

ELEMENTARY SCIENCE SECTION**PRECIOUS GLITTERING PEBBLES**

IN THE INDIