Gem Stones

By SYDNEY H. BALL [1] AND G. W. JOSEPHSON

THE JEWELRY INDUSTRY IN 1948

AMERICAN jewelers found that in 1948 competition for consumers' dollars was increasing from dealers retailing other durable goods, long unobtainable, and further found their customers more discriminating. In consequence, sales ($1,203,000,000) were below those enjoyed in 1947. The 1948 Christmas trade was satisfactory; but expensive items, particularly large diamonds, moved slowly. Retailers' stocks decreased somewhat in the latter part of 1948; and although wholesale jewelers' sales ($530,000,000) were slightly higher than those of 1947, this fact is accounted for by extremely heavy sales in the first half of the year, which overbalanced slack sales in the latter half.

The industry operated under an exceptionally prosperous national economy, high industrial wages, a record national income and large exports especially to Latin American countries. The marriage rate, while high, was lower than in 1947.

FASHIONS IN JEWELS

Interest in jewels increased in 1948. Jewelry is yearly becoming more individualistic. On the whole, jewelry designs are becoming more delicate, graceful, and lacy, and the old compact, solid look is passing. In 1948 the dominant motifs were flowers, leaves, and, to a smaller extent, birds, bowknots, and butterflies.

Clips, brooches, and pins were approximately as popular as necklaces, earrings, and ear clips. Bracelets, rings, and tiny watches hidden in bracelets or rings were also frequently seen.

A large number of gem stones were mounted—diamonds notably, then emeralds, rubies, and sapphires. Among some 20 other gem stones used, amethysts, pearls, and aquamarines ranked high. Few "fancies" (decidely colored diamonds) were mounted; but, of course, such stones are rare.

[1] Deceased April 8, 1949. This chapter was compiled principally from an incomplete manuscript and notes left by Mr. Ball.

Wide use of the diamond and a certain popularity of pearls, real and cultured, caused colorless gems to be by far the most widely used, followed by green, red, and blue and then by purple and yellow stones.

Sets of jewels of the same design and set with the same stone are still popular, as are "utility" jewels, which can be separated into two or more components. Pendants commonly hang from necklaces or dangle from earrings. Odd cuts of diamonds support the brilliant and square cut more frequently. Scatter pins became popular late in the year. They were even used on sandals, as were other stones, and the latter were even set in spectacle frames.

Forty years ago the possession of a diamond-set ring indicated that the American man had attained financial success; now he rarely wears a diamond, although he may wear a star sapphire. A definite attempt last year to interest Americans in masculine jewelry apparently met but little success.

DOMESTIC PRODUCTION

In the past 129 years or thereabouts, the United States has produced a large number of different gem stones but has never been an important factor in world gem production. Exceptions might be the Maine tourmaline deposits over 125 years ago, the turquoise deposits of the Southwest in prewhite days, agate and variscite deposits in the recent past, and jade deposits in the present and near future. But gem mining has been and probably will be one of our minor mining industries.

No large gem-mining companies exist in the United States, but several prospectors in a number of instances have banded together to work certain deposits for a time; a few small companies have been formed to mine jade; and certain professional lapidary shops employ a few miners. In addition, amateur lapidaries spend many weekends searching for material, particularly of the agate family, to feed their lathes. If they are not collectors the product goes to the local jeweler or to one of a host of roadside curio shops, particularly in the Northwestern States, California, Arizona, New Mexico, Utah, and the Black Hills, stocked with souvenirs of local or of pretended local origin. The chief customers are automobile tourists. As a fad or a quasi-business, the lapidary craft is spreading rapidly.

No reliable statistics exist as to the value of the domestic output of gem stones; in the rough, it may approximate $400,000 to $500,000 and more than double that after cutting.

The many forms of agate, attractive and widely distributed, led the field, with jade second and turquoise a poor third. Of the States and Territories, Oregon, Wyoming, and Washington were the leaders.

Agate.—Agate production in Oregon, including "thunder eggs," is holding its own, and interest in the lapidary craft grows. The well-known Yellowstone River moss-agate locality in Montana is still producing but appears yearly to be nearer exhaustion. Production is falling, and good material is getting scarce; prices consequently are rising. Much of it is cut locally and sold in roadside shops. The Black Hills lapidaries are reported to depend on Montana for their rough moss agate, claiming that it is better than their own.

Considerable agate is produced in west Texas, although some authorities state that intensive exploitation in recent years has reduced the reserves markedly. Most of it is sent to California for cutting.

