the magazine files of much other information about jade. Richard A. Crippen, Jr., of Sebastopol, California, has permitted republication of his article on Wyoming jade, invaluable for its geological insights, and so has the family of the late Lawrence J. Bergsten.

For this editor, it has been a pleasure to return in spirit to the golden age of Wyoming's treasure hunt, to recollection of days spent in the hills there with Allan Branham and in the Branham home in Tucson, and to the many associations with jade lovers and jade hunters that our common interest has made possible. This book does not pretend to be the last word on Wyoming jade or on jade itself. Let us hope that last word never comes.

CHAPTER I

THE JADE BEYOND

To be on a mountainside in Wyoming when the weather is clear is in itself an unforgettable experience. But to lie in the sheltering side of a huge granite boulder high above the surrounding country and gaze across valley and hill for miles and miles, to see the far-away blue haze soft as blue hickory smoke and shimmering heat waves glancing off giant boulders seemingly studded with blazing diamonds is an experience which will remain forever emblazoned upon your memory. In the Wind River Range of the Rockies, the green-terraced slopes mount upward until they meet the dark green of the mountain timber and, above the tree line, the towering summits of the Continental Divide. Peak upon peak, the mountains rise to meet the turquoise sky.

Stretching your body full length beneath the warm sun, you forget the hardness of the earth beneath. You are too absorbed in thought about the fabulously rich vein of black jade reported to have been found in the midst of these mysterious peaks. You speculate upon the possibility of some day finding the source of the gem-green jade, for you know it has not as yet been discovered. As a jade hunter, the dream of locating the source is ever in your mind, because it would mean a modest fortune.

By those of you who sit at home and read about hunting gemstones, the thoughts and inclinations of a gem hunter can never be rightly judged. Yet you can in your library bookshelves travel wider beyond time and horizons than can any modern outdoor explorer. However, you can never experience the thrill of finding a beautiful gemstone nor have the satisfaction of an almost inexhaustible store of experience gained by the gem hunter in the field.

Rouse yourself, jade hunter, for the day is short and the sun is now at about the right angle for good hunting. You have been dreaming long enough about that beautiful green boulder—the one that may be just over the hill. It may be in some lonely wash or may peep only a few inches out of the earth. Even though the piece which you hope to hold gingerly in your hand may weigh only a few ounces, you are encouraged to search further and farther among the thousands upon thousands of rust-colored rocks. Somewhere there will be a fine boulder of jade, ignored by the hordes of other hunters who failed to recognize the jade beneath its chocolate-red coating.

With all these things in your thoughts, you gaze about, and, as your eyes rest on a distant hill, you check your equipment. Your pick is in your belt, your canteen is filled with water, and you have your lunch. If ever a jade hunter is ready, you are now. You bring yourself quickly to your feet, check your equipment once again, and step rapidly through the sagebrush with hopes high. A short, brisk walk brings you to the hill that holds the hope of your search. The air is sharp, the wind biting, but the sun warms you as you pry and poke about the earth. This is your day, a day never to be forgotten as long as you live. It is a thrilling and exhilarating experience. Never once does it occur to you that you may suffer disappointment and heartache, for there are many rocks that are green and from a distance look like jade.

Pausing for breath, you look at the sheep trails winding here and there over the hill. Above stand clumps of junipers where a bit of cool shade will afford you a grateful rest, should you be able to spare the time. Still higher, at the very top of the hill, is a fine stand of pine trees. This, then, is the setting very much like that seen by the jade hunters of Chinese Turkestan. While their altitude is about 12,000 feet, this setting in which you find yourself is about 7,500 feet. And while one Chinese will spend as much as three



Allan Branham lifting an irregular 50 pound piece of nephrite jade from the place where it was found in the Wyoming fields.

years or more hunting a boulder which will make him independent for life, you may find one in a day's hunt. But it will not make you independently wealthy.

Hour after hour you search your chosen hill. Your step has slowed. For the hundredth time you pause, gulp a few mouthfuls of water from your canteen. Shadows lengthen. Your day, your glorious day, is drawing to a close. At the sight of a green-looking rock you have breathlessly strayed from one place to another, only to find that which you sought was not jade. You have broken rock after rock colored chocolate-red, not knowing that not color alone but the peculiar knitting of fibers almost always betrays jade with the rind on.

As the sun slants to the west, you find yourself near the end of your chosen hill. With difficulty you straighten your aching back. Down below, an oasis, lined with great cottonwoods, urges you to rest in the shade of the tall trees. A little creek offers its cool, refreshing waters to wind-burned face and aching feet. How could such an enchanted spot be ignored? With a few quick strides you approach it with thoughts only of a hard-earned respite.

The only signs of anyone's having been there is a seamless bag lying crumpled under a tree. You lie on it because your little dell is damp. Stretched full length on your back, you look upward into treetops, but your thoughts are still on that magic green rock which keeps drawing you on and on until now you are far from camp and friends. You are completely isolated. There is no sound except the tinkling stream and the sighing winds.

Across the stream is another hill. As it is growing late, you know you cannot afford to waste another minute if you are to explore further. Slowly you get to your tired feet and start for the last objective. Too tired to climb any more, you skirt the bottom of the hill, which is cut by many draws. With feverish haste you examine each draw, for the light is growing dim and you are far from camp.



Allan Branham kneeling beside a big jade boulder. The scene gives some idea of the rock-strewn hillocks where the hunting was at its best.

You round the hill and into the draw. And in that last breathtaking moment in the waning sunlight, you see it! It is there. A beautiful boulder of bright green jade. Quickly you look around as if you were a thief about to steal something. The stone is lying about forty feet up the draw on top of a pile of rubble. Its vivid green gleams in the dying sun. Your breathing is shallow; your throat is as dry as a bone. You cannot believe your own eyes. You scramble and stumble up the draw. Sitting down beside your precious green boulder, you notice that it has no rind which probably accounts for your having noticed it among the drab rocks. You touch it tenderly, estimating that it is about 17 inches long, 12 inches in diameter, and weighs about 80 pounds.

The afterglow of sunset fades quickly into twilight. You are miles from camp, but who cares? You have your jade boulder. They will miss you at camp, and they will start hunting for you soon. You raise the stone upon your shoulder, its rough edges digging into your skin, but you remain indifferent to the gouging. Staggering down the wash, you fall many times over clumps of sagebrush. Your stone hurtles downward and rolls a few feet ahead. When you reach the oasis again, you are almost exhausted.

Stars are out now as you sink down on the cold, damp grass. There is the old seamless bag. Seamless bag? You get the idea at once. Slip the boulder into the bag, boy. It's a tight squeeze but you make it. Now you can throw the rock over your shoulder and, grasping the top of the bag in both hands, you stagger off into the blackness of night.

Night birds call. The breeze, cool now, is blowing strong, but under the weight of about 80 pounds of jade, you are warm. This is your day and your night as well. As you go haltingly on through the darkness, stumbling, falling, resting here and there, you come at last to the place where you can see the campfires of your party and other jade hunters.

Your companions are out looking for you. You hear their shouts but have no voice at all with which to answer. The thud of footsteps on the trail pounds in your ears. Nearby you hear the voice of one of your party scrambling through the sagebrush and over boulders. Your answering call is weak but it is heard, and your nearest companion lets out a series of whoops which are carried on the wind through the camp. As your party draws near, you know you have won. Willing hands will soon help you carry your fine boulder into camp. Meanwhile, all you can do is sit and wait, too weary to move another step.

Into the bright campfire light comes the conquering hero. You must carry the boulder the last few feet into camp, for after all, you are the one who found it. Everyone gathers around and plies you with questions as you slip the stone from the bag. As it rolls into the fire light, exclamations of wonder and delight tumble from excited lips.

You, the weary hunter, fall to the ground, exhausted from excitement and your efforts of the day. Coffee is warmed again. A can of beans is opened and is soon sizzling in the pan. You wolf down your food while the camp buzzes with the telling of experiences of the day in the jade hills.

The campfire fades into a few glowing embers. Conversations wane and with sleepy goodnights, you, the jade hunter, crawl into your sleeping bag, to dream of the tomorrow and the jade beyond.

CHAPTER II

THE WHEREABOUTS OF THE JADE FIELDS

Should you decide to try your luck at hunting nephrite jade in the United States, Lander, Wyoming, would probably be your starting point. For nephrite jade, Lander is perhaps the best situated city in Wyoming, and, for that matter, in all western America. It nestles in a protected valley entirely surrounded by foothills and in the very doorway of three great mountain ranges. Lander is particularly favored with picturesque scenery and has become known as the city "where rails end and trails begin." What was once a wild western frontier town has been transformed into a peaceful community. This valley was selected by Captain Benjamin Bonneville 75 years ago as a winter camp on account of the abundance of feed and mildness of climate.

In 1866 gold was discovered near Lander. In the early seventies a military post was established at Camp Brown in charge of General Frederick W. Lander. Thus the city was named.

The discovery of jade near Lander about 1936 was so astounding that scientists and authorities on geology were reluctant to accept the news as authentic. Not until the Smithsonian Institution pronounced it true nephrite jade was Wyoming's "green gold" finally accepted as such by geologists, gemologists and the general public. The excitement which followed the announcement that jade had been found in Wyoming was somewhat akin to a gold rush. Because the location of the deposits was not well described in early articles on Wyoming jade, several years elapsed before the big rush got under way.

The first deposit of jade encountered *in situ* was about thirty miles south and a little east of Lander. This deposit is located about two miles west of Highway 287 on top of what is called Beaver Divide. This is the Abernathy jade mine owned by the Abernathy brothers. The jade in this mine has a peculiar color and structure. The color is brownish tinged with faint green. The structure resembles somewhat that of jadeite and has been mistaken for jadeite by many geologists because of its granular structure. It does not appear to be as fibrous as most nephrite. This jade, called Desert Dust, takes an excellent polish, and we have never found it to finish with the "orange-peel" effect. For carving, this jade is especially good. We have seen many small deer heads carved from this material.

Nature set this deposit apart from any other jade deposit *in situ* that we have seen. It would seem that earth tremors heaved the whole mass upward at some time and then let the mass down gently again. This heaving or lifting resulted in breaking the mass into many pieces. When it



Allan Branham and Mrs. Branham on a jade-hunting trip. Jade Valley lies in the background.

settled back in place once more, the pieces were seemingly eased into their proper place again.

The formation after its apparent lifting and lowering lends itself to easy mining by inserting picks or crowbars into the cracks and prying off chunks of various sizes. Calcining took place over the entire mass and into every crevice and crack. Blocks show in some instances as much as from one to several inches of calcined jade, altered to ashes by heat, around the hard cuttable jade within. The calcining coat can be crumbled between the fingers but hardens with depth. Between this deposit and the next, some float jade is found.

Going back two miles on Highway 287, you again turn south and a little east toward other jade collecting areas. Following this road, you cross the Sweetwater River, which near this point turns southeast, and completely divides the two jade fields. On the east are the Granite Mountains with the jade *in situ*. On the west, the Antelope Hills connect with Crooks Mountain and Green Mountain where float boulders of green and various colors are found. After cross-

ing the Sweetwater River, the road turns to the west about a quarter of a mile away. Various roads bearing west bring you to Warm Springs. On both sides of Warm Springs, jade has been found as float and can be found for many miles west into the Bison Basin country. As far west as Red Desert, float jade has been found.

Many strange kinds of jade have been found in this district that are not found in any of the other fields. We might mention a few, such as the black-bordered jade with blue center, black-bordered jade with green center, black-bordered jade with mixed center, moss jade, blue-black and curdled jades.

One or two pieces of carnelian jade have been found in this field. Two fine pieces of almost transparent green jade were found here in the early days of the Wyoming discovery. This field has been worked over closely as walking over the low hills and mesa is easy. No large stones have been found here except in Bull Canyon, adjacent to this field. Bull Canyon is quite hard to find for one who is not acquainted with the country.

Once again on Highway 287 one turns still south to reach the wonderful Crooks Mountain jade field where giant float boulders have been found. At about fifty miles from Lander one enters the Crooks Mountain area. The road is well worn and in some places has been bladed in every direction by the oil crews. The terrain consists of numerous mesas and low hills cut by gullies and dry washes. Approaching Crooks Mountain proper, about seven miles from the highway, the land slopes gradually upward. When you reach the foot of the mountain, you are at an altitude of approximately 7,000 feet. There is a great deal of vegetation on the mountain. Junipers and sagebrush thrive here, topped by a variety of pine trees.

You will see on your way a green ribbon of quaking aspen trees creeping down from a gap in the mountain. In this gap trickles a little spring called Nancy Creek. This place is the mecca of the jade hunters, the most popular camping place in the whole area.

Years ago a woman by the name of Nancy lived in a cabin there. One dark, lonely night she was shot and killed by cattle rustlers. That night she had company, and, like the true westerner she was, when she heard the horses of the rustlers, she commanded her company to drop to the floor. A bullet through the window caught her before she could blow out the light. On our first visit to Nancy Creek her old stove and the ruins of her cabin were still there, but since then campers have burned the logs in their campfires and carried away the old stove.

The jade field surrounding Crooks Mountain is reported to resemble that of Chinese Turkestan in many respects with the exception that there are no rushing mountain streams here. We have, however, the yellow soil which shows in places where it has been bladed by the oil workers. Instead of cold rushing mountain streams, the Crooks Mountain country has numerous dry washes and benches with an occasional spring which does not run far before it disappears into the sandy wash. The many granite and diorite boulders cluttering up the washes, benches and hills seem to rest for the most part on yellow soil. Where cuts have been made off side hills, the boulders and other material are bedded about six feet into this yellow soil. In Turkestan large isolated boulders of jade are found frequently in soil like the yellow earth of the Crooks Mountain area. Of course, there are other soils in the field, such as alkali, where jade has also been found. It is evident that there has been some glacial movement in this jade field. It is estimated the area at one time had an elevation of 10,000 to 13,000 feet.



A family picnic with visitors in the Wyoming jade fields with sagebrush as the only foliage and scattered rocks on the rise in the distance.

In Turkestan it is said that in old stream beds, now dry, jade has been dug out at depths of twenty to thirty feet. Jade being heavier than most rocks, would naturally sink deeper than the other debris washed from side hills into these old stream beds.

In the Crooks Mountain district with its numerous washes and gullies it might be possible to find jade by digging down to bed rock. No doubt during the millions of years that have passed since these mountains were formed, there have been many cloudbursts in the area. After all, Wyoming is noted for its heavy summer rains which are both frequent and devastating. It seems reasonable then that some jade must have been moved into these now-dry washes.

Our opinion is that if someone had the energy, the time and the money to dig into these dry washes to the proper depth, he would be richly rewarded. In such case it would be well to select a place where jade had been found on the hillside above the particular wash. There is generally someone in the jade field eager to describe where jade has been found, for such places are haunted. The hunters are like ghosts, seen day after day against the skyline.

Most of the jade which will be discovered in the future around Crooks Mountain will probably have an oxidized rind colored a reddish-brown or a chocolate-brown. Because the pieces have not been exposed for millions of years, nature will not have had time to wind- and sand-blast the rind off and expose the color of the jade.

This poses a problem for the inexperienced hunter because there are tons upon tons of rocks the same color as the jade with rind still on. For the experienced hunter this is no problem, for he will concentrate upon looking for stones which show the peculiar knitted fibers on the rind. Not all jade stones with the rind on show this peculiar knitting or entwining of the fibers, but quite a few do. This kind of hunting requires a keen eye and lots of patience.

The finest boulder of gem-green jade found in my many years of hunting was on a ridge not fifty feet from the camping site. Thousands of jade hunters had time and again combed this ridge. I found a huge granite boulder near it and made that my favorite camping place because the boulder sheltered the camp from the wind and reflected heat from the campfire into my tent. This boulder of jade protruded from the ground in an inverted V only a few inches high and about a foot long. It was chocolate-brown like the rocks surrounding it, but it had the peculiar knitting on the part exposed. The afternoon sun struck it just right. A tap of the hammer on the edge made a slight chip fly through the sage. Where the chip came off, the broken surface revealed that it was jade. When dug out, this stone weighed 955 pounds of the finest kind of gem jade. I had walked by or over this stone perhaps more than fifty times. You can retrace your ramblings over and over again and still find jade underfoot.

Once we found a piece of jade weighing fifteen pounds within ten feet of a claim marker. Hunters missed this fif-



The 2495 pound jade boulder that J. L. Kraft purchased from the Branhams and gave to the Field Museum of Natural History in Chicago. Its young admirers are Marjory, Edwin and Emily Gin Toy. A piece was sawed from the boulder to show its color under the white coating.

teen-pound piece of jade because it was completely covered with a brown rind. Jade has been found all around Crooks Mountain, on its slopes, at the base, and even on its very top. Once we passed within fifty feet or so of 3,000 pounds of jade and failed to notice it. A few weeks later a party of jade hunters discovered it.

Since some boulders of jade appear on top of the ground with the rind still on, along with boulders which have been sand-blasted, we must conclude that the jade with the rind still on was at one time underground. Erosion must have uncovered it, but not long enough for it to have been sand-blasted. These boulders, having considerable iron content, merely oxidized. Partly exposed boulders that when dug out are found to be all green and without rind were probably buried after having been sandblasted.

The Crooks Mountain vicinity has yielded many varieties of jade. Many places yield jade distinctive to one particular area. Most of the chatoyant jade came from a certain hill. Most of the jade with a decomposed rind came from another hill. In some large stones, the rind was so thick that only a small center of green jade was left. One fifty-pound boulder from this area when cut had a core of beautiful green jade about six inches long and three inches thick in the very center. The jade with the decomposed rind was rich in color, free of black specks, and of gem quality. While one vicinity generally furnished a jade peculiar to that area, other pieces foreign to that place were also found. Experienced jade hunters upon being shown a piece of jade can frequently tell from which part of the field it came.

One Crooks Mountain boulder found by Marcia Branham was the one bought right in the field by James L. Kraft. The story of this boulder is told in a later chapter.

One stone from this field was called The Turtle because it had a head and neck like a turtle and the body was high and arched. The head and neck were fine green jade and the body was crisscrossed with chatoyant seams. It was on the hill where most of the chatoyant jade had been found.

This boulder was shipped to China along with about 5,000 pounds of miscellaneous pieces. Stories of large individual boulders of jade found in this field would make a book by themselves. Whenever a large boulder was located, the "grapevine" soon had the news and usually brought a new influx of hunters into the field.

It was regarded as unethical to ask a person just where he made his find. Most lucky finders who knew their business generally filled in the hole and removed all traces which might reveal the place from which their lucky find had come. Even when a jade boulder had to be blasted in the field, the finder would try to find all the chips and gather them up in order not to leave any telltale trace. The reason for this was inasmuch as jade is often found in groups there might possibly be another jade boulder in or around the place. Hunters of jade are always drawn back irresistibly to the place where they have had good fortune.

Could it be that the mother lode of all the jade found in Wyoming lies in the Wind River Range? Or could it be the Granite Mountains? That is a moot question. We know that the lofty peaks of the Wind River Range did at one time extend all the way down to and beyond Crooks Mountain at a height of approximately 10,000 to 12,000 feet. The lower end of the Continental Divide experienced a violent upheaval which turned the whole structure upside down when the mass sank to today's level of 7,200 feet. During this upheaval it is possible that a vein of jade was thrust to the surface or near the surface.

This jade vein, if there was one, would be in line with the deposits found in place in the Granite Mountains and perhaps prove that at one time there was a deposit of jade in place on Crooks Mountain. One can still find the trace of what might have been dikes in which the jade came up from the depths of the earth during the upheaval. The remnants of dikes are similar to the dikes in the Granite Mountains where jade is still in place.

Could it even be true that the Alaskan jade field extends down as far as Wyoming? Why not? Below the Arctic Circle, jade is found on the Fraser River, then down to th Canadian border, above Spokane, Washington, thence the Wind River Range. It might just be, and we think possible, that the jade of Alaska may run through the cou try all the way to Wyoming, dipping far under mountain then appearing again hundreds of miles to the south.

We offer these theories for speculation. We can point out the remnants of several dikes. We can show one place where it is plain that the whole structure has been turned almost upside down. Erosion over the centuries in the Crooks Mountain district has effaced what really took place, and it has rounded most of the hills. Vegetation helped to heal the scars of this terrific change.

Companies now drilling for oil in and around Crooks Mountain report that, geologically speaking, the earth's formation there is badly faulted. Drill holes less than a quarter of a mile away from each other will pass through entirely different sequences of formations. Perhaps jade is found in place in the Granite Mountains because these mountains are the oldest in that vicinity and undisturbed by nature. It is said that they were once much higher but the piling up of soil by the continuous wind against them has lessened their apparent height.

As one stands on top of Crooks Mountain and looks eastward across the Sweetwater Valley and the river, he sees the Granite Mountains. If his sight is good, he will see directly across the river a gigantic dike of black diorite on the mountains. This dike is one of the many in the Granite Mountains, some of which contain jade *in situ*. Directly to the north about one-half mile there is a gap in this range. It is actually like a pass in the mountain. On either side of the pass, there is a jade mine *in situ*. To the south of the pass is a mine of dark green jade. To the north is a mine where the jade is so intense a green as to be called black jade.

Years ago the highway was moved to its present location and fenced. The old road still used by ranchers parallels the

river, and from it one can get to Graham's bridge to cross the river and reach the Granite Mountain jade mines. From Crooks Mountain if the jade hunter wished to visit the jade mines, he would have to go back toward Lander almost to Sweetwater bridge and take the old highway back again to just about opposite the place where he came out of the Crooks Mountain road.

Off the highway to the east are the Graham ranch buildings. Turning in here, he would shortly reach the Sweetwater River. At this point he would cross a bridge and find himself in the ranch yard. The hunter, if a stranger in the country, should ask permission to proceed and how to get to the gap. To reach the gap entails a great deal of gate-opening and gate-closing. Turning southeast through Graham's alfalfa field, watch for dry irrigation ditches. At the end of the field there is another gate. Upon leaving this gate, you turn abruptly toward the river. Follow the river for about one-half mile, close to the river bank until you can see the gap. As there are no other roads to confuse you, turn sharply left from the river and head straight up to the gap.

The previously mentioned dark jade was discovered in May, 1936, not far from the Sweetwater agate beds. Since then, many tons of fine jade have been mined. The partners who own this claim have kept several thousand pounds of jade on hand in Lander most of the time. In addition to the intense green, or so-called black jade, an olive green variety is mined there. The jade occurs *in situ* in a large aplite dike; the aplite is pure white in color with blue or pink mottling and in itself takes an excellent polish, resembling marble. The dike is from 50 to 200 feet or more in width and possibly one mile in length, and juts above the surface for 50 feet or more.

At the same time and in the same place another interesting discovery was made: two ledges of mica schist carrying corundum crystals (sapphires and rubies). When cut en abochon the stones sometimes show stars, but with two xceptions so far are generally flawed. Most of them have deep purple color. Many are as large as hen's eggs. The corundum dikes, 60 feet apart and running parallel, are more than a mile in length. The crystals occur in concentrations and in some places are so thick as to defy counting. Each crystal has a thick coating of what appears to be serpentine. The Abernathy jade mine has a similar deposit near by, but the crystals are blue and crumble after the coating is removed.

Directly south of the gap we, along with another collector, located another dike of jade *in situ*. This dike is of a soft color of green. A geologist from Purdue University pronounced the jade as being in quartzite and granite instead of aplite. The dike disappears directly into the mountain and the extent of the deposit is undetermined.

We have gone over this mountain and have found a high wall where jade appears again in a direct line with the discovery of the vein. In climbing the mountain we discovered a small valley on top. In it lay tons upon tons of jade boulders. All the boulders had oxidized rinds. We have been unable to solve the mystery of how they got there. Most of them were of the olive-green color, but now and then some appeared with a gray-blue color. One very fine boulder was medium green. We carried a few to the car on each trip until we had at last collected about 3,000 pounds. We had this claim surveyed and later filed on it.

After a number of trips to this field claim, we found that it was being hi-graded. The hi-graders had used dynamite and opened the main vein and had gone down about four feet beside the vein. They had taken out about a ton of good jade as well as all the lumps of the oxidized jade in the small depression. All was not lost, the hi-graders had done our assessment work for one year and we hoped that they would come each year to do the same. On this claim,



PHOTOGRAPH COURTESY OF MRS. WHEELER

Kathleen and Francis Countryman with Mrs. Holland Wheeler of Kansas City, Missouri, in the rock-strewn yard of the Countryman home at Sweetwater Junction, Wyoming.

we found jade with quartz crystal inclusions and what we thought to be pink jade but it turned out to be thulite.

A cowboy living in the Granite Mountain country once brought to our shop a lovely piece of green jade with pink spots in it. I tried to hide my excitement from him as I examined and weighed it. As I recall, it weighed about eight pounds. He asked how much I would give for it and I promptly offered $40.00. With that announcement he wheeled and walked out of the shop and I never saw him again. This piece was the only one of its kind that I have ever seen. At that time I figured that the pink spots were thulite such as I had seen as rinds on jade from this field. Some of this has been sold as pink jade, but we had it analyzed, and the analysis proved it to be pink thulite.

Since we discovered our mine many other deposits of jade *in situ* have been found in the Granite Mountains. The most peculiar formation we found in this field was several hundred yards from our mine. This was a pinnacle of rock about 12 feet high standing in a little flat. This pinnacle seemed to have a coating of jade on it as if someone had sprayed it with an air brush. The coating shone in the sunlight, making one believe that the mass was solid jade. It is still there undisturbed, unexplained, just another freak of nature.

