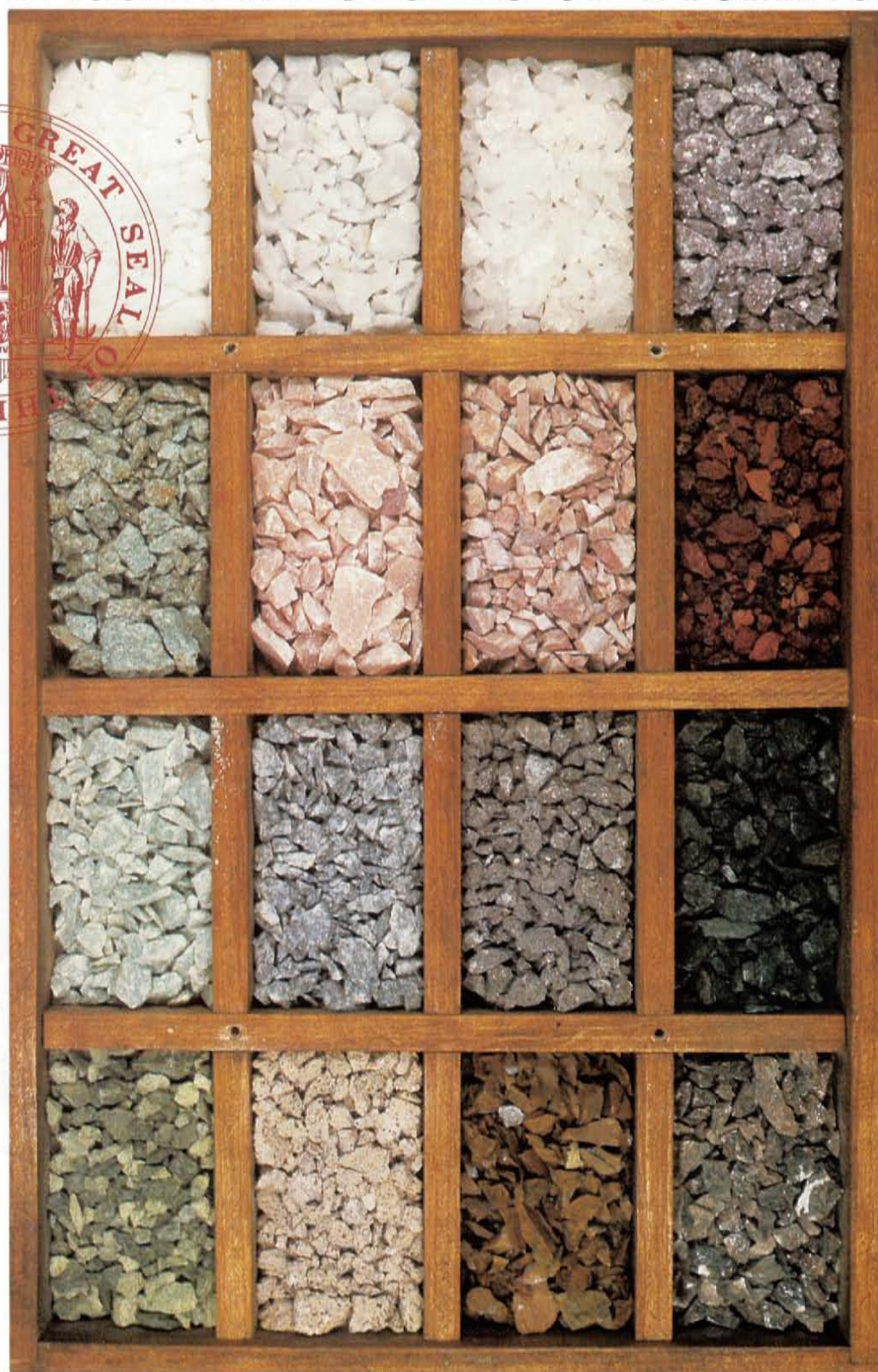


DECORATIVE STONES OF WYOMING



THE GEOLOGICAL SURVEY OF WYOMING, PUBLIC INFORMATION CIRCULAR 31



1991

by Ray E. Harris

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Front cover: Colorful examples of decorative aggregate from Wyoming. The 16 samples shown are described in this book under "Decorative aggregate".

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Gary B. Glass, State Geologist

Public Information Circular No. 31

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INTRODUCTION

Mountain-building episodes and erosional intervals in Wyoming's geologic history have resulted in exposure of many kinds of rocks at the surface, only a few of which have been sampled for decorative stone and aggregate. Much of the State is underlain by a variety of Precambrian crystalline rocks, including granite, marble, and quartzite (**Figure 1**). Unconformably overlying these Precambrian rocks is a sedimentary sequence that includes colored quartzites, limestones, dolomites, onyx, and other potential decorative stones. Wyoming could provide nearly every color of decorative stone known in the world.

This report presents a few of the many different stones in Wyoming that could be used for decorative stone and decorative aggregate. Rocks presented in this report were selected on the basis of color, size of the deposit, and apparent freedom from close-spaced joints (allowing for the possibility of production in 4-foot x 4-foot x 8-foot blocks, currently a standard for the dimensional stone- and tile-producing industries). Not all of the rocks presented here meet this requirement; some may be better suited to the production of smaller blocks or aggregate. A few of the rocks depicted in this circular were included primarily because of their unique colors or textures.

The selection presented here is only a small fraction of the potential decorative stones in Wyoming. Most of the areas of exposure of granite and other Precambrian rocks have never been explored for decorative stone.

Small amounts of decorative stone have been produced in the past in Wyoming. Stone quarries near Rawlins and Laramie (**Figure 1**) produced building stone for large public structures such as those on the University of Wyoming Campus in Laramie. Some of the university buildings were constructed using a sandy limestone from nearby quarries. The Rawlins sandstone was used in Wyoming's State Capitol, as well as some buildings in Denver and the Union Pacific Station in Ogden, Utah. The Jay Em Stone Company, located at Jay Em in northern Goshen County (**Figure 1**), produced cut stone items, primarily monument stone, from several marbles, granites, onyxes, and other rocks found in southeastern Wyoming.

A few companies are currently producing decorative stone and aggregate in Wyoming. Georgia Marble produces crushed white marble known as "Wyoming white" in various sizes from its quarry and crushing and sizing plant near Wheatland, in Platte County. Mesa Marble Company, with headquarters in Powell, is marketing a brown marble from the Bighorn Basin. Wyoming Red Rock, located in Gillette, produces decorative aggregate from several sources in the State. Several companies, including Wyoming Red Rock, quarry clinker (red baked and fused shale) for landscape rock and other uses from the northern Powder River Basin (**Figure 1**). Sunrise Stone, located in Guernsey, is testing several types of rock in Wyoming for quarrying into blocks and has shipped test blocks of black granite to a stone-finishing company.