Washington produces considerable agate of several varieties.

A relatively large amount of agatized wood is collected on the borders of the Petrified Forest National Monument, Ariz. Other localities in Arizona have furnished agate for cutting.

Apparently the Wyoming moss-agate deposits and the plume-agate deposits of New Mexico were not vigorously exploited in 1948.

Utah produces considerable agate. In the past year or two, fine moss agate has been coming from a locality east of Park City.

Georgia reports a new locality for heliotrope in Catoosa County.

Jade.—Allan Branham of Lander, Wyo., stated that the old Wyoming deposits furnishing light-green jade have been largely depleted, although three or four individuals hold some. He further reported that the tremolite-jade mine changed hands and that, in the summer of 1948, it was vigorously worked, the product being sent to Denver in truck loads.

"Thunder," said to be the largest statuette ever carved in jade (20 inches high, weight 104 pounds) portrays an American Indian sitting cross-legged on rain clouds and pulling thunder from a small drum suspended from his shoulder. Donald Hord of San Diego, Calif., was the sculptor. The rough was found by Marcia Branham near Lander, Wyo., and the original boulder weighed 460 pounds.

Bert Rhodes produced considerable jade from a property 60 miles southeast of Lander. Some was said to have been exported to Shanghai, China.

Robert M. Hawk, a manufacturing jeweler of Denver, reports that in 1946, while on a fishing trip, he and two companions found a large jade deposit north of Lander. This was producing during the summer of 1948. The jade is in place; it is claimed that there are 50,000 tons of it. It varies in color from light green to black and is said to be worth $3 to $50 a pound. Some will be cut in Denver into lamp bases, book ends, etc., while some has been exported to China.

Although the Alaska jade deposits of the Kobuk River region were not worked in 1948, considerable was reported to have been exported during the year from Pacific ports to China.

Some nephrite was sold from Monterey County, Calif. A nephrite dike in place is said to have been recently found in San Benito County near King City, Calif.

Green-stained quartz is reported to have been produced somewhere in Colorado and sold under names such as "king jade."

Turquoise.—In 1948 the Southwest probably produced less turquoise than in recent years. The Southwest Gem & Jewelry Co. in 1948 produced about 200 pounds from its Mineral Park, Ariz., deposit. Dr. G. M. Butler reported that, as depth is attained at the Castle Dome Copper Co. property, the quantity of turquoise decreases. In 1948 the company ceased trying to recover turquoise as a byproduct, but some recovery by miners probably continued. Dr. Butler stated that much of the Arizona turquoise is artificially colored and that even a clever imitation of matrix turquoise is on the market.

Some turquoise was produced at Battle Mountain and Tonopah,

Nev. The King mine at Manassa, Conejos County, Colo., was operated on a small scale; in addition, some turquoise was sorted from the dump. The Cerrillos mine, New Mexico, was not operated during 1948.

Other Gem Stones.—Alfred M. Buranek reported that Utah mines in 1948 produced about the normal amount of variscite. Most of it came from the Clay Canyon deposit but a little from Grantsville and Lucin.

Utah, according to Prof. Junius J. Hayes, produced a new gem stone, a transparent yellow labradorite which occurs as phenocrysts in an andesite from Clear Lake, Millard County. Stones are small, and cut stones seldom exceed 1 carat; stones weighing as much as 10 to 15 carats are very rare. They are being sold cut at Salt Lake City for $3 to $6 per carat.

The Barton Mines Corp., North Creek, Warren County, N. Y., miners of abrasive garnet, produced a few gem garnets. Pyrope garnets late in 1947 and early in 1948 were cut at Moab, Utah, in considerable quantities.

Montana reported no sapphire production in 1948, either from its dredges or from its lode mine. The latter, Yogo Gulch, Judith Basin County, was up for sale in 1948 but so far as known no transfer of title resulted. Guy B. Ellermeier of Denver reported that at the old sapphire locality near Turret, Colo., first discovered in 1886, the stones occur in a bed of corundum schist 1 foot thick lying on garnetiferous metamorphic limestone. While the corundum stones are a fine blue, they are too small to be of commercial interest.

Arkansas continued to produce some rock crystals, and the sale of these—largely to mineral collectors—continued to be an important source of revenue to a few of the individuals.