Not far from this mass of rock is another, perhaps weighing about five tons. It is a huge lump of hardened fibers, as if nature had intended it to be jade but never finished the job. Incidentally, this place is infested with rattlesnakes.

This district on the flats and low-lying hills has yielded thousands of pieces of jade and many pieces shot full of quartz crystals. This field extends about 500 miles through the Granite Mountains, including the Rattlesnakes and on down to Black Canyon, a few miles out of Casper. At Black Canyon there is another large deposit of the intense green nephrite jade. Over the mountain from Black Canyon to the south is a jade field which can be reached by going in from Medicine Bow. This is called the Shirley Basin jade field. The jade is a lovely medium-green color and many pieces contain quartz crystals.

Mention has been made of the frequent occurrence in the Granite Mountain jade deposits of jade containing inclusions of quartz crystals. These specimens are perhaps unique to this locality. We favor the theory that such jade was forced up through dikes while in a plastic state. In its

journey upward perhaps it penetrated small openings which contained quartz crystals. As it moved on again the movement may have broken the crystals from their fragile moorings. Then, as the jade reached the surface, it would harden around the captive crystals and preserve them in a green prison.

Circumstances of jade's origin may account for the darker shades and the light green shades. If a continuous deposit of jade exists, running across the country for miles and miles, sometimes coming to the surface and then disappearing for hundreds of miles only to come to the surface again, it would have passed through many different solutions and encountered a variety of minerals which would possibly give it its color.



Allen Branham and his nephew Jack Lee walk out with backpacks bulging with jade after a hard day's work in the Wyoming fields.

When we were surveying our claims of dark jade in place in the Granite Mountains, there was so much iron that at times our compass would not work properly. Dark jade has in all probability gotten its color from iron minerals. Jades have many confusing factors about which we can only guess. What the black spots in jade are we do not know for sure, but we do know that about 90 per cent of the gem green has these black spots. These inclusions may be either magnetite, chromite, or mica. Black jade sometimes has white spots, but jade with these spots is found in only one district.

Strange as it may seem, one branch of the Oregon Trail passes directly through the jade field and another branch runs alongside the Granite Mountains. Still more strange is the fact that the emigrants passed right through a fortune of jade without knowing it. Perhaps they even camped at some of the various springs along Crooks Mountain, maybe even picked up some of the green pieces. No account of such a thing has ever been made public so far as we know, but it seems strange that they would not notice such a beautiful thing as a piece of jade.

In the Wind River Range the months of July and August are about the best months for exploring. A good outfit is needed for this expedition, with horses to ride as well as pack horses. To be safe from bears one needs a good rifle, for bears are plentiful, some of them grizzlies. Such items as warm clothing and bedding should not be overlooked. Mountain storms are frequent and cold.

For the Granite and Rattlesnake trip almost any month in the year from May until the snow flies is safe. But one must always be alert for rattlesnakes in the district. The Rattlesnake Mountains probably offer the best choice for new finds, since these mountains have not been extensively explored. We are sure jade is in them.

Whatever the season, however, Wyoming jade stands as a challenge to the adventurer. Many new finds await those who have the time and means and the physical stamina to explore the mighty Wind River Range, and the Granite and Rattlesnake mountains.

CHAPTER III

BLACK JADE, SNOWFLAKE JADE AND JADE VALLEY

We have now taken you to all except two of the known jade fields of Wyoming. The two exceptions are the so-called snowflake or tremolite jade deposit and the lost black jade deposit of the Wind River Range. The snowflake deposit was found by Ted Graham, whose ranch on the Sweetwater River is in the middle of the Granite Mountain jade fields. Most collectors are familiar with the jade. We alone sold several tons.

After Graham found this deposit, it came to the attention of some Denver jewelers. They interested several people who bought the mine, moved in with machinery and mined it out, taking jade by the truckload to Denver. We understand that they shipped a great deal of it to Japan for carving. What is left of this mine is situated a few miles north of Graham's ranch house on what is called Long Creek. Chips and broken pieces can still be picked up in the area.

The other exception is the lost black jade deposit of the Wind River Range. This deposit is at an altitude of 13,000 feet on the Continental Divide and was discovered by one of the geology students of the Missouri School of Mines which maintains a permanent camp above Lander, in Sinks Canyon. This young man, whose name nobody seems to recall, was on a field trip with a party of students from the school, studying formations and hunting specimens. It was learned that this young man wandered away from the main group. He crossed a marshy meadow and headed for a certain peak. He had always been attracted to this particular peak which he could see in the distance, wondering what kind of formation he would find there. As he arrived under the peak and found it impossible to climb, he started to return to his party. Just then he saw before him a ridge of black glistening rock. The ridge was about a quarter of a mile long and stuck out of the ground about eighteen inches. Broken fragments were scattered on the ground. Having heard, like everyone else, about the jade of Wyoming, he filled his specimen sack with the scattered pieces. He then joined his fellow students, not saying a word about his find, and since all the students had bags of specimens of different kinds, they were not curious.

The next time he was in town he brought the bag full of his black rocks to a friend of mine who was a cutter and a collector in Lander. My friend knew at once that it was jade of a fine texture and black jade at that. When he told the young man, the latter asked my friend to cut some for him. In exchange he offered the bag full of specimens. It was agreed, and a few days later the young man came for the cut stones. At this time he revealed the exact spot where



Mrs. Allan Branham and Mrs. Leona Lee preparing lunch in the jade fields while the men hunt jade. Branham's beloved Jade Valley is in the background.

he found the deposit, saying, "I am going into the service soon and may never get back." Soon after this the Missouri group finished its course for the season and departed. The young man went along and probably to the war, never to return, and my friend has the secret. But we, too, had our discoveries and one of the most exciting was our discovery of Jade Valley.

If you are a fisherman, a hunter, or a rock collector, or have a hobby of some kind in which you are intensely interested, you may dream about it. Jade hunting is so absorbing that for several nights after a trip in the jade fields, a hunter's mind, especially his subconscious mind, seems filled with anticipations of the next trip. Visions persist of finding the superfine lump of jade the next time he's out. On retiring, the subconscious mind begins to work. What is more natural than to dream of going over a promising hill and there, in the bright morning sunlight, beholding a beau-

tiful green lump of jade. I have had such dreams many times, but it remained for my wife, Estelle, to dream one of the most wonderful of all jade dreams and the one that came true.

After a two day trip of successful jade hunting, we came home very tired; even the dog was so tired, she would not eat. We retired dead to the world. Next morning, Estelle entertained us at the breakfast table with the wonderful dream she had had about a valley of jade. In her dream the valley was literally covered with small pieces of green jade. She had darted here and there picking up pieces, only to discard them upon seeing better pieces until, in her confusion, she did not know which to discard and which to take. So she stood there utterly amazed at the sight. Naturally, I along with many other people scoff at dreams, and at the time we laughed it off as just a dream which could not possibly come true.

We still had many places which we had not investigated. Among them was a deep valley with several small hills in it. One hill was quite long and V-shaped. We had never gone into the valley because the road was bad, but in talking it over, we agreed we would turn our attention to this place on the next trip. For two days we rested at home.

In the first days of jade hunting it was the side hills which attracted us hunters the most, and because we were being successful on the hills, we did not give depressions or valleys much attention. The theory was that the side hills held the jade, and that was that.

So early on the third day we stowed into the V-8 our camping equipment, tent, sleeping bags, two gasoline stoves, grub for three days, and plenty of water. We were on our way just as the sun peeped up in the eastern sky.

Three hours later we were at the rim of what later became known as Jade Valley. We left the car on the rim beside the huge chunk of jade which is now in the Field Museum. We did not notice it that day as we descended into the valley, slowly hunting foot by foot. I was crossing one of the small hills in the valley when I spied a fine piece of jade of about 25 pounds. I put my hat on top of it and began circling. In many instances the jade in the Lander field was found in groups, that is, in the days when it was plentiful. Our method was, when we found a stone, to place a marker on the stone found and then circle it in ever-widening arcs. The largest stones seemed to be at a certain level on the hillsides, but, of course, quite a few large stones were found isolated and in some instances right out on a flat plateau or bench, without any other stones around at all.



Allan Branham and daughter, Marcia, resting during a day's hunt for jade in the Wyoming jade fields.

As I circled, I found another lump only a few feet away, and another, and still another. I would drop one piece and go to another, not knowing which piece to take, and knowing that I could carry only one piece back to the car which now looked like a speck against the skyline. The family soon joined me on this hill, and all of us began to find chunks of jade. The pieces were scattered all over the place. So confused were we that we came together again and sat down to try to figure how we were going to get as much as possible back to the car.

The other hill, about a half mile away, was also a V-shaped hill and looked as if it would duplicate our present site. We made a quick decision to try our luck on the other hill, but before leaving, we piled up some of the best lumps of jade and left them.

The same condition existed on the other V-shaped hill. Jade was everywhere and in even bigger chunks. This, then, was the dreamed-of Valley of Jade, except that in Estelle's dream, the pieces were small. We had discovered the largest jade field in America. This appeared to be virgin territory, not a rock had been disturbed. You rock hunters know what that means; no chips, no broken rocks, no hunters. We had to leave the large stones undisturbed. About 20 or 30 pounds was all that each one of us could carry that mile and a half back to the rim. I do not recall how many wearisome trips we made from the hill in the valley to the car on the rim. One rock apiece each trip. Under the hot sun we labored, hour after hour, until at dark we quit completely exhausted. Our car was loaded to capacity.

Little did we know that within a week or two the valley would be swarming with jade hunters, and that two women would find a piece weighing 3,000 pounds right at the apex of the V. At the time of our discovery, we had not investigated that far. Within two weeks some enterprising jade hunters worked over that road into the valley until a car could be driven within 100 yards of the jade hills. All the jade in the valley disappeared within a few weeks after our discovery. How did they find out about our strike? They had followed us with high-powered binoculars.

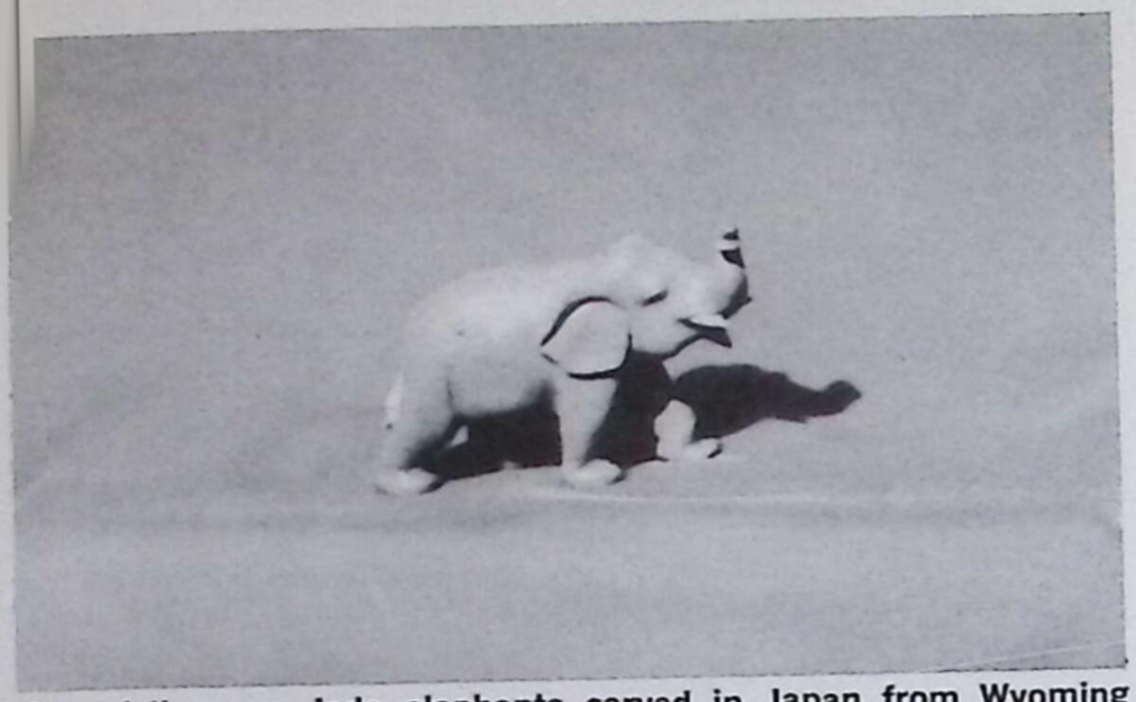
At times we were so closely watched that we were followed from our door to the field. We used to tie sagebrush to the bumper of our car in order not to leave tire tracks to our favorite hunting places. But it finally reached the point that there were so many hunters, secrecy was a futile gesture. They followed us constantly, even on foot, over the hills.

On one expedition we camped next to a gigantic boulder of granite, so that our campfire would reflect the heat, for nights are cold at 7,500 feet. On this particular morning, Estelle arose very early and walked across the flat to a hill nearby where she discovered a group of jade pieces that we had overlooked. At her call, Marcia, our daughter, and I hastened to join her. There was jade all over the place. About fifteen feet above us on the side hill, two pieces, one very large, and one about 50 pounds, were half embedded. We collected all the smaller pieces into a pile while one of us returned for the car. Fortunately, we could get the car within about 25 feet of the mass, which allowed us to load the large piece as well as the smaller ones. The big boulder posed a problem.

As we stood there on the side hill, trying to figure how to handle the situation, I looked off toward the other hill. There I saw a man watching us with binoculars which reflected the glint of the sun. We knew then that if we did not

get this large piece, he would get it after we left. The only thing to do was to try to move it. With a mighty heave I upended the chunk. It came out and promptly slipped out of my hands and down the hill. Near the bottom it struck another granite boulder and split in two. One piece rolled near the car. This we heaved in with the rest.

The man, still watching on the hill, could not see whether we had put it in our car because the car was between him and us. The other part was too much to leave for someone else, as the piece appeared to be gem quality. Fortunately, there was an isolated group of granite boulders close to the car. One was split down the center. The two pieces, by some freak of nature, were a few feet apart but the tops leaned together in such a way they formed a stone tent. Thick sagebrush grew all around the group. Into this tent-like stone we rolled our piece of jade. Our man on the hill apparently convinced that we could neither take the stone nor hide it, had now disappeared and had evidently gone back to his car.



One of the gray jade elephants carved in Japan from Wyoming nephrite for Allan Branham.

Satisfied that our boulder, rough side up, was safe in the tent-like stones, we carefully brushed our rolling marks out with sagebrush. Back at our own tent, we hastily packed our belongings and started toward home, taking the most difficult route of the hills instead of our regular route through the camp grounds where most jade hunters put up for the night because of a nice spring and plenty of shade.

I was a little afraid that we had more of a load than we should have had, because on this route, there was a hill which we would have to make a run for right through the sage and side slope, too. When we reached the bottom of the hill, we took inventory. The wash below the hill looked good to me for jade. It was full of sheep paths. Picking out one trail, I took off up the wash. It was to throw off the thought of that terrible hill we had to climb more than anything else, I suppose.

I had not gone more than 100 yards when I spied a beautiful polished boulder of jade on the side of the wash. It was about 80 pounds and so smooth and round that we could not get hold of it to carry it, and man, oh man, it was of a bluish cast. I called the family in a hurry. We absolutely could not leave this boulder even if it meant we would have to discard the green, or at least some of it. We solved the problem of getting it into the car by tying a rope around it and dragging it.

At the car I could not make up my mind to discard anything. Consequently, we heaved our precious boulder into the car only to see the springs of the car sag still further down. Then I was really worried about the hill. There was only one thing to do; give the car everything it had and try to make the run. Estelle took the wheel and I climbed the hill to guide her. Once at the top, I motioned. Up she came with a roar. For a second the car hesitated on the lip of the hill. I thought surely it would go down backward, but it clung and popped over.

We were on our way with one of the biggest loads the old V-8 had ever hauled out of the jade field. All this, of course, took place before noon in one day's hunting, but then we had an early start, having spent the night in camp.

And what about the piece left in the stone tent? We were there bright and early the next day. It was still there. We could see that our man with the binoculars had been there. His tire tracks came up to within a few feet of our hidden jade, but he did not find it.

Incidents like this would fill volumes and volumes. I could go back to each place and show you the exact spot where every stone of any consequence was found. The holes fill up quite rapidly because of the constant wind.

CHAPTER IV

THE KRAFT BOULDER

The first large piece of jade I ever found was sold to the late J. L. Kraft, president of the Kraft Foods Company, of Chicago (now Kraft Inc.). All the salesmen in the Kraft organization knew of his intense interest in jade. Therefore, the Kraft salesman on his weekly trip to Lander heard the rumors of jade and promptly notified Kraft, giving him our name as one of the jade hunters in and around Lander. Not long afterward, I received a letter from Kraft, saying that he would like to purchase a piece of jade. After an exchange of several letters, he purchased the largest piece that I had found up to that time.



Mrs. Allan Branham is stripped of her slacks so that they can be used to carry a heavy piece of jade the two miles to the car.

This then was our first contact with that remarkable man, J. L. Kraft. In this way a great man came into our lives who was to be a help and an inspiration through all the following years until his death in 1953.

Kraft had a keen mind, and because of his advice we gave up a grocery business to devote ourselves wholeheartedly to the jade business. Hardly a week passed during our long association but what we received one or two letters from him. He was an understanding man, and the fact that he was also a wealthy man did not in the least affect him. You might say he was as common as an old pair of shoes. He fitted in anywhere and any place. Being an office man, he probably longed for the outdoors, longed to get away from it all when he could spare the time. Above all, he wanted to go to the mountains to hunt what he called "shining stones." Consequently, we arranged a jade-hunting trip that lasted two or three days.

It was a blustery day in May when we met him at the railroad station. Not one whit disturbed by the doubtful weather, he proposed a trip for the following morning. On the way to the jade field the next morning, Kraft, feeling fit and enthusiastic, told us about his experiences with the radio celebrities whom he had employed on his various programs. He told us stories about the wonderful, casual Bing Crosby, and the erratic rise of Bob Burns to prominence in the entertainment world. He was overflowing with stories and experiences, and the time passed quickly, so quickly that we seemed to arrive in the jade fields all too soon. We had, before starting on the trip, asked him what he would like to have to eat. He expressed a desire for baked beans and hot dogs, saying, "If I ate them at home, they would probably make me sick, but out in the open the fresh air and exercise would make anything digestible."

About seven miles from the highway into the mountains, we were caught in a light snowstorm. At the higher altitudes, snow was to be expected in the spring in the mountains of Wyoming. Undaunted by the snow flurries and still enthusiastic about a day in the open, we piled out of the car and girded ourselves with prospecting picks, canteens and lunch. We were then ready for the big adventure in jade hunting.

Before leaving Lander we had agreed that we would first try in the Warm Springs locality because it was easier hunting as well as walking. This area consists of series of low hills, mesas and gullies, and not much sagebrush. Warm Springs gushes out of a hole in the ground about one-

half mile from an old wooden bridge which the sheepmen had built years ago. The creek itself is not actually what one would call warm, although it is just warm enough so that even in winter it does not completely freeze. The stream meanders down a long grassy meadow for about five miles and then disappears.

Beyond the creek, stretching for miles and miles to the west, Warm Springs merges into the Red Desert, which has not been explored too much by the rockhounds. The Red Desert country is dangerous ground for those who do not know it well, for there are many water holes, and as roads crisscross in all directions, it is very easy to become lost. In fact, several persons have lost their lives in the Red Desert.

The Warm Springs locality, besides being a jade-producing field, has many interesting things to offer, such as agatized wood, quartz "moonstones," and nice jaspers. This district was the first to be hunted extensively, and by the time Kraft arranged this hunting trip, all the jade had been fairly well hunted off. An occasional piece could still be found, however, and because of the fine quality of Warm Springs jade, hunting here was well worth a try. It was agreed we would hunt Warm Springs in the morning and then pull stakes to hunt Crooks Mountain in the afternoon, thus giving us two chances.

Choosing to hunt a hill where we had found jade on another trip, we spread out some 100 feet apart and advanced forward slowly. Foot by foot, hour after hour, scanning the ground in every direction, we hunted. A shout from one or the other frequently brought the three of us together to examine some doubtful rock. Kraft could not resist the beauty of the jaspers, and before long he had just about filled his knapsack with material which he thought beautiful, but which a jade hunter ignores.

In hunting jade we concentrate so much in watching for that stone, and that stone only, that everything else seems mediocre. In that way we do not load our knapsacks with other material, no matter how pretty it is. Not so with our guest. Everything in the line of agatized wood and jasper interested him, and before long he had more than he could carry. We suggested sorting out the best of his material. After discarding about half of his load, we resumed our hunt, spreading out again.

It was not long before my wife motioned for me to come over to the place where she was hunting. She had found a nice piece of jade. Without touching it or even bending over it, she left it partially buried. In a brief conversation we agreed to guide Kraft's ramblings in the direction of this piece of jade so that he could not help but find it. A little strategy was necessary in order not to arouse his suspicions. Selecting a nice piece of jasper, we exclaimed loudly how pretty it was, thus bringing his attention to us. As we stood together examining it, he came over to see what we had found. We were practially standing over this piece of jade, but we quickly separated, leaving him within a foot or two of the jade.

Within minutes he found it and called us over. With suspicion in his eyes, he accused us of steering him to this piece, saying, "That isn't fair, Allan. Your wife found this piece of jade." After a little rest and a laugh over the incident, we had to confess to the conspiracy. The find was not large but it was nice gemmy light green material and would make up into nice cabochons. Rested and refreshed, we set out again to hunt until high noon, but we found nothing more in the way of jade.

Hunting was difficult because of the prevailing high wind, which brings tears to the eyes and blurs the vision, so much so that one must stop and wipe away the tears at intervals. And to add to our discomfort that morning we had occasional snow flurries as well as the gusty winds. Although we had taken sandwiches with us, we had been too absorbed to think of them. We turned back to the car at noon, all agreeing that we would pull out of the Warm Springs country and give our attention for the afternoon to the Crooks Mountain jade field.

At the car we decided to save the sandwiches for another time and, instead, cook the hot meal that our guest had wanted — baked beans and hot dogs. With two gasoline stoves we soon had the baked beans sputtering in the frying pan while the wieners boiled briskly in a discarded gallon fruit can. The folding steel camp table was taken from the car and set up. When we were ready to eat, another snow flurry came scooting into camp. Amid swirling snowflakes and gusty winds, our guest from Chicago had his first meal in the jade field under somewhat trying circumstances. After lunch, we were soon packed and on our way to Crooks Mountain.

Not very far down the highway we reached the road leading to the base of the mountain and to a good camping ground. The previous summer our daughter, Marcia, had found a huge boulder of jade on the rim of Jade Valley, so large that we had never more than examined it at times after she had found it. We had camped alongside it several times, but so well did it blend into the scheme of things thereabouts that it almost defied identification among the other large boulders strewn around in the vicinity.

The day our daughter found it we had ranged far and wide without any success and had returned to the car empty handed, tired and discouraged. Her mother was chiding her on her lack of interest, saying, "Marcia, you can't find jade looking up into the air. You must look at every foot of the ground. Look down, not up!"

Not a foot from the rear wheel stood this large boulder. Marcia, slightly peeved at the outburst from a tired mother, kicked this large boulder, exclaiming, "Well, what is this then?" Quickly we gathered around the stone. It was almost completely camouflaged by a dark brown rind but there were places on the surface where it showed green.

We did not attempt to move the stone because of its enormous size. In the early days of jade hunting, no one had any idea how to remove large boulders from the field when they were larger than we could conveniently carry or get hauled away. I had cherished the idea in my mind for a long time that some day when we had a guest out hunting jade and did not have much luck, we could always lead the guest to this stone as the last resort. It was so large that, even if the guest did find it, he could not do anything with it anyway, and it would be still left in the field. This was the day I would spring it on Mr. Kraft, providing we did not have much luck elsewhere.

It was here that our guest demonstrated he was a true rockhound who could take the bitter with the sweet. While we were fearful that the day was ruined for him because of the weather, he was really enjoying the experience. The snow flurry was suddenly gone. The sun peeped out timidly at first and then burst forth with the promise of a fine afternoon. The sage was wet and glistened with silvery jewels, and the scent was pleasantly noticeable. The entire country seemed fresh and clean and sweet scented, inviting us to explore to our hearts' content. This proved to be a day which was to linger a long time in J. L. Kraft's mind, to be recalled by him time and again at our meetings and in his correspondence in the following years of our friendship.

As the afternoon wore on and on with no one finding even one piece of jade, we gradually routed ourselves toward the secret piece of jade reserved for such an occasion.

We had no alternative. We could not let this wonderful man leave the field disappointed after having come all the way from Chicago to find a piece of jade. Almost within sight of this great boulder of jade we urged our guest to redouble his efforts. In another minute he was beside the enormous chunk. In blank amazement he stood and stared. He strode around and around the stone, exclaiming breath-

lessly what a beautiful thing it was and how big, too. Up to this time it was by far the largest piece of jade found in the Lander jade field, and to this day it is the third largest piece ever found in Wyoming.

Kraft, after his first shock of seeing this magnificent stone, turned to me. "Allan, I want this stone. Get a wrecking car as soon as possible and have it hauled to Lander. Then have it shipped by freight to the Chicago Granite Works." A quick thinking man was he. Right on the spot and in a matter of minutes he had decided what he was going to do with that stone.

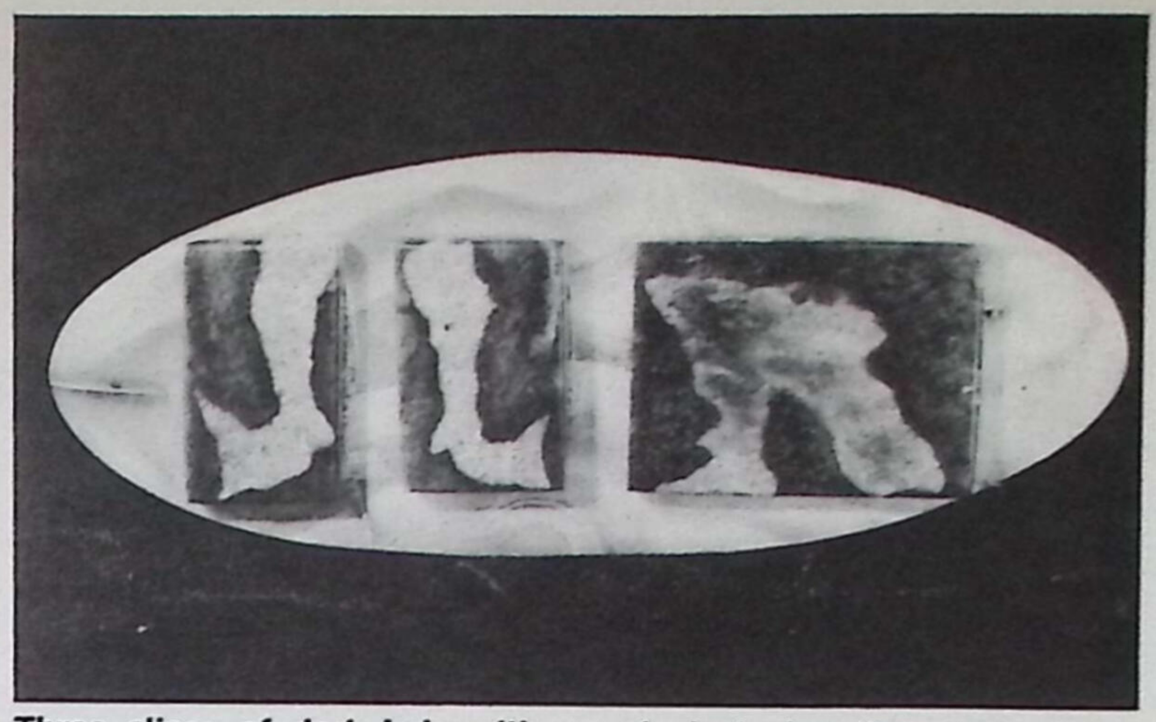
A city man with many weighty problems of business on his mind had found that in the hills and mountains, problems dwindle and are forgotten. Our friend had distinctly mentioned that he liked to sit by a campfire at night with the stars overhead. Wood was wet after the snow flurries of the morning, but that poses no great difficulty to one used to the outdoors. A standing dead tree or bush will always furnish some dry wood, and cow chips soon dry on a fire and burn fiercely. In a cow country like this they were everyhere. We soon had the desired campfire blazing. The meadowlark's call was no longer heard. The cricket began his nightly serenade. A lone coyote cried out from a distant hill and was answered from another hill. A moonlight romance was in the making.

The campfire which for a time gave its friendly warmth died to a few glowing coals. Conversation was exhausted. The grand day was over, and with minds awed by the wonders of nature's change from day to night, we crawled into our sleeping bags.

As I lay looking into the night sky and its billions of twinkling stars, I wondered what went on in the mind of a city man after such a day as we had just experienced. He probably missed the night noises of the great city of Chicago, or did he? I knew that he was weary to the bone, but I was sure Mother Nature had taken care of his problems for a time at least.

His teeming office was far away. Crowded streets, clanging streetcars would not bother him tonight. Tomorrow he would eagerly awaken. He would smell the wonderful aroma of frying bacon, the faint scent of sage mingled with the odor of May flowers. His breakfast would taste better than anything he had ever eaten in the highest priced restaurant in Chicago. And while eating, he would see a breathtaking panorama spread out before unbelieving eyes. Far away in the distance was the everlasting snow, glistening on the mountain tops of the Rockies. What he had seen, he would never forget.

After two more days of hunting, our guest departed for Chicago to attack the problems of his business with renewed vigor. With Lawrence Hawkins and a wrecking truck, the huge chunk of jade was removed. It found its way to the Chicago Granite Works where a piece was cut off to show its quality. Mr. Kraft, in the meantime, had offered this stone



Three slices of dark jade with a pale inclusion that came from the saw displaying the initials of J. L. Kraft. They were given to him by Allan Branham and mounted on a slab of agate by the cheese merchant.

as a gift to the Field Museum of Natural History in Chicago. It was accepted and installed in a glass case where you will find it today.

Several months after we had taken J. L. Kraft into the jade fields, a curious piece of jade was found at Warm Springs. As we have mentioned, jade from the Warm Springs area often astonished us with odd patterns. Many of these pieces had black rinds with colored centers, which are sometimes twisted in several directions.

This stone from all outside appearances resembled the general field run of jade from that place. When we began slicing this stone, we found the first few slices showed patches of light green jade with dark jade. After a few more slices, a pattern began to emerge like a letter J and with more slicing, a J appeared that had a horizontal projection at the bottom instead of a hook. The next slice came with a slight turning up of the hook to make a perfect J. By taking the slice without the hook and turning it on its other side we now had two perfect letters, J and L. In the following slices the J began to fade and a K began to emerge. After a few more slices, a fairly good K was obtained. We had the letters J L K, which immediately brought to mind that these were the initials of our friend, James Lewis Kraft.

Knowing he would prize such an oddity of nature, we packed the slices and airmailed them to him in Chicago. Upon receiving the slices, he was elated, so much so that he conceived the idea of mounting these initials upon a beautiful slab of Brazilian agate. Then he had the whole thing photographed. We received a copy of this remarkable ensemble a short time later. That became one of our treasured possessions. In the history of jade all over the world, we do not know of anything to duplicate this remarkable incident.

CHAPTER V

A TRIBUTE TO SLIM HAWKINS

If I were a wealthy man, and had the desire to travel these United States by car, and I do have the desire but not the money, I would hire Lawrence (Slim) Hawkins of Lander to drive me. Slim is one of the most careful drivers I have ever come in contact with. His many years of driving trucks of all makes and descriptions and of meeting inconceivable situations with calm deliberation has stamped him as a No. 1 driver in my estimation.

So it was that we made a deal with Slim to haul any jade we could not handle ourselves. Each job was to cost us $25, no matter how much, or how little, or how long the trip. Many a time Slim saved the day for us by his prompt action in getting out in the field after large stones that we could not handle ourselves, and that had to be removed before some other roaming hunter found them.

And so naturally Slim figures in many of our adventures. He was especially useful where secrecy was called for, as it was in many instances. He was very blunt and to the point when approached by people who tried to pry information from him about our activities.

Many times when he was out to haul a load of jade for us, Slim would find a stone for himself. During the years he accumulated quite a stock of material of his own. Together we made many trips in which there was no hauling involved; we just shared what was found on a 50/50 basis. Where stones worth many dollars are found, one must be careful in choosing a hunting partner. Squabbles are bound to arise if one or the other happens to be greedy, as sometimes happens. Through all the years of hunting, I found Slim Hawkins an ideal sidekick. He never betrayed a trust.

Recollection brings back thoughts of many trips and adventures together with Slim. Perhaps one lingers more vividly than others, for the setting and the details seem like an incident that happened to someone else with its scents and sights of a day in the jade country. Let us imagine it could have been you, the reader of this book.

How can you ever forget that thrilling day and night? Can you ever forget the fragrant odor of burning wood on the light mountain air? The breeze in the pine-topped hills of Wyoming? The vast panorama of rolling hills, deep washes carpeted with velvety green? How can you ever dismiss from your mind the thrilling discovery of Jade Valley? Jade Valley with its wedge-shaped miniature hills and grassy vales. The spring from which white-face fat Hereford cattle slaked their thirst in the morning sun and in the late afternoons. The silent peaceful valley, silent but for the lowing of contented cattle.

On this day you set your heart on a full day of unhurried exploration. With equipment for almost any emergency, you left the car. You descended into the valley by a V-shaped wash whose long gentle slopes made access easy to the floor of the valley. You notice the cattle along the waterholes, because this spring appears here and there, sinking underground only to reappear a few yards away.

One bull in the herd is eyeing you with great interest, as if surprised that man should invade his sanctuary. He is, in fact, more than interested. He is quite angry. He moves toward you with low grumblings. As he advances, he paws the earth, throwing up miniature dust clouds. He sways his massive head from side to side, advancing a few steps at a time. You glance back and see that you are at least a mile from your car. Hastily, you scan the terrain around you. There seems to be no place in sight where you can seek shelter from this menacing beast, but seek you must. Then you see many large boulders on one of the hills surrounding the valley. That hill seems your only salvation.

It is now that you find the beast means business. He is advancing at a fast walk, pausing at intervals to paw the earth and utter low, grumbling, terrifying noises. Backing hurriedly, you stoop to pick up several loose stones which you heave in his direction, hoping that he will turn back. This angers him all the more. You take off toward the hill with the large boulders. Yard by yard the bull advances. Slowly, slowly you back, watching that you do not trip, for that would be as fatal as if you attempted to run for it. You hurl a few more stones that land somewhat near the angry beast.

You are almost near enough to the group of granite boulders where you hope to make a final run for it. Judging your distance carefully, you dash for the safety of the boulders. Mr. Bull comes on now at a fast trot, bellowing in anger. You are in the rocks where you could dodge from one to another all day long if necessary, but Mr. Bull seems now well satisfied with his victory. With a few snorts and a little more pawing, as if for good measure, he turns reluctantly to rejoin his harem.

You are in a grassy dell where the snow of the winter has lain longer in the shadows and has thoroughly soaked the ground so that vegetation has grown rank. It is still damp and dank.

Not daring to go back into Jade Valley while the cattle are grazing, you thread your way up the verdant draw. You have never explored this particular hill before, although you have had it in mind for a long time. Because you can do nothing else, you will spend the day on this hill. Eventually it will lead you to your car. The boulders and the thick pavement of rocks cluttering every foot of the way make it rough going.



Allan Branham in Jade Valley with a huge nephrite boulder he discovered, then he gave it to the state, which lost possession of it.

Slim Hawkins, unbeknownst to you, has witnessed your retreat from the valley. In his anxiety, he has started to work his way toward the hill where you have taken refuge. Halfway up the draw, you meet him. Almost out of breath, he congratulates you on your narrow escape. The sun is at its zenith as you both work your way up the draw.

Carefully you scan the rubble underfoot. There is a gleam of green among the thousands of other rocks. You stoop and hastily grab your pick from your belt. The rock is not embedded very deeply and you have it in your hand. It is a lovely piece of green jade evidently washed down from above by a spring freshet. If this is the case; there must be more jade above, perhaps a group of pieces.

You, in your many years, have learned that jade is often found in groups. Now you have the first piece of the day's hunt. With renewed confidence, you slowly work your way up, being careful not to overlook anything even resembling jade. There are no broken rocks and no depressions from which rocks could have been removed. By this you conclude that you are the first hunter in this particular area. You decide it is a cinch that there is more jade up higher.

This is soon borne out when you hear Hawkins cry out that he, too, has found a lump of jade. Good old bull. He chased you right into a new jade hunting bonanza, for as you reach the top of the draw, you quickly see jade sticking out of the ground all over the place. Jade boulders of all descriptions and sizes. You are flabbergasted at the amount of green gold scattered about. Few jade finds in the Crooks Mountain district up to this time have equaled this fabulously rich strike.

Slim, cool and deliberate as always, takes the find in his usual quiet way. "Now," he said, "let's eat lunch." Laughter wells in your throat as you sit on the edge of a rock and reach for lunch in your knapsack. And as the sun dances and glitters on untold wealth of lovely green jade, two men sit on a lonely hillside enjoying a noonday lunch.

As you lean back to light your pipe, you steady your hand on the edge of the rock on which you are resting. It is rough and gouges your hand. You glance down at the jagged end of the rock protruding out of the ground, and lo and behold, it is jade, too. Both of you take picks and try to outline the stone. Its outline is as large as that of a dining room table. It is lying slantwise into the ground, and you have used the uptilted end as a seat while eating lunch! Your thoughts crowd each other. "Will miracles never cease? What's going to be the answer to this wonderful find?"

But time flies. Your car is at least a mile away. You cannot leave the stone. You cannot take all of it. You and faithful Slim Hawkins have met many an emergency together and together you will solve this problem, too. You both get busy, carefully covering the table-top of jade with dirt. With sagebrush you erase all traces of your work. Each of you takes as large a chunk of jade as he can carry and starts the backbreaking, stumbling trip over the rough terrain toward the car. Many stops have to be made to rest and to relieve aching arms and backs. All afternoon you and Hawkins lug chunks of jade in this manner. The day wanes, but you are not the least discouraged or less enthusiastic.

Night drops like a mantle on your operations. You have one more trip to make before the car is loaded. You turn on the headlights to guide you through the night from your find to the car. Before you pick up two chunks on the last trip to the car, you take all the remaining chunks which you cannot leave without some effort to save and hide them in the cleft of a giant boulder split down the center, possibly by lightning. Carefully you fill in all of the depressions made by the boulders you dug from the earth. Using the sagebrush broom again, you make the ground once more natural.

The last trip to the car. Will you be able to make it with the boulder you are carrying? You drop the boulder to the ground beside the car and fall with it in complete exhaustion.

Hawkins, too, although a strong man, is completely done in. You both rest on the ground. You are miles and miles from home and you know that the family will be worried, for you should have been there hours ago. Still you rest. Half-moon and stars give the only light on two lone men on a mountainside. The moon is obscured now and then by a passing cloud. The wind chills. There is an ominous hush and then comes the rumblings of a storm approaching from the west.

At the sound, you rouse yourselves. With the first crash of thunder, the car is slowly bumping its way down the dim wagon trail that connects with the road that will take you to Highway 287. By the time you reach the fork and the road to safety, the storm has overtaken you.

Thunder and lightning crash over the hills. Its cannonading is terrific. You roll on at a slow pace. It is too dark to see a single landmark. Five minutes later you drive into a tangle of brush. The car, being unable to surmount this obstacle, stalls. You have missed the crossroad. Now what?

"We will just sit and wait until morning if need be," Hawkins says, matter-of-factly.

Lolling back, you and Slim light your pipes and settle down for the long wait for daylight. Pipes glow and sputter as you chatter about the day's adventure and your many trips together into the mountains. Time rolls on and so does the storm. The rain ceases. Clouds sail overhead like giant ships in the sky heading for port. The wind sighs. You listen to the drip, drip of water rolling off the car. The moon peeps out as if wanting to know if the coast is clear, then lifts itself into full view, flooding the land with its soft glow.

You step from the car into air fresh with the odor of green leaves, washed and clean. Walking a few feet away, you discover that you are less than 20 feet from your road, the road to the highway. Hawkins backs the car out of the clump of brush and jockeys it into the road. You will not have to sit all night on the mountain.

Soon you roll to the highway. Slim, expert driver that he is, carefully guides the car with its heavy load of jade down to the highway. From now on, boys, there is nothing to it. Two hours of brisk driving brings you to the bench land on the outskirts of Lander, your goal. Street lights twinkle like fireflies as you come within sight of town, a welcome sight to two tired jade hunters.

A wonderful day it has been. A day never to be forgotten. A day of a ferocious bull, of lovely green jade, of a night of great contrasts—from the furious to the calm—from darkness to the light of the moon on a mountain.

CHAPTER VI

THE BIGGEST ONE OF ALL

The cold wind whipped at the skirt of my down coat and crept up its sleeves. The wind drove into the bowl of my pipe, making the tobacco a red glowing coal, and sent a scatter of sparks sailing through the sagebrush. The cool wind brought tears to my eyes as I stood motionless on the mountainside, undecided which direction might be the lucky one for the day's jade hunt. The hills had the elusive beauty of gray sage softened by the green of scattered junipers dotting the hillside. The fall haze softened the details of the scattered hills, the washes, and the small green glens, green gashes in the distant landscape.

Standing in this paradise of quiet and lonesome peace, in contemplation, I decided to follow the path on which I stood. I was almost unconscious of the fact that this same trail had once before led me to a great mass of green gem jade. As is usual with animal trails, it took me upward at an easy angle, for animals naturally climb hills along the lines of least resistance. The terrain was strewn with boulders of every size and description and an occasional group of gigantic boulders shouldered closely together. Grays, browns and chocolate colors covered the hillside. Once in a while a green stone lured me from the beaten path. I, the eager hunter, would hasten to examine it, only to be disappointed and return to the path again.

Hour after hour the quest went on until I approached one of the green glens. It was deep enough to shelter me from the wind. The earth was still damp and the grass was green. This would be a good place to rest and smoke for a few minutes and take stock of the situation.

Such places had always been lucky for me. I would hunt this place thoroughly from top to bottom, for the accumulated snows from the top of the mountain had created spring freshets that poured into the glen, bringing in boulders from all directions. Some perhaps had been undermined, and their sheer weight had brought them together in the wash or glen. Perhaps terrific cloudbursts had also helped to transport these boulders to this particular place.

Aroused from my contemplations, my rest and my smoke, I resumed once more the serious business of trying to find at least one piece of jade. To my great relief, the wind had died down. I would not be bothered with tears in my eyes.

Eager to make up for lost time, I began to work my way carefully among the rocks and boulders. Shortly I saw a gray stone that deserved more careful attention. I scrambled quickly over the boulders with my eye upon it, disregarding everything underfoot. A glance away from the objective might cause me to lose sight of the stone and be unable to locate it again. I stooped down and with my hammer struck hard at one corner.



Trucking a heavy load of jade from the Wyoming fields.

As the chip sang off into the sage and rock, I examined the exposed fracture on the stone. It was jade, a piece weighing about fifty pounds. And it was gray. The stone was covered with a gray rind. Hoisting the lump, I deposited it on top of a large granite boulder that served as a landmark. I had found one piece of jade within the vicinity, so I reasoned that there were surely other pieces near by. Eagerly but carefully, I covered the area foot by foot up the glen. It was hard walking, for the boulders were becoming thicker and larger in size. All at once it happened.

As I came from behind a large granite boulder, I stepped out into an opening somewhat like an amphitheater. Before my startled eyes was one of the largest jade boulders ever found in Wyoming and perhaps the largest in the world. This giant sat proudly in the afternoon sun like a king on a throne with granite boulders in a semicircle around it, much like a king surrounded by his court. Two other large jade boulders lay nearby like court jesters before the throne.

Almost stunned by the sight, I knelt down in the grassy amphitheater. With dry throat and thumping heart, I sat and gazed in wonderment. Here at last was the climax of fifteen years of hunting jade. This, I thought, was the ultimate beyond which it was impossible to proceed, the final point, the end result of years and years of searching. I had found it at last. A feeling of triumph rose within me as I sat and gazed at the king of all jade boulders.

The sun was in the right position to show the veins of dark green raised just slightly above the rind, somewhat like large blood vessels on the back of the hand. The whole stone, except for the veins, was covered with a grayish rind making it difficult to tell that it was jade at a distance of 50

feet and especially unless the sun was at that particular angle.

After the first breathtaking minutes, I dragged my eyes away from the giant long enough to examine the two guardian stones. Even they were large enough to appear in the wildest dreams of a jade hunter. My estimate of the two smaller stones was that one weighed approximately 500 pounds and the other 300 pounds. I could not even guess at the weight of the giant jade boulder but it was well over 6 feet high, 6 feet wide and I estimated about 8 feet through. My piece of gray jade left on top of the granite boulder paled into insignificance, except that it was the only thing found that day which I could carry to the car.

Taking my bearings carefully so that I could return to the spot and knowing I would not dare put up a mark of any kind, as jade hunters examine all ground around a landmark for obvious reasons, I returned to my gray jade boulder. Shouldering it, I started the long trip back to the car.

As I trudged back on the path, my mind was busy with jumbled thoughts of the day's adventure. Suppose I had not taken that path? What made me turn my footsteps in that direction? How much would the king-size boulder of jade weigh? How in heaven's name was I to get such a boulder down the mountainside and into town?

Still stunned with the great find, I finally reached the car with the measly lump of gray jade. I had been tempted to leave it in the field time and again when I rested on the way back to the car. It later turned out that, if I had left it, I would have lost one of the strangest pieces of jade ever found in Wyoming.

On arriving home late that afternoon, I got in touch at once with my good friend, Slim Hawkins. He had a wrecking outfit equipped with a crane and a steel cable that lifted or pulled with the power of his car motor. We made arrangements to take the wrecker out at night when no other jade hunters would be astir. If we failed, no one would know that the boulder was there.

We reached the field in early evening. Hawkins guided the truck up the hillside as far as he could toward the stone, but the going was too tough and the rocks too numerous. He did, however, get his truck within 60 feet of the stone. He looped the steel cable, an extra long one, over the stone and was ready for the big try. Slowly he started the motor, tightening the cable until it was taut. Ready for the supreme test, he gave the motor the gas. The cable vibrated as the motor hummed. Suddenly the truck's front wheels reared up off the ground and Slim quickly shut off the motor.

"No dice. She won't budge it," Hawkins called from the cab. He was able, however, to snake out the guardian stones without difficulty and loaded them onto the truck. We turned homeward, arriving in Lander at daylight. We unloaded the 300-pound stone at my house. The larger stone I told Hawkins to keep for his night's work. I afterwards sold the stone for him for $150. Not bad pay for a night's work.

As time wore on and we were still unable to move the giant boulder from the field, we would take visitors out to see it. We would lead them within 50 feet of it and tell them to find it if they could. Usually they couldn't. By the time we had done this stunt a few times, the word got around that this gigantic stone of jade was on the field somewhere. Promptly other hunters set out to find it. Actually it was like hunting for a needle in the proverbial haystack in the thousands of square miles comprising the jade field. Furthermore, our friends who had seen the stone in the field did not divulge the secret of its resting place.

In desperation two men from Lander who had been seeking the stone blanketed the whole hillside with jade claims. In doing this, they used the names of all their relatives and friends on the claim notices. We decided then and there that it was high time to take action. Knowing that we could never get the stone out, I wrote the governor of the state, offering him this stone as an exhibit to be set up on the capitol grounds in Cheyenne, where tourists and natives could see the largest jade boulder ever found in Wyoming.

Governor Lester C. Hunt, whose home was in Lander, wrote me, accepting the stone. He instructed the highway supervisor to go with me to see how large the stone was and figure out a way to remove it from the field so that it could be brought to Cheyenne. It was late fall when the highway supervisor came for me to guide him to the stone. With a tape line he measured the stone. After much figuring, he estimated the approximate weight as 5½ tons of jade! But, he informed me, his equipment could not possibly move the boulder.

There the matter rested, but unbeknown to me, he thought better of his statement and decided he could move it. On the day that the operation was to take place, there was a light snow, but with a bulldozer and a heavy dump truck, the highway crew drove out to the field, determined to get the stone. With the bulldozer, they pushed it down the hill and loaded it on the truck. But instead of heading right for Cheyenne with the stone, they brought it into Lander.

It happened that the two men who had blanketed that side hill with claims saw the stone arrive, for who could help but notice a piece of jade that large. Naturally they thought of the stone as the one for which they had been searching. Aware of the light snow and knowing that the jade field was practically deserted at that time of year and that any tracks into the field would be those of the highway crew, they took off in their car to see whether this huge piece of jade had come from any land which they had claimed. When they arrived in the field and traced the tracks, which were plainly visible in the light snow, they saw that it was taken from one of their claims. Highly elated at this discovery and also puzzled that they had been unable to find the piece, they sped into town to lay claim to the jade.

The first that I heard about the claim was when the governor phoned me long distance about the matter. He was angry about the whole deal because it had taken several men and a great deal of equipment to move the mass. The only thing I could say was that I had found the stone and had plenty of witnesses to prove the fact. I told him also that, if he had had the stone removed when I had first offered it, all would have been well. There was nothing to be done about it however, and the matter was quickly dropped.

The stone was a very dark green. I had broken off a piece and later found that it did not polish well. Therefore, I did not consider it good for anything except as a specimen. So the two men got the stone, after paying heavily to have it hauled to their place.