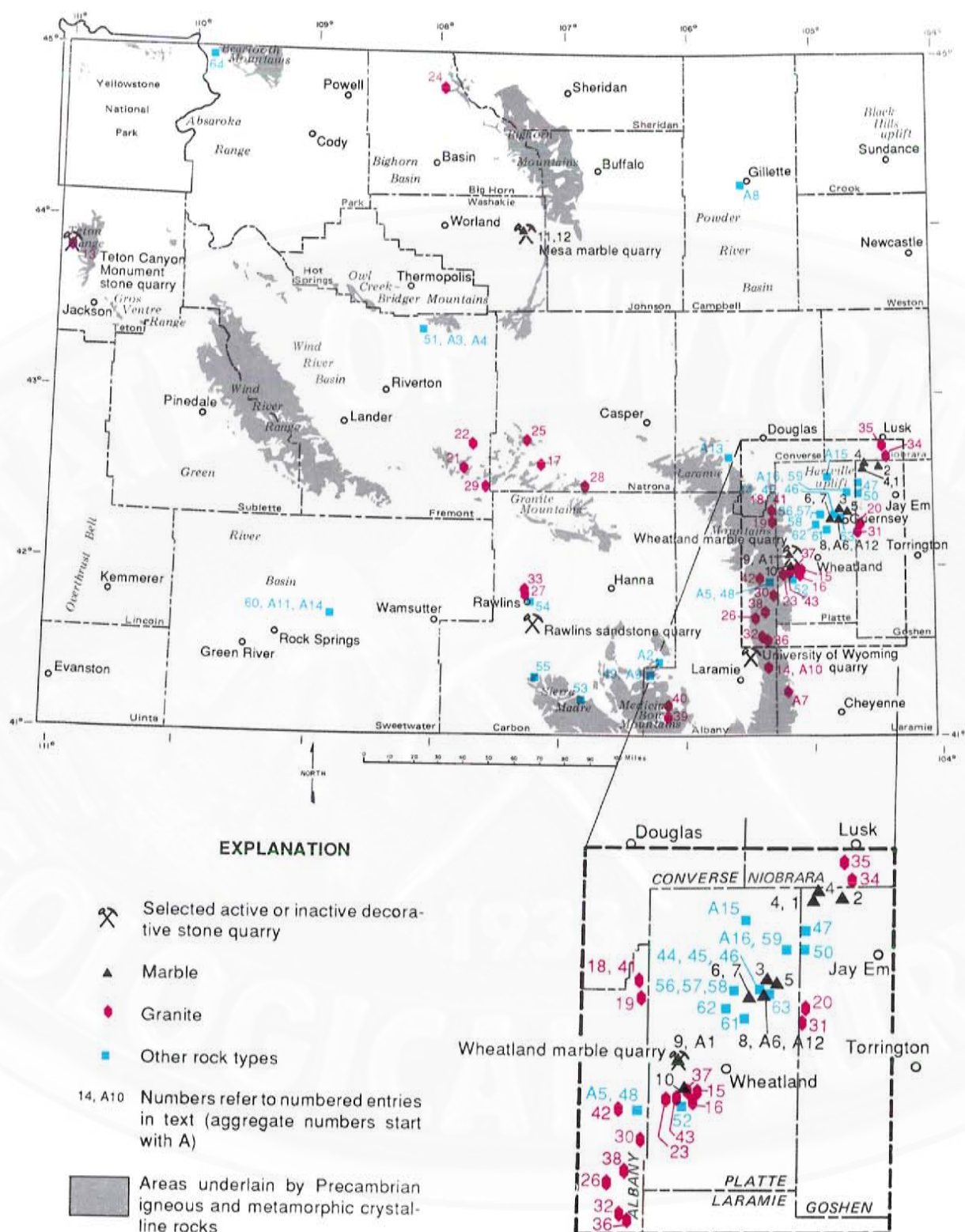


Figure 1. Map showing locations of decorative stones and aggregate in Wyoming. Numbered localities are described in this volume.

This circular describes both decorative aggregate and decorative stone. The two captions are presented separately, although some rocks are suitable for both decorative stone and decorative aggregate and are therefore presented twice. Decorative aggregates are all depicted on the cover, and the captions in the text refer

to the cover photo. Decorative stones are depicted individually, with descriptive captions accompanying each photo.

A glossary of decorative stone and aggregate terms used in this report appears at the end of the descriptive text, on page 26.

DECORATIVE AGGREGATE

The following descriptions of decorative aggregate found in Wyoming refer to the cover photo, numbered from the upper left to the lower right, as shown in **Figure 2**. Some of these stones are also depicted in the section on decorative stone. The locations of these stones are shown as

numbers A1 to A16 on **Figure 1**. The text provides the informal or commercial rock name, location (by section, township, and range where possible), county, current (1991) land ownership information (if available), potential uses, and a brief description.

A 1	A2	A3	A4
A5	A6	A7	A8
A9	A10	A11	A12
A13	A14	A15	A16

Figure 2. Index to decorative aggregate samples shown on the front cover and described by number in the text.

Number	A1
Name	Georgia Marble white marble (Wyoming white)
Location	Sec. 3, T24N, R70W
County	Platte
Land status	Private surface and minerals. Quarry operated by Basins, Incorporated, a division of Georgia Marble
Potential uses	Decorative aggregate
Description	This snow-white marble has been quarried for aggregate since the early 1950s. It is used for many purposes including roofing granules and landscape rock. It has never been quarried in blocks, and there are no plans to produce blocks from this property (Jerry MacArthur, Georgia Marble, personal communication, 1990).
Number	A2
Name	Snowy Range white quartzite
Location	Ts15 and 16N, Rs78,79 and 80W
County	Albany and Carbon
Land status	Federal surface (Medicine Bow National Forest) and minerals
Potential uses	Decorative aggregate, cut stone
Description	In this area, the Precambrian Medicine Peak and Sugarloaf quartzites approach a pure white color, but more commonly vary from very light gray to grayish white. Quartz or quartzite have some advantages over marble in some uses because they are more durable, harder, and more resistant to acid conditions that etch and dissolve marble.
Number	A3
Name	Bonneville rose quartz
Location	Secs. 21, 22, and 28, T 40N, R93W
County	Fremont
Land status	Federal surface and minerals (BLM)
Potential uses	Decorative aggregate
Description	White and rose quartz are found at this location. The quartz occurs in pods up to 20 feet thick and 50 feet wide.
Number	A4
Name	Bonneville purple quartzite
Location	Sec. 28, T40N, R93W
County	Fremont
Land status	Federal surface and minerals (BLM)
Potential uses	Cut stone (small pieces), decorative aggregate
Description	This purple lepidolite quartzite is present in pods associated with quartz-feldspar pegmatites. The rock has not been found in large amounts. The purple color is from the mineral lepidolite, a lithium mica.
Number	A5
Name	Squaw Mountain green quartzite
Location	SE sec. 36, T23N, R71W
County	Albany
Land status	State surface and minerals
Potential uses	Decorative aggregate, flagstone, cut stone
Description	The bright green color of this rock is due to fuchsite, a chromium mica. The rock occurs in a vertical band 10 to 15 feet wide, which trends northeast-southwest for a distance of 1/3 mile.
Number	A6
Name	Guernsey Stone Company pink marble
Location	S1/2 sec. 25, T27N, R66W
County	Platte
Land status	Private surface and minerals (Peter Kiewit, Incorporated)
Potential uses	Decorative aggregate, cut stone
Description	This light pink marble is produced in small amounts for decorative aggregate, particularly landscape rock (Harold Anderson, Guernsey Stone, personal communication, 1990). The amount of this stone is unknown.

