DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY
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CAMBRIDGE,
MASS.
Dept. of Mineralogy & Petrography.

MINERAL RESOURCES

OF THE

UNITED STATES

CALENDAR YEAR

1886

DAVID T. DAY

CHIEF OF DIVISION OF MINING STATISTICS AND TECHNOLOGY

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HARVARD UNIVERSITY,
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PRECIOUS STONES.

By George F. Kunz.

Mining during 1886.—As stated in the previous reports of this series, the search for precious stones in the United States is extremely irregular and is generally a side issue in mining other substances. Still, at Stony Point, North Carolina, and at Mount Mica, Paris, Maine, operations involving systematic mining are carried on for obtaining precious stones. At the former locality, which is controlled by the Emerald and Hiddenite Mining Company, nine emeralds were found which were valued at over $2,000. The large crystals, weighing 8¾ ounces, as well as the fine large lithia emerald, are now in the cabinet of Mr. Clarence S. Bement. The total production during 1886 amounted to perhaps $4,000. Particulars concerning this locality were given on page 437 of the last report of this series.

After three months of unsuccessful mining at Mount Mica, Paris, Maine, several pockets were found; one found in October contained cookite, decomposed feldspar, crystals of quartz, and, at the bottom, tourmalines either loose or embedded in the floor of the cavity. Over 100 crystals were obtained, which will furnish more than 200 gems. The entire find was estimated to yield cut tourmalines to the value of about $5,000, and crystals, specimens, and associated minerals to the value of another $1,000. Two of the gems cut from these crystals weighed 34¼ and 27½ carats, respectively. They were of a brilliant, rich grass-green color. Another gem of a deep blue-green color, and weighing 8 carats, one green chrysoberyl of 7½ carats, several yellow and a variety of blue gems, but no red or pink stones, were obtained. Messrs. N. H. Perry and E. M. Bailey found good specimens of tourmaline, but they were of little gem value. Messrs. T. F. Lamb and G. C. Hatch mined for a time at the Mount Apatite locality, near Auburn, Maine, and found tourmaline gems and minerals to the value of $500. This locality will be further worked. Quite a large number of the yellow, green, and white beryls, found in Litchfield county, Connecticut, have been nicely cut and extensively sold. The cut gems sold during the past year are valued at $5,000, but a large part of this sum probably represents the cutting and other necessary expenses.

In connection with mining for substances, other than precious stones, many very considerable contributions have been made to the total output of gems. For example, at the mine of the Marion Bullion Company,

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Marion, North Carolina, Colonel Deming has obtained some very good garnets in sufficient quantity to offer them to the trade; also, one fine amethyst of a magnificent purple color and over one inch across, fine aquamarines 1 to 6 carats in weight, and some beautiful chloritic inclusions in quartz, which, when polished, show very fine landscape effects. Among the finds which may be classed in general as accidental are the following:

Garnet.—Of the large garnets from Salida, Colorado, previously referred to, over a ton has been sold during the past year. Quantities of almandite garnet are said to have been found in the gravel of the placer mines near Lewiston, Idaho, in rolled and pitted grains from $\frac{1}{16}$ to $\frac{1}{2}$ inch across. They would cut into gems and jewels for watches.

Quartz.—The large masses of clear quartz referred to in the last report as having been found near Abingdon, Virginia, were in reality found in the mountains of Ashe and Mitchell counties, North Carolina. In addition to these, one large crystal weighing 190 pounds and two smaller ones, weighing 60 and 22 pounds respectively, have been found. Mr. D. A. Jones states that all these masses were found within a distance of 5 miles—the one weighing 22 pounds on the land of Saint Leger Brooks, and the others on the farm of Dr. L. C. Gentry. There was also reported a finding of transparent crystals of quartz, one weighing 642 pounds, another 340 pounds. When these reached New York, however, they proved not to be crystals, but veins of translucent quartzite with crystalline markings of a group rather than of a single crystal, and the clear spaces which were only observed on these crystalline sides would not afford a crystal ball more than one inch in diameter. The larger part was almost white with flaws. Mr. P. A. Hubbard reports finding specimens of rock crystal and rutilated quartz on or near the surface; one mass of the former weighed over 10 pounds and was quite clear, though fractured by frosts. Mr. J. P. M. Butler, of Trinidad, Colorado, reports finding large quantities of crystalline quartz with small doubly terminated crystals of quartz, resembling those from Herkimer county, New York. These may be of value to the dealers selling to Western tourists.