CHAPTER VII

THE GIANT TURTLE JADE

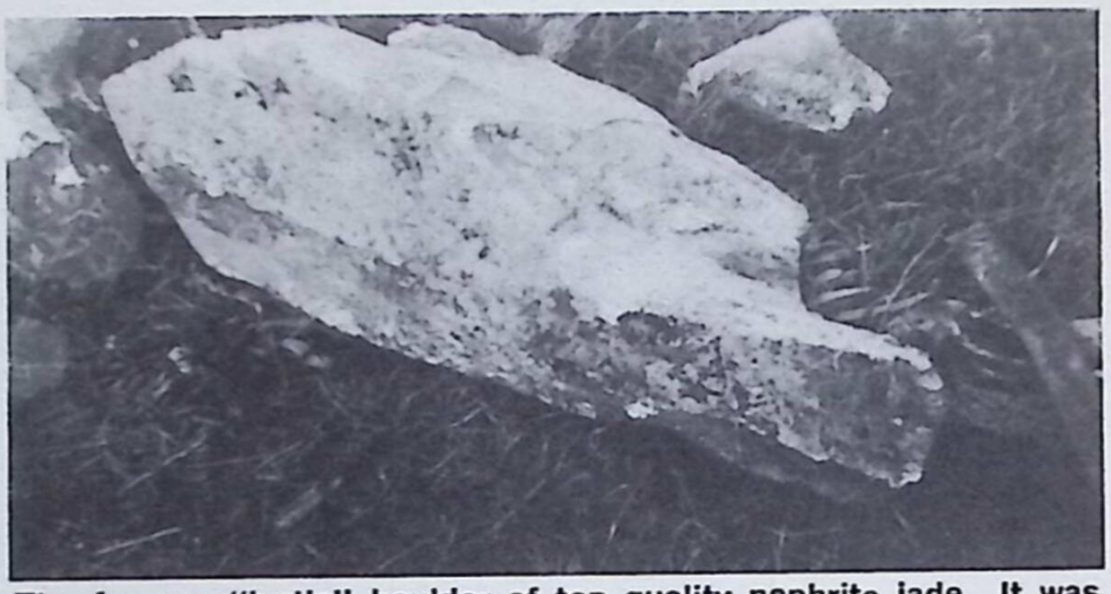
Time has flown since that day in the fall of 1942. We arrived at the jade field in the early morning, prepared to stay two full days; my wife, Estelle, the dog, and I. As we bumped our way over the uneven road heading for our favorite camp site, migrating birds swung overhead. A lone hawk was looping in the blue sky. Fall had come blustering in. The nodding sagebrush gave warning that the wind would be brisk and cool.

Nearing our camping place, we crossed the little stream that knuckles out of the gap between the two highest hills in the Crooks Mountain district. We could see that fall had been creeping up the hills. The creek was high banked and thickly wooded with aspen. In some places along the creek, a few big trees spread their sheltering limbs, casting picture shadows on pools of green-mantled water. A mellow day was this with the trees ablaze with gold and yellow, a day of melancholy sweetness. Little did I think that the next day was to be one of the most exciting of my life.

Threading our way through granite boulders of grotesque shapes and sizes, many seemingly sprinkled with glistening sugar that sparkled in the bright sunlight, we arrived at our campground. A gigantic granite boulder in an open space gave us protection from the chilling wind and diverted the heat of the campfire into the open end of the tent. We were directly facing Crooks Mountain. To our right was a long rocky ridge which sloped up the mountain where it lost itself. As we always set up camp the first thing, we busied ourselves unloading the tent, sleeping bags, utensils and food. A quick fire and a cup of coffee, the tent pitched, everything snugly stowed inside and we were ready to set forth.

Boldly and briskly we crossed the rocky, rilling creek. We separated, each to a favorite hill. The understanding before parting was that, if one of us found a piece of jade too heavy to be carried, the finder would signal by waving a scarf. We could always keep track of one another because Miggs, the dog, had a keen scent and made a practice of accompanying one of us for a while and then streaking off after the other. Back and forth all day long kept the little fellow busy. Occasionally I caught a glimpse of my wife high on a hill, her head bent as if in prayer. But silent prayer has been an aid to me in finding jade, as you will see.

All that long day we hunted and hunted, losing all track of time. The dawn and noon had come and gone. It was near quitting time, for after the shadows begin to lengthen amid the sage and boulders, hunting jade is difficult. The best hunting is when the sun is directly overhead. Since I could no longer see Estelle, I supposed she had worked her way campward.



The famous "turtle" boulder of top quality nephrite jade. It was so named because with the neck it resembled that animal. As found it weighed more than 1,000 pounds.

With heavy, tired feet I reluctantly retraced my route toward camp. Other jade hunters had been encountered during the day. Here and there I could see solitary figures and groups heading for their camps on the creek. Some walked with the slow weary stride of a luckless person. Those who walked briskly and eagerly, I thought, must have found a piece of jade and were eager to get to camp to show and gloat over their prize.

Smoke from numerous fires spiraled lazily upward as I moved wearily toward our own camp. From the distance, I could see that Estelle had arrived earlier and was preparing our evening meal. Her very silence after her greeting told the story of her day's hunt. My story was much the same. She did not have to ask me whether I had found a piece of jade; she knew that my knapsack was flapping and empty. The day had been disappointing. Having had many days just like this one, however, we were tired but not discouraged.

After the evening meal and washing the dishes and tidying the camp, we began to rustle sagebrush for our evening campfire. A campfire is a thing of beauty and comfort. As the giant boulder reflected the heat, we moved back. As the fire died down somewhat, we moved closer to it. Cold breezes murmured music amid the sage as we snuggled close to the fire. A full moon suddenly lifted itself into view over the hills and bathed the camp with a friendly light. All nature seemed to be settling down with the night's soft glow.

As the wind freshened and hissed through the sage, we felt that terrible loneliness that grips one momentarily just

before bedtime. On a mountain top miles from civilization, in the jungle, the desert or on the ocean, complete isolation is awesome. We undressed by the last dying embers of the fire and lost no time in slipping into sleeping bags. Being weary from the day's exertions, we were soon wrapped in the gentle folds of sleep.

When the jade hunter of the Rocky Moutnains retires for the night after a strenuous day among the hills, he does so with the hope that the night will soon pass so that he can arise early in vigor and freshness at dawn, which never fails to bring with it fresh hopes of success. Yesterday's failure is forgotten as the hunter faces a new day.

Smoke from other campfires was already floating upward above the aspens, where fresh winds shredded and tore it when it outreached the protection of the trees. Estelle already had breakfast in the making: pancakes, bacon, and coffee. Once more we put our belongings away and girded ourselves for the adventure of the day. Pick in belt. Canteen looped over shoulder. Lunch in capacious knapsacks.

We stepped briskly from camp. The dog frisked through the sage after fluttering birds. The sun slowly mounted in the east and tempered the chilly breeze. We were at an altitude of 7,500 feet and from this point miles and miles of the vast panorama of mountains and plain unfolded before us. Sixty miles to the north we saw the snow-capped peaks of the Rockies. Seven miles away an occasional car flashed by on the highway.

Like ants a few cars crawled in from the highway and headed for the aspens. Headlights flashed occasionally in the sunlight as the cars felt their way over the washes and mesas. They dipped into a wash and disappeared, only to reappear. In the distance there was the labored throb of a motor. The hunters might be from any of the 48 states, Florida, California, Maine, or New York. Knowing that there would be many jade hunters, we hurried over the rocks down the aisles of sage and finally into Jade Valley.

Although Jade Valley jade has long since been exhausted, it was just possible then that a few chunks with the rind on might still be found. Carefully and slowly we combed the rocky ridges, heads bowed, back and forth, back and forth. Nearby I saw a location marker, a tall twisted weatherbeaten post held up by a pile of rocks three or four feet high. It must have taken several people to do the work. Depressions showed where stones had been pried out of the ground for ten or fifteen feet surrounding the marker. This was a good spot to rest.

While I sat on a large boulder of diorite, my eyes sought out each stone surrounding this marker. One stood out in bold relief in the dead buffalo grass. Its reddish-brown coating attracted my attention. Rising from the diorite seat, I moved quickly to the rock. It was heavy and, to my surprise, it had the peculiar knitted fibrous rind. I knew instantly I had found a piece of jade. With my prospecting pick, I chipped off a corner and was rewarded by the sight of beautiful green. Several people had evidently gathered rocks all around this marker but had missed this piece of jade in plain sight. Probably its rind looked like thousands of surrounding rocks.

That is the irony of hunting jade. You can go over your tracks day after day and still overlook a piece. This piece weighed 15 pounds. Slipping it into my knapsack, I thought that, if nothing else was found that day, I would be satisfied. We had at least scored. In a happy frame of mind I set out to find my wife and impart the good news. Fifteen pounds was not enough to gloat over, but it would do much toward stimulating the afternoon's hunt.

Finding Estelle over the ridge, I helloed to her. Reluctantly she consented to quit hunting long enough to eat lunch. The dog arrived hungry and thirsty and with tongue hanging. We shared our lunch and our water with the tired little beast. She had learned to drink out of a canteen and



Marcia Branham sitting on a piece of jade that was called the "turtle" because of its shape. It had a head and body.

would nose it around until she was given a drink. After a short rest and many a look-see at my piece of jade, the hefting of it, the guessing of its weight, its quality, and the miracle of finding it so near the claim marker, we prepared to get under way for we were many miles from camp.

On the return trip, we decided to hunt on a long high hill that would eventually lead us back to camp. Time is never motionless; it either flies or creeps. For a jade hunter it flies. Mile after weary mile, we slowly combed the hillside. Now and again a green rock would be seen. On examination, more often than not, there was only disappointment after the labor of scrambling either up or down. Each one lengthened the long trip toward camp. The sun had slipped into late afternoon. Estelle had disappeared campward. My footsteps were faltering. My throat was so parched that I gasped for what moisture might be in the air. I crept on toward camp and blessed water and rest.

Unconsciously and for a number of hours, a silent prayer had been pounding through my head, "Oh God, let me find a piece of jade." It was like a song that I had heard somewhere. It kept coming to mind, repeating itself in spite of all I could do to suppress it. "Oh God, let me find a piece of jade." The chant came to me automatically as if out of the blue.

As I neared camp, the day was practically done. The sun was low but had not yet dipped behind the Rockies. I saw Estelle stooped over the fire. I could soon drink, eat and rest. Only a hundred feet now. I crossed the ridge of a million boulders which we had crossed countless times before in the early days of jade hunting, the ridge which we had many times searched diligently. A rock in my path protruded seven or eight inches above the ground. I noticed it at first only because, in my exhausted condition, it would be easy to trip and fall on such a rock, perhaps breaking an arm.

But the slant of the sun on this rock made me curious. Strange, I had never noticed its reddish-brown coating. It was the same color as that of the rock in my knapsack. I stooped to examine it. Not much impressed, I walked on a few steps. I hesitated. For some reason I turned back to the rock. Pulling my pick from my belt, I gave the inverted V-shaped top a smart blow of the pick. The chip went singing through the air and landed in the sage some feet away. Where the chip came off, there showed a nice green patch of jade. Another blow of the pick, and another chip sang through the air. Another small surface of green showed. No doubt this was jade. With suppressed excitement, I called out as loudly as my dry throat permitted.

Sensing my excitement from my almost hysterical call, Estelle dropped everything and hurried to my side. By the

time she arrived, I was digging around the stone. When she saw the outline of the stone, she realized it was a big one. While I was still clawing up the hard-packed earth, she ran back to camp to get another pick.

Weariness fell away like a mantle. Soon we were both digging like badgers. Bigger and bigger the rock became. We tried to sink a pick into the ground six inches from the contour line on each side, only to strike hard rock. Finally, far out on each side we found the picks would sink without striking rock. We knew then that it was an enormous piece of jade.

Our puny efforts would not be enough to dislodge this piece of jade. Night was fast falling. What to do with the huge piece of jade had me momentarily baffled.

The flames of campfires of other jade hunters were not far away. Any undue activity would bring a swarm of them around us. We dared not leave the piece of jade in the field while we went for help to dig it out, for we could not be sure someone had not seen us. Quick thinking was in order. This was October 12, and there would be a full moon again tonight.

Perhaps Estelle could make it out with the car by another obscure road that we knew and get to town for help. It was night and the trip to the highway in the dark would be dangerous inasmuch as there were branching roads in every direction. It would not do to go back across the creek or to come back that way with help. The jade hunters would become suspicious and might jump our huge piece of jade; it had happened to other jade hunters at other times. But she was willing to make the try on the old road. With many misgivings I saw her depart in the dark over the hills.

My instructions to her had been short and precise. "Get Jim Hawkins out of bed and have him hire a truck. Tell him to bring two stout planks and two crowbars and a long chain. You leave our car in town and come out with him in the truck, but come after midnight. You will have to guide him to this place. Take the secret road in." Hawkins had sold his wrecking car and would have to rent a truck wherever he could in town.

After Estelle left, I took down the tent, intending to erect it again over the stone. But first I removed all traces of our digging. I carried away the surplus dirt already dug out, and with sagebrush swept the fresh diggings. I pitched the tent over the rock, threw the sleeping bag and bedding on top of the rock, and moved all camp equipment to the new location. Then came the long wait.

I had told my wife that, at intervals around midnight, I would come out of the tent and flash a light over the hills in the direction of their route. Stars began to glimmer. A melody of silence brooded about camp. Again the chill wind was springing up. It was too cold to stay outside the tent, so our ever faithful dog and I covered up with the bedding but cupped our ears for approaching sounds.

The hours wore hungrily on with no sounds of the returning truck. What a predicament this was; lying on a piece of jade that might be worth thousands of dollars but which might be lost to us if things did not turn out right. Would Hawkins, roused out of bed in the middle of the night, be willing to undertake the long night ride? Would there be a garage open at that time of night and if so, would there be a truck available?

Questions and more questions and many misgivings. Would Hawkins and Estelle be able to find the place? With such thoughts as these, sleep came to my weary body. I did not mean to sleep. I should have been out laughing at the stars. Certainly, I should have been out flashing the signal light, but nature would not be denied. I slept on, and on.

A hello echoed in the night. The dog sprang up and was off, scattering utensils as she rushed through the tent door. I arose heavily to my knees and crawled to the tent door. The moon, obscured by a passing cloud, shut out the light for a few moments but as it burst out again, I saw silhouetted a dark form.



The "big turtle" jade boulder, 955 pounds of the finest jade that came from Wyoming, being raised on the truck. It was later sent to China and returned when Japan invaded China.

I heard the words, "Al, Al, where the dickens are you?" The dog was joyously leaping about the silhouette. It was Estelle. She had made the difficult trip and was safe and sound. I saw no truck or headlights.

"Where is Hawkins and the truck?" I asked her.

"He is just over the hill. He was getting cross as I made many mistakes about the road, and you were not out with the light as you promised."

She explained how, after many side roads had been tried, they had come deeper into the hills. As the last resort, she had begged Hawkins to let her walk around a bit to get her bearings. He had been quite reluctant to let her out for fear she would get lost. But after he consented, she spied an old tobacco tin which she had seen near the camp during the day. Then she knew where she was.

With the flashlight in hand, I walked to the top of a knoll. Sure enough, there was the truck and faithful Hawkins, disgusted with the whole thing. When he saw the flashlight full on his truck, he came up on the slope. Hastily I pulled stakes and dragged the tent and everything else out of the way.

Hawkins, an expert in handling such a situation, climbed out of the cab to look matters over. He brought the truck to a position where the headlights illuminated the jade. Each of us grabbed a crowbar. Time after time we thought we had the rock loosened enough to pry it up, but it would not budge. By careful examination on hands and knees we found that seemingly an extension of the body of the stone was still solidly embedded in the hard soil.

With crowbars, we finally uncovered the rest of the stone. To our amazement, it was like a neck with a huge head connected to it. We made a slanting hole under each side of the neck and after much grunting and wholesome swearing, were able to pass the log chain under and hook it securely around the neck. Hawkins climbed into the cab, turned the truck around and secured the other end of the chain to the back of the truck.

Giving the motor the gas, slowly he tightened the chain until it was taut. At this point I gave him the signal to go ahead. In low gear, he moved forward slowly. The stone was out of the hole, but the job was only half done. We arranged the planks against the back of the truck, making an incline to the ground, and with crowbars rolled the stone onto the planks. The planks being of soft wood and the jade being rough, the jagged rock dug into the soft wood and held securely as it was slowly eased up the incline. With a

great heave, the boulder was rolled into the truck. The springs of the truck sagged with the weight of the jade but fortunately they held.

A hasty gathering of our camp equipment and stowing it in the back of the truck took only a few minutes. Dawn was creeping over the hills when we reached the main highway. Two more hours and we were home.

Hawkins, wise in the ways of truckers, backed up to a tree in our yard. Once more he hooked the chain around the neck of the jade boulder. With the other end of the chain securely hooked around the tree, he drove the truck forward and the jade fell to the ground. He kept right on going to the street and disappeared from view.

After breakfast, we examined our remarkable find. The stone was covered with rind but patches of green showed occasionally on the piece. The head and neck had no rind and were a fine color, real gem jade. Picking up a sledge hammer, I struck the head a hard blow. The neck broke and off rolled the head, revealing some of the finest Wyoming jade I have ever seen. Cutting, however, was the only way to find out whether or not it had black spots.

When I put the head on the scales, it weighed exactly 55 pounds. The body, which we weighed downtown, was exactly 900 pounds. This was undoubtedly the finest large piece of jade we ever found.

That very morning I started slicing the head and found it to be the highest grade gem jade. Sample slices went forward to three buyers for a bid on the stone. Three answers came back, each with a bid, and in less than three weeks this wonderful find was on its way to China. Was the finding of this stone the result of the silent prayer that kept drumming in my mind?

Later the jade was returned from China because of World War II. While I was in Los Angeles, out of curiosity I went to see the owner. He had cut the piece into slices about the size of a table top and four inches thick. We ran water from a hose on such a slab and found it perfect, without a flaw or spot. I asked the price. The owner, without batting an eye, said "Thirty dollars a pound."

In the early days of jade hunting in Wyoming, many such fine pieces were bought for what later would be a song and were shipped all over the world. Most of the jade hunters in those days had no way to saw the jade. If anyone wanted to buy, say a pound, which usually sold for $5, the procedure was to take a sledge and knock off a piece. If it was over a pound, the customer usually got the benefit of the overweight. A jade hunter, with his back yard full of huge pieces which he could not saw or break with fire, was more or less up against it. He had to eat, pay rent, and buy gasoline and supplies for further exploration.

This meant he had to sell in order to exist. Jade hunters were more or less at the mercy of shrewd buyers who came from metropolitan areas. These buyers claimed at that time that our jade did not compare with the Chinese Turkestan nephrite and that they were not sure their cutters could polish it or the jewelry trade would accept it. They said our material was too yellow and that we should deduct 25 per cent for waste. In fact, they led us to think, and we knew no better then, that our jade was just about worthless and that they were just gambling on it.

To add to our troubles, every sheepherder, every cowboy and every oil field worker wanted a fortune for any piece of jade he had found. Buying it in the rough was a sheer gamble even though the piece might have an attractive color on the surface or a chip might lead us to believe that it was free from black spots and of gem quality. Sawing into the heart of the piece was about the only reliable test, and then we had to see whether the jade would undercut.

In order to tell if jade will undercut, take a pocketknife and run the point across the slab to and fro. If your knife point catches or makes the slightest scratch, you have jade that will undercut. No matter how pretty the color may be, jade that undercuts is really a headache, and some of the prettiest jade will undercut.

CHAPTER VIII

HUNTING WITH HULIE

He was a little fellow, which probably accounted for his success in hunting jade. Surely he was nearer the ground than most. Reared in the jade hills, he had herded sheep for a number of years. Following the sheep in the lazy summer days without much to do, he collected odd bits of agatized wood, agates, and anything else that attracted his attention, including bits of jade. Not particularly interested in jade at first—at that time nothing much was known about the stone—it was just field run with him.

I do not remember how I first met him unless it was on a rock hunting trip out on Warm Springs Creek. At that time my interest was centered mostly on hunting moonstones. There I came across Hulie Hallet, who was to be my companion on many a jade hunt in the following years.

I have seen this boy, for boy he was in those days, lift up a sagging sagebrush and pull out a nice piece of jade from underneath it. I have seen him pull a piece of jade out of the entrance to a badger hole. Wherever we went over the hills, he would come up with at least one chunk of jade.

One day while we were driving up a dim sandy trail, he called out abruptly, "Hold it," opened the car door, leaped out, and grabbed a fine chunk of jade right beside the car. I got out the other side and found another just as quickly. I have hunted that place a hundred times since that day and have never found another piece.

It was on a warm lazy day that I found my first large piece of jade. Hulie and I had decided to take in some new territory which we believed had not yet been hunted. As we pulled off the highway into the dim, sage-lined road, a herd of antelope gazed at us goggled eyed from a nearby hilltop. Heat waves glimmered over the sagebrush. Miniature dust cyclones whirled away over bare alkali flats. Grasshoppers disturbed by our car fenders buzzed off into the air, sounding like angry rattlesnakes. It promised to be a hot day, a very hot day, and if the wind did not blow, it would probably be ideal for jade hunters. Seldom is there a day when the wind does not blow in the jade fields of Wyoming.

As we eased the car down into dry washes and up inclined slopes where spring freshets had cut deep ruts, making many high centers, we shifted into low. The trick was to try to mount the ruts so that the car wheels on one side were riding the center ridge and the wheels on the other side were out in the sage. Hard on a car, yes, but the only way we could negotiate such a road.

As we slowly edged on ahead, dodging large stones that would easily break the crankcase, we passed many likely places to hunt jade. Another small herd of antelope, ready



Hulie Hallat, Branham's jade-hunting companion, holding an irregular mass of jade he found in the Wyoming fields.

for instant flight, gazed at us suspiciously from a nearby hilltop. One threatening movement on our part would send them wheeling through the sage like thunderbolts.

These beautiful creatures abound in the jade fields. When not molested, they appear to be friendly with man, but they seem to sense that, in open season, man is an ugly beast with a murderous heart, so they take to the hills where there is cover.

We decided to search on a high plateau with a grassy top which sloped away. Many stones were exposed on the slopes and eroded out of the soil. This looked like the ideal place to hunt, but on zigzagging up the rocky slope, Hulie called my attention to footprints in places where there was no rock. By the footprints, Hulie judged that two men and a woman had been hunting this hill not too long ago.

Discouraged at the prospect of hunting right behind someone else, we decided that Hulie would take off to another hill and I would go back to the car and drive it to the hill he had in mind. Off he tramped down the slope and headed for the other hill. I took off up the hill to the top of the grassy plateau.

As I topped the rim of the plateau, I saw it about fifty feet away. It stood tall and bright green in the sun as though someone had stood it on end as a marker. I could hardly believe it was true. I ran and dropped down beside it. There was not a bit of rind on the entire stone and it was highly polished.

Standing as it did on a high plateau, it had not been protected by sagebrush or anything else. Perhaps the wind had sandblasted it for a thousand years. My heart sang with joy at this find, for at the time it was the largest single green piece of jade that had been found. It was to give us the clue to the Crooks Mountain jade and even larger stones.

So excited was I that, instead of driving the car right up to the stone, which I could easily have done, I carried the stone the half mile to the car. If I had left the stone to go get the car, the three hunters whose tracks we had seen might have claimed it.

It was another hour before I could find Hulie; and when I did locate him and he saw the stone, he was through jade hunting for the day. So was I. Although the day was young, we left the field, I exultant, he feeling quite low. This was one time I had scored first and in a big way.

From that trip on, we were on the trail of bigger and better things in the jade fields. Time after time we were followed by other jade hunters as they tried to learn where we continued to find large jade stones. In spite of all that we could do, they eventually discovered our secret field of exploration.

Needless to say, the rush was on. It resembled a gold rush. Hunters began selecting likely sites and staking jade claims all over the place. They even had the locations surveyed and put on record. The validity of these claims, however, posed a problem. The jade was float and any claim you might pick might not produce a single piece of jade. These claims were registered for the most part as placer claims, the definition of which is "a superficial gravel or similar deposit containing particles of gold or the like. A place where such deposit is washed for gold."

Actually there was no foundation for these claims, so we and hundreds of others continued to hunt anywhere or any place. Today in the jade field one will see huge boulders painted "Jade Claim." Where jade is in place in the Granite Mountains, legitimate claims exist.

After a couple of years, my friend Hulie got a steady job and his hunting was confined to Sundays. Gradually he was weaned away from hunting jade. But what really put a stop to his jade hunting was that he "up and got married." His days of wandering over the hills were finished. But I shall never forget Hulie and the many pleasant and thrilling hours we had together. He was a grand guy who could be depended upon to produce a piece of jade under almost any circumstances.

CHAPTER IX

JADE: ITS COLORS AND ITS COMPOSITION

Of the two minerals known as jade—jadeite and nephrite —only the latter has been found in the Wyoming jade fields. Nephrite is a compound of calcium, magnesium, iron, silicon and oxygen, while jadeite is formed of sodium, aluminum, silicon and oxygen. Nephrite is a tangled mass of tiny fibers, which is the reason that it is one of the toughest of all rocks. Jadeite is slightly harder and heavier than nephrite and is crystalline rather than fibrous.

Some of the boulders in the Wyoming fields appear to have failed to get the right combination of elements, for the fibers are coarse and unfit for use. These have been dubbed "unfinished" nephrite. One such mass familiar to us where jade is found *in situ* weighs more than five tons.

One of the peculiar facts about Wyoming jade boulders is that those found with the rind still intact generally show the knitting and twining of the fibers. This lead to easy identification even among the thousands of boulders of the same color as jade. Not many boulders of jade left in the Wyoming field are wind-and-sand polished. Therefore, the hunter of jade will do well to watch for boulders with the peculiar knitting of fibers.

It is hard indeed to explain why some boulders of jade, buried for perhaps centuries, have no rind at all and are entirely green. One explanation might be that, for many years, they lay on the surface exposed to wind and sand and were then reburied by cloudbursts. Erosion is never idle and has ways of covering and uncovering the treasures hidden in our mountainous western states where violent and sudden storms are common.