Number	A7
Name	Laramie Mountains pink feldspar
Location	Several locations in T512 through 16N, R570 through 72W
County	Albany and Laramie
Land status	Mixture of private surface and minerals (includes Union Pacific Railroad), State surface and minerals, and Federal surface and minerals
Potential uses	Decorative aggregate
Description	Circular quartz-cored pegmatites intrude the Precambrian Sherman Granite in this area. The quartz is surrounded by a ring-shaped body of nearly pure feldspar. This feldspar has been mined in the past for use in ceramics or similar products. Large amounts of this material are available. Most of the bodies are colored as the sample; a few zones may be lighter.
Number	A8
Name	Clinker, scoria, pumice
Location	Widespread in the Powder River Basin, and locally near Hanna and Wamsutter
County	Campbell, Carbon, Converse, Johnson, Sheridan, and Sweetwater
Land status	Federal surface and minerals (BLM), private surface and minerals, State surface and minerals
Potential uses	Decorative aggregate, especially landscape rock
Description	This stone is the red rock that caps buttes and mesas in areas in the Powder River Basin, especially near Sheridan, Buffalo, and Gillette. It is being quarried in a few locations.
Number	A9
Name	Snowy Range green quartzite
Location	N1/2 sec. 8 and NW sec. 9, T16N, R79W
County	Albany
Land status	Federal surface and minerals (Medicine Bow National Forest); subject to off-road travel restrictions (December, 1990)
Potential uses	Decorative aggregate, cut stone, jewelry
Description	This distinctive green rock was quarried in the 1950s and 1960s. The rock was used primarily for decorative aggregate. Gem-quality rock of this color is called aventurine.
Number	A10
Name	Horse Creek gray granite
Location	Sec. 36, T17N, R71W and surrounding areas
County	Albany
Land status	State surface and minerals, large areas of private surface and minerals, also Union Pacific mineral ownership
Potential uses	Cut stone, decorative aggregate
Description	This uniform gray rock is a phase of the Laramie Anorthosite. It crops out over a large area north and east of Laramie. Some phases contain sulfides and olivine.
Number	A11
Name	Zirkel Mesa gray basalt
Location	Secs. 10, 11, 13, 14, 15, 16, 22, 23, and 24, T21N, R102W
County	Sweetwater
Land status	Federal surface and minerals (BLM), State surface and minerals, and private minerals (Union Pacific)
Potential uses	Decorative aggregate, cut stone, building stone
Description	Potassic lava flows in this area constitute a resource of grayish to brownish gray rock that can be used for decorative aggregate. Small flakes of phlogopite, a potassic mica, give a sparkle to the rock.
Number	A12
Name	Guernsey Stone Company green marble
Location	S1/2 sec. 25, T27N, R66W
County	Platte
Land status	Private surface and minerals (Peter Kiewit, Incorporated)
Potential uses	Decorative aggregate, especially landscape rock
Description	This very dark green marble is produced in small amounts. The amount of this stone is unknown.

Number A13
Name Glenrock green serpentine
Location NW sec. 29, T32N, R75W
County Converse
Land status Private surface (True and Duncan ranches), private and Federal minerals, quarried by Wyoming Red Rock of Gillette, Wyoming
Potential uses Decorative aggregate
Description Three or four pods of this green serpentine are exposed in the vicinity. The largest measures 100 feet by 100 feet. This stone is currently being quarried for landscape rock. It was produced in the past in large uncut blocks for decorative stone facing.

Number A14
Name Zirkel Mesa light brown leucite
Location Secs. 10, 11, 13, 14, 15, 16, 22, 23, and 24, T21N, R102W
County Sweetwater
Land status Federal surface and minerals (BLM), State surface and minerals, and private minerals (Union Pacific)
Potential uses Decorative aggregate, especially landscape rock
Description Potassic igneous rock composing cinder cones in this area constitutes a resource of light brown rock that may be favored for landscape rock. Grains of phlogopite mica give the rock a gold sparkle.

Number A15
Name Flattop brown chert
Location Secs. 7 and 18, T30N, R65W
County Platte
Land status Private surface, private and Federal (BLM) minerals
Potential uses Decorative aggregate
Description Large pods of brown chert are found in the Pennsylvanian-Permian Hartville Formation in this area.

Number A16
Name Hartville brown onyx (root beer)
Location Sample pictured from SW NE sec. 32, T29N, R65W
County Platte and Goshen
Land status Private, State, and Federal (BLM) surface and minerals
Potential uses Decorative aggregate
Description This brown variety of onyx is the color of root beer and may make an unusual decorative aggregate. Another occurrence of brown onyx is found in SE sec. 22, T25N, R 66W. The onyx is found in replacement zones in limestones of the Permian-Pennsylvanian Hartville Formation.

DECORATIVE STONES

The photographs and descriptions of decorative stones are grouped by rock type and color. All photographs are approximately actual size except where noted. Numbers refer to locations shown on **Figure 1**. The text accompanying each photograph provides the informal or commercial rock name, location (by section, township, and range where possible), current (1991) land ownership information (if available), potential uses, and a brief description of the rock.



Number 1
Name Muskrat Canyon dark gray marble
Location NE sec. 24, T30N, R65W and NW sec. 19, T30N, R64W
County Goshen
Land status Private surface (Rawhide Ranch)
Potential uses Cut stone
Description This marble was quarried by the Jay Em Stone Company of Jay Em, Wyoming for monument stone. The same marble is also present in the Little Wildcat Canyon area to the north of Muskrat Creek. The rock is quarriable in 4-foot x 4-foot x 8-foot blocks after some surface preparation.



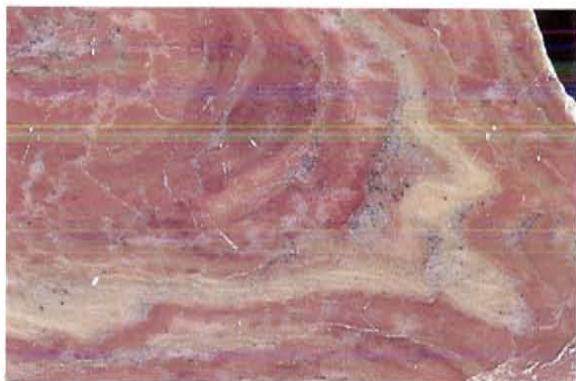
Number 2
Name Rawhide Buttes gray marble
Location NW sec. 11, T30N, R64W
County Goshen
Land status Private surface (Rawhide Ranch)
Potential uses Cut stone, decorative aggregate
Description In the early 1980s, the Pacer Corporation of Pringle, South Dakota produced decorative marble aggregate from this site. Four foot by 4 foot by 8 foot blocks may be produced from gray marble at this locality.



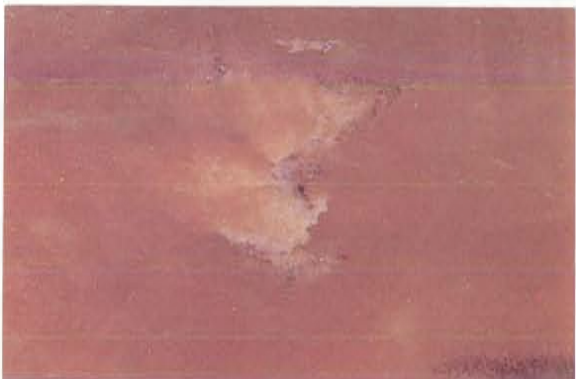
Number 3
Name Sparks Canyon gray marble
Location N1/2 sec. 18, T27N, R65W
County Platte
Land status Private (CF&I Steel Corporation)
Potential uses Cut stone
Description This light gray marble crops out in a band 200 feet or more wide by 2000 feet long. The rock is probably quarriable in 4-foot x 4-foot x 8-foot blocks.



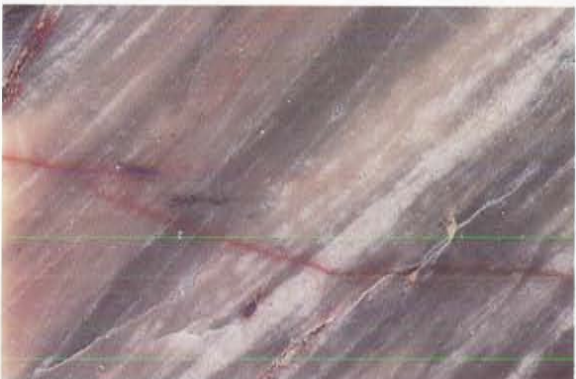
Number 4
Name Muskrat Creek red marble
Location NE sec. 24, T30N, R65W
County Goshen
Land status Private surface (Rawhide Ranch)
Potential uses Cut stone, decorative aggregate
Description The red marble grades to the east into dark gray marble (see stone no. 1). It is quarriable in 4-foot x 4-foot x 8-foot blocks. The same marble crops out in Little Wildcat Canyon 1 mile to the north. This marble has been used for monument stone. It was quarried by the Jay Em Stone Company, of Jay Em, Wyoming.