It was hoped in 1947 that changes of ownership in certain gem mines in the Pala area near San Diego would increase the California production of tourmaline, aquamarine, kunzite, and topaz in the Aguanga Mountain area nearby. The hope has only partly been fulfilled, although a little kunzite, aquamarine, garnet, and topaz has been produced.

Other gem stones produced in small amounts in 1948 in the United States follow: Plume agate, New Mexico; agate, Illinois; amethyst, Georgia (Union County); apatite, yellow, Mesilla Park, N. Mex.; aquamarine, Pikes Peak, Colo.; carnelian, New Mexico; rose quartz, South Dakota; satin spar, Perry Peak, Colo.; and topaz, Pikes Peak and Tarryall Mountains, Colo., and Topaz Mountain, Utah.

CANADIAN GEM STONES

Again in 1948 Canada produced little in the way of gem stones. Rock crystal (Black Rapids, Ontario), peristerite (Lyndoch Township, Ontario), and some other attractive gem-stone material is either exported to the United States or sold to an enthusiastic coterie of amateur lapidaries in Toronto. The Labrador labradorite, the finest in the world, can now be credited to Canada.

The annual value of Canada's gem-stone production probably does not exceed a few hundred dollars.

GOVERNMENT REGULATIONS

The jewelry industry doubtless has never been subject to as many regulations as at present. Most of the laws attempt to increase national revenue, keep currency at home, or obtain dollar exchange. A few examples follow.

Both Canada and the United States continued their luxury sales taxes. Exports of certain industrial diamonds from the United States required a special export license and customs inspection. Some countries, such as the Union of South Africa, prohibited import of jewelry from nonsterling areas. Importation of diamonds into India, Pakistan, and Ceylon was subject to various restrictive rules. There were severe limitations on any movement of jewelry over the borders of Hungary.

IMPORTS [2]

Imports of gem stones, exclusive of industrial diamonds, in 1948, as reported by the United States Department of Commerce, totaled $115,990,280, about 5 percent more than in 1947. Of the total, diamonds comprised 87 percent.

Precious and semiprecious stones (exclusive of industrial diamonds) imported for consumption in the United States, 1947–48 [1]

[U. S. Department of Commerce]

Commodity	1947		1948	
	Carats	Value	Carats	Value
Diamonds:				
Rough or uncut (suitable for cutting into gem stones), duty free	[2] 996, 514	[2] $42, 589, 592	912, 762	$44, 460, 365
Cut but unset, suitable for jewelry, dutiable	347, 810	53, 471, 539	389, 314	56, 244, 934
Emeralds:				
Rough or uncut, duty free	7, 385	258, 062	4, 937	28, 054
Cut but not set, dutiable	[2] 2, 286	[2] 75, 420	11, 213	286, 565
Pearls and parts, not strung or set, dutiable:				
Natural	----------	[2] 366, 624	----------	772, 763
Cultured or cultivated	----------	737, 753	----------	748, 302
Other precious and semiprecious stones:				
Rough or uncut, duty free	----------	298, 393	----------	258, 553
Cut but not set, dutiable	----------	[2] 3, 664, 048	----------	3, 160, 778
Imitation, except opaque, dutiable:				
Not cut or faceted	----------	118, 168	----------	53, 133
Cut or faceted:				
Synthetic	----------	483, 313	----------	777, 224
Other	----------	7, 688, 827	----------	8, 904, 941
Imitation, opaque, including imitation pearls, dutiable	----------	15, 566	----------	59, 610
Marcasites, dutiable:				
Real	----------	300, 175	----------	216, 003
Imitation	----------	8, 549	----------	19, 055
Total	----------	[2] 110, 076, 029	----------	115, 990, 280

[1] In the corresponding table in Minerals Yearbook, 1947, p. 536, revisions for 1946 are as follows: Diamonds, cut but unset—carats, 566,313; value, $110,465,703. Other precious and semiprecious stones, cut but not set, $8,932,984. Total value, $181,515,265.
[2] Revised figure.

[2] Figures on imports and exports compiled by M. B. Price, of the Bureau of Mines, from records of the U. S. Department of Commerce.

DIAMOND

The year 1948 was a good one for diamond producers and wholesalers, fair for retailers, and poor for cutters.

World production was about 3 percent greater than in 1947. Output in the Union of South Africa was approximately the same as in the previous year, but the Belgian Congo registered an increase. In Tanganyika, production also increased markedly percentagewise.