Wyoming jade hunters believe that jade stones have a definitely kidney shape. True, many stones in Wyoming are kidney shaped, but others are like the roof of a house with ridge pole and eaves slanting sharply down from the top. Almost all Wyoming jade pieces have skeletal remains of this form. Those lacking it had probably been worn down by glaciers.

Inasmuch as diorite and nephrite jade both came from the Pre-Cambrian era, black diorite boulders in great numbers are scattered throughout the Wyoming jade fields. As the diorite came from the very bowels of the earth, it is safe to say that all the ingredients of jade were put together far down below the surface.

Here nature's alchemy started to mix together all of the elements needed to produce a boulder of jade. Finding a fault in the earth's crust, nature pushed her mixture toward the surface. On the way up, many things took place. Min-



Sawing a piece of jade into slabs with a sandstone slab as the saw blade, a method used by New Zealand and Canadian natives.

eral waters loaded with silica and coloring agents joined forces with intense pressure, friction, and heat. These forces were at work for thousands of years. The movement of the mass was probably halted when there were earthquakes and tremors which, at times, might have closed the fault and then reopened it. The opening and closing of the fault probably pinched off huge pieces of this mass like a baker pinching off chunks of dough to make loaves of bread.

This might explain why much jade comes in the boulder form. As the mass neared the surface of the earth, the hardening process probably began. Thus it was in the final stages of being finished jade. It finally reached the surface in all its lovely colors; and like the gaudy butterfly coming from a lowly worm-like larva, jade came to the light from its humble beginnings in a mass of mixed minerals.

How does jade *in situ* differ from the jade boulders apparently bitten off into chunks by the opening and closing of the vent in which they traveled to the surface. Our explanation is that, as soon as an occasional crack occurs in the solid crust of the earth, the hot plastic matter of the depths will be squeezed into this crack by the tremendous pressures and will begin to move slowly toward the sur-

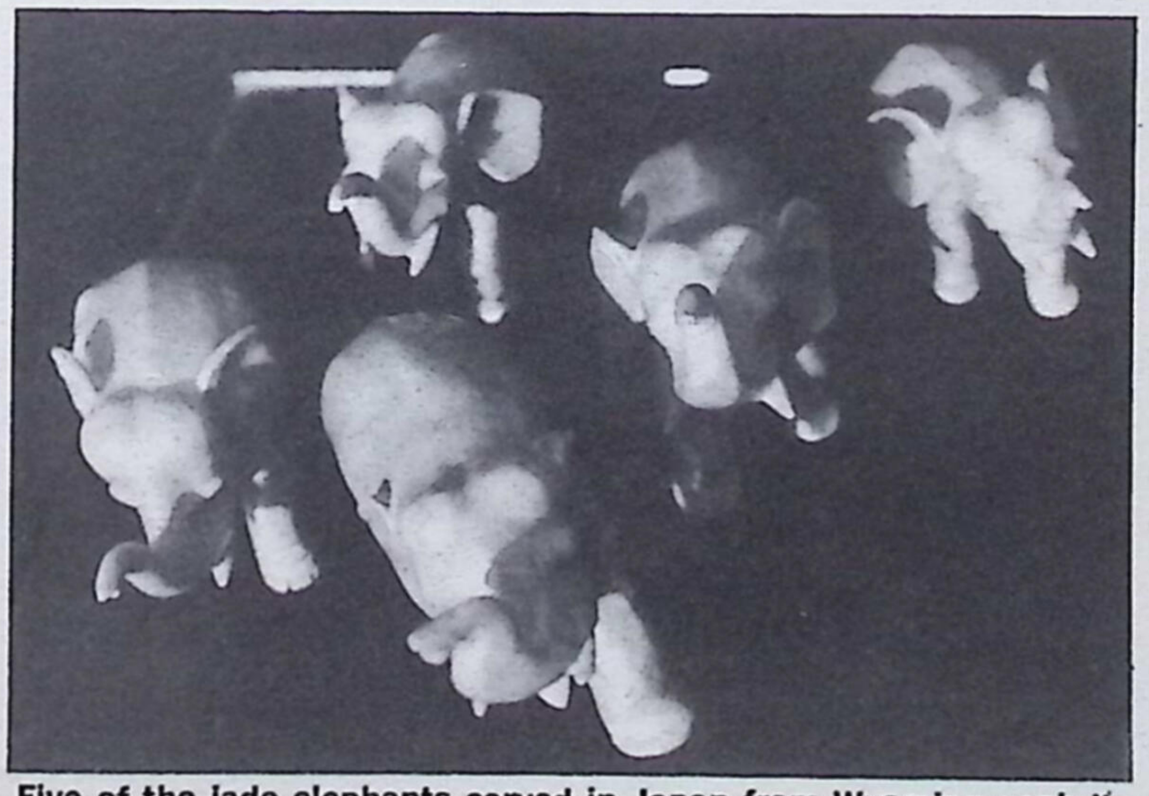
face. Coming closer to the surface, this molten mass enters the region of lower pressures where it finds strata with faults that are either vertical, or horizontal. Here the material spreads out and takes the form of flat masses, vertical masses, or sometimes the form of a reef like the jadeite of Burma. These flat masses would form into lenses. Our jade claim in Wyoming was of the vertical lens type, and the jade seemed to be pasted into the matrix in panels which could at times be pried off with a chisel. It is evident in such a case the molten material came to the surface quite fast without any interruptions.

As the previous pages have indicated, most of the Wyoming jade collected for the commercial market has been some shade of green. Clear apple green has been the most desirable green, but the colors have ranged from almost white through the olive and dark greens to black. The rarest color of our Wyoming jade probably is the blue. Usually, this is a small area in the center of a boulder that is paint-black on the outside. The stone frequently has a black border, and by experimenting with heat on such a stone, we have come to the conclusion that the black border is the result of double heating. This kind of stone, for the most part, has been found only in the Warm Springs district of the Wyoming jade field. The rare moss, or seaweed jade has also come from this district. It is known definitely that the red jades of Chinese Turkestan come from the rinds of jade boulders. Some of these rinds are beautifully colored pink to garnet red as well as dark amber, blood-red and carnelian tints. Few jade stones found in Wyoming have a distinctive red rind. Usually the rinds of Wyoming jade boulders run from dull grays to light browns and chocolate-reds, some of which might have made striking objects of art had the lapidary had the skill and the know-how to utilize them as the Chinese do.

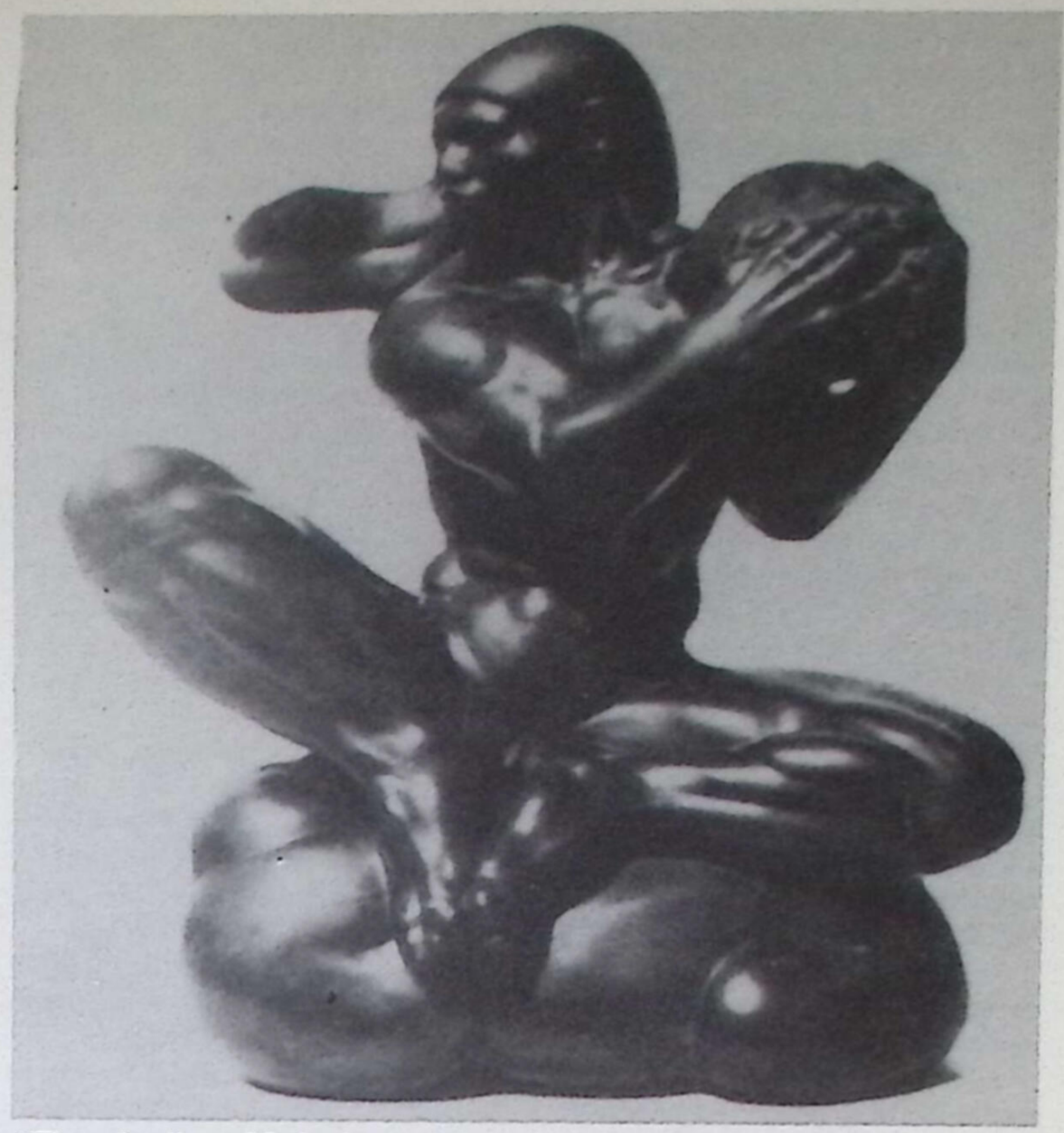
Several pieces of amber colored jade have been picked up in Wyoming but they are rare. With most of the hunters concentrating on greens and blacks, it is possible that other colors have been ignored or not recognized as jade.

One color mentioned in the Chinese records is sulphur yellow. A stone of sulphur-yellow jade stood on a hillside in the Wyoming jade fields for a number of years. It was near a group of 3,000 pounds of green jade boulders which were removed by a number of hunters. They left the sulphur-yellow stone.

Hundreds of jade hunters have visited that rock since it was found. Evidently, they were attracted to it by its vivid yellow color. Its setting in the green grass and sage made a contrast which was bound to catch the eye of any hunter on that hill. Many pieces were knocked off the rock out of



Five of the jade elephants carved in Japan from Wyoming nephrite for Allan Branham.



"Thunder," a 20 inch sculpture by the late Donal Hord of San Diego which was completed in 1947 from a 460 pound jade boulder found by Marcia Branham.

curiosity and scattered up and down the hill. Everyone seemed to want to examine it, chip off a piece, puzzle over it a few minutes, and then throw it down. We have visited this rock many times and have carried away pieces of it for study.

The jade mine north of Sweetwater from which the snowflake or tremolite jade has come also produced a little yellow jade. This mine also yielded several authentic jade crystals. Some experts will no doubt take exception to this statement as they did for many years about turquoise crystals until it was finally proved that there were crystals of turquoise.

Brown jade has also been found in Wyoming. Gray is mentioned prominently as one of the colors in Turkestan jades. Grays are quite common in Wyoming nephrite jade and are not highly regarded by the jade hunter. Many jade collections all over the world contain gray jade objects. In fact, no color of jade has been neglected by Chinese carvers, and in Wyoming tons upon tons of gray jade have been found that could be carved into art objects. We have in Wyoming all the colors of green to black, some blue, brown, gray, yellow, mottled green, moss green, carnelian, and some off-colors, as well as the snowflake.

We hear much talk about apple green jade, but most hunters, when they speak of it, do not realize that there are many shades of green apples. This also applies to grass-green jade, as you will find many shades of green in grass. As to white jade, strange as it may seem, there are many shades of white. Thus you come to realize how baffling and confusing is the color scheme of jade.

Some of the finest jade found in the Wyoming fields showed small web-like clots of darker green, seemingly suspended in the lighter mass of green when a slice was seen by transmitted light. This sort of jade was called "hanging web." Similar jade has been found in Chinese Turkestan.

All jade, no matter where found, is much more beau-

tiful in transmitted light than in reflected light. A thin slice of snowflake, when held to the light, will reveal deep blue, brown, green, and many other lovely colors. In reflected light, you see only green and white markings. A thin slice of snowflake jade makes an exquisite transparency. Much of the snowflake jade was sent to Japan to be carved into various objects.

The Japanese do a good job and are fast workers, adapting themselves readily to modern methods. Where the Chinese stick to the method of sawing lumps of jade with the bow and a wire, the Japanese have modern sawing machines. Of course, we could not quite expect any modern carver to turn out the intricate and exquisite jade objects which took years and years to finish. The Chinese jade pagoda took 150 Chinese artisans ten years to complete. What the average rockhound wants in the way of carvings is carved animals, such as elephants, dogs, cats, and, in fact, objects of the whole animal family. The Wyoming mouse-gray jade, which is just about the color of an elephant, has been used by the Japanese for such carvings.

Eleven of these elephants arrived in the United States a few years ago. The workmanship was excellent. The shipping of the raw jade to Japan and the return of the finished product did not exceed three months. Now it is possible and not too expensive for a rockhound who finds some jade unfit for jewelry to send it to Japan and have it carved.

Now that we know any kind of jade is suitable for carvings—the Chinese used many mediocre shades for carving—the off colors in Wyoming jade may become valuable. A two-pound piece of mouse gray selling at a modest price in the rough; when carved into an elephant, is worth many times its original cost.

There have been loud and vigorous protests from buyers of Wyoming jade about the black spots which are, or are thought to be, more prevalent in Wyoming jade than other jades. This is not true. All jades are subject to black spots; even the most prized imperial green of Burma has black spots in many pieces. True, a $30,000 necklace of imperial green jadeite will not have these spots because only the finest stones would be used in such a costly item, nor would a $700 ring have any black specks. But many jade objects and pieces of jewelry do contain black specks. One collection of 104 beautifully carved pieces had twenty carvings with black specks in them. Sixteen of the objects had rust spots. Three had brown spots and one amber specks. Actually, the black spots in Wyoming jade are common to all jades, no matter where they come from.

A great many greenish materials have some resemblance to jade, such as the green grossular garnet from Transvaal, South Africa. This material is and has been sold under the misnomer of "African jade." Many of the serpentines resemble jade, too, but they are comparatively soft and can be easily scratched with a knife blade. No one need be misled into buying this kind of material thinking it jade. Green aventurine, although related to nephrite, is another material which resembles jade. Several years ago many pounds of it were sold out of Wyoming as jade, and several well-known dealers were taken in on it.

CHAPTER X

OTHER JADE FROM AMERICA

After the discovery of jade in Wyoming, gem hunters, sensing that there must be other places in America where jade could be found, turned their attention to the mountainous regions of western North America. Some people from Washington, hearing rumors of jade found on the Fraser River, decided to take a trip up there to hunt for this stone. They found jade hunting in that area very easy and returned with nice specimens. A few weeks after their trip, they visited Lander and gave us some slices of this jade. These people, as far as we know, were the first dyed-in-the-wool rockhounds to go into the Fraser River country with the sole object of hunting jade. It was virgin country for jade hunters and not too hard to reach. Now a great many dealers and hobbyists have collected Fraser River nephrite and magazines have run numerous articles with maps of the area.

Had people taken the time to investigate thoroughly, they would have found an inexhaustible store of knowledge about Fraser River jade, for it has been used for years by the native tribes, not only as implements but as ornaments as well.

They would have found that the Indians attach great value to jade because of its physical properties. Its strength and toughness combined made it highly prized for keen-edged tools. Aside from its material worth, jade, wherever found, has a certain sentiment attached to it, and the same condition exists among the Indians in British Columbia.

In density and structure, the Fraser River jade shows a great variation. Serpentine is found in abundance along with the jade, and many pieces are an admixture of serpentine and other foreign materials. But some are boulders of pure jade. Greens and mottled jades predominate.

In the past, before iron, copper and hard materials reached the tribes who inhabit the North, jade implements and weapons were made by sawing with thin pieces of slate using sand grit. For instance, if a long knife blade was wanted, the native selected a flat boulder of jade of the right thickness and length. With a thin piece of slate and water and sand, he sawed parallel channels to form the thickness of the blade he wanted. When half through the boulder, lacking perhaps a quarter of an inch, he turned the stone and sawed from the other side, always careful that his cuts would meet exactly. He would saw within a quarter of an inch of his top cuts, stop, insert a wedge in the outside cut, tap it smartly and the cut would break.

Each successive piece was formed the same way, leaving a rough edge on each cut which was honed down with sandstone, sand and water. Now he had several knife blades. For a handle, he fashioned two pieces of wood to fit the long slices, the wood being cut to fit the hand. He then bound the handholds, one on each side, to the jade with sinew. Spearheads were made in much the same manner.

Nephrite jade has been found in many places over the world as primitive man availed himself of its use centuries ago in Asia, New Zealand, prehistoric Europe, and America. To primitive man, it was a most cherished material for his chisels, adzes, hatchets, knives and ornaments. One other stone was used extensively and that was flint for the fashioning of arrowheads, scrapers, and spearheads.

Why did not the Wyoming Indians use jade to fashion weapons and implements when they were practically sitting on top of one of the world's jade fields? Jade has been found from Alaska to Guatemala, yet none was used by the American Indians. Only at the two extremes of North America, Alaska and Guatemala and Mexico, do we find jade ornaments and artifacts. Perhaps the American Indian found the material too tough to work; perhaps he lacked the intellectual gifts of the Mayans.

It is highly probable that the Eskimos learned the art of fashioning weapons from the Asiatics, some of whom found their way across the Bering Sea which is only 36 miles wide now. In ancient times, Alaska might have been connected with Asia by land.

In our long years of hunting the Wyoming jade fields, we have never found as much as one arrowhead or anything like a weapon or implement of jade. We know that the Indians camped on the very ground where jade has been found. We have found their tepee rings (a circle of stones which the Indians used to hold down the bottom of the tepee) and have located sites where they made their arrowheads by chipping jasper and flint to the proper shapes. These were in the heart of the Wyoming jade field. We must come to the conclusion that the American Indian was sadly lacking in the ability to take advantage of one of nature's most useful materials used by other primitive peoples. Petroglyphs found all over Wyoming prove that primitive man occupied the country for centuries. One of these petroglyphs is only a short distance from Crook's Mountain.

Some day British Columbia will prove to be one of the largest jade fields in the world. In 1951, we received a large box full of jade from Vancouver, B.C., and then a little later another box of jade arrived. The letter which followed was from a prospector who explained that he had found a creek in British Columbia where jade boulders were strewn along the stream bed as far as the eye could see. On inspection of the jade, it was plain to be seen that all the pieces had been broken off water-worn boulders and all

had some of the inevitable black spots so prevalent in jades everywhere.

Our prospector gave no hint of what stream the jade came from or any inkling at its origin. He passed out of our life as quickly as he had entered it, but we feel that he went right back where the jade came from, for jade lures, and lures as no other stone. It is as bad as the "gold fever," and once entangled with jade one seldom recovers.

Jade Mountain in Alaska was discovered by Lieutenant George M. Stoney of the United States Navy in 1885. Its discovery explains the occurrence of jade implements found on the northwest coast, Bering Sea and Arctic shores of America. Modern-day transportation by air has been the means by which modern man has been able to reach this remote and majestic mountain and examine and study the formation. It is thought that other areas around the mountain also contain jade. The few parties who have had the means and hardihood to explore this remote district report that Jade Mountain looks like a gigantic gem of green bare of any forest cover.

This wonderful mountain is well within the Arctic Circle and about 130 miles from the Arctic port of Kotzebue at the mouth of the Kobuk River. The range in which Jade Mountain is situated is thought to be about thirty miles in extent. The following information about Jade Mountain and rivers near Jade Mountain was given to us by a friend.

This man worked the asbestos mines situated not too far from the great mountain of jade. Being possessed of an inquisitive mind and curious about gems and gem materials, he visited Jade Mountain on numerous occasions. He not only explored this mountain, but he staked out 36 claims for his company and drew maps, filled in location notices and furnished the natives of Shungnak village with notices, maps and instructions how to stake out claims. He had them stake thirty claims.

These 66 claims cover the known area in which the jade is exposed on Jade Mountain. The mountain is actually on Jade Creek which runs parallel to Shungnak River. It is composed of bright green serpentine which, in places, has altered to nephrite jade. By closely examining the mountain on numerous trips, he determined that there are two areas of jade exposed on the surface. The two areas combined amount to approximately 300 square feet of nephrite jade.

The depth of this deposit, of course, cannot even be estimated. When, if ever, it is mined, who can guess what will be found in the way of colors and quality? But the jade hunter who has hopes of going to Alaska should not be discouraged about someone being there before him. Almost every river and creek tributary to Jade Mountain abounds in water-worn jade boulders. If you feel that it is too far, too expensive to make the trip, we recommend you try the Fraser River country above Lytton.

Most of the Alaskan jade which has reached the United States has been collected by Indians, but there is some commercial production. There is no doubt that there is excellent jade in Alaska. From that distance, it would seem best to plug or core the jade before sending it on the expensive trip to the United States, or to the Orient.

It is not known for how long the Eskimos used jade for implements and adornments. It is thought they used it until the Russians introduced iron and other hard materials to the Eskimo. In shaping nephrite jade for implements, the methods for cutting by the Eskimo approximated the Fraser River natives' methods as well as those of the Maoris in far-off New Zealand. Silicious sandstone saws with water and sand served their needs, but some evidence points to the fact that flint saws were also used to cut the tough boulders.

It is thought that the totem poles were carved with jade implements. Even the huge log canoes were probably chopped out with tools made from jade. In many instances, horn served as handles for the jade instruments as well as the



Two slabs of Wyoming nephrite containing large quartz crystals. The one on the right shows the length of a crystal; the other is a cross section.

penis bone of the walrus which is nearly four feet long. Jade spear points were fashioned, then inserted into a cleft pole bound with walrus hide. So here in the far silent north, we find again "necessity the mother of invention."

The natives of the Arctic Circle seem to have observed how sand and water in nature does a fine polishing job. It is said that, to polish jade, they tie a rough piece to a limber branch overhanging a rushing stream with a sandy bottom, which tends to shift swiftly with the current. The branch gives and takes, and the sand and water, in time, do a fair polishing job.

Colors of Jade Mountain boulders found in the streams are very much like those of Fraser River. We have handled tons of it. At one time, 22,000 pounds was shipped to us. There were 55 bags of small- and medium-sized boulders as well as several boulders weighing around 2,000 pounds or more.

The colors ranged from a vivid green through all the greens of the vegetable family. There were mixed greens with brown, milky-browns, milky-greens, and curdled greens with black splotches. Some of the large boulders had streaks of chatoyant material which is more common in Alaskan jade than any other jade. Some Wyoming jade also has this chatoyant structure. This effect is caused by fibers of asbestos, altered to jade, lying in a parallel position as in tigereye, which is, in fact, nothing more than altered asbestos.

Chatoyancy in a stone is a changeable, wavy silken sheen shown by the fibrous minerals. The chatoyant streaks in jade make beautiful stones when cut en-cabochon. A number of these stones cut in Germany were shown in Chicago along with carved flowers and leaves of Alaskan jade. All of the Alaskan material was from the Jade Mountain district.

Many jade boulders found in the Alaskan rivers and creeks, and on the Fraser River are without rinds because water and sand rushing over them and against them have gradually removed the rind. It took centuries, no doubt, to do the job just as it took thousands of years for the wind and sand to blast the rinds off jade boulders which stood above ground in the Wyoming jade field.

So within the Arctic Circle stands this magnificent mountain of jade and serpentine. A tremendous jewel, cold and distant, clasping to her bosom untold wealth of jade, she disdains the puny efforts of man to wrest from her the secrets she possesses. She could justly be called the Queen of the North. Already man has scratched her sides. And

man will come to her again and again, until some day she will succumb and man will scar and tear at her very vitals, never satisfied until he has wrenched the very heart out of her.

No doubt many know or have heard about California's Monterey jade, found on the beaches there, and of the wonderful cave where glistening green pebbles of jade are found in profusion. As near as we can find out, the cave was discovered about 1880 by a man hunting sea lions on the coast below Monterey. It seems he chased a sea lion into the cave and found the floor of the cave littered with thousands of jade pebbles. He had no idea what the material was, but he picked up a few pebbles to take home, as almost everyone does on visiting the beach. His children used them for playthings and then his children's children did the same. Nearly sixty years later, a person visiting the sea lion hunter's home admired the stones. Before the visitor left, he was presented with a few. Finally some of these stones found their way into the hands of a prominent geologist who pronounced them nephrite of gem quality. Although a wealth of material has been removed from this cave, much fine material still remains.