Number 5
Name MS-108 banded marble
Location NW sec. 17 and N1/2 sec. 18, T27N, R65W
County Platte
Land status Private (CF&I Steel Corporation)
Potential uses Cut stone
Description This marble is named MS-108 after the hill on which this marble is found. The hill was named after the number of the former CF&I mineral claim that included the hill. The marble is found in large quantities and is probably quarriable in 4-foot x 4-foot x 8-foot blocks although the surface outcrops are often platy.



Number 6
Name Fairbank pink marble
Location SW sec. 26 and SE sec. 27, T 27N, R66W
County Platte
Land status State (National Guard) surface
Potential uses Cut stone, decorative aggregate
Description This orange-pink marble grades through a zone of mixed pink and gray to gray marble similar to the Little Wildcat gray marble (see stone no. 9). This rock may be quarried in 4-foot x 4-foot x 8-foot blocks.



Number 7
Name Fairbank pink and gray marble
Location SW sec. 26 and SE sec. 27, T 27N, R66W
County Platte
Land status State (National Guard) surface
Potential uses Cut stone
Description This marble exhibits variable bands of orange-pink (similar to stone no. 6) and dark gray. It is quarriable in 4-foot x 4-foot x 8-foot blocks.



Number 8
Name Guernsey Stone Company pink marble
Location S1/2 sec. 25, T27N, R66W
County Platte
Land status Private surface and minerals (Peter Kiewit, Incorporated)
Potential uses Decorative aggregate, cut stone
Description This light pink marble is produced in small amounts for decorative aggregate, particularly landscape rock (Harold Anderson, Guernsey Stone, personal communication, 1990). The amount of this stone is unknown. It may be quarriable in blocks smaller than 4-foot x 4-foot x 8-foot only (Dave Jennings, Peter Kiewit, Incorporated, personal communication, 1991).



- Number** 9
Name Basins, Incorporated white marble (Wyoming white)
Location Sec. 3, T24N, R70W
County Platte
Land status Private surface and minerals (quarry operated by Basins, Incorporated, a division of Georgia Marble)
Potential uses Presently used for decorative aggregate (see also no. A1)
Description This snow-white marble is quarried for decorative aggregate. It is used for many purposes including roofing granules and landscape rock. It has never been quarried in blocks, and there are no plans to produce blocks from this property. (Jerry MacArthur, Georgia Marble, personal communication 1990). However, this rock could be quarried as cut stone.



- Number** 10
Name McGuire white marble
Location SW sec. 6, T23N, R69W
County Platte
Land status Private surface (McGuire Ranch), Federal minerals
Potential uses Decorative aggregate, cut stone
Description This white marble is similar to the Wheatland marble, but locally contains the mineral actinolite-tremolite. The marble is weathered at the surface. It may be quarriable in 4-foot x 4-foot x 8-foot blocks after some surface material is removed.



- Number** 11
Name Mesa Marble Company brown marble
Location Southeast of Tensleep, Wyoming
County Washakie
Land status Federal minerals
Potential uses Cut stone
Description This stone comes in several shades of brown, yellow, and pink. It takes a high polish. This stone was described in the magazine Dimensional Stone (February 1990, p. 31).



- Number** 12
Name Mesa Marble Company, wood-grained marble
Location Southeast of Tensleep, Wyoming
County Washakie
Land status Federal minerals
Potential uses Cut stone
Description This stone is a variety of the brown marble (stone no. 11). (About 2X actual size.)



Number 13
Name Teton Canyon gray granite
Location SE SW sec. 20, T44N, R117W
County Teton
Land status Federal surface (Targhee National Forest), Federal minerals (BLM)
Potential uses Cut stone, decorative aggregate
Description This extremely hard granite was quarried in the past for monument stone. It has a joint spacing of over 20 feet in any direction and is quarriable in 4-foot x 4-foot x 8-foot blocks.



Number 14
Name Horse Creek gray granite
Location Sec. 36, T17 N, R71W
County Albany
Land status State surface and minerals, large areas of private surface and minerals, also Union Pacific mineral ownership
Potential uses Cut stone, decorative aggregate (see aggregate A10)
Description This uniform gray rock is a phase of the Laramie anorthosite. It crops out over a large area north and east of Laramie. Some phases contain sulfides and olivine. In selected locations, it is quarriable in 4-foot x 4-foot x 8-foot blocks.



Number 15
Name Two Bar bronze granite
Location NW sec. 14, T23N, R69W
County Platte
Land status Private surface (Two Bar Ranch) and Federal minerals, and Federal surface and minerals (BLM)
Potential uses Cut stone, decorative aggregate
Description This distinctive granitic rock crops out in an area of about 160 acres. The rock exhibits a joint spacing at the surface of 3 to 5 feet and may be more massive at depth. Currently (1991), there are plans to open a railroad ballast quarry at this location.



Number 16
Name Two Bar yellow granite
Location Center, sec. 14, T23N, R69W
County Platte
Land status Private surface (Two Bar Ranch) and Federal minerals, and Federal surface and minerals (BLM)
Potential uses Cut stone, decorative aggregate
Description This light yellowish gray granitic rock has been considered as a source of railroad ballast due to its hardness. The outcrops of this stone exhibit a joint spacing of 2 to 4 feet.



Number 17
Name Dry Creek gray granite
Location SE sec. 36, T31N, R87W
County Natrona
Land status State surface and minerals
Potential uses Cut stone, decorative aggregate
Description This gray granite is identical to a granite used in Japan for cut stone. Large amounts of this rock are present in this area. The joint spacing is over 6 feet and appears to increase with depth, so it may be quarried in 4-foot x 4-foot x 8-foot blocks.



Number 18
Name Rock Mountain brown granite
Location SE sec. 27, T28N, R71W
County Albany
Land status Federal surface (Medicine Bow National Forest) and Federal minerals (BLM), State surface and minerals
Potential uses Cut stone, decorative aggregate
Description This brown granite is found in a massive outcrop free from joints. It is quarriable in 4-foot x 4-foot x 8-foot blocks.



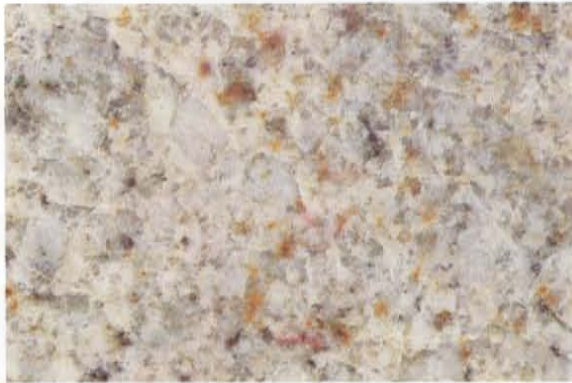
Number 19
Name Harris Park brown and pink granite
Location SW sec. 36, T28N, R71W
County Albany
Land status State surface and minerals. Outcrops east of this section are private surface and minerals (Twin Pines Ranch)
Potential uses cut stone, decorative aggregate
Description This reddish brown granite underlies a large area of the eastern part of Harris Park. Outcrops tend to have a joint spacing from 4 to 8 feet. It is present over an area of several square miles and locations where 4-foot x 4-foot x 8-foot blocks may be quarried are likely to be present.



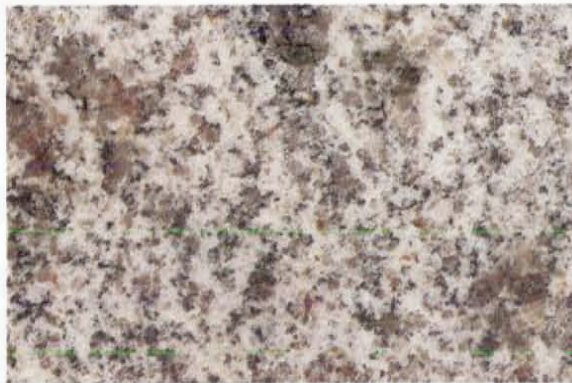
Number 20
Name McGinnis Pass pink granite
Location Sec. 10, T27N, R65W
County Goshen
Land status Private surface and minerals (Jim Hageman)
Potential uses Cut stone
Description This relatively coarse-grained pink granite underlies most of sec. 10 and adjacent parts of adjoining sections. Outcrops are massive with joints spaced at over 15 feet. It is quarriable in 4-foot x 4-foot x 8-foot blocks.



