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UNITED STATES GEOLOGICAL SURVEY

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MINERAL RESOURCES

OF THE

UNITED STATES

CALENDAR YEARS

1889 AND 1890

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CHIEF OF DIVISION OF MINING STATISTICS AND TECHNOLOGY



WASHINGTON
GOVERNMENT PRINTING OFFICE

1892

PRECIOUS STONES.

BY GEORGE F. KUNZ.

During 1890 work was carried on at the tourmaline locality at Mount Mica, Paris, Maine. The work was more or less successful and over \$2,000 worth of fine gems were obtained. For the first time in the history of America, turquoise of fine color, in many respects equal to the Persian, was mined at the Castilian mine between Los Cerrillos and Santa Fé, New Mexico, of which over \$10,000 worth was sold in 1890. These stones are well received by the gem trade, as the Persian mines have proved less and less prolific for many years past. Turquoise has also been discovered in the Burro mountains, Grant county, New Mexico, and Saguache county, Colorado. Of especial interest among newer discoveries was the finding of a few crystals of diamond on Plum Creek, Pierce county, Wisconsin, where they were found in searching for gold under conditions almost identical with the finding of diamonds in North Carolina. The option was obtained on a tract of 4,000 acres on the Missouri River near Helena, Montana, for the purpose of mining sapphires. A preliminary examination made at the sapphire locality in Montana reveals the fact that sapphires exist in large quantities in the gold glacial gravels that lie immediately on the bed rock, a green slate. From present appearances extensive workings will be carried on for these fancy-colored stones, which are not true ruby red nor true sapphire blue. The success of the enterprise depends very much upon how many of these peculiar-colored gems the markets of the world will absorb.

As in former years, large quantities of garnets have been found in the vicinity of Gallup and Fort Wingate, New Mexico, and Fort Defiance, Arizona, whereas the search that is still being carried on at Ison's Mills, Elliott county, Kentucky, with the hope of finding diamonds there, has brought to light the fact that immense quantities of ruby red garnets—pyrope—exist in that vicinity.

With the exception of a single pebble of fire opal described in a former report, no true gem opal had been found in the United States. During 1890, however, near Whelan, southwest of Colfax, Washington, almost on the Idaho and Washington line, a brilliant fire and noble opal has been found filling the cavities of amygdaloidal basaltic rock, the cavities of which vary in size from that of a pea to a large walnut. Some of these opals have sold for almost the price of fine noble opals from Hungary.

Estimated production of precious stones

Species.	1884.			1885.		
	Value of stones found and sold as specimens and curiosities, occasionally polished to beautify or show structure.	Value of stones found and sold to be cut into gems.	Total.	Value of stones found and sold as specimens and curiosities, occasionally polished to beautify or show structure.	Value of stones found and sold to be cut into gems.	Total.
Diamond		\$800	\$800			
Sapphire gems.....	\$250	1,500	1,750		\$500	\$500
Chrysoberyl.....	25		25			
Topaz.....	200	300	500	\$1,000	250	1,250
Beryl.....	300	400	700	250	500	750
Phenacite.....						
Emerald.....				3,000	200	3,200
Hiddenite.....				500	2,000	2,500
Tourmaline.....	1,500	500	2,000	500	100	600
Smoky quartz.....	2,000	10,000	12,000	2,000	5,000	7,000
Quartz.....	10,000	1,500	11,500	10,000	1,500	11,500
Silicified wood.....	10,000	500	10,500	5,000	1,500	6,500
Garnet.....	1,000	3,000	4,000	200	2,500	2,700
Anthracite.....		2,500	2,500		2,500	2,500
Pyrite.....	2,000	1,000	3,000	1,500	500	2,000
Amazonstone.....	2,500	250	2,750	2,500	250	2,750
Catlinite (pipestone).....	10,000		10,000	10,000		10,000
Arrow points.....	1,000		1,000		2,500	2,500
Trilobites.....	500		500		1,000	1,000
Sagenitic rutile.....	500	500	1,000		250	250
Hornblende in quartz.....	500	100	600		300	300
Thomsonite.....	250	500	750	250	500	750
Diopside.....				100		100
Agate.....	4,000	500	4,500	1,000	1,000	2,000
Chlorastrolite.....	500	1,000	1,500			
Turquoise.....	1,500	500	2,000	1,500	2,000	3,500
Moss agate.....	1,000	2,000	3,000	500	2,000	2,500
Amethyst.....	2,000	250	2,250	2,000	100	2,100
Jasper.....	2,000	500	2,500			
Sunstone.....	250	200	450	250	100	350
Fossil coral.....	500	250	750			
Rutile.....				750		750
Total.....	54,275	28,550	82,825	39,300	30,550	69,850
Gold quartz.....	40,000	100,000	140,000	40,000	100,000	140,000