Some of the remaining pieces are in boulder form so large that they cannot be removed. One of these boulders, it is said, is approximately ten tons in weight. It is as smooth and rounded as if it had been polished on a lapidary wheel. The place is now widely known to the California collectors as Jade Cove. Between ebb and flow, for about two hours each day, the cave is exposed. For the remainder of each 24 hours, it is beneath the pounding waves of the Pacific Ocean.

We might speculate about what forces made this cave of jade. Remember, this is just a theory. We think there must be a deposit of jade running through the rocks and outcropping into the ocean. By mechanical power, the sea accomplishes most of its erosion. The mere weight with which ocean waves fall upon exposed coasts breaks fragments from the cliffs. Masses of over ten tons in weight have been known to be quarried out of solid rock on some coasts, at a height of seventy feet above sea level.

In heavy storms, an ocean wave can fall with a blow equal to a pressure of three tons to the square foot. It compresses the air in every cranny and crevice of the cliff, or in this instance, the cave. When the sea ebbs, the air instantly expands. By this alternate compression and expansion, areas of the inside of this cave are loosened and removed.

Where there is any weak part of the cave, a tunnel may be excavated. Loose material sucked out of this cave and caught in the advancing breakers is again thrown by great force upon the rocks of the coast line and then dragged in the recoil of water, only to be lifted again and swung against the shore. This action is repeated millions of times.

In this process, loose stones are reduced in size and are ground smooth by friction against each other and upon the solid cliff. The material on such storm-beaten shores as the coast of Monterey is an eloquent testimony to the work of the waves. The jade pebbles have been smoothed and polished by the ceaseless grinding of the shingle upon them.

Elsewhere in California, Porterville has provided some nephrite jade. Covello in upper California has a large deposit. What little we have had of it lacked any interesting colors, but there is no telling when it may produce the kind of jade desired for gems. In jade everything is unpredictable.

CHAPTER XI

NEW ZEALAND AND ASIATIC JADE

The first explorer of New Zealand was the great English navigator, Captain James Cook, who landed in what is now known as Poverty Bay, October 8, 1769. Cook and other explorers who followed him found that Maori ornaments differed in one outstanding respect from those of other Polynesians. This was their use of nephrite, or as it is sometimes called, New Zealand jade or greenstone. The best known of all greenstone ornaments in New Zealand is the tiki, a grotesque, twisted little human figure worn suspended from the neck. Other ornaments of jade include ceremonial fish hooks and straight and curved ear pendants.

It is not known just when the ancestors of the Maoris left their Polynesian homes and arrived in New Zealand, nor is it known when they discovered nephrite and started working it. We would probably be safe to say it was several centuries ago.

The jade deposits of New Zealand are on the west coast of the South Island, the valleys of the Taramakau and Arahura rivers, and the sea beach between, and the rivers' mouths, which are approximately nine miles apart. Boulders and pebbles lie in deposits of gravel. Veins of jade *in situ* are also found in the Griffin Range. From careful observations by travelers and scientists who have visited New Zealand, it was learned that the Maoris used almost the same methods to carve and fashion nephrite as the Eskimos and the British Columbia Indians.

In addition, however, to the siliceous sandstone saw, the Maoris made use of a sort of flint saw with sand and water as the abrasive. In New Zealand around old Maori camps, numerous pieces of fine sandstone with cutting edges have been found. It is believed, from evidence found near these camps, that wood with a fine quartz sand was also used. Like the British Columbia natives, the ancient cutter made his task easier by working his cuts from both sides. When the cuts were a third or a quarter of an inch apart, he either wedged off the piece or with a sharp blow broke it off.

Many times we cut a piece of Wyoming jade with a method similar to that used by aboriginal man. We would cut through the boulder as far as possible with a 20-inch diamond saw blade, a cut of about nine inches deep, then turn the stone over and saw through from the other side. This would leave a narrow piece of uncut material in the center. Then we would insert a thin steel wedge, and with two or three smart blows, split the stone. Surprisingly, the broken strip was not nearly as rough as one might imagine.

We have heard, and from a reliable source, that in New Zealand each tribe had a tribal stone, which generally was a beautiful water-worn boulder of jade. When the tribes would battle, the victorious tribe would seize the tribal boulder of the loser as one of the spoils of battle, and it was highly prized. With the coming of the white man to New Zealand, tribal wars ceased to be and the importance of the tribal stone lessened.

J. L. Kraft's brother, representing the Kraft Cheese Company in Australia, knew of his brother's intense interest in jade. He was able to purchase one of these tribal stones. He shipped the kidney-shaped, water-worn boulder to his brother in Chicago. Kraft, upon receiving the boulder, wrote us an enthusiastic letter concerning this particular piece of jade and even sent us a slice. It was a fine specimen of medium green and would pass very well for Wyoming jade.

We have often wondered about how much jade could be cut in a given time by primitive methods and have come up with the figure of about two inches in a month. Pause and think of the patience it would require to do this kind of work. No wonder jade stood in such high esteem with all of the people who found it and worked it.

A fine violin, a fine painting, or fine work of any kind brings fame to the artisan and his name goes down in history. But the workers who made the beautiful carvings in jade are to this day unknown and unsung. Even with millions and millions of words written on jade and its mysteries, few names are recorded of the artisans who labored for years and years on beautiful objects of jade.

Many people think of Chinese jade as having come from China proper. But, Chinese history and records are vague about the sources of the jade represented in the fine pieces that have been handed down to us from the early Chinese dynasties.

It is clear from recent finds that jade was known, possessed and worked by Chinese from the province of Kansu 3,000 years before Christ. And thousands of years after, we are still unable to mark the location of the mines from which the Imperial supplies were drawn. It is believed that jade was found within the confines of the kingdoms of the early rulers. Jade in its raw state came from the provinces of Honan, Shensi and Kansu. Today there are no traces of jade *in situ* in those localities, nor has any true jade been found anywhere in what might be termed China, other than Turkestan and small quantities in Yunnan.

Chinese jade may have been exhausted like that of the very scarce light green nephrite of Wyoming. At that early date, heavy demands were made on the sources of supply, and with the population of hundreds of millions in China, jade hunters probably made short work of any deposits that were not too difficult to reach. As in Wyoming, they probably cracked and chipped every stone that appeared green.

It is an established fact that, for two thousand years, there was a steady flow of nephrite jade from Central Asia to the Chinese capitals in the East. The light green jade of Turkestan has lasted thousands of years, while that of Wyoming was plentiful for a scant twenty years.

From the very early days, the ancients, with their beasts of burden, plodded the two great highways to Central Asia from China. Quite a contrast with modern days of transportation—jeeps, trucks, and pleasure cars invading the jade fields of Wyoming and driving to the heart of the hunting grounds without any discomfort at all.

It may be just a question of time before the jeep will take the place of the camel in Central Asia, too. Thus the soft pad of the camel heard through the long passage of centuries across deserts and mountain passes may yield to the modern way of transportation, and romance will give way to commercialism.

It would be a wonderful adventure to make the trip to Central Asia through its thousands of miles of wild sandy stretches where, we are told, the route at times vanishes completely and only the desertwise can find the way. After the long desert trail, the lofty Kun Lun range of Turkestan, some 13,000 to 20,000 feet in height, would probably be a welcome sight. These high mountains with glacier-fed rivers have provided tons upon tons of jade through the ages. We would find the river of White Jade, overshadowed by the Mountain of Jade; there would also be the River of Black Jade and the River of Green Jade. One might even go jade fishing.

This method, we understand, was used by the natives who waded the icy streams, feeling for the jade with their bare feet. It is said they become so expert that they could distinguish the feel of jade from that of other rocks. The Alaskan streams found near the famous Jade Mountain also contain jade, but perhaps streams there would be a bit too cold for wading.

It is evident that the water-worn boulders of jade found in the Jade Mountain tributaries have been broken off the mountain by some disturbance and have rolled down into the streams, where for centuries the water has worn them very smooth.

No doubt, the same thing has occurred in Turkestan where the jade *in situ* in the Kun Lun range is found high up on the cliffs. In order to mine these cliffs, the natives must be lowered to the deposits with ropes. They loosen the pieces and let them drop to the bottom where they are recovered. Large lumps are sawed on the spot with a bow and wire. Isolated boulders of jade are found in the hills and mountains of the Kun Lun range, just as we find them in Wyoming. In Wyoming, though, we have no large swift rivers where one might fish for jade with the feet. We have only a few springs which run dry after a mile or so. These creek beds in Wyoming might produce some jade boulders on bedrock if one dug down. There is no doubt that, for thousands of years, cloudbursts have ravished the country and must have washed some jade into the now dry creek beds. If you have a strong back, you might try this method of hunting.

In Turkestan, a section of the rind is removed from each piece of jade in a fashion that is much like plugging a watermelon. This is done to determine its quality. Notwithstanding this method, many poor pieces make the 2,000 mile trip. The thing about jade which is so baffling is that cutting is the only way to make an absolute test. One end of a boulder might be fine quality and with a few more cuttings you might run into a mess. We have had some nephrite from Turkestan which would not bring $2 a pound. Our guess is that, no matter where jade is found in this world, not over 10 per cent will be strictly gem quality. It is about the same with any other major precious or precious gem material the world over.

Some boulders found in Chinese Turkestan have rinds altered to rich reds. These rinds, when cut and polished, make beautiful cabochons and other ornaments.

As to the colors of jade which reach the Chinese markets, there seem to be 220 that are used most often. The rare olive green with veins and patches of rusty red of Turkestan is highly prized, but we doubt that any of this material reaches the American market. Blue jade is not found in Turkestan, this being the one shade found in Wyoming which is not listed for the Turkestan jades.

The cutters of Wyoming jade are sadly neglecting the rinds of our jade. The Chinese utilize the rind, or skin, of the jade and make many objects out of brown on green or vice versa. Delicately colored mauve or purple jadeite found in Burma is eagerly sought by Chinese dealers, for it is one of the loveliest of all jades. Very little ever reaches the United States. The imperial green jadeite is the one known to many Americans. This highly regarded variety approximates the emerald in color. When it does, it is very expensive. A carved piece the size of a half-dollar could run around $7,000.

For the soft shades of jades, the word "lovely" would be more appropriate than "beautiful." The word "beautiful" tends to convey to one's mind the idea that the stone has a brilliance; the word "lovely" fits the subdued shades and colors of jade.

From the animal world, the Chinese, for comparison, used such terms to describe the colors of nephrite or jadeite as mutton fat, chicken bone, egg, ivory, fish belly, kingfisher, and many other names. From the vegetable world, the terms to describe jade colors are so numerous that we mention but a few such as sunflower, apple green, spinach, sea moss, melon peel, chestnut, and sandlewood. The heavens were searched for names for jade and they came up with such as clouds-in-the-sky, sky-after-the-rain.

The Wyoming jade, not being the exotic type, has been neglected insofar as names for the colors are concerned, but there have been some attempts in that directions. The fans have come up with snowflake, olive green, apple green, sage green, mouse gray, curdled, intense green, hanging web, carnelian. This is not a long list of names but a start in the right direction.

Although nephrite jade was the material available in China for centuries, it was supplemented in the 18th Century by the discovery of the beautiful jadeite of Burma.

As has been mentioned, jadeite is a sodium aluminum silicate, a cryptocrystalline aggregate of small grains instead of short interlocked fibers like nephrite. Jadeite is found in Mogaung, Burma, and Guatemala and some other localities of the world, including California.

The finer grades of jadeite are almost transparent. Pure jadeite is white. Various elements and compounds are responsible for its great range of colors such as green, blue, mauve, brown, yellow, red, gray and black. Iron oxides are almost always present. The emerald green of the highest priced jadeite owes its beautiful color to the presence of chromium.

The headwaters of the Chindwin and Mogaung rivers, tributaries of the Irrawaddy River, produce most of the Burmese jadeite. The producing area lies about 70 miles west of Myitkyina, and covers approximately 100 square miles situated on a tilted plateau which is approximately 2,800 feet above sea level and some 70 miles from any railroad. Here the jade is mined *in situ;* on the Ura, a tributary of the Chindwin, pebbles and boulders are frequently found in the small feeder streams.

The mines in Burma can be worked only about three months in the year because the rainy season floods the mines. Shafts and tunnels have been driven into the jadeite reef at places, and also alongside the reef. When operations

are resumed, the tunnels and ditches must be pumped free of water. Of late years, some of the more modern methods and devices of mining have been introduced such as dynamite and pneumatic drills using steam or oil engines.

Some jade in this district is found by diverting freshets in a zig-zag fashion onto the slopes of the hills, the running water washing the dirt away and exposing an occasional boulder or pebble of jade. Boulders of jadeite have been found in the ancient alluvial debris and some of these stones may, at times, carry what is called a "core" of the highest grade of imperial jadeite. Sometimes, however, this valuable material is found in mere spots and in streaks, and its recovery from a boulder is a long and tedious operation of cutting the stone to pieces to reach the fine almost transparent areas. What is left after this process is called "jadeite clippings."

In 1954, the Smithsonian Institution announced that a site had been discovered in Guatemala where jadeite had been mined and worked perhaps more than 2,000 years ago. Geologist Robert E. Leslie found the site on the Montagua River near Guatemala City. Ancient Mayan necklaces and rings of jadeite as well as carved figures of deities are known.

Elsewhere the veil of mystery that shrouded jade for thirty centuries is gradually being lifted. The yellow earth of Chinese Turkestan, the icy mountains of Alaska, the broken hills of Wyoming, the wilds of Siberia, and many other places where jade is found, as in New Zealand, no longer conceal their secrets. Man, acquainted with the subtle qualities of the stone, is converging on all the jade fields of the world.

Because most of the peoples of the world now know much more about jade and its close connections with the history of primitive man, and its value, it is fitting here that we note some of the far-flung sources which are more or less insignificant except for the value of completing the picture.

As scientists studied to learn how people obtained nephrite and jadeite objects, which were so highly prized, their investigations brought to light localities where jade *in situ* had been found. In Europe jade was discovered in Sann Valley in the eastern Alps in several places, in Switzerland at Lake Neunberg, at Mount Viso in Italy jadeite was discovered *in situ*. In Germany, at an early date, nephrite had been found near Schwemmsal, Potsdam and Leipzig. One boulder was found weighing close to eighty pounds.

Thus the hypothesis of importation and migration of jade into Europe could no longer be upheld. The known deposits of jade are far more numerous than was suspected at first. European locations, however, are rather insignificant as compared with the vast deposits of Alaska, Wyoming, Burma, Turkestan, New Zealand, and even the deposits in Mexico and Guatemala. Above all, we must say here that none of the jades of the world can compete with the glamorous materials of Burma or Chinese Turkestan.

CHAPTER XII

THE ENDURING LURE OF JADE

It was in 1887 or thereabout when the presence of jade in British Columbia was brought to the attention of the world. At that time, jade to Americans was not significant except in a hazy sort of way, and no excitement was caused by the announcement of jade being found on the Fraser River. Jade Mountain, Alaska, had been discovered a few years earlier and it, too, caused no excitement.

Although about $300,000 worth of jade had found its way into the United States year after year, it was a quiet business with no fanfare. Jewelers made no displays of jade nor did they make any effort to show jade or try to push its sales. Only a few jewelers in the large cities of the United States had any jade at all. Wealthy people, who traveled in the cosmopolitan centers of the world, saw jade in Shanghai, in London, and in Paris, and they were intrigued by its lovely colors and the beauty of its magnificent and intricate carvings. They could afford to buy and they bought. In this way, many fine collections were assembled quietly and unobtrusively in the United States.

During this time, the hobby of collecting gems and gem materials was growing in America. Clubs sprang into existence in almost every city in the United States. But it was not until jade was found in Wyoming that interest in jade and jade sources began to mount. America became jade conscious, and the rush was on to find jade and to learn more about it. Libraries all over the states were stormed by people seeking to learn more about the fascinating story of jade.

In this way, the collectors of the United States have had a great education into the mysteries of jade within recent decades. They now know its composition and its variations in color. And they are acquainted with most of the locations and with what minerals jade is associated. This came about partly because they could now see the material in the rough. They could hunt it and find it themselves. They learned to cut and polish it. They loved it from the very start. Jade arrived in all its beauty and within the reach of all.

The lure of jade persists. There is something about it which seems to get into the blood. Otherwise, we could not explain what it is that brings people from every state in the Union and even other countries to the jade fields of Wyoming in the hope of finding a piece of nephrite jade. Many would be satisfied to find even a fragment. Some have told us that. Thousands of miles for a fragment of jade!

American collectors are jade conscious as they have never been before. Jade buying and jade cutting in the last few years have exceeded that of any other "semiprecious" stone found on the American continent.

CONCLUSION

"With coarse food to eat, water to drink, and the bended arm as a pillow, happiness may still exist."—Confucius.

And so at last from dim trails out of the past and the fresher trails of today, jade has found its way into the hearts of the public all over the world. The seed sown centuries ago has taken firm root with the collector, the artisan and the layman alike, and continues to attract the attention of all levels of human society.

It is our hope that the words set down here will be a challenge to all peoples in every walk of life to go out into the hills, the streams and the mountains, to acquaint themselves with Mother Nature. If you have gleaned from this book any new information, even the slightest, we shall feel rewarded. We have advanced many theories of our own, entirely unsupported by scientists. We offer no apology. Neither have we set down any facts in a spirit of controversy. This book is written from the pent-up memories of a mountain man, exiled now, far from his beloved jade hills. All my knowledge of jade is but a slim thread compared to what I do not know about it.

The love of jade has been woven into bonds that held me to the country and to the people of Wyoming for thirty happy years. And when the day came for me to leave and when I saw the lushly timbered mountains fade away in the distance, I was not too sad. Rather I felt that the memories of my adventures in the jade hills of Wyoming would be with me always and with them I could never be alone, for the jade beyond still lures.

APPENDIX

A GEOLOGICAL VISIT TO WYOMING JADE AREAS

By Richard A. Crippen, Jr.

(REPRINTED BY PERMISSION OF THE LAPIDARY JOURNAL, SEPTEMBER, 1964)

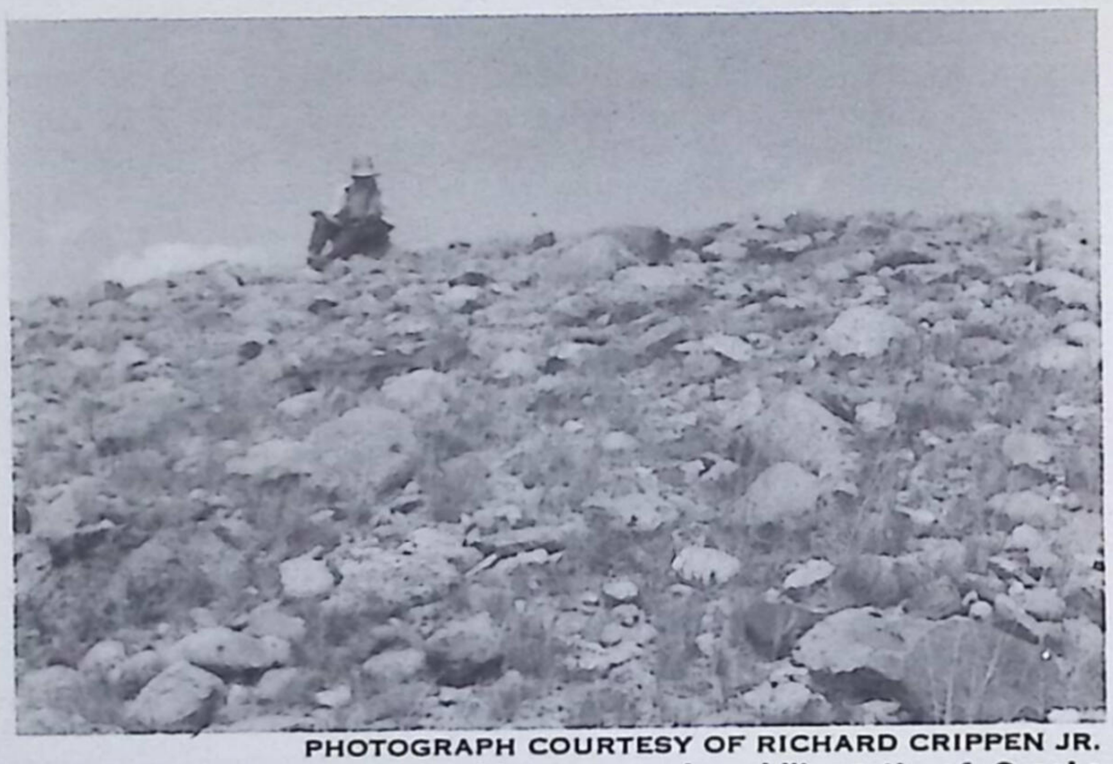
In July 1963, the writer, recently retired from the staff of the California State Division of Mines and Geology, had the opportunity to visit the Wyoming jade region with Lawrence J. Bergsten, "The Jade Man" of Oakland, California. His acquaintance with the numerous jade localities began in 1945, to be renewed on annual collecting trips, an experience that provided him with an amazing fund of information on Wyoming jade and about the history of the early discoveries and the people involved.

During those years, the writer examined samples of many of the varieties of Wyoming jade and other minerals and rocks collected by Mr. Bergsten, both to admire and identify them.

This was the period in which a number of discoveries of jade, both nephrite and jadeite, made in California were examined and reported on by the writer and other Division of Mines geologists. In his study of the nephrite occurrences at Cape San Martin and Jade Cove, Monterey County, and likewise near Porterville, Tulare County, it became evident to the writer that only under rather specific and unusual circumstances could nephrite be developed, and always as a metamorphic mineral. So the reports of Wyoming jade occurring in association with igneous rocks were intriguing and disquieting, but doubts were not to be resolved until the too-long deferred visit to the area described here.

The region of the jade finds occupies an extensive part of central Wyoming, in a great gap in the Rocky Mountains where, instead of peaks 12,000 feet and more in height, the average elevation is seldom greater than 6,500 feet. Here is where the Continental Divide itself divides into two lines of slightly greater elevation, to surround the Great Divide Basin, a barren desert roughly 90 miles by 50 miles in size.

In the uplift of the Rocky Mountains that brought ancient rocks, once many miles below sea level, to positions high on the backbone of the continent, it would seem that such a desert depression is out of place, thus perched on the Divide. The basin structure is evident by the upturned edges of sedimentary beds that outline it. They are of continental or fresh water deposition laid down by rivers during the early Tertiary, subsequent to the preliminary uplift that forced the sea to retreat, but before the great rise of the Rockies. The downwarping of the sediments, it has been suggested, may have been at first due to the weight of the accumulating material and later subsiding further as molten rock was withdrawn in nearby volcanic outpouring. The



PHOTOGRAPH COURTESY OF RICHARD CRIPPEN JR.

A jade hunter among boulders on a low hill north of Crooks Mountain. The rocks are granite, hornblende schist, and other schists.

foregoing is based on conclusions published in *Geotimes* in October 1963 by W. H. Bradley of the U. S. Geological Survey.

The basin's northern rim includes the hills or low mountains that form a southern boundary for the area in which the major jade localities are found, although jade has been picked up in the basin itself and in many isolated places in the region.

One of these major occurrences, that in the Granite Mountains, to be described later, is the only one in which the nephrite can be seen in the matrix rocks. At least one other such occurrence, according to reports, is known, but only to its finder, quite understandably, as the black jade found there is of the finest quality, polishing to an unusual brilliance.

The three localities, besides the above — Bull Canyon, Crooks Mountain and Horse Creek — have been favored spots for very fine and remarkable jade as well as much of poor quality. Of these three, Crooks Mountain jade, the bright apple green, has been most sought and is now almost unobtainable. The locality, in its geological environment, presents some evidence of value in interpreting the geologic

history of much of the region. This the writer has attempted in the following account, while realizing his presumption on such a short acquaintance.

With Mr. Bergsten, we, that is, my wife Margaret and the writer, explored these areas diligently and found only one small piece of jade; this is not to say it is all gone, but until erosion uncovers new fields, very little more is likely to be found.

On the map herewith, the writer has tried to show pertinent geology, based on the U. S. Geological Survey map of the state, together with locality, road and landmark data, for the areas visited.