Topaz.—In Bulletin No. 27, United States Geological Survey, Prof. F. W. Clark describes topaz, and its alterations, from Stoneham, Maine, and also publishes an analysis of it. A topaz crystal weighing $18\frac{1}{2}$ ounces (587 grams) was found at Cheyenne Mountain, Colorado, about 7 miles southwest of Colorado Springs. It is very perfect, but of little gem value.

Amethyst.—Among some amethysts found at Deer Hill, Stow, Maine, during the last year, was one remarkable mass which furnished a gem weighing 25 carats, and of the deep purple color of the Siberian amethyst. Very fair amethysts have also been found at Burrville, Rhode Island.

Jasperized wood.—Very little was done during the year 1886 in the development of the jasperized wood deposits of Arizona, but the base of

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the New York *World* memorial presented to the eminent sculptor, Bartholdi, was made of it. Preparations have been made to polish this material at Sioux Falls, Dakota, water power and other facilities being found there, and during the present year (1887) important developments are expected in the form of table tops 2 feet across made from a single section.

Hydrophane.—An opaque white hydrophane of great interest has been found in Colorado and the finder has named it "magic stone," because, as usual with this mineral, it possesses the property of becoming absolutely transparent if water is dropped slowly on it from one to three minutes. It is so porous that it will absorb its own weight of water; it quickly recovers its opacity. The finder suggests that the stone be used for seals, rings, and scarf pins, as by reason of its opacity it would completely conceal portraits, mottoes, or mementoes which could be brought to view when desired by the application of a little water. This is the finest hydrophane known.

Chalcedony.—Near Cisco, Utah, a pink chalcedony has been found which admits of a high polish, but which has not yet been introduced in any quantity.

Agate.—The beautiful little agate pebbles from the Pescadero beach, in California, are sold in large quanties and in different forms, polished, and unpolished, and loose, or in vials of water. Occasionally some of them are found inclosing a pebble moving in liquid, like the hydrolites from Uruguay and the chalcedony from Tampa Bay, Florida. They vary in diameter from $\frac{1}{10}$ to $\frac{1}{4}$, rarely 1 inch.

Obsidian.—Mr. J. P. Iddings has contributed a paper to the Seventh Annual Report of the United States Geological Survey, describing the obsidian cliff in the Yellowstone Park, Wyoming, stating that it presents the partial section of a flow of obsidian; the dense glass which forms the lower portion is from 75 to 100 feet thick. A remarkable feature about it is the development of prismatic columns which form its southern extremity, rising 50 or 60 feet, and being only 2 to 4 feet in diameter. The color of the material is for the most part jet black, but some of it is mottled and streaked with bright brownish red and various shades of brown (mountain mahogany), passing into dark or light yellow, purple, and yellowish green. The great quantity and beauty of the material invite attention to its use in the arts.

Azurite and Malachite.—Mr. T. A. Heistand obtained masses of azurite, and malachite resulting from the alteration of azurite, which, being botryoidal in form and showing the two minerals in distinct layers, formed a most beautiful ornamental stone when cut across the tops of the mamillary masses (1 to 3 inches across) and carefully polished. There are from two to four alternate and concentric rings of each color, which produce a very novel and pleasing effect. If this were found in sufficient quantity it would make a very valuable ornamental stone.

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As it is, there is barely enough of it to supply the cabinets. The stone is well worthy of attention. Mr. W. A. Woodcock communicates that malachite, which is evidently of value in the arts, has been sent to him from the Yukon country, Alaska.

Amber.—Mr. J. B. Livezey sent the writer a specimen piece of amber found on the southwest branch of Mantua creek, near the town of Sewall, which is 13 miles below Camden, New Jersey. This specimen was taken from the lower marl bed, while the one from Harrisonville, described in a previous report, was from the middle marl bed. Information was also obtained that several other pieces had been found at the former locality, but they have been lost.

Chrysoberyl.—Among some small rolled quartz pebbles sent to Messrs. Tiffany & Co., for examination, a transparent yellow chrysoberyl was observed which would afford a ¼ carat stone.