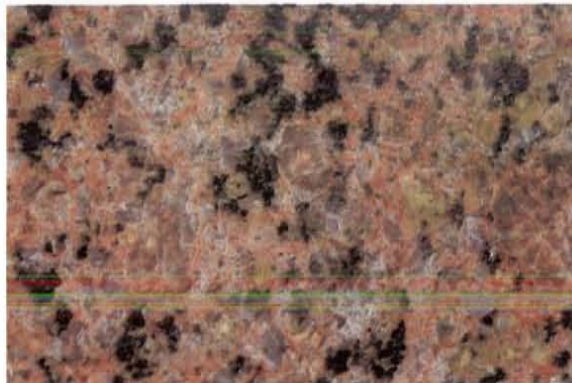
Number 21
Name Bishop Point white granite
Location Center sec. 12, T29N, R90W
County Fremont
Land status Federal surface and minerals (BLM)
Potential uses Cut stone
Description This sample is from the first outcrop of granite north of the highway on the Agate Flats Road. Large volumes of granite are present in the hills east of the sampled outcrop, but it is not known if all of this material is similar to the sample pictured. At the sample site, the joint spacing is greater than 10 feet vertically and 5 feet horizontally.



Number 22
Name Agate Flats granite
Location SE NE sec. 9, T30N, R90W
County Fremont
Land status Federal surface and minerals (BLM)
Potential uses Cut stone, decorative aggregate
Description Several varieties of this light colored granite crop out in the area and are free from close-spaced joints. It is quarriable in 4-foot x 4-foot x 8-foot blocks.



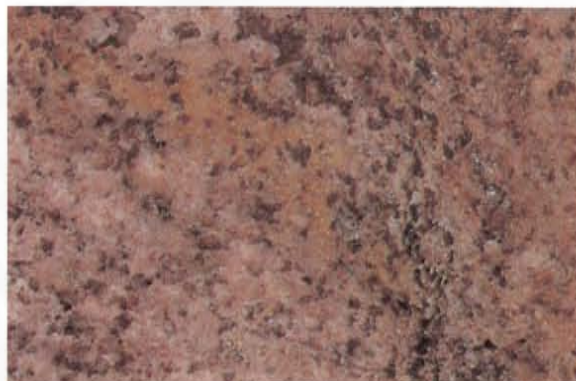
Number 23
Name Picnic Rock gray granite
Location Sec. 26, T23N, R70W
County Platte
Land status Private surface and minerals (Two Bar Ranch), isolated tracts of Federal surface and minerals
Potential uses Cut stone
Description This gray granite occurs in large amounts in outcrops with some areas of joint spacings over 10 feet, and is quarriable in 4-foot x 4-foot x 8-foot blocks. Locally large (1 inch) pink feldspar phenocrysts occur in the rock.



Number 24
Name Medicine Mountain red and green granite
Location SE sec. 23, SW sec. 24, NW sec. 15, and NE sec. 26, T56N, R92W
County Big Horn
Land status Federal surface and minerals (Bighorn National Forest)
Potential uses Cut stone, decorative aggregate
Description The green color of some of the grains of this granite is due to the alteration of feldspar to epidote. The extent of the green coloring in the pink granite is unknown. Exfoliation joints (parallel to the surface) are 1 foot apart at the surface and may disappear at depth. Lateral joint spacings are 4 to 10 feet.



Number 25
Name Circle Bar pink granite
Location SW sec. 9, T32N, R88W
County Natrona
Land status Federal surface and minerals (BLM)
Potential uses Cut stone, decorative aggregate
Description The extent of the pink granite in this area is not known since the area surrounding the outcrop is covered by a thin layer of sand and sagebrush. No joints were observed in the outcrop.



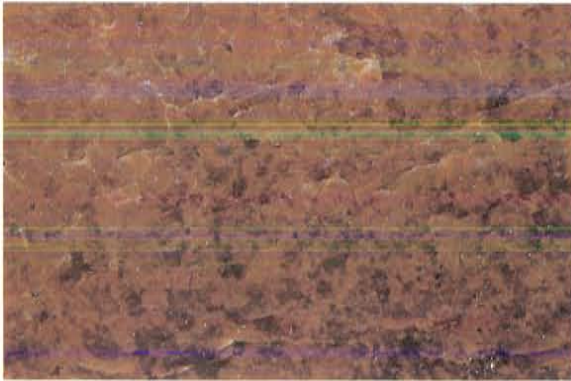
Number 26
Name Morton Pass pink granite
Location W1/2 sec. 18 and W1/2 sec. 19, T20N, R72W
County Albany
Land status Private surface, with a mixture of private and Federal minerals
Potential uses Cut stone, decorative aggregate
Description This unique pink granitic rock crops out in a north-south trending belt and underlies about 600 acres. The joint spacing is about 4 feet x 4 feet, but may increase with depth.



Number 27
Name Rawlins pink granite
Location W1/2 sec. 19, T21N, R87W
County Carbon
Land status Federal surface and minerals (BLM)
Potential uses Cut stone, decorative aggregate
Description Two phases of granite are found in this area. This pink phase is north of the red phase (see stone no. 33). Joint spacings are 3 feet apart at the surface and may increase at depth.



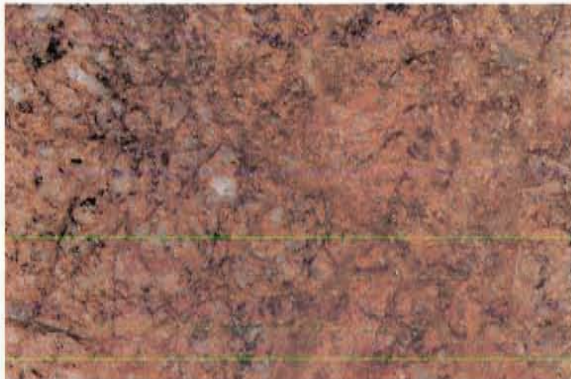
Number 28
Name Pathfinder pink granite
Location NW sec. 31, T29N, R83W
County Natrona
Land status Federal surface and minerals (BLM)
Potential uses Cut stone, decorative aggregate
Description Large amounts of pink granite are present in this area and elsewhere in the vicinity. Joint spacings vary from 2 to over 20 feet. Locally, blocks measuring 4 feet x 4 feet x 8 feet may be quarried.



Number 29
Name Split Rock brown granite
Location SE sec. 25, T29N, R90W and SW sec. 30, T29N, R89W
County Fremont and Natrona
Land status Federal surface and minerals (BLM)
Potential uses Cut stone, decorative aggregate
Description This brown quartz-rich rock weathers to a pinkish gray and is not distinctive at the surface. The sample was taken adjacent to the Split Rock U.S. BLM interpretive center and picnic area. The joint spacings are 5 feet or greater.



Number 30
Name Red Mountain red granite
Location S1/2 sec. 25 and N1/2 sec. 36, T22N, R71W
County Albany
Land status Private in sec. 25, and State surface and minerals in sec. 36
Potential uses Cut stone, decorative aggregate
Description This granite gives Red Mountain its name. It is present in large amounts. The joint spacings may allow the production of 4-foot x 4-foot x 8-foot quarried blocks.