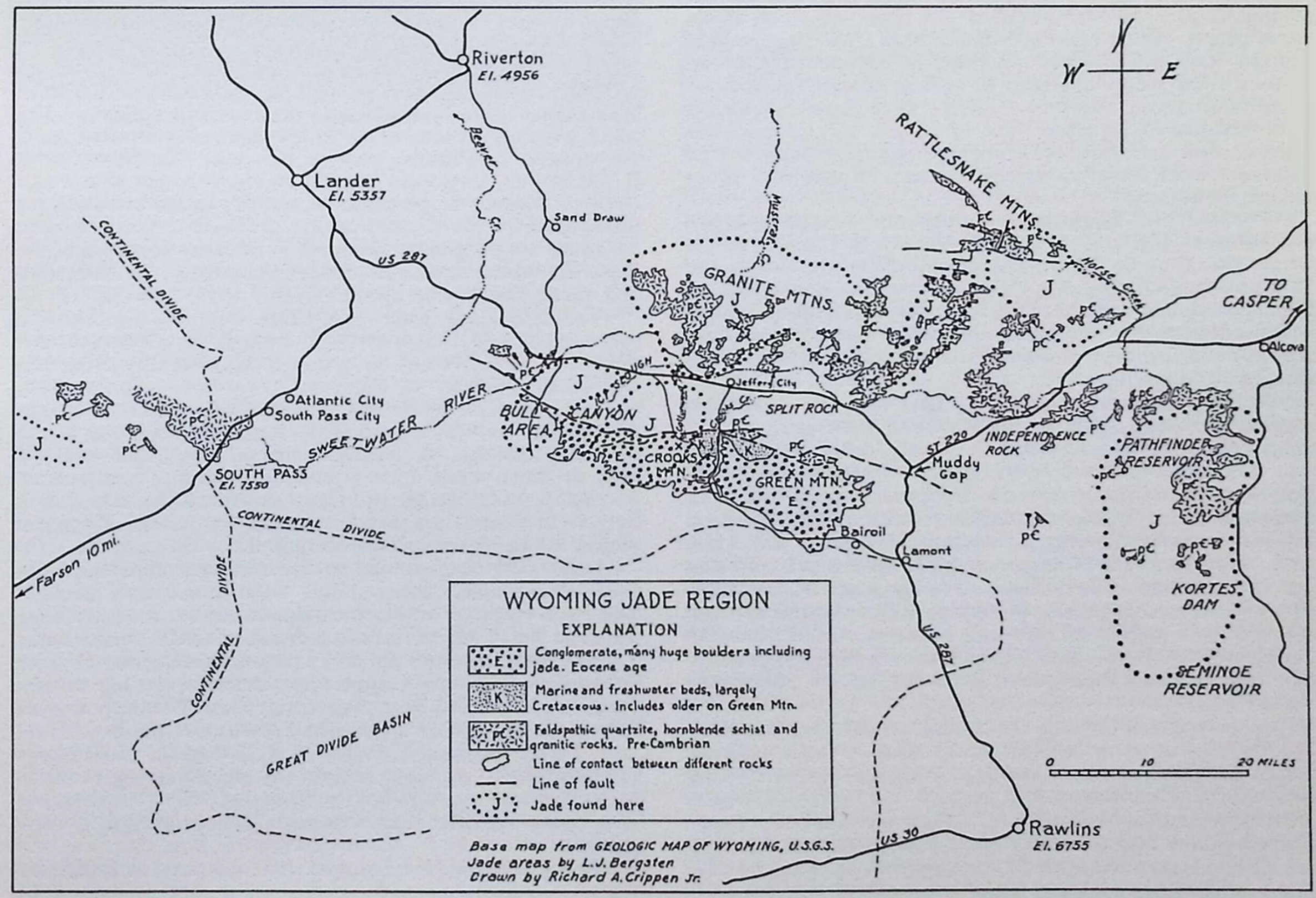
The approach to Lander from the southwest through the crossroad cattle town of Farson is over one of the lowest parts of the Continental Divide, South Pass. At an elevation at the summit of 7,550 feet, State Highway 28 crosses where the Whitman party, mountain men and early explorers found their way. To the north, the Rocky Mountains stand high and impassable.

We let our Greenbrier rest here so we could look at the rocky outcrops of this "backbone" of our continent. All were granitic but masses of quartz therein and the prevalence of various rocks of metamorphic origin in the fragmental debris did suggest metamorphic rocks once laid upon the granite not too far above the present erosion surface. Proceeding on our way, quite unaware of the history of the pass area and the once important towns of South Pass City and Atlantic City that are on a side road, we passed a large mining operation of the Bethlehem Steel Company. The strongly iron-stained roadcut rocks told what was mined.

Some miles farther on, a deep canyon abruptly comes into view. It is not the usual river cut gorge coming out of the mountains, but instead its length is parallel to the mountain flank and the great gash extends for many miles. On its south side, a flat, steeply inclined surface was green with new grass, contrasting with the broken and eroded red-beds, brilliant in the afternoon sun, on the opposite wall of the canyon. The red-beds stand at the same strike and dip as the flat steep wall and appear to lie upon it at depth, all part of a very thick series of sedimentary beds. Called Red Rock Canyon, it is at once a most beautiful sight and a remarkable geological display. While we are not at all sure what may be the true explanation, the impression is strong that the gash was started by relative movement of the mountain mass and the sedimentary beds on the dip slope.

The town of Lander, our destination, lies at the foot of the Rocky Mountains at the elevation of 5,357 feet. High, rugged peaks northwest of the South Pass and westerly from Lander reach heights of 12,000 and 13,000 feet.

So here we were in Lander at last. Meeting with Mr. and Mrs. Bergsten the next day, it was planned to visit the Bull Canyon locality first, as it is the nearest to Lander. At a point about 40 miles southeasterly on U.S. 287, a short distance past the Sweetwater River Bridge, a dirt road leads off to the south over the plains and low hills. Some jade has been found over a wide area but our destination was where much fine material occurred, being discovered usually in a few pieces only. The latter are recognized by the concentrations of rock fragments on low hills. Our intensive search over several acres turned up no jade but the bewildering



A Geological Map of the Wyoming jade region.

variety of rocks and quartz family material proved fascinating enough, to me at least. Obviously many collectors had been there before, but we still were able to pick up interesting agate, jasper, petrified wood, fossil algae and oolite among the prevalent quartzite and other fine-grained rocks of uncertain identity. This peculiar assortment of fragments suggested they were parts of rock formations of several geologic ages, as in many conglomerates that have been deposited by rivers. The lack of rounding of the boulders, and the absence of rock of any kind in local stream beds hardly supports this, but there seems to be no other explanation. We will consider the problem further in the discussion of the geology of the region.

On the following day, rising early, we headed for Horse Creek, the most distant locality from Lander. Again on U.S. 287, we passed through Jeffrey City, a very temporary appearing settlement associated with nearby uranium mining activity. The famous Split Rock then soon came into view, a vertically walled slot in a high granite mass, an unmistakable landmark on this, the Oregon Trail. At Muddy Gap where U.S. 287 turns south to Rawlins, we took the road to Casper, State Route 220. About 26 miles further on, a dirt road branches to the left and crosses Horse Creek, where a narrow road turns off up the creek. Soon gravelly and bouldery patches appeared on the benches or terraces and on the slopes of the creek valley, but like the Bull Canyon area, none of the rocky material could be seen in the creek or in the soil near it. In the same manner, the rocks lay in loose sandy soil and were of even greater diversity.

Our careful exploration of the benches on both sides of the creek again were fruitless as to jade, although the experienced eyes of Mr. Bergsten did spot one small olive-green piece. Again like the rocks of Bull Creek, many were angular but nevertheless probably distributed by water. Among rock types, quartzite in several colors, chalcedony, agate, and green aventurine quartz were most interesting. Pink feldspar and igneous rocks of various texture and composition that were not seen elsewhere may have been derived from areas of intrusive rocks, Tertiary in age, that occur further upstream.

The next two localities we visited were located on opposite sides of U.S. 287 about 50 miles from Lander; to the north the Granite Mountain area and to the south the Crooks Mountain locality. The latter is the source of the fine apple-green jade, now very scarce and highly valued, and unique to this one place. From the Granite Mountain area comes the nephrite with quartz crystals more or less changed to nephrite.

Leaving the highway about 10 miles west of Jeffrey City, a good dirt road leads to the southeast over gently rising terrain towards the long ridge of Crooks Mountain. Near its foot Cottonwood Creek runs through a pleasant wooded strip and a boulder-strewn bed. With water and wood in an otherwise rather barren dry region, it undoubtedly has been a favorite camp spot for generations of Indians and white men. Nearby are buildings and tanks of the oil company that operates the wells drilled high on the flank of the mountain. This once prolific jade locality differs markedly from the others in quality of jade and varieties of rock, but like the Horse Creek and Bull Creek situation, there appears to be no genetic evidence to associate any of the rock types with jade.

Again our search over the bouldery hills near the creek was without reward, and the rocks were of little interest, except as they revealed geologic evidence. Most striking were the large black boulders, up to 3 feet in size, that have been turned up by the bulldozer. Most seem to be all hornblende, others contain minor interspersed feldspar, in very fine grained texture; both to be classified as hornblendite. In no other area do these rocks appear, and being prominent wherever the fine jade boulders were found, they have



PHOTOGRAPH COURTESY OF RICHARD CRIPPEN JR.

Gray nephrite containing quartz crystals in place in Granite Mountain. The point of the pick indicates the occurrence.

become associated with jade in collectors' minds. Not schistose but tough grainless rocks, they have resisted erosion nearly as well as the jade, and now perhaps represent about the only remnants of the metamorphic series that contained the jade masses originally. Much more prevalent are granitic rocks that range from the finest grained aplite to coarse pegmatitic texture. Common also are quartz mica schist and various textures of massive rocks of the same apparent composition. Very little quartzite or chalcedonic material was seen.

A noticeable white coating, of calcium carbonate presumably, covers portions of most of the boulders that have been turned over by bulldozers or some other means. The white parts apparently were in the ground, protected from atmospheric conditions, such as rain and windblown sand. If this is true, they were once in an environment where calcium carbonate was precipitated, but not in the soil they are in at present.

Much larger granite boulders, 5 or more feet in size, lie close by in the area just downstream from the little tree and shrub-filled camp spot.

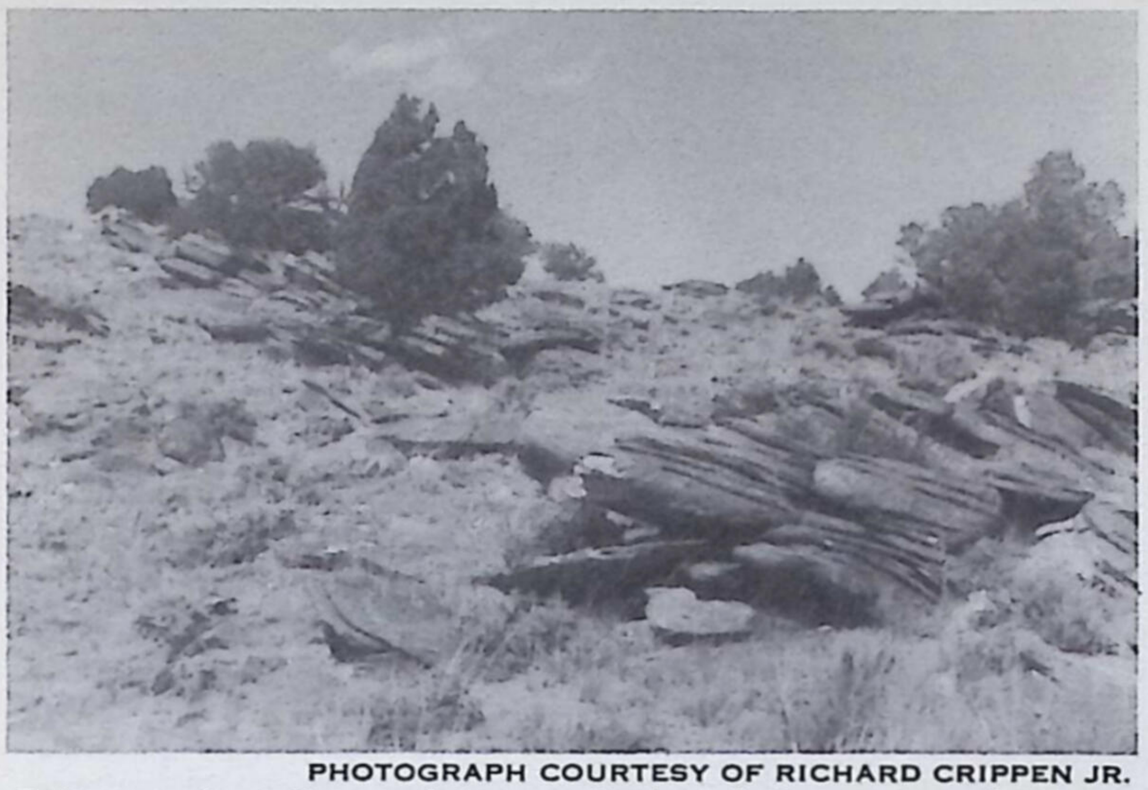
The fine apple green jade from this area has become very scarce and the price high enough to encourage employment of bulldozers to prospect both on the mountain and in the vicinity of the creek. At least one excellent boulder was thus uncovered, but, according to reports, the cost of the work far exceeded the return. Also it was found the rocky material lay mostly at the surface, below was just soil; so there would be no purpose in deeper exploration. The implication of this and other facets will be taken up a little farther on in the discussion of some theories about the geological history of the Wyoming jade.

Lastly, our tour turned to the area where the nephrite and quartz crystal material has been found both as float near rock outcrops and in place in the matrix rock. Not far from the Bull Canyon turnoff, a dirt road to the north climbs a gentle slope towards the rocky prominences of the Granite Mountains. Formerly a poor jeep road, according to Mr. Bergsten, it showed recent grading. Our first stop was to explore the slopes of a hill which collectors know as Haystack Butte, its summit obviously solid rock in place. Jade has been picked up here; I might say all picked up, as far as our search was concerned. The important thing to the writer though was that the rock was not granite, but light grayish quartzite.

The reason for the improved road appeared as it climbed higher, the antennae and building of a very recently built unit of radio communication, evidently an automatic am-

plification station, as no one was around. It stands near the summit of one of the higher hills that was our destination. Here Mr. Bergsten led us to the spots on the south upper slope where he had seen the nephrite with quartz crystals in place. Each had been almost completely destroyed by blasting, only thin remnants of the interesting occurrences had been too difficult for the ambitious miners. On the northwest part of the hill, we found the other known place likewise destroyed.

The jade here has a low value as gem material, but it is really of interest for slicing to show the crystal inclusions. Blasting probably produced very little unfractured jade to pay for the hard work and expense. However, it did provide fresh unweathered exposures for examination and photographing.



PHOTOGRAPH COURTESY OF RICHARD CRIPPEN JR.

Outcrops along the road to a radio installation and nephrite occurrences in Granite Mountains. Platy rocks are hornblende schist in beds of quartzite.

At the three places the matrix rock is similar, a light-colored glassy quartzite in appearance. There are no granitic rocks anywhere on the hill, all is quartzite excepting for some beds of hornblende schist prominently exposed lower on the hillside. These beds dip gently and appear on nearby hills to have the same attitude and position, without doubt the same beds. This was observed from the valley to the east of the hill where we went next to look for jade, again without success. However, a wide area here has produced nephrite with and without the crystal inclusions.

If, as seems inescapable, all the jade found in this area has been eroded out of the quartzite beds, a complete breakdown of the rock by weathering must have occurred. But in that case, although appearing to be all glassy quartz, it could not be a pure quartz rock, as are quartzites derived from sandstones composed only of quartz grains. Such rocks are almost unaffected by the kind of weathering that reduces certain rocks to sand or soil, that is, chemical weathering. Evidence that here we had impure quartz rocks appeared on old weathered surfaces in the form of small pits, closely spaced. Later study with the petrographic microscope confirmed this, showing a large per cent of the rock to be feldspar, quite certainly of about the composition of oligoclase. Such rocks are feldspathic quartzites, classified as metamorphic in origin.

So, instead of granitic rocks, as these have been long thought to be, we are dealing with the remnants of once very thick beds of sandstone and shale now metamorphosed into quartzite and hornblende schist. The degree of metamorphism is typical of the very old rocks of Pre-Cambrian Age now exposed at many localities in Wyoming.

On the Wyoming State Geologic Map (1955), the Granite Mountains are designated as granitic and metamorphic Pre-Cambrian rocks undivided. Detailed mapping has not been done, the geologic data having been inferred from aerial photographs plus field checks, a technique called photogeology. While a valuable method of obtaining data where large, nearly inaccessible areas are concerned, details of interest such as rock types cannot be obtained in this way.

It is probable granitic rocks do underlie these beds; large masses such as Independence Rock appear at a lower horizon some miles to the southeast.

Mention was made above of the degree of metamorphism that has produced the feldspathic quartzite and hornblende schist. This in itself is believed to have resulted from a special kind of metamorphism, called regional owing to the great areas such rocks are known to have covered. How this relates to the genesis of nephrite, as interpreted by this writer, is as follows:

To envision the series of events, geologically, that have brought about what we see now, one may set up in imagination a concept of a profound, perhaps rhythmic undulation of the earth's surface. Over the great period of time from the early Pre-Cambrian on, the geologic record is clear as to the repeated invasion and retreat of the sea and the attending cycles of erosion and deposition. As the heights above sea level were worn away, the debris, sand and mud accumulated layer upon layer on the sea bottom as it subsided in a bowing downward under the growing weight. With the tremendous pressure the beds were subjected to as the depth of sediments became measurable in miles, compaction, hardening and eventual change took place.

At some stage of this process, sometimes estimated as when the deeper deposits were approaching 5 miles in depth, pressure and temperature became so great the sandstone and shale were reconstituted as quartzite and hornblende schist. In order for the elements in the respective sediments to be freed and recombined, a state approaching plasticity or melting must have been reached.

In addition to the effects of the above conditions are others attributed to the penetrative, crushing force of movement throughout the zone of change. To this, the schistosity of the hornblende rock is related and it is also a necessary factor in the development of nephrite.

But why is the nephrite in the quartzite? There are perhaps two alternative ideas. One would be the possible rejection of elements unusable in the composition of the dominant quartz-feldspar crystallization. If they included the elements of nephrite, its genesis thus could be imagined. Or perhaps accidental inclusion of other rock in the sandstone, such as fragments of the layers of shale, could have supplied the calcium, magnesium and iron. This is a good possibility, as such inclusion is seen in other formations.

A source of puzzlement, of course, are the quartz crystals and nephritized crystals in the nephrite. There is a belief that quartz crystals always grow into voids, and this has led to the view those in the nephrite must have first developed in openings into which the material to become nephrite in some way came in, surrounded and in many cases altered the crystals. Besides the truism that "Nature abhors a vacuum," it is most improbable that voids could exist under the extreme conditions of pressure and plasticity that must attend the formation of new minerals. For this reason, the writer would suggest almost simultaneous genesis, the quartz starting its crystallization in the "mush" of elements, feeding on excess quartz ions as incipient microcrystals of nephrite began to permeate the "mush." Then the quartz became supplier in turn in the cases where the nephrite molecule needed silica and oxygen to complete itself, with the result some crystals were invaded by finely fibrous actinolite, others becoming replaced entirely by nephrite.

Some fine quality black jade, from a location not yet revealed, contains pseudomorphs after quartz made up of nephrite, epidote and feldspar, not as a mixture but in adjacent parts of the crystal form. Dr. Francis Jones, microscopist and mineralogist at the Albany, California, AAA research laboratories, has made a study and photographs of thin sections with the petrographic microscope. The present writer is much indebted to Dr. Jones for this information, not having seen the material previously. It seems likely this jade had an origin similar to that we have been discussing, with certain differences in element composition. Looking at that of feldspar and epidote, we find both lack magnesium, suggesting there was insufficient for nephrite to complete the replacement. But the remaining elements were in such proportion that the others could separate and crystallize.

The following attempt to interpret the geology of this remarkable jade source is based on the geologic map of the state, which here provides greater detail. It shows a fault along the base of Crooks Mountain, separating the area to the north, the Granite Mountains, Pre-Cambrian, from the Cretaceous and Tertiary sediments exposed on Crooks Mountain. Of the latter, a conglomerate of large boulders, Eocene in age, comprises most of the mountain, while small areas of Cretaceous sediments are mapped along the base. The latter appear to underlie the conglomerate.

As the jade boulders have been found on the mountain and on the plain to the north across the fault, the conglomerate evidently has been the source, and, of course, for the huge granite boulders and the black hornblendite, too. It is logical to assume they and the other rocks of the vicinity are from Pre-Cambrian formations, but how can we contrive a geologic history to explain this?

On the north are the remnants of hard Pre-Cambrian rock formations that disappear under the valley fill south of U.S. 287. A great thickness of rock has been eroded away, but the soft sediments of Crooks Mountain, without doubt also much worn away, are elevated above the valley. Thus we have a relative vertical displacement on the fault that could amount to many thousands of feet, that is between say the Pre-Cambrian granite basement on opposite sides.

At a time when the once depressed seaway bottom and its sediments began to be raised up by the forces that would create the Rocky Mountains in due time, the sea was driven out. Freshwater beds at the end of the Cretaceous and of the Eocene and later Tertiary accumulated in the low lands as the higher region yielded to atmospheric erosion. The region, now the Granite Mountains, then stood high above the basin into which its eroded material was carried by what, at times, must have been great and violent rivers, as attested by the size of boulders now in the conglomerate.

A reversal of movement on the fault evidently took place in later Tertiary time, as the Rockies were uplifted, which brought Crooks Mountain above the terrain to the north and erosion of the conglomerate ensued. Thus it would seem the former debris of the Pre-Cambrian was moved back across the fault, the jade boulders and other enduring rocks preserved for the jade age of the 20th Century.

To arrive at some satisfactory theory about the Bull Creek and the Horse Creek jade areas has been the cause of a lot of conjecture for the writer and for others, too. Perhaps it will remain a matter for discussion and heated argument for as long as jade hunters still hope and look for the stone admired and loved by so many for so many thousands of years.

Jade of distinctively different nature occurred at these localities; that of Bull Canyon area perhaps is the most varied and unusual of Wyoming jade. Some nephrite from the Horse Creek deposits showed the quartz crystal inclusions, so in that respect it appears probable the nephrite had an origin like that of the Granite Mountains, at least in part. In fact, the same Pre-Cambrian rocks are shown in that area on the geologic map, although the writer did not get to any of the outcrops.

Two factors of their occurrences, however, seem to the writer somewhat alike. In both cases, the rock material is of remarkable variety and in the same way the rocks are distributed in sandy soil on hills but not in water courses, which also suggests a similar history. In this region of desert climatic condition, wind has been the principal means of exposing the bouldery places, but their distribution must have been by meandering rivers on great flood plains in late Tertiary time. The deposits are essential conglomeratic, including the resistant material from Pre-Cambrian and Tertiary formations, certainly, and doubtless of other ages too.

To bring this story to a conclusion, the writer would like to summarize the geologic events and conditions which attended the formation of Wyoming jade, and subsequently left it scattered over the sagebrush plains.

If it were not for the evidence of the nephrite with quartz crystals found in place in feldspathic quartzite in the Granite Mountains locality, its origin might have never been deciphered. A more unlikely source rock would be hard to imagine among metamorphic possibilities, and in the rare type of metamorphism, called regional, that was involved, nephrite has not been found previously anywhere.

In regional metamorphism, the effect on the rocks is so very extensive, both in area and depth, it is reasonable to assume all the Wyoming occurrences originated in rocks similarly affected. However, the quite different jade of Crooks Mountain and Bull Canyon suggests its origin in rocks of somewhat different nature than the feldspathic quartzite, or that the portions that were transformed to jade were different.

The feldspathic quartzite and the interbeds of hornblende schist are, in their first deposition as sandstone and mud or shale beds, Pre-Cambrian in age. Metamorphosis to their present state took place many millions of years later, when the sea bottom with its load of sediments bowed downward deeper and deeper and pressure and heat became very great.

At a certain age of the process, the maximum for regional metamorphosis, elements in the sediments were freed for recombining as new minerals that were able to crystallize under the pressure-temperature condition. Only at this stage could the quartz crystals and the nephrite have had their origin, and likewise the other jade masses. Quartz crystals, we know, can form in many ways and kinds of rock, but nephrite is a product of exceptional conditions. Most important evidently is the inhibiting of large crystal



PHOTOGRAPH COURTESY OF RICHARD CRIPPEN JR.

Outcrop of feldspathic quartzite near the radio installation. The white area at the top is a coarse quartz and feldspar segregation. Wind-grooved rocks are at the right.

growth among the molecules, by movement that allowed only the confused, felt-like fibrous structure to grow.

As the new, hard, strong rocks replaced the weak ones, the pressure was supported and metamorphic processes became ineffective. Later movement pervading the rocks that enclosed nephrite masses would then produce the fracturing and schistosity so common in the jade of many localities, but perhaps less so in Wyoming jade.

With the uplifting of the Rocky Mountains, these very old rocks with their jade inclusions were exposed to weathering and erosion that released the jade masses. Some were redeposited in a conglomerate, from which, in turn, they were eroded. Others were scattered widely over the flood plains of ancient rivers. In the Granite Mountains, much of the jade probably has been found near the place where it was in the original rock.

HISTORY OF THE WYOMING JADE REGION

By The Late Lawrence J. Bergsten

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"They are finding jade in Wyoming. The pieces are small and quite scattered but the quality is good." This was an interesting bit of news brought back by Mr. Kalneau of the Minneapolis Mineral and Gem Club in 1936, after a trip to the Black Hills and Wyoming. The writer was a new member of this club at that time.

The temptation to go west and look for jade was strong, but the distance was long and the expense would be heavy for those depression years. On top of that, the chances of finding enough to make such a trip worth while were not so good, since the report was that the pieces were small and not very plentiful. However, finding rocks that could be sold for as much as $3.00 a pound (imagine that!) was something to consider in weighing the pros and cons. My decision at that time was that jade hunting for me would have to wait.

This 1936 discovery of Wyoming jade is quite generally believed to have been the first. This, however, was not the case.

A number of years ago, the writer, in talking to Bill Marion, an old time resident of Lander, was informed that the earliest known discovery and recognition of jade in Wyoming actually occurred before the turn of the century, when a Scotch geologist who accompanied Marion on a prospecting trip through the rugged wasteland picked up a rock which he declared was *jade*. There certainly is no reason to doubt this since there was a considerable amount of "float" jade to be found on the surface at that time.