Diamond.—In the summer of 1886 a diamond was found in the spring on the Alfred Bright farm at Dysortville, McDowell county, North Carolina. While Mr. Grayson Christie's son was drawing a bucket of water, his attention was attracted by the brightness of the stone. It was thought to be a diamond and sent to Messrs. Tiffany & Co., and was so proved to be by the writer. The stone is a distorted hexoctahedron with partial twinning; its length is 10 millimeters and its width 7 millimeters. It is quite perfect and transparent, but having a grayish-yellow tint. Its specific gravity is 3.549+. This stone being more than an average find, the writer thought it would be of interest to visit the locality, and while there, in June, 1887, he fully authenticated all the facts of the finding. No trace of garnet, peridotite, or any of the associations of the diamond was found near the spot. The sediment at the bed of the spring was taken out and carefully examined, as also were the small hollows on the adjacent hillside. This diamond must therefore have been transported in decomposing soil from distant higher ground in the vicinity during a heavy freshet. Its value as a gem, not counting any value its American origin may attach to it, would be from about one hundred to one hundred and fifty dollars. A number of small stones, exhibited as diamonds, have been found at Brackettstown, near by. They are identical with the supposed fine diamonds found by Capt. J. C. Mills at his mine at Brindletown; that is, transparent zircon or smoky-colored quartz, the former of which has a luster that is readily mistaken for the diamond's by an inexperienced person. A number of pieces of bort (rough diamond) exhibited as from the same section, I am informed on good authority, are of South African, and not North Carolina, origin. It is to be hoped that the few legitimate finds which have actually occurred at this locality will not lead to any deceptions, which would greatly retard any natural development.

The stone, 3½ ounces, and said to be a diamond, and which was found by J. S. Keyser in digging for coal near Ponca, Nebraska, proved not to be such, although the excitement it caused was certainly genuine.

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Diamond cutting, though now carried on here much more extensively than ever before, has not always proved a profitable industry. The price for rough diamonds in the London market is so close, and they are disposed of so soon after their arrival, that unless purchases are made with the greatest possible judgment, the competition of the foreign cutters, who are convenient to the market, cannot be successfully met. For this reason the trade has in many cases been given up here, yet the standard of merit has been so raised that to-day the finest cutting is done in the United States. A large part of the work done here consists in improving and recutting old stones that have been cut in the East for weight only, or in more modern work that can be improved upon, and these branches are generally profitable. But even with a 10 per cent. duty on cut gems as a protection, it is not likely that we shall soon rival the great foreign cutting centers. Sards, bloodstones, and other cheap agates are often cut to a uniform size for mounting, because it is cheaper to fit the stone to the mounting than the mounting to the stone, and such stones as are from time to time found here are generally cut in this country.

At the time of the publication of the last report the writer had not heard of the occurrence of the shale in the Elliott county peridotite, hence the statement then made in regard to it; but important investigations have since been made in that locality. In his remarks on the "Genesis of the Diamond" (Science, Vol. VIII, p. 345), Prof. Carvill Lewis alluded to the peridotite of Elliott county, Kentucky, and suggested that it is well worth while to examine carefully all localities whose geological composition and history are analogous to those of the South African diamond fields. Mr. J. S. Diller, in the *American Journal of Science*, August, 1886, refers to Prof. A. R. Crandall's having discovered two dikes of eruptive rock in eastern Kentucky, about 7 miles southwest of Willard. Mr. Diller states that he found by microscopic examination that this rock belongs to the peridotites, and occurred in conjunction with a carbonaceous shale; although the exact contact of the two rocks was not exposed, hardened shale was found near the peridotite under such circumstances that the induration is certainly attributable to the influence of the eruptive mass. But this, he thinks, is not the strongest evidence that the peridotite is eruptive, for the peridotite itself includes many fragments of shale which were picked up on its way to the surface. The contact metamorphism has resulted generally in the development of a micaceous mineral, and the production from the shale of a rock such as has been designated spilosite. And in some notes on the trap dikes of Elliott county by A. R. Crandall and J. S. Diller, published in the report on the geology of Elliott county by the Kentucky Geological Survey, Frankfort, Kentucky, 1887—also in *Science*, October 29, 1886—it is stated that although there were few exposures and the excavations made were inconsiderable, nevertheless he reached the conclusion that the shales had been distinctly metamor-

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phosed by the peridotite, a fact which was most patent in the enveloped fragments of shale, which in one locality were quite numerous. He says that both forms of peridotite described by Professor Lewis occur in Kentucky, but the brecciated form has not yet been found to contain diamonds. In the advanced stages of metamorphosis little spheroidal bodies were found, pale yellowish to colorless translucent to transparent, and remarkably uniform in size. These generally appeared in a form very suggestive of the diamond, resembling a hexoctahedron with curved faces. Notwithstanding that some of their properties favored the view that they were diamonds more or less perfectly crystallized, their solubility in concentrated hydrochloric acid rendered such a view untenable, and even if they were diamonds their value would be comparatively insignificant because of their small size. In concluding, he says: "The dark shale, which is frequently enveloped by the peridotite, is somewhat carbonaceous, but contains a small proportion of carbon as compared with that of the South African diamond field. H. Carvill Lewis (Science, viii, p. 346) remarks concerning the South African mines, that "recent excavations have shown that large quantities of this shale surround the mines, and that they are so highly carbonaceous as to be combustible, smouldering for long periods when accidentally fired." In the chemical laboratory of the United States Geological Survey Mr. J. Edward Whitfield determined 37.521 per cent. of carbon in the shale from near the Kimberley mine, while the blackest shale adjoining the peridotite near Charles Isom's in Kentucky, he found to contain only 0.681 per cent. of carbon. For this reason it appears to me rather improbable that diamonds will be discovered at the locality in question." Nevertheless, upon the invitation of Prof. J. R. Proctor, State Geologist of Kentucky, Mr. J. S. Diller and the writer were sent by the United States Geological Survey to examine the locality, viz: Isom's creek, Elliott county, Kentucky. The plan was to search by sifting and carefully panning the stream beds receiving the drainage directly from the surface of the peridotite.

The peridotite alters and disintegrates readily; but, from the fact that the declivity of the surface is considerable, the transportation of material almost keeps pace with disintegration, and there is no great accumulation of residuary deposits upon the narrow divides and hillsides. The specific gravity and durability of the gems found in connection with peridotite are generally greater than those of serpentine and other products of its alteration. On this account the gems accumulate upon the surface and in favorable positions along adjacent lines of drainage. We enlisted the services of the people in the neighborhood to scrutinize the steep slopes, where gems weathered out of the peridotite might be exposed. Particular attention was directed also to the examination of the solid rock and residuary deposits, which so closely resemble the material of the South African mines.

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During a careful search over a small area for nearly two days, no diamonds were found; but this by no means demonstrates that diamonds may not yet be discovered.

The best time to search for gems in that locality is immediately after a heavy rain, when they are most likely to be well exposed upon the surface. It is proposed by those most interested to keep up the search economically, by furnishing to responsible individuals in the vicinity a number of rough diamonds mounted in rings, for comparison, that they may know what to look for under the most favorable circumstances.

Besides pyrope garnets, a few of which are good enough for cutting, several fairly good specimens of a green pyroxene were found. They resemble the same transparent mineral from Arizona. The South African specimens of this mineral are a little more opaque, but of a richer green color.

Artificial rubies.—The subject of artificial gems is at the present moment of considerable interest. Early this summer the Syndicate des diaments et pierres précieuses was informed that certain stones which had been sold as rubies from a new locality were suspected to be of artificial origin. They were put upon the market by a Geneva firm; and it was surmised that they were obtained by the fusion of large numbers of small rubies, worth at the most a few dollars per carat, into one fine gem worth from $1,000 to $2,500 per carat.