Sales of rough by the principal wholesalers, the subsidiaries of the Diamond Corp., were a little over £38,000,000 in 1948 as compared with about £24,500,000 in 1947. In July the corporation took over marketing of Tanganyika Territory's production and that of French Equatorial Africa; and its buyers sometimes purchase in the "outside" alluvial fields of South Africa, Brazil, and British Guiana.

Retail sales in the United States were only fair, and retail prices declined. High-price articles moved very sluggishly.

Prices of rough were strong during the early part of the year but weakened considerably during the latter part.

Share Dealings.—From 1944 to date the diamond shares have lacked sparkle as market performers. In 1948 the four principal quoted shares had an average gain of 5½ percent but only fluctuated between 100 and 110 percent. Quotations were at their peak early in May and then declined. All the principal diamond-mining companies except Premier paid dividends in 1948.

Cutting.—In 1948 the cutting industry expanded its world-wide personnel to 29,500–31,000, a 10- to 12-percent increase over 1947. Half the cutters were Belgians. The Palestine industry had a hectic year. The number of cutters was too great for the rough available and the demand for cut; hence black markets, unemployment, reduced wages, and price deterioration of cut followed.

Netherlands, the United States, and South Africa are considered most firmly established as cutters of large stones, and Belgium and perhaps Palestine of small.

Imports.—Imports of gem-grade diamonds into the United States increased from $96,061,131 (revised figure) in 1947 to $100,705,299 in 1948, an increase of 5 percent. The dollar value of both rough and cut increased. The quantity of cut increased, whereas that of rough decreased. Belgium furnished 56 percent of the cut (value) in 1948.

Diamonds (exclusive of industrial diamonds) imported for consumption in the United States, 1947–48,[1] by countries

[U. S. Department of Commerce]

Country	Rough or uncut			Cut but unset		
	Carats	Value		Carats	Value	
		Total	Average		Total	Average
1947						
Austria				2	$300	$150.00
Belgian Congo [1]	70	$16,455	$235.07			
Belgium [1]				205,650	30,368,217	147.67
Brazil	[2] 25,918	[2] 498,631	[2] 19.24	7,227	900,317	124.58
British Guiana	822	39,155	47.63	223	26,356	118.19
British Malaya				320	62,884	196.51
British West Africa	1,680	11,680	6.95			
Canada				7	1,924	274.86
China				1,033	245,648	237.80
Cuba				6,422	866,997	135.00
Egypt				6	4,126	687.67
France [1]				4,339	756,758	174.41
French West Indies	21,093	351,188	16.65			
Germany				1	250	250.00
Hungary				125	23,374	186.99
India				136	28,158	207.04
Italy				9	3,861	429.00
Mexico [1]				1,021	318,211	311.67
Netherlands				24,011	3,742,952	155.88
Palestine and Trans-Jordan				35,474	4,297,767	121.15
Portugal				96	13,940	145.21
Siam				102	4,902	48.06
Switzerland				4,798	625,621	130.39
Syria				10	2,000	200.00
Union of South Africa	[2] 892,022	[2] 40,054,332	[2] 44.90	38,255	8,749,590	228.72
U. S. S. R				9,270	707,959	76.37
United Kingdom	10,725	480,310	44.78	9,273	1,719,427	185.42
Venezuela	44,184	1,137,841	25.75			
Total 1947	[2] 996,514	[2] 42,589,592	[2] 42.74	347,810	53,471,539	153.74
1948						
Austria				1	215	215.00
Belgian Congo	119	3,870	32.52			
Belgium				213,207	31,475,999	147.63
Brazil	15,878	295,294	18.60	4,762	578,774	121.54
British Guiana	786	29,219	37.17	116	12,535	108.06
Canada				21	13,388	637.52
China				328	67,032	204.37
Colombia				20	5,683	284.15
Cuba				4,790	657,520	137.27
Egypt				14	1,875	133.93
France				13,471	925,673	68.72
French Morocco				61	13,300	218.03
Germany				11,624	399,714	34.39
Hong Kong				324	83,282	257.04
Iran				113	12,724	112.60
Italy				3	1,088	362.67
Jamaica				2	230	115.00
Japan				2	539	269.50
Lebanon				23	6,283	273.17
Mexico				80	9,954	124.43
Netherlands				34,246	5,109,945	149.21
Pakistan				1	488	488.00
Palestine and Trans-Jordan	1,120	114,921	102.61	39,995	4,139,345	103.50
Portugal				99	10,439	105.44
Siam				1,049	197,868	188.63
Sweden				1	450	450.00
Switzerland				18,298	3,044,693	166.39
Tangier				2	1,067	533.50
Union of South Africa	832,022	42,379,244	50.94	33,060	7,974,210	241.20
U. S. S. R				9,303	775,378	83.35
United Kingdom	6,112	310,098	50.74	4,297	724,968	168.71
Venezuela	56,725	1,327,719	23.41			
Yugoslavia				1	275	275.00
Total 1948	912,762	44,460,365	48.71	389,314	56,244,934	144.47