Number 31
Name Haystack Hills red granite
Location N1/2 sec. 22, T26N, R65W
County Goshen
Land status Private surface and minerals (Jim Hageman)
Potential uses Cut stone, decorative aggregate
Description This red granite is located at the south end of the Haystack Hills about 3.5 miles north of U.S. Highway 26. Large amounts of the rock are present. Joint spacings are as great as 20 feet in each direction.



Number 32
Name Baldy Mountain red granite
Location Sec. 8, and N1/2 sec. 17, T18N, R72W
County Albany
Land status Private surface (Farthing Ranch) and Federal minerals in sec. 8, and private (Union Pacific) in sec. 17
Potential uses Cut stone, decorative aggregate
Description This rock is a syenite characterized by orange-red labradorite feldspar grains, some of which exhibit an orange-red shiller effect in certain orientations of light. No joints are observable in outcrop, which is relatively poor in this area. The red rock is interlayered with sills of the Shanton blue anorthosite (stone no. 44); both could be produced from one quarry at this location.



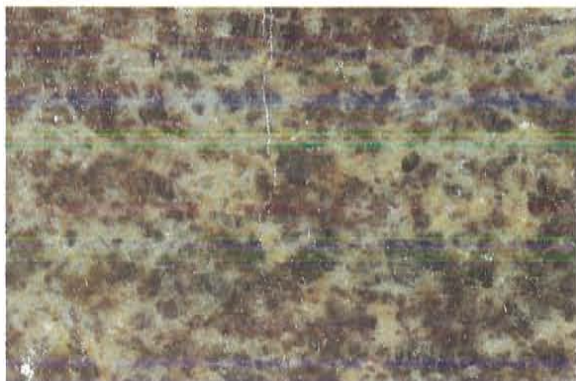
Number 33
Name Rawlins red granite
Location W1/2 sec. 19, T21N, R87W and NE sec. 13, T21N, R88W
County Carbon
Land status Federal surface and minerals (BLM)
Potential uses Cut stone, decorative aggregate
Description This dark red granite crops out in the hills and canyons west of the town of Rawlins. Joint spacings at the surface range from 2 to 5 feet. This red phase is found south of the pink phase (stone no. 27).



Number 34
Name Bald Butte red granite
Location SE sec. 31, T31N, R63W
County Niobrara
Land status Private surface and minerals (Don Cundall Ranch); Federal minerals, north side of butte
Potential uses Decorative aggregate, cut stone
Description Vertical joints of 8 to 15 feet are present; locally the joints are closer. The rock is a granite gneiss and varies laterally from red to black with small amounts of red. A large quarry at this site provided railroad ballast for the Chicago Northwestern Railroad. A small quarry on the east face of the Butte was quarried for monument stone by the Jay Em Stone Company of Jay Em.



Number 35
Name Khaun red granite
Location E1/2 sec. 13, T31N, R64W
County Niobrara
Land status Private surface and minerals (Khaun property)
Potential uses Cut stone, decorative aggregate
Description This mafic-poor red granitic rock underlies the large hill in this half section. Joint spacings are relatively close (between 2 and 4 feet).



Number 36
Name Shanton blue granite
Location Secs. 8, 11, 14, 15, 16, and 17, T18N, R72W and adjacent areas
County Albany
Land status Private surface (Farthing Ranch) with a mixture of Federal and private minerals including Union Pacific minerals; sec. 16 is State surface and minerals

Potential uses Cut stone

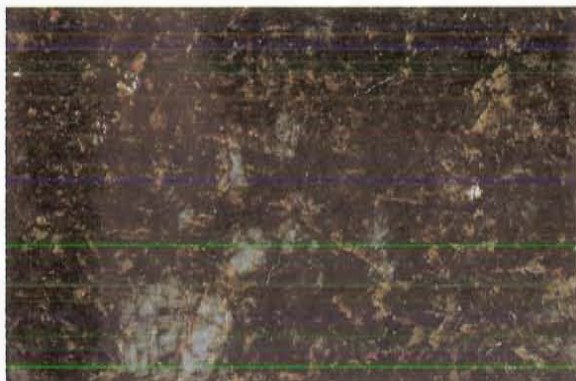
Description This brownish gray syenite contains grains of gem-quality labradorite that shine bright dark blue in certain angles of light. It occurs in massive layers and thin zones. Joint spacings in excess of 40 feet x 40 feet x 6 feet are present in the area. Locally, the background color is black.



Number 37
Name Two Bar blue-black granite
Location SE SE sec. 7, T23N, R69W
County Platte
Land status Private surface (Two Bar Ranch) and Federal surface (BLM), Federal minerals (BLM)

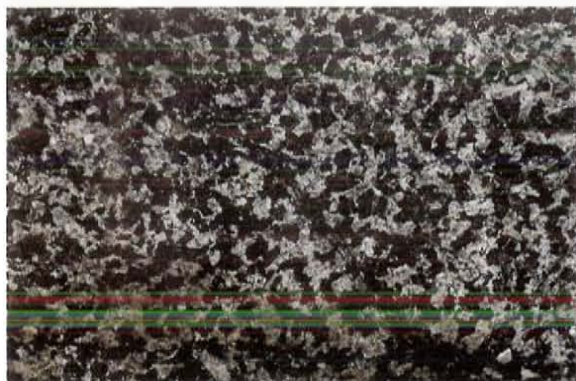
Potential uses Cut stone (small pieces)

Description This unique kyanite-biotite gneiss crops out in a vertical band at the base of granite cliffs near a major fault zone. The bed is about 20 feet wide at the surface. The rock is soft but takes a high polish. No joints were noted, although the rock is easily split along foliation.



Number 38
Name Sybille Canyon black (green) granite
Location Secs. 8, 9, 10, 15, 16, 17, 22, and 23, T20N, R72W
County Albany
Land status Private surface and minerals, with some State surface and minerals
Potential uses Cut stone, decorative aggregate

Description This syenite is almost identical to Verde Ubatuba, a Brazilian stone processed in Italy. It underlies a large area adjacent to the Laramie anorthosite. Labradorite feldspar causes the gold and green shimmer effect on polished surfaces. Joint spacings of 5 feet x 5 feet x 10 feet or greater are present at the surface.



Number 39
Name Lake Owen gray granite
Location NE sec. 5, T13N, R78W and adjoining areas
County Albany
Land status Federal surface and minerals (Medicine Bow National Forest)

Potential uses Cut stone

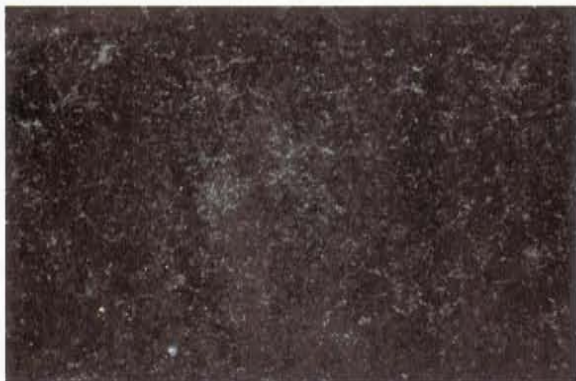
Description This is the lighter phase of gabbro in the Lake Owen mafic complex. This rock is probably present beneath many square miles of forested land. No exposures large enough to observe the joint spacing were seen.



Number 40
Name Lake Owen blue-black granite
Location Sec. 29, T14N, R78W
County Albany
Land status Federal surface and minerals (Medicine Bow National Forest)
Potential uses Cut stone, decorative aggregate
Description This distinctive blue-black gabbro underlies several square miles. It is a phase of the Lake Owen mafic complex. Several outcrops of this rock contain joint spacings in excess of 20 feet.