Of still greater interest is information given the writer by Harvey Samuelson, of Salinas, California, one of the earliest, and certainly one of the finest lapidaries in the West, with sixty years experience. In 1908 and 1909, Samuelson was working as a lapidary in Portland, Oregon. Cowboys from Wyoming came west to spend their winters, and some brought apple green Wyoming jade with them and sold it for what it would bring. Samuelson cut a considerable amount of this jade at that time, most of which went to England, as there was no demand for it in the United States at that time. This was before the days when every fair-sized town had a mineral and gem club or, no doubt, the rush would have started much sooner than it did.

Samuelson's word did not need any proof that he was the first man to cut Wyoming jade commercially and that he did so in 1908 and 1909, but such corroboration came unexpectedly about five years ago at a mineral and gem show in Indio, California, when a lady stepped up to our counter and told of having bought jade jewelry in 1909 at a place called The Old Curiosity House in London, England. She was told by the proprietor that this was jade from Wyoming. Needless to say, I remembered at once Samuelson's account of having cut Wyoming jade so long ago.

The "rediscovery" of jade in 1936 found an entirely different situation from what it was in 1908 and 1909, since rock collecting by that time was a fast-growing hobby. This discovery was made in the Warm Springs-Bull Canyon area, which also encompasses such localities as Flag Hill and Bison Basin, all of which have yielded the same type of jade. Since jade has been found over an area of more than 1,000 square miles of Wyoming's rugged terrain, this locality is only a small part of the jade field, possibly somewhat over 100 square miles. However, it is a very important part since this is the region that has yielded some of the most interesting and finest quality jade found anywhere on earth.

It is in this area that the beautiful and unique "pattern jade" has been found and from which came so much of the fine quality jade advertised and sold in the early days by Allan Branham, Bert Rhoads, Jeff Cain, the Countrymans and others. From this area has come jade with a mixture of colors never before found in nephrite anywhere—green with black borders, different shades of green forming definite patterns in the same boulder, green with red and black dendrites, blue-green jade of exceptionally fine quality. A true blue color in jade is very rare but even this rare color has been found in jade from this area.

Jeff Cain, of Tombstone, Arizona, who lived in Lander at the time of the jade discovery, and who found many a prize piece of jade in this locality, has a slab of Bull Canyon green jade with an area in the center about the size and shape of a baby's foot which is a beautiful sky blue.

The good jade from this locality is of the finest quality ever found anywhere, and this applies to all colors, includ-

ing the apple green. Much of the jade from this area has peculiar markings quite similar to the so-called "turtle back" found in agate, which probably is due to the structure of the original rocks from which it was changed. Whenever these designs occur in jade, it can be identified as having been found in the Bull Canyon area.

There have actually been many "discoveries" of jade in Wyoming, since there are many localities, each producing its own type of jade, and separated from the rest of the jade localities. To anyone acquainted with the situation, it is not difficult to identify a piece of jade with the area from which it came. Even the olive green, which is found in all the jade areas, has its own peculiarities in each locality. These facts, in the writer's opinion, tend to prove that the conditions prevailing in the different areas during the time jade was found varied to some extent and followed certain patterns in each locality.

In the Crooks Mountain area, of course, was the real bonanza in Wyoming jade. Here is where at least 90 per cent of the apple-green jade was found. Besides Crooks Mountain proper with its many extending ridges, jade was found in the localities known as the Lime Hills to the east and northeast, Jade Hollow and Hay Press to the west and southwest.

This is where practically all the jade claims were located. Near the center of this area is the campground on Cottonwood Creek where so many jade hunters have stayed in their tents or trailers—or have even slept on the ground, with the starry heavens as the roof over their heads. It was in the Crooks Mountain locality that the jade supply seemed almost inexhaustible in those early days in the latter part of the thirties. Rhoads once told the writer how he and his wife had found a pickup load of apple-green jade one Sunday, "and," he said, "if someone had come along that evening and had offered us 25 cents a pound for it, I think we would have sold it because we knew we could go out the next day and get another load."

Many a jade hunter is familiar with the story of how Bert sat with a shotgun one night and watched over his find of more than 7,000 pounds of fine green jade as others went to Lander for a truck to haul it from a spot near the top of Crooks Mountain. The writer remembers him telling of the time when he and others were hunting jade in Jade Hollow. Bert suddenly spotted a beautiful flat boulder of apple-green jade a few feet ahead of him and called to the others to come and see what he was looking at—"and what I am standing on," he continued, "was another beautiful green table top of jade."

Thousands have seen and many more have taken pictures of the 3,360 pound boulder of apple-green jade which lay for years on the Rhoads lawn in Lander. This large and valuable boulder was found by Mrs. Rhoads and Mrs. Ray Morgan in the now famous Jade Hollow locality.

It was in the Hay Press area that Kathleen and Francis Countryman were jade hunting when Kathleen found her large apple green boulder which weighed close to 500 pounds. Hundreds of rockhounds saw and drooled over this beautiful boulder of jade; and since it was cut, scores of jade fanciers have selected slabs or blocks of this fine jade to enhance their collections.

On one of the slopes in the hills north of Crooks Mountain can still be seen a depression in the earth where the late Sam Peterson of "Home on the Range" found a magnificent boulder of fine quality apple-green jade weighing between 900 and 1,000 pounds. Peterson sold this boulder in the early days, and the buyer had it cut into blocks, some of which he brought to the Rocky Mountain Federation show in Salt Lake City. The writer saw one of the blocks in Southern California last February. It's a beauty. It would be interesting indeed to see what has finally been made out of this and the many other large boulders of fine jade from the Wyoming jade country. Other early jade hunters were Herman Hendricksen of Billings, Montana, and Dr. H. H. Hammill of Tecumseh, Michigan, who hunted with Sam Peterson. All found much fine jade.

As is the case in every jade deposit, the quality and color of the material varies from one boulder to another. In the writer's opinion of what he has seen, there was one boulder among the large ones found in this area that was exceptional in both color and quality. I refer to the Turtle, so named from its shape, which was found by Allan Branham, and which weighed in the neighborhood of 960 pounds. When Branham found this magnificent rock, so the story goes, he pitched his tent over it and waited there till his wife could go back to Lander and arrange for a truck with which to haul it out.

This boulder of jade has an interesting history. Branham sold it to Mr. Chang Wen Ti of Los Angeles, who shipped it to Shanghai to be cut and carved. However, about the time it had been cut into blocks, the Communist army was nearing the city, so Chang had the jade shipped back to Los Angeles. As might be expected, Gumps of San Francisco, whose reputation for dealing in fine jade is known the world over, acquired a large share of this finest of nephrite jade.

Because jade of the best colors, particularly the apple green jade, was found mainly in the Crooks Mountain and Bull Canyon areas, it is only natural that these places should have had the closest attention from jade hunters. However, while some spent all their time looking for the apple green, others did penetrate the Granite Mountains and Rattlesnake Range to the north of the Sweetwater River and also the Seminoe Mountains much further east. It soon became evident that the Wyoming jade field was much larger than anyone had imagined. A considerable amount of olive green, gray and some black showed up in a large number of places in the Granite Mountains from west of Long Creek Mountain to places east of Split Rock, a distance of over 30 miles. In addition, jade was also found in the Rattlesnake Range.

Without doubt, the most successful jade hunter in this area in the early days was Lewis "Hap" Vondrasek, of Muddy Gap, who found and gathered tons of black jade, and who became known as the Black Jade King. This black jade he found both in place and in float. Hap was a thorough hunter, and anyone who hunted jade with him, as the writer did on one occasion, couldn't help but be impressed with the area he could cover in a short time.

Another *in situ* discovery of black jade was made by Marion, who teamed up with Lloyd B. Curtis, of Lander, and Ted Graham, ranch owner near Jeffrey City, in hunting jade in the Crooks Mountain area and elsewhere in the early days. Marion also found a considerable amount of black jade in float, as well as tons of the olive green and gray. A large boulder of olive green jade weighing several tons rests in Marion's yard.

Halsey Kortes, another early day Wyoming jade hunter, lives in the Seminoe Mountain area. From this area comes a beautiful, often highly polished deep green jade. This jade is so dark that it has often been mistaken for black. Some of it, however, shows a beautiful dark green. A considerable amount of this jade has been found by Kortes, who is well known to many a jade hunter of the early days.

At the time of the jade discovery in 1936, Rhoads had a hardware and furniture store in Lander. Due to poor health, he sold his business and, with his wife, took up jade hunting. They teamed up with Mr. and Mrs. Morgan and spent a great deal of time in the jade fields. Branham was in the grocery business, but the lure of jade was too much, and he also quit and went jade hunting. Many of the townspeople, seeing the green rocks being hauled in by these rockhounds, and knowing that they were spending a great

deal of time looking for them, just wondered, said nothing —but their silence indicated what they were thinking. It just didn't make sense! It wasn't long, however, till others discovered where the green rocks were being found and they, too, joined in the hunt.

Marion, Curtis, and Graham, of course, were among the first jade hunters in Wyoming. Several jade shops opened up in Lander and advertisements began to appear in magazines. Fine apple green jade was being offered for $3.00 a pound. One would advertise himself as "The Jade Hunter," and it wasn't long till another would advertise as "The Jade Finder." There was competition in the jade business, but it didn't bring down the price of jade. The price went up, and it has been going up ever since.

The known area where jade has been found has gradually expanded as jade hunters have gone farther and farther from the original discoveries. In the Granite Mountain region, from a few known spots in the mountains, some of which had jade *in situ,* jade has now been found in float far to the north over the flats and rolling hills to Beaver Rim and down in Muskrat Basin. There are also reports that jade has been found in the uranium mining district of the Gas Hills.

The so-called Horse Creek jade area south of the Rattlesnake Range is generally thought to be a late discovery. In 1947, however, Vondrasek showed the writer a piece of jade of that ultrafine color and quality which many now mistakenly call imperial jade. He, at that time, said it came from Dry Creek, which is now generally considered the western boundary of the Horse Creek jade area. Evidently Vondrasek found this area long before anyone else knew jade was there to be found.

While the Kortes jade in the Seminoe Mountain region has been known and hunted from the early part of the jade discovery, it is only four years since Mr. Edwards, of Casper, Wyoming, found the ledge of fine black jade near Pathfinder Reservoir. It is also in the last few years that jade has been found in the Shirley Basin, several miles to the east.

R. I. Martin, of Saratoga, Wyoming, reports that he has found jade about 30 miles to the north and west of Saratoga, and that it has been found both east and west of the North Platte River. This, of course, is all float jade. The quality, according to Mr. Martin, of the jade he has found in this area is good, with no inclusions of any kind, and the colors are black and a variety of greens, but no apple green.

Quite a number of pieces of jade have also been found east of Casper, as far as Douglas and Glendo, probably having been brought there by flood waters in some prehistoric age.

Far to the west, in an area reaching from the Oregon Buttes to Elkhorn Mountain, and south of the Sweetwater River, an occasional piece of exceptionally fine black jade has been found among a variety of rocks such as quartz, jaspers, quartzites, and others. Some of this jade has a rind of bright red color, from oxidation, while some has a highly polished natural black surface.

From the time of the jade discovery in 1936 until 1945 the jade hunting was principally done by Wyoming residents. The knowledge of the extent of the deposit was not advertised; and with the start of World War II, gas rationing kept people in the country at large from making long trips. Hobbyists from such towns as Lander, Riverton, Shoshoni, Casper, Rawlins, and Rock Springs, however, did take advantage of the opportunity to add beautiful Wyoming jade to their collections. Moreover, it meant a new business to some, who opened rock shops as either a part-time or full-time business. Some of these shops, as could be expected, have closed for one reason or another, mostly the lack of fine quality jade. Much of the apple green jade found in those early days was sold to Chang Wen Ti, Kraft, and others who recognized its value.



PHOTOGRAPH COURTESY OF THE LAPIDARY JOURNAL

Cottonwood Creek and campground at Crooks Mountain jade collecting locality. Lawrence J. Bergsten stands by a boulder from Crooks Mountain.

The real jade rush to Wyoming was triggered in 1945 by an article in the February issue of *Popular Science* which was titled "Green Gold of Wyoming," and which painted in glowing terms the wealth which was being found in the Wyoming wastelands. Many a rock enthusiast, upon reading this article, vowed that he would go jade hunting in Wyoming as soon as it would be possible to get gas for the trip. The writer was one of these.

It so happened that the war with Japan came to a sudden end that summer. That did it! That fall I made my first trip to Wyoming in search of jade, going to Lander first to get what information I could relative to the jade country. Most of those I contacted regarding jade hunting advised me that it would be useless to go over those rocky trails as the jade had all been picked up. Rhoads, however, gave the information needed, adding, "I have several jade claims in there—you are welcome to hunt on them, but you won't find any jade because it has all been picked up."

I thanked him and headed for Crooks Mountain. The trail leading from the highway went through four gates and up a steady incline to Cottonwood Creek campground. It was necessary to stop many times and dig out boulders from between the deep ruts of the trail to avoid getting hung up with the car. At the campground, quite a number of people from various parts of the country had either pitched their tents or slept in their cars. All, of course, were there with one thing in mind—to find a boulder of apple-green jade.

The third day after I arrived, I made my first find, a four pound piece of olive-green jade. This piece, worthless except as a specimen, is still in my collection. It always will be. There are billions of rocks of various kinds scattered over the ridges and draws throughout the jade country in Wyoming. Judging by the large percentage of these that had been chipped, a multitude of hammer-happy jade hunters must have searched the countryside for the green gold. This fact accounts for the advice Rhoads gave an anxious rockhound who had driven to Wyoming to hunt jade. Before going to any jade locality he asked Bert where he might go to find a good piece of jade.

"Well, I'll tell you," said Bert, "go in to Crooks Mountain and search among the millions of rocks you'll find there. When you find one that hasn't been chipped—that's jade."

By the time I was ready to return home, I had gathered about 700 pounds of jade. My last and best find was a 112-pound boulder of beautiful apple green jade. To find a

boulder of this color and quality is a thrill one can never forget. I named it "Ecstasy," which to me seemed quite appropriate. That fall there were quite a number of jade hunters who stayed till snow covered the ground. Some found good jade—enough to make them want to return for more.

L. G. Tompkins, of Seattle, found a 300-pound boulder of apple green in Jade Hollow. Tompkins, who became one of the most successful jade hunters, has returned several times with his family to spend two or three weeks, or more, at the hobby they all really enjoy—hunting jade. Only two years ago, Tompkins found a 50-pound boulder of fine quality apple green jade—in an area north of Crooks Mountain that had been combed by hundreds of jade hunters.

In 1946, the writer made his best find, a boulder of top quality apple green jade weighing over 300 pounds. This boulder, due to its fine quality, was named "Perfection." Two jade hunters from Connecticut helped to drag this boulder to a place where it could be loaded into a pickup truck. Each of them was rewarded for his assistance with a piece weighing over 10 pounds.

It was in 1946 that I met Bill Staehnke, from Billings, Montana, a man who became my companion in jade hunting for many years that followed. Bill was an old prospector who had also become interested in jade upon reading the article in *Popular Science* magazine.

Whenever I decided to go on a Wyoming jade hunting expedition, I would notify Bill what day I expected to arrive and he generally met me there on that day. At first we stayed in an old CCC camp where Highway 287 crosses the Sweetwater River. However, in 1948, I built a small house trailer which I pulled in to Cottonwood Creek Campground when we hunted jade. This eliminated the morning and evening trips over the rocky trails from the highway to Crooks Mountain jade area.

We bought enough groceries in Lander to last us for a week or two, and the water in Cottonwood Creek at that time was cool and clear and excellent for drinking and cooking. The water in the creek, fed by springs farther back in Crooks Mountain, disappeared into the sand bottom several hundred feet above the crossing, only to reappear out of the sand at the campground. Being filtered this way through hundreds of feet of sand, it came out of the ground as clear as crystal.

In later years, since the oil company started drilling operations in this area, this source of good water has been eliminated. A large percentage of the jade hunters through the years have filled their canteens at Home on the Range, where the majority of them from the beginning of the jade rush stopped to get information regarding jade localities as well as rock hunting in general. The Petersons, owners of Home on the Range, situated as they were seemingly out in the middle of nowhere, were the principal source of information and help for stranded rock hunters in those days.

Bill Staehnke was a true out-of-doors man who always came prepared for any eventuality. In his Model A Ford pickup, he always carried his bed roll, wrapped in a canvas, reserve gasoline and oil, shovel and crowbar. When we left camp in the morning, we took our lunch along, which included a half gallon pail of water for coffee. To me coffee has never tasted so good as when cooked over a sagebrush fire in Wyoming. We were always doubly careful in making a fire to be sure it was in a place where it couldn't possibly spread; for what could be nastier on a hot windy day than a sagebrush fire sweeping the countryside! We wanted no part of it.

Bill and I always made it a point to get an early start in hunting jade, as it seemed to be easier to spot a piece of jade in the morning than later in the day—possibly because our eyes were rested and our minds alert. At any rate, all the good pieces of jade that I found were found in the early part of the forenoon. In 1949, quite early on a beautiful September morning, Bill and I drove to a spot about a mile east of camp and at the foot of Crooks Mountain where, in less than a half hour, I found the 272-pound apple green boulder that I named "the Green Frog" from its shape. Many a jade lover, particularly in California, has worked a piece of this jade. In less than an hour later, I found a 134-pound boulder, also of excellent quality and color, which I named "Friendship." These were the last pieces weighing over 100 pounds of this quality and color that either of us found.

When the oil company started drilling operations along a fault at the foot of Crooks Mountain, it made a road from Highway 287 in to the mountain, which was greatly appreciated by those of us who were camped at Cottonwood Creek. Now it would be much easier for us to get to other areas, such as Bull Canyon and the Granite Mountains. In this way, we could change off and get a little variety into our jade hunting. When we were convinced that all the jade had been picked up at Crooks Mountain, we could lift our spirits by going to the Granite Mountains where we would generally find some olive green or gray jade. Or we could go to Bull Canyon, where the chances were better to find a piece even though it generally was small.

The hunter who really knows jade recognizes it by the structure of the stone, and he seldom chips a rock when looking for jade. Another will go along chipping anything that he doesn't recognize, and if it doesn't show a bright green when chipped the rock can't be jade, and it is left. This is the reason that some of us have found a number of fine pieces of jade that someone has chipped but has left because he didn't recognize it as jade.

However, here is a story that seems incredible, but it is true. Mr. and Mrs. Gordon Hayes, of San Pedro, California, met in Italy, where Gordon was stationed during the war. They were married and returned to California after the war. Mrs. Hayes' mother, who couldn't speak or understand a word of English, came to America with them. As I remember, it was about the year 1950 that the three of them came to Wyoming to look for jade. Bill and I were camped at Cottonwood Creek when they also came there.

One morning Bill and I invited them to go with us to Bull Canyon for a jade hunt. Mrs. Hayes asked me if there was any method by which her mother could possibly find a piece of jade since she didn't know one rock from another. I advised her to explain to her mother that jade is much tougher than other rocks and that, if she found a rock that she could not chip, this might be jade. Arriving at the locality in Bull Canyon where we decided to hunt, we all started up a hill that was covered with rocks. I couldn't help but feel sorry for the mother when I saw how she beat those rocks, knowing that the chances of any of us finding a piece of jade were slim. In about an hour's time, Mrs. Hayes called me, saying that her mother had found a rock she couldn't break. When I went to see what she had found, I was amazed that she had actually found a piece of jade—and it was one that many a jade hunter would have passed without a second look. There are still some green beauties lying buried from sight in Wyoming—the "easy pickings" are gone—but happy hunting.

Since more and more people became interested in collecting and working with rocks, it was only natural that, as the news of Wyoming jade spread, people from both near and far should come in search of it. To some it became an annual event. From Rock Springs came Mr. and Mrs. Tynsky and their two sons. It was they who discovered the fine black jade north of Farson. They have probably covered a greater area in their quest for jade in Wyoming than anyone I know. Among other regular jade hunters from Rock Springs who made their hobby both interesting and profitable are the Hans Petersons, the Witkas and the Hes-

ters. From Evanston, Wyoming, came Lee Frank, who is known because of the fine jade he has found and sold.

Mr. and Mrs. Leslie Bowser, of Baroil, Wyoming, who now live in Arkansas, were regular weekend jade hunters. They knew the country well, and, knowing where the different colors and qualities of jade were found, they made the best use of their time. Mr. Bowser built a little museum to show their rocks and his handiwork.

Through their enthusiasm for jade hunting, Mr. and Mrs. James Feese, of Casper, Wyoming, accumulated a very large collection of jade. Many a jade hunter owes them a debt of gratitude for advice and information.

Byford Foster, one of Wyoming's finest lapidaries, Chuck Jordan, Mr. Milligan, who teamed up with Jeff Cain in hunting jade, and the Manns are all jade hunters of the early days. To this list may also be added the names of Manuel Countryman, of Sweetwater Crossing, who found a considerable amount of pattern jade in the Bull Canyon area, Chic Sutton of Shoshoni, and Pete Todd, of Riverton, who has done beautiful work in small carvings for jewelry.

Through Mr. Staehnke, the writer first met Herman Hendrickson in 1947 when he and Loren Bice, also of Billings, were hunting Wyoming jade. To my knowledge, Herman has not missed a year since. The late Dr. Hammell as well as Dr. Woltman and Dana Rogers, of the Mayo Clinic in Rochester, Minnesota, all friends of Herman, have been with him on several occasions. Herman has done beautiful work in carving jade and has also developed a technique of sandblasting pictures on jade. This makes use of olive green jade that is not well suited for jewelry.

Dr. and Mrs. Snook, of Palmdale, California, and their friends, Mr. and Mrs. Bonner, of Washington, have hunted jade several times in Wyoming. Dr. Snook is also a skillful jade carver. His display of carvings at the California Federation show in San Jose in 1963 was admired by the thousands who saw it.

One of the most persistent jade hunters is Mr. Hard, from Colorado. Hard generally shows up with his covered pickup as soon as the weather permits in the late spring, and as a rule he stays all summer.

Bill Staehnke told the writer that, one morning when Sam Peterson, of Home on the Range, took Dr. Hammel, Herman Hendrickson and Bill for a trip into the jade area at Crooks Mountain, they saw a car parked on a small hill. A woman was in the front seat and a man was frantically digging a hole in the earth. Sam drove up and asked the stranger what he was digging for.

"There's a piece of jade underneath—that's what I'm digging for," was the reply.

"How do you know there's jade down there?" was the query.

The stranger then showed us a stick with a small piece of jade dangling from the end and explained that this was a piece of "male jade" and that when he passed this stick with its piece of jade over a piece of "female jade," there was a violent reaction. This he had done and consequently knew that, if he dug deep enough, he would find a piece of jade. This, then, was a "jade witch."

In 1952, Mr. and Mrs. Vern Fraser and their son, Ernest, of Salinas, California, on their first day of jade hunting, after a rainy night, found a tiny spot of green showing two feet down in the side of a pipeline trench dug by the Sinclair Oil Company. In investigating, they uncovered a beautiful 212-pound boulder of apple green jade. They named it "The Green Beauty." This fine boulder has been on display at several Federation shows in California.

By 1955, ten years after the jade rush started, many of those who had hunted jade for the ten years or more—the writer included—began to think that it was useless to look for the good green at Crooks Mountain, and consequently put in much less time in this fabulous area. However, the names of new jade hunters were heard from time to time as they appeared on the scene with a determination to find some of the now famous Wyoming apple green. Bill Cain from Lander brought his big bulldozer to Crooks Mountain and made extensive gashes in the big hill in search of jade. Kenneth Steers brought his big D.C. 8 into play. Art Shaw and Leslie Quaries, of Jeffrey City, bought a bulldozer, hoping to make it pay off. They all found jade, but significantly only a small percentage of the jade found was of the finest quality, and the payoff was not commensurate with the cost.

Since only a small percentage of the jade found in any location—and Wyoming is no exception—is of great value, the chances of finding a good boulder even by bulldozing are small. The rocks with which good jade has been associated in 80 per cent of the Crooks Mountain area lie on or near the surface. Fifty per cent of the remaining area is inaccessible due to steep slopes, where even a bulldozer would be difficult to operate.

An occasional boulder of good jade has been found in the last few years, however, even by those hunting the surface. Shaw, who has probably been the most successful of these, found a 228-pound boulder about four years ago—in an area that had been searched by hundreds of jade enthusiasts over a period of nearly twenty years. The boulder lay on top of the ground, resembled granite and had a considerable amount of lichens on the surface. The real reason Art found it was that he concentrated on what he was doing and was an all-round better jade hunter that day than others had been before him. Francis Countryman found a similar boulder several years ago under similar conditions.

It is interesting to note that, although jade of all sizes and shapes was found on the surface, no jade artifacts have been found in the Wyoming jade fields. Indian teepee rings abound throughout the jade area, and numerous pieces of jade have been found in these rings. They were used with other rocks to weight down the buffalo hides on the teepees.

Much credit is due the people of the Wyoming jade country for their treatment of rock hunters—the ranchers who have allowed them to pass through their gates and over their lands and others who have been helpful in many ways. Information has been freely given—particularly by Rhoads of the Rocky Mountain Jade Shop in Lander, Francis and Kathleen Countryman of the Sweetwater Rock Shop, the Petersons of Home on the Range, and the Irwins of Home on the Range Motel at Jeffrey City, where so many rock hunters have stayed.

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