[1] In the corresponding table in Minerals Yearbook, 1947, p. 537, revisions for 1946 are as follows: Cut but unset—Cuba is deleted. Total—carats, 566,313; value, $110,465,703; average value, $195.06. For 1947. imports were erroneously reported for Belgian Congo, Belgium, France, and Mexico.

[2] Revised figure.

World Production.—Accurate figures on diamond production are not available for all countries, but the figures in the accompanying table are believed to be close approximations. World production (gems and industrials) is estimated to have been 10,028,000 carats (2.21 short tons) in 1948, worth at the mine some $70,000,000, which compares with 9,742,000 carats (2.15 short tons) and $75,000,000 in 1947. Therefore, as compared with 1947, production in 1948 increased 3 percent in weight and decreased 7 percent in value. It is estimated that, by weight, 2,244,600 carats or 990 pounds were gem stones and 7,783,400 carats or 3,432 pounds industrials.

Belgian Congo was the leading producer by weight (58 percent), although it represented only 13 percent of the value. On the other hand, the British Commonwealth produced 29 percent by carats and over 66 percent by value of the total.

Among noteworthy developments were the increases in output in the Belgian Congo and Tanganyika. With few exceptions, production in French territories compared favorably with the previous year.

World production of diamonds, 1945–48, by countries, in metric carats

[Including industrial diamonds]

Country	1945	1946	1947	1948
Africa:				
Angola	803,887	806,961	799,210	795,509
Belgian Congo	10,386,000	6,033,452	5,474,469	5,824,567
French Equatorial Africa	82,849	87,381	107,076	[1] 100,000
French West Africa	79,802	51,834	62,310	77,970
Gold Coast [2]	812,451	653,196	852,493	[1] 850,000
Sierra Leone	504,309	559,229	605,554	465,518
South-West Africa	152,629	163,611	179,554	200,691
Tanganyika	115,666	119,446	92,229	148,169
Union of South Africa:				
Lode	878,713	1,025,019	918,042	[1] 930,000
Alluvial	262,529	256,768	[3] 286,692	[1 3] 270,000
Total Union of South Africa	1,141,242	1,281,787	1,204,734	[1] 1,200,000
Brazil [1]	275,000	325,000	275,000	250,000
British Guiana	15,442	22,413	24,669	36,301
Venezuela	12,769	20,917	61,634	75,513
Other countries	2,000	[4] 1,600	[5] 3,500	[5] 3,500
Grand total	14,384,000	10,127,000	9,742,000	10,028,000

[1] Estimated.
[2] Exports.
[3] Includes an estimate of 100,000 carats for State Mines of Namaqualand.
[4] Partly estimated; includes India, Borneo, Australia (New South Wales), and U. S. S. R.
[5] Includes India, Russia, Borneo, New South Wales, and United States.

Industrial Diamonds.—Sales of industrial diamonds in 1948 were very large. American and other industries purchased normal quantities, and in addition Government missions to London purchased large quantities for the American strategic stock pile. Prices slashed by the Diamond Corp. at the outbreak of the war were again increased. Its present stocks are small. For economy's sake, the trend is toward the use of smaller stones wherever possible.

The use of diamond drills in exploring for and breaking ore (blasthole drilling) and in developing oil fields where the rock is hard is expanding. The use of diamond-impregnated wheels, particularly the vitrified type, for shaping carbide tools is increasing.

Figure 1 shows the tremendous increase in quantity and the sharp decline in the price per carat of American imports of industrial diamonds in the past 26 years.