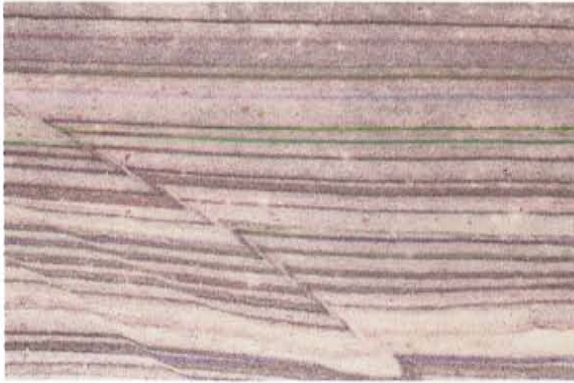
Number 41
Name Rock Mountain black granite
Location SE SE sec. 27, T28N, R71W
County Albany
Land status Federal surface and minerals (Medicine Bow National Forest) and State surface and minerals
Potential uses Cut stone, decorative aggregate
Description This black amphibolite is adjacent to the Rock Mountain brown granite (stone no. 34) and could be produced from the same quarry operation.



Number 42
Name Tunnel Road black granite (amphibolite)
Location SE SE sec. 16, T24N, R72W
County Albany
Land status State surface and minerals
Potential uses Cut stone, decorative aggregate
Description Several outcrops of black amphibolite are present in this area. At the location specified, the joint spacing in the rock is about 3 feet x 3 feet x 6 feet. In other locations, joints are more closely spaced. About 1.5 miles northwest, Sunrise Stone is quarrying a similar black amphibolite and producing 4-foot x 4-foot x 8-foot blocks.



Number 43
Name Two Bar black granite (amphibolite)
Location Secs. 24, 27, 28, 33, and 34, T23N, R70W
County Platte
Land status Private surface and minerals (Two Bar Ranch) with Federal minerals in some locations
Potential uses Cut stone, decorative aggregate
Description Numerous amphibolite bodies are discontinuously exposed in this area. Most of these are black with a few light inclusions. Some amphibolites are layered and may qualify as flagstone.



Number 44
Name Sunrise purple quartzite
Location SE sec. 6, T27N, R65W
County Platte
Land status Private surface and minerals (CF&I Steel Corporation)
Potential uses Cut stone, building stone
Description The Hartville Formation basal quartzite can be quarried and polished to produce the rock shown. Large amounts of this rock are present in the Hartville uplift.



Number 45
Name Bicentennial Monument quartzite
Location Secs. 5 and 8, T27N, R65W
County Platte
Land status Private surface and minerals (CF&I Steel Corporation)
Potential uses Cut stone, building stone
Description This rock is so named because a block of it was sent to Philadelphia, Pennsylvania, in September, 1987, for inclusion as the stone from Wyoming in the Monument to the Bicentennial of the U.S. Constitution. Large amounts of this stone are present in the area and to the north, and there are large areas with little or no overburden. The quartzite is the basal unit of the Pennsylvanian Hartville Formation.



Number 46
Name Sunrise red quartzite
Location SE sec. 6, T27N, R65W
County Platte
Land status Private surface and minerals (CF&I Steel Corporation)
Potential uses Cut stone, building stone, ashlar
Description This is the most common appearance of the Hartville Formation basal quartzite when cut and polished. Large amounts of this stone are present in the Hartville uplift.



Number 47
Name Red and white quartzite (candy rock)
Location SW sec. 1, T29N, R65W
County Goshen
Land status Private surface, Federal minerals (BLM)
Potential uses Cut stone, building stone, ashlar
Description This red and gray banded rock was named "candy rock" by the Jay Em Stone Company of Jay Em, Wyoming. A few tons of this rock were quarried in the early 1900s. The rock pictured is honed but not polished. This rock is the basal sandstone of the Hartville Formation.



Number 48
Name Squaw Mountain green quartzite
Location SE sec. 36, T23N, R71W
County Albany
Land status State surface and minerals
Potential uses Decorative aggregate, flagstone, cut stone
Description This green fuchsite gneiss occurs in thin layers and cannot be quarried in blocks. The bright green color is due to fuchsite, a chromium mica. The rock occurs in a vertical band 10 to 15 feet wide, that trends northeast-southwest for a distance of 0.3 miles. It has been used locally as decorative stone facing.



Number 49
Name Snowy Range green quartzite
Location N1/2 sec. 8 and NW sec. 9, T16N, R79W
County Albany
Land status Federal surface and minerals (Medicine Bow National Forest); subject to off-road travel restrictions (December, 1990)
Potential uses Decorative aggregate, cut stone, jewelry
Description Vertical joints are one to two feet apart. No horizontal joints were noted. Gem quality rock of this color is called aventurine and is used in jewelry and similar products. This distinctive green rock was quarried in the 1950s and 1960s, primarily for decorative aggregate.



Number 50
Name Wildcat Canyon white quartz
Location NW NE sec. 14, T29N, R65W
County Goshen
Land status Private surface (Frederick Ranch), Federal minerals
Potential uses Decorative aggregate, cut stone
Description This white quartz occurs in a circular outcrop 30 feet in diameter with a smaller circular body 15 feet in diameter nearby.



Number 51
Name Bonneville purple quartzite
Location Sec. 28, T40N, R93W
County Fremont
Land status Federal surface and minerals (BLM)
Potential uses Cut stone (small pieces), decorative aggregate
Description This purple lepidolite quartzite takes a high polish. It is present in pods associated with quartz-feldspar pegmatites. The rock has not been found in large amounts. The purple color is from the mineral lepidolite, a lithium mica.



- Number** 52
Name Two Bar salmon pink quartz
Location Sec. 7 and N1/2 sec. 18, T23N, R69W
County Platte
Land status Private surface (Two Bar Ranch), with private and Federal minerals
Potential uses Decorative aggregate, cut stone
Description Numerous quartz bodies intrude metamorphic rocks in this area. Some of the quartz bodies crop out in an area measuring 20 x 50 feet. The usual color is white, but salmon pink zones (pictured) are common.



- Number** 53
Name Encampment rose quartz
Location N 1/2 sec. 10 and S 1/2 sec. 3, T14N, R84W
County Carbon
Land status Private surface with Federal minerals
Potential uses Decorative aggregate, cut stone
Description Two hills (in sec. 10 and sec. 3) are underlain by quartz rock. Colors range from rose to white to gray-green. All phases exhibit banding. The amount of quartz is large; the amount of each of the colors is unknown. Quartz was produced from the southern body for highway aggregate. The rock is suitable for small pieces of decorative stone and takes a high polish.



- Number** 54
Name Rawlins brown quartzite
Location Sec. 17, T21N, R87W
County Carbon
Land status Federal surface and minerals (BLM), locally private surface
Potential uses Cut stone, building stone, ashlar
Description This brown quartzite contains occasional grains of bright orange chert. It is found in layers up to 4 feet thick. The quartzite is a part of the Cambrian Flathead Sandstone. The rock was quarried in the past for building stone.



- Number** 55
Name Divide Peak light brown flagstone (slate)
Location NE sec. 2, T14N, R86W
County Carbon
Land status Federal surface and minerals (Medicine Bow National Forest)
Potential uses Flagstone, cut stone
Description This light brown phyllite can be split into 1-inch to 0.5 inch-thick flagstone. It can also be cut into tile parallel with the foliation and will take a high polish.



Number 56
Name Hartville yellow onyx
Location NE sec. 2, T27N, R66W
County Platte and Goshen
Land status Private, State, and Federal (BLM) surface and minerals
Potential uses Cut stone
Description White, brown, mixed brown and white, yellow, and green onyx (personal communication, Steve Calagieri, 1989) are found in the Hartville onyx belt (T27N, R66W northeast to T30N, R65W). The onyx is found in replacement zones in limestones of the Permian-Pennsylvanian Hartville Formation. Some occurrences were quarried in the past by the Jay Em Stone Company, Jay Em, Wyoming for monument stone.