in the United States from 1884 to 1888.

1886.			1887.			1888.		
Value of stones found and sold as specimens and curiosities, occasionally polished to beautify or show structure.	Value of stones found and sold to be cut into gems.	Total.	Value of stones found and sold as specimens and curiosities, occasionally polished to beautify or show structure.	Value of stones found and sold to be cut into gems.	Total.	Value of stones found and sold as specimens and curiosities, occasionally polished to beautify or show structure.	Value of stones found and sold to be cut into gems.	Total.
	\$60	\$60						
\$250	500	750		\$500	\$500		\$500	\$500
1,000		1,000	\$1,500	500	2,000	\$500	100	600
	5,500	5,500	500	3,000	3,500	300	500	800
						650		650
3,000	200	3,200				100		100
3,500	1,000	4,500						
3,500	2,000	5,500	300	200	500			
2,000	5,000	7,000	1,500	3,000	4,500	1,000	3,000	4,000
10,000	1,500	11,500	10,000	1,500	11,500	10,000	1,150	11,150
500	1,000	1,500	35,000	1,000	36,000	1,000	15,000	16,000
1,250	2,000	3,250	2,500	1,000	3,500	2,000	1,500	3,500
	2,500	2,500	2,000		2,000	1,500		1,500
1,500	500	2,000	2,000	500	2,500	2,000	500	2,500
2,000	250	2,250	1,500	200	1,700	1,500	200	1,700
10,000		10,000	5,000		5,000	5,000		5,000
	2,500	2,500		1,500	1,500	1,500		1,500
1,000		1,000	500		500	500		500
1,750		1,750						
200		200		100	100			
100	300	400	250	500	750	300	200	500
			50		50			
1,000	1,000	2,000	3,000	1,000	4,000	3,000	1,000	4,000
500	500	1,000	300	500	800	300	500	800
1,000	2,000	3,000	1,000	1,500	2,500	1,500	1,500	3,000
1,000	1,000	2,000	200	750	950	200	750	950
2,000	100	2,100	2,000	100	2,100	2,200	300	2,500
						100		100
200	100	300	50	100	150			
1,000		1,000	1,500	500	2,000	2,500	500	3,000
750		750						
49,000	29,510	78,510	70,650	17,950	88,600	37,650	27,200	64,850
		40,000			75,000			75,000

Production of precious stones, ornamental minerals, etc., in 1889 and 1890.