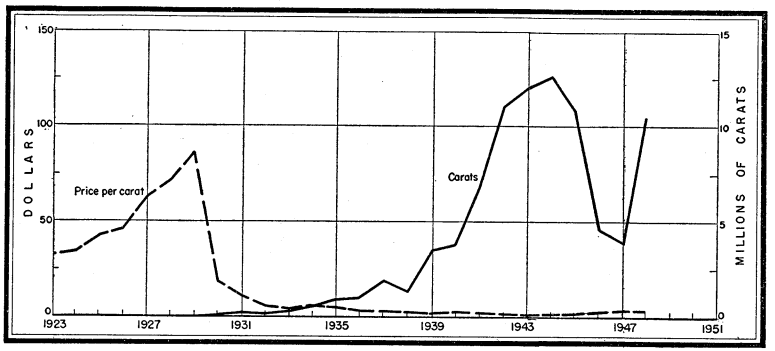

FIGURE 1.—United States imports and average price per carat of industrial diamonds, 1923–48.

In 1948 imports of industrials into the United States were much greater than in 1947. Imports of industrial diamonds during the past 5 years are shown in the accompanying table.

Industrial diamonds (glaziers', engravers', and miners') imported for consumption in the United States, 1944–48

[U. S. Department of Commerce]

Year	Carats	Value		Year	Carats	Value	
		Total	Average			Total	Average
1944	12,614,507	$22,894,244	$1.81	1947 [1]	3,999,119	$13,312,668	$3.33
1945	10,733,411	12,823,962	1.19	1948	10,418,316	32,521,501	3.12
1946	4,625,282	14,297,536	3.09				

[1] Revised figures.

In 1948 the United States exported 47,747 carats of industrial diamonds valued at $312,364.

RUBY, SAPPHIRE, AND EMERALD

These fine gem stones are increasing in price due to short supply of fine newly mined stones. Notwithstanding the excellence of the synthetic star sapphires and rubies introduced to the market in September 1947, natural stones are more popular then ever, and prices are more than holding their own.

The Anakie sapphire field, Queensland, whose principal center is now Rubyvale, was described.[3] The gravel, up to 50 feet thick, is worked either by open-cuts or shafts with drifts. The gravel is dry-sieved and hand-picked. Dark blues predominate; but fine yellows, greens, and particolored stones also occur. Zircon, pleonaste, tourmaline, and jasper are associated. The years from 1907 to 1925, except

[3] Squires, S. J., Commonwealth Jeweler and Watchmaker, Dec. 11, 1948, pp. 104-105.

for the First World War years, were the most productive and at times 1,000 diggers worked the field. The Rubyvale miners in 1947 sold gems to the value of £3,540.

The Black Star of Queensland widely exhibited in 1948 by American jewelers came from this field. It weighed rough 1,156 carats and cut 733 carats.

In 1948 a giant blue sapphire (1,958 carats) was found in the same general region by a digger's wife on a picnic. It was sold to the manager of a nearby claim.

A water shortage restricted production at the Willow Fields sapphire field.

South Africa continues to produce a few emeralds (1946, 11,533 carats; 1947, 7,753 carats). Six thousand, four hundred and ninety-two carats were exported in 1946 valued at £3,101, or 9s. 6.6d. per carat. A few are mounted locally.

Interesting data regarding Colombian emeralds were presented.[4] Emeralds of good color but of poor water occur in Mewar, India. The association is the frequent one, biotite schist intercalated in hornblende schist.[5]

According to Guhler's (see Bibliography) valuable study of Siamese gem stones, a few rubies have been mined for 500 or more years at several places. The sapphire deposits of Bo Ploi are described in some detail. Large sapphires are rare. Most gems are cut in Bangkok by Siamese, Chinese, or Gulas. Guhler considers the future of the industry bright. Siam ships considerable quantities of gems to the United States.

Ceylon produces not only ruby and sapphire but also alexandrite and cat's eye and a variety of stones of lesser value. All except moonstone are recovered from gravels by placer mining including some dredging. Singhalese are the only miners; dealers buy the stones in the field at auctions or private sales and Moslems then cut them. A half million dollars worth of gems is produced in a year.

LESSER GEMS

The Australian Government is to study whether, by pushing the production of its opal fields, by far the most important in the world, its supply of dollars can be increased.

At present only about 100 men are engaged in Australian opal mining; and the 1947 production—practically all of which came from South Australia (Coober Pedy and Andamooka)—was valued at only A£63,000. At Lightning Ridge, New South Wales, only a score of men mine and cut the black opal. The gem occurs as seams or nodules in a Cretaceous sandstone, beneath conglomerate and quartzite. The opal bearing layer is from a few inches to 2 feet thick.[6] A little opal is coming from Quilpi, Queensland. Most foreign gem purchasers buy from dealers in Sydney, Brisbane, or Melbourne, who visit the fields periodically.