Some of these artificial stones were kindly procured by Messrs. Tiffany & Co. I was not, however, permitted to break them for analysis, to observe the cleavage, or to have them cut so as to observe the optical axes more correctly. It is possible, however, to detect the artificial nature of this production with a mere pocket-lens, as the whole structure is that peculiar to fused masses. Examination elicited the following facts: The principal distinguishing characteristics between these and the genuine stones is the presence in them of large numbers of spherical bubbles, rarely pear-shaped, sometimes containing stringy portions showing how the bubbles had moved. These bubbles all have rounded ends, and present the same appearance as those seen in glass or in other fused mixtures. They are nearly always in wavy groups or cloudy masses. When examined individually they always seem to be filled with gas or air, and often form part of a cloud, the rest having the waviness of a fused mixture. Some few were observed inclosing inner bubbles, apparently a double cavity, but empty. In natural rubies the cavities are always angular or crystalline in outline, and are usually filled with some liquid, or, if they form part of a "feather," as it is called by the jewelers, they are often arranged with the lines of growth. Hence the difference in appearance between the cavities in the natural gem and those in the fused gem is very great, and can readily be detected by the pocket-lens. I have failed to find in any of the artificial stones even a trace of anything like a crystalline or angular cavity. Another distin-

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guishing characteristic is that in many genuine rubies we find a silky structure (called "silk" by the jewelers), which, if examined under the microscope, or under a $\frac{4}{10}$ to $\frac{8}{10}$ inch objective, we find to be a series of cuneiform or acicular crystals, often iridescent, and arranged parallel with the hexagonal layers of the crystal. When in sufficient number, these acicular and arrow-shaped crystals produce the asteria or star-effect, if the gem is cut *en cabochon* form with the center of the hexagonal prism on the top of the cabochon. I have failed to find any of them in the stones under consideration, or even any of the markings of the hexagonal crystal which can often be seen when a gem is held in a good light, and the light allowed to strike obliquely across the hexagonal prism. Dr. Isaac Lea has suggested (*a*) that these acicular crystals are rutile, and interesting facts and illustrations have been published by him. From my own observations on many specimens, I believe there is little doubt of the truth of this hypothesis. My explanation is that they were deposited from a solution, either heated or cold, while the corundum was crystallizing, and I doubt very much whether they will ever be found in any substance formed by fusion. The hardness of these stones was found to be about the same as that of the true ruby, 8.8, or a trifle less than 9, the only difference being that the artificial stones were a trifle more brittle. The testing-point used was a Siamese green sapphire, and the scratch made by it was a little broader, but no deeper than on a true ruby, as is usually the case with a brittle material. After several trials it was faintly scratched with chrysoberyl, which will also slightly mark the true ruby.

The specific gravity of these stones was found to be 3.93 and 3.95. The true ruby ranging from 3.93 to 4.01, it will be seen that the difference is very slight and due doubtless to the presence of the included bubbles in the artificial stones, which would slightly decrease the density. As a test, this is too delicate for jewelers' use; for if a true ruby were not entirely clean, or a few of the bubbles that sometimes settle on gems in taking specific gravities were allowed to remain undisturbed, it would have about the same specific gravity as one of these artificial stones.

I found on examination by the dichroscope that the ordinary image was cardinal red, and the extraordinary image a salmon red, as in the true ruby of the same color. Under the polariscope, what I believe to be annular rings were observed. With the spectroscope the red ruby line, somewhat similar to that in the true gem, is distinguishable, although perhaps a little nearer the dark end of the spectrum. The color of all the stones examined was good, but not one was so brilliant as a very fine ruby. The cabochons were all duller than fine, true stones, though better than poor ones. They did not differ much in color, however, and were evidently made by one exact process or at one time. Their dull appearance is evidently due in part to the bubbles. The

a Proc. Philad. Acad. Sc., Feb. 16, 1869, and May, 1876.

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optical properties of these stones are such that they are evidently individual or parts of individual crystals, and not agglomerations of crystals or groups fused by heating. In my opinion these artificial rubies were produced by a process similar to that described by Fremy and Feil (*Comptes Rendus*, 1877, p. 1029), by fusing an aluminate of lead in connection with silica in a siliceous crucible, the silica uniting with the lead to form a lead glass and liberating the alumina which crystallizes out in the form of corundum in hexagonal plates, with a specific gravity of 4.0 to 4.1, and the hardness and color of the natural ruby, the latter being produced by the addition of some chromium salt. By this method rubies were formed, which, like the true gem, were decolorized temporarily by heating.