Names of gems or precious stones.	1889.			Total value.	Names of gems or precious stones.	1890.			Total value.
	Value of stones before cutting.	Value of stones after cutting into gems for ornamental purposes.	Value of stones sold as specimens and curiosities, occasionally polished to beautify or show the structure.			Value of stones before cutting.	Value of stones after cutting into gems for ornamental purposes.	Value of stones sold as specimens and curiosities, occasionally polished to beautify or show the structure.	
Sapphire.....	\$2,600	\$6,725	.....	\$6,725	Sapphire.....	\$2,600	\$6,725	.....	\$6,725
Emerald.....	.....	300	\$150	450	Emerald.....	.....	.....	.....	.....
Aquamarine.....	225	597	150	747	Aquamarine.....	.....	.....	.....	.....
Phenacite.....	.....	.....	200	200	Phenacite.....	.....	.....	.....	.....
Topaz.....	100	200	200	400	Topaz.....	.....	.....	.....	.....
Turquoise.....	10,000	23,175	500	23,675	Turquoise.....	10,000	28,175	\$500	28,675
Tourmaline.....	1,030	2,250	.....	2,250	Tourmaline.....	1,030	2,250	.....	2,250
Garnet.....	510	1,633	675	2,308	Garnet.....	510	1,633	675	2,308
Quartz.....	510	2,750	11,250	14,000	Quartz.....	510	2,750	11,250	14,000
Amethyst.....	15	98	.....	98	Amethyst.....	.....	.....	.....	.....
Rose quartz.....	200	400	200	600	Rose quartz.....	.....	.....	200	200
Smoky quartz.....	700	4,007	225	4,232	Smoky quartz.....	700	2,000	225	2,225
Gold quartz.....	6,000	9,000	.....	9,000	Gold quartz.....	6,000	9,000	.....	9,000
Rutilated quartz.....	2	30	.....	30	Rutilated quartz.....	.....	.....	.....	.....
Dumortierite in quartz.....	.....	.....	250	250	Dumortierite in quartz.....	.....	.....	250	250
Quartz coated with chalcidony.....	1,000	2,000	2,000	4,000	Quartz coated with chalcidony.....	.....	.....	2,000	2,000
Chrysoprase.....	50	200	.....	200	Chrysoprase.....	.....	.....	200	200
Agatized and jasperized wood.....	42,725	53,000	175	53,175	Agatized and jasperized wood.....	1,000	5,000	1,000	6,000
Banded and moss jasper.....	.....	80	550	630	Banded and moss jasper.....	.....	.....	.....	.....
Amazon stone.....	.....	.....	500	500	Amazon stone.....	.....	.....	500	500
Pyrite.....	100	500	1,500	2,000	Pyrite.....	100	500	1,500	2,000
Chlorastrolite.....	200	300	200	500	Chlorastrolite.....	100	200	200	400
Thomsonite.....	100	200	200	400	Thomsonite.....	100	200	200	400
Fluorite.....	.....	.....	500	500	Fluorite.....	.....	.....	500	500
Fossil coral.....	100	200	500	700	Fossil coral.....	100	200	500	700
Azurite and malachite.....	1,000	.....	2,037	2,037	Azurite and malachite.....	.....	.....	.....	.....
Catlinite (pipe-stone).....	.....	.....	5,000	5,000	Catlinite (pipe-stone).....	.....	.....	5,000	5,000
Zircon (a).....	.....	.....	16,000	16,000	Zircon (a).....	.....	.....	.....	.....
Gadolinite, ferugonite, etc. (a).....	.....	.....	1,500	1,500	Gadolinite, ferugonite, etc. (a).....	.....	.....	15,500	15,500
Monazite (a).....	.....	.....	1,000	1,000	Monazite (a).....	.....	.....	.....	.....
Spodumene (a).....	.....	.....	200	200	Spodumene (a).....	.....	.....	20,000	20,000
Wooden ornaments decorated with minerals (b).....	.....	.....	15,500	15,500	Wooden ornaments decorated with minerals (b).....	.....	.....	.....	.....
Miscellaneous minerals (c).....	.....	.....	20,000	20,000	Miscellaneous minerals (c).....	.....	.....	.....	.....
Total.....	.....	107,645	81,162	188,807	Total.....	.....	58,633	60,200	118,833

a Used to extract the rarer elements for chemical purposes.

b Such as clocks, horseshoes, boxes, etc.

c For cabinets, museums, etc.