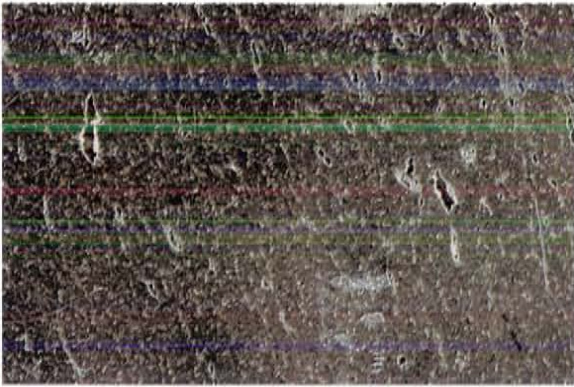
Number 57
Name Hartville white onyx
Location NW sec. 1, T27N, R66W
County Platte and Goshen
Land status Private, State, and Federal (BLM) surface and minerals
Potential uses Cut stone
Description This rock is found in the Hartville onyx belt described in no. 56. Other occurrences of white onyx are in NE sec. 2, T27N, R66W and sec. 15, T27N, R66W.



Number 58
Name Hartville light brown onyx
Location NW sec. 2, T27N, R66W
County Platte and Goshen
Land status Private, State, and Federal (BLM) surface and minerals
Potential uses Cut stone
Description This mixed brown and white onyx was quarried by Basins Engineering, of Wheatland, Wyoming. Some of this material was used in the terrazzo-like facing stone on the building on the northwest corner of 17th and Carey in Cheyenne. This rock is found in the Hartville onyx belt described in no. 56.



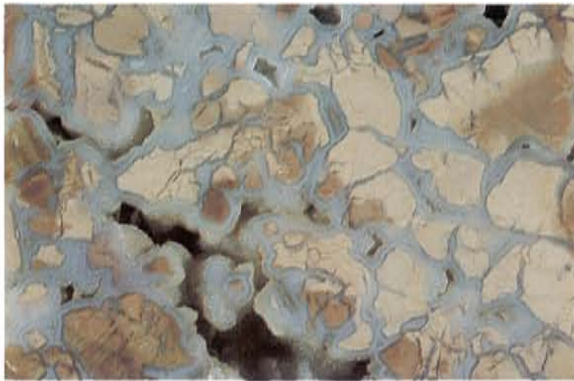
Number 59
Name Hartville brown onyx (root beer)
Location SW NE sec. 32, T29N, R65W
County Platte and Goshen
Land status Private, State, and Federal (BLM) surface and minerals
Potential uses Cut stone
Description This brown onyx was quarried in the past by the Jay Em Stone Company, Jay Em, Wyoming for monument stone. The brown variety is the color of root beer and may make an unusual decorative rock. Another occurrence of brown onyx is found in SE sec. 22, T25N, R66W. This rock is found in the Hartville onyx belt described in no. 56.



Number 60
Name Zirkel Mesa gray basalt
Location Secs. 10, 11, 13, 14, 15, 16, 22, 23, and 24, T21N, R102W
County Sweetwater
Land status Federal surface and minerals (BLM), State surface and minerals, and private minerals (Union Pacific)
Potential uses Cut stone, building stone
Description Potassic lava flows in this area constitute a resource of grayish to brownish gray rock that could be quarried in large blocks and cut and polished into a wide variety of products. Vesicles (small cavities) in the lava add interest to cut or cut and polished faces.



Number 61
Name GW brown-gray limestone
Location NE sec. 34, T27N, R66W
County Platte
Land status State surface (Wyoming National Guard) and minerals
Potential uses Cut stone, building stone, ashlar
Description Limestone from this area was quarried by the Great Western Sugar Company in the early 1900s for use as sugar rock. The light brown color of this limestone is similar to the limestone currently being imported from France as tile. The color is uniform in this area, although locally white brachiopods (fossil shells) are present. Large amounts of this material are present and could be quarried in large blocks.



Number 62
Name Siliceous breccia (youngite)
Location SE sec. 28, T29N, R67W and sec. 36, T28N, R67W
County Platte
Land status Private surface and minerals in sec. 28, State surface and minerals in sec. 36
Potential uses Cut stone (small pieces-desk sets, tableware, etc.)
Description The color of the youngite in this area is dependent on the color of the clasts. Pink (shown), yellow, black, and gray youngite are found in this area. The rock takes a high polish. The youngite is found in lens-shaped to irregularly shaped bodies in limestones and dolomitic limestones of the Permian-Pennsylvanian Hartville Formation. (About 1/2 actual size.)



Number 63
Name Chicago Mine breccia
Location NE sec. 5, T27N, R65W
County Platte
Land status Private surface and minerals (CF&I Steel Corporation)
Potential uses Cut stone (small pieces)
Description This dark red and gray breccia is found in small areas above the iron ore body at the Chicago open pit iron mine.



Number 64
Name Porphyry (leopard rock)
Location Sec. 6, T57N, R104W
County Park
Land status Federal surface and minerals (Shoshone National Forest)
Potential uses Cut stone
Description This rock occurs in near-vertical dikes that cut Precambrian rocks. Small blocks might be quarried at this location. Other exposures of nearly identical leopard rock dikes are present in the Bighorn National Forest in Sheridan County. The Sheridan County leopard rock was quarried in the past in sec. 25, T56N, R89W.

GLOSSARY

Ashlar	rectangular pieces of stone of nonuniform size set randomly in a wall (Power, 1983).	Granite	in stone terminology (used in this report) all felsic igneous rocks of visibly granular (crystalline) texture (Power, 1983). This includes rocks more formally defined as gabbro, basalt, anorthosite, monzonite, syenite, amphibolite, and others.
Building stone	all natural stone used for building construction, whether it is used for structural support, curtain walls, veneer, floor tile, or strictly ornamental purposes (Power, 1983).	Landscape rock	decorative aggregate used in landscaping, such as for borders around plants or gardens, rock lawns, or similar purposes.
Cut stone	building stone cut to precise dimensions on all sides. The surface may be textured or polished but is always finished to specifications (Power, 1983).	Limestone	in this report, a sedimentary rock containing calcium carbonate (calcite) or calcium-magnesium carbonate (dolomite), or any combination of these two carbonates, at least to the extent of 50% of the rock (Thrush, 1968).
Decorative aggregate	uncut rock chosen for decorative purposes because of its appearance and physical properties.	Marble	in stone terminology (used in this report), any crystalline rock composed of calcite, dolomite, or serpentine that is capable of taking a polish (Power, 1983).
Decorative stone	a stone used as architectural trimmings in columns, fireplaces, and store fronts (Thrush, 1968). This category includes any cut stone used for its appearance as well as for its strength and other physical properties.	Monument stone	stone that is cut and polished for tombstones, historical location markers, or other similar monuments.
Flagstone	thin slabs of stone used as paving (Power, 1983). Flagstone must have irregularities less than 0.5 inch in total height.		

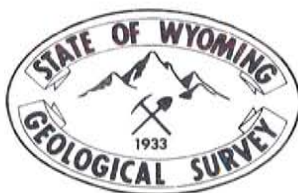
Quartzite a quartz rock derived from sandstone, characterized by such thorough induration that it is essentially homogeneous and breaks with vitreous surfaces that transect original grains and matrix with approximately equal ease (Thrush, 1968).

Tile cut stone with one dimension much thinner than the other two and one surface polished. Tile may be of any size or for any use (walls, floor tile, etc.).

Youngite an informal term for a breccia consisting of limestone or dolomite fragments cemented by translucent siliceous material, usually containing numerous cavities with drusy surfaces.

REFERENCES CITED

- Power, W. R., 1983, Dimension and cut stone, *in* LeFond, S. J., editor, Industrial minerals and rocks: American Institute of Mining, Metallurgical, and Petroleum Engineers, Incorporated, New York, p. 161-181.
- Thrush, P. W., editor, 1968, A dictionary of mining, mineral, and related terms: U. S. Bureau of Mines, 1269 p.



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