It is not probable that these stones were formed by Gaudin's method (*Comptes Rendus*, XIX., p. 1342), by exposing amorphous alumina to the flame of the oxyhydrogen blowpipe, and thus fusing it to a limpid fluid, which, when cooled, had the hardness of corundum, but only the specific gravity 3.45, much below that of these stones. Nor is it at all likely that they were produced by fusing a large number of natural rubies or corundum of small size, because by this process the specific gravity is lowered to that of Gaudin's product. The same also holds good of quartz, beryl, etc.

The French syndicate referred the matter to M. Friedel, of the Ecole des Mines, Paris, supplying him with samples of the stones for examination. He reported the presence of the round and pear-shaped bubbles, and determined the hardness and specific gravity to be about the same as of the true ruby. On analysis he found them to consist of alumina, with a trace of chromium for the coloring matter. The cleavage was not in all cases distinct, and the rough pieces given to him as examples of the gem in its native state had all been worked, so that nothing could be learned of their crystalline structure. When properly cut according to axes, they showed the annular rings. The extinction by parallel light was not always perfect, which he believed to be due to the presence of the bubbles. He states that he himself has obtained small red globules with these inclusions by fusing alumina by oxyhydrogen light; and, although having no positive evidence, he believes these stones to be artificially obtained by fusion.

On the receipt of M. Friedel's report the syndicate decided that all cabochon or cut stones of this kind shall be sold as *artificial*, and not precious gems. Unless consignments are so marked the sales will be considered fraudulent, and the misdemeanor punishable under the penal code. All sales effected thus far, amounting to some 600,000 or 800,000 francs, shall be canceled, and the money and stones returned to their respective owners.

The action taken by the syndicate has fully settled the position which this production will take among gem dealers, and there is little reason to fear that the ruby will ever lose the place it has occupied for so many centuries.

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Estimated production of precious stones in the United States from 1883 to 1886.

Species.	1883.		1884.		1885.		Total, 1886.
	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.	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.	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.	
Diamond	.....	.....	.....	$800	.....	.....	.....
Sapphire gems	$200	$2,000	$250	1,500	.....	$500	$500
Chrysoberyl	100	.....	25	.....	.....	.....	.....
Topaz	1,000	.....	200	300	$1,000	250	1,000
Beryl	200	300	300	400	250	500	5,550
Emerald	500	.....	.....	.....	.....	.....	3,200
Hiddenite	100	500	.....	.....	.....	.....	4,500
Tourmaline	.....	.....	1,500	500	500	100	6,250
Smoky quartz	2,500	7,500	2,000	10,000	2,000	5,000	7,000
Quartz	10,000	1,500	10,000	1,500	10,000	1,500	11,500
Silicified wood	5,000	.....	10,000	500	5,000	1,500	1,500
Garnet	1,000	5,000	1,000	3,000	200	2,500	3,250
Anthracite	.....	2,500	.....	2,500	.....	2,500	2,500
Pyrite	1,500	500	2,000	1,000	1,500	500	2,000
Amazonstone	3,500	250	2,500	250	2,500	250	2,250
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	500	500	.....	250	1,750
Hornblende in quartz	500	100	500	100	.....	300	200
Peridot	50	250	50	100	.....	50	50
Thompsonite	250	500	250	500	250	500	480
Diopside	200	100	.....	.....	100	.....	2,000
Agate	1,000	500	4,000	500	1,000	1,000	1,000
Chlorastrolite	500	1,000	500	1,000	.....	.....	.....
Turquois	1,500	500	1,500	500	1,500	2,000	3,000
Moss agate	1,000	2,000	1,000	2,000	500	2,000	2,000
Amethyst	2,000	250	2,000	250	2,000	100	2,100
Jasper	2,000	500	2,000	500	.....	.....	.....
Sunstone	250	200	250	200	250	100	1,000
Fossil coral	500	250	500	250	.....	.....	.....
Rutile	.....	.....	.....	.....	.....	.....	750
Total	47,350	26,700	54,325	28,650	38,550	24,900	78,750
Gold quartz	40,000	75,000	40,000	100,000	40,000	100,000	.....

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IMPORTS.

Diamonds and other precious stones imported and entered for consumption in the United States, 1867 to 1886 inclusive.