There are three zircon-mining centers in French Indo-China (Bokeo, Pailin, and Cheon-Ksam). Burmans mine the stones, which occur

[4] Apolmor, Hermano Maria, Acad. Colomb. Rev. 7, No. 27, 1947, pp. 324-327.
[5] India Geological Survey, Minerals, vol. 1, No. 1, 1947, pp. 28-30.
[6] Squires, S. J., The Commonwealth Jeweler and Watchmaker, (Sydney, Australia), July 10, 1948.

almost at the surface, so little equipment is required. The stones are heat-treated and cut locally. They range in value from $0.50 to $660. Annual production, according to the Department of Commerce, is about $140,000. The mines are close to the Siamese border. The zircon production of Cambodia is large.

The Lithuanian amber industry with its center at Palanga was almost destroyed during the war but is recovering.

Brazil continued to produce a large caratage of the lesser gems Madagascar is producing little owing to the effects of war and rebellion. Because of the war damage to Pforzheim, where the stones were cut and mounted, the production of South-West Africa has declined.

Before the war, Turkey exported meerschaum crude to Germany and Austria but now makes it into smoking utensils and souvenirs.

The turquoise deposits of Southern Sinai were described.[7] The author believes that the flat-lying deposits were formed by post-Tertiary meteoric waters. Even today the Arabs produce a little, either re-sorting the ancient dumps now over 2,000 years old, or doing a little gouging.

TECHNOLOGY

Tourmaline is being used in piezo-electric gages for measuring blast pressures in air and under water. It has recently been synthesized.[8]

Mullite refractories can be made from topaz.

Synthetic spinel watch jewels heated after shaping are apparently as satisfactory as synthetic sapphire jewels, quicker to make, and cheaper to produce.

Synthetic sapphire bearings, acid proof and having great hardness, are finding wide application in industry. There is also a continuing interest in the use of natural sapphire in precision instruments.

The California (Chatham, San Francisco) method of making synthetic emerald has been described.[9] The crystal grows from seed in about 10 months. They are now on the market. The German method was described.[10]

There may come on the market in the near future synthetic rutile, supposedly as a cheap substitute for the diamond. These products have high dispersion and birefringence. They have a hardness of 6½ on Mohs' scale, and careful polishing is required to eliminate scratching; careful crystallographic orientation in cutting is required.

A film of fluoride on zircon has recently been detected in some stones in the trade. This appears to be a new method to "doctor" gems. The film is inert to most acids and to fairly high temperatures. In strong daylight or bright artificial light, the coating becomes a dull iridescent film.

Education and Laboratories.—Not only are the universities of America enlarging their courses in the study of gems but the City College of New York has this year an evening course in lapidary, said to be the sole course of its kind in America.

The excellent correspondence courses and resident lectures of the Gemological Institute of America (Los Angeles and New York) are

[7] Davey, John C., Mining Magazine, March 1948, pp. 148–152; April 1948, p. 212.
[8] American Mineralogist, vol. 32, November–December 1947, pp. 680–681.
[9] Chemical Engineering, vol. 55, No. 2, 1948, p. 174.
[10] Geological Magazine (London), vol. 8, No. 2, 1947, pp. 98–100.

open to qualified students. Similar institutes exist in England and Australia. It and the American Gem Society work together on a number of problems. They have decided to substitute "flawless" for "perfect" in diamond grading.

The Diamond Council of America was organized early in 1949 to further the study of gemology. Prof. Paul J. Storm of the University of Pennsylvania is to conduct the classes.

The Gem Trade Laboratory, 36 West Forty-seventh Street, New York, was established to furnish identification of gem stones and pearls. Dr. A. E. Alexander is director.

During 1948 the Cincinnati branch of the Gemological Institute of America established a laboratory for gem identification under the direction of Edward Herschede, Jr.

A Diamond Trading Club similar to the New York Diamond Dealers Club was organized in Los Angeles. There are about 40 local members and additional members from San Francisco and San Diego. Los Angeles is said to be the third largest jewelry manufacturing city in the United States and second in retail diamond sales.

It is stated that over 15,000 veterans of World War II are studying, with Government aid, to become jewelers.

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