Fiscal years ending June 30—	Glazier's.	Dust.	Rough or uncut.	Diamonds and other stones not set.	Set in gold or other metal.	Total.
1867	$906	.....	.....	$1, 317, 420	$291	$1, 318, 617
1868	484	.....	.....	1, 060, 544	1, 465	1, 062, 493
1869	445	$140	.....	1, 997, 282	23	1, 997, 890
1870	9, 372	71	.....	1, 768, 324	1, 504	1, 779, 271
1871	976	17	.....	2, 349, 482	256	2, 350, 731
1872	2, 386	89, 707	.....	2, 939, 155	2, 400	3, 033, 648
1873	.....	40, 424	$176, 426	2, 917, 216	326	3, 134, 392
1874	.....	68, 621	144, 629	2, 158, 172	114	2, 371, 536
1875	.....	32, 518	211, 920	3, 234, 319	.....	3, 478, 757
1876	.....	20, 678	186, 404	2, 409, 516	45	2, 616, 643
1877	.....	45, 264	78, 033	2, 110, 215	1, 734	2, 235, 246
1878	.....	36, 409	63, 270	2, 970, 469	1, 025	3, 071, 173
1879	.....	18, 889	104, 158	3, 841, 335	538	3, 964, 920
1880	.....	49, 360	129, 207	6, 690, 912	765	6, 870, 244
1881	.....	51, 409	233, 596	8, 320, 315	1, 307	8, 606, 627
1882	.....	92, 853	449, 313	8, 377, 200	3, 205	8, 922, 571
1883	.....	82, 628	443, 996	7, 598, 176	(a)2, 081	8, 126, 881
1884	22, 208	37, 121	367, 816	8, 712, 315	.....	9, 139, 460
1885	11, 526	30, 426	371, 679	5, 628, 916	.....	6, 042, 547
1886	8, 949	32, 316	302, 822	7, 915, 660	.....	8, 259, 747

a Not specified since 1883.

Imports of substances not included in the foregoing table, 1868 to 1886 inclusive.

Fisca. years ending June 30—	Unmanufactured agates.	Bookbinders' and other manufactured agates.	Carnelian.	Brazilian pebbles.	Amber.	Amber beads.	Unmanufactured coral.	Manufactured coral.	Unmanufactured meerschaum.	Total.
1868	.....	.....	.....	.....	.....	.....	.....	$62, 270	.....	$62, 270
1869	.....	$70	$269	.....	$427	.....	.....	22, 417	$6, 407	29, 590
1870	.....	.....	766	.....	1, 433	.....	.....	18, 975	3, 998	25, 172
1871	.....	1	661	.....	180	.....	.....	37, 877	698	39, 417
1872	.....	529	207	.....	2, 426	.....	$83	59, 598	2, 194	65, 037
1873	$151	1, 310	.....	$1, 237	1, 534	$595	230	63, 805	5, 608	74, 470
1874	177	1, 524	.....	.....	1, 448	1, 057	527	28, 152	270	33, 155
1875	520	5, 165	.....	57	7, 169	715	1, 278	33, 567	2, 902	51, 373
1876	293	1, 567	.....	.....	15, 502	187	109	33, 559	21, 939	73, 156
1877	579	1, 904	(a)69	.....	17, 307	329	718	28, 650	9, 304	58, 860
1878	82	404	.....	76	13, 215	1, 119	1, 252	12, 667	16, 308	45, 123
1879	138	364	.....	.....	17, 821	203	147	11, 327	19, 088	49, 088
1880	57	2, 346	.....	.....	36, 860	2, 317	62	5, 492	30, 849	77, 983
1881	486	1, 700	.....	5	42, 400	1, 102	89	2, 501	72, 754	121, 037
1882	901	5, 084	.....	111	72, 479	4, 174	1, 474	669	56, 118	141, 010
1883	14	2, 895	.....	.....	40, 166	3, 472	681	(b)1, 303	58, 885	107, 416
1884	.....	6, 100	.....	3, 496	56, 301	4, 692	158	.....	43, 169	113, 916
1885	124	.....	.....	6, 541	21, 722	3, 242	659	.....	42, 590	74, 878
1886	284	.....	.....	17, 379	27, 215	5, 665	219	.....	23, 417	74, 179

a Not separately classified since 1877.

b Not specified since 1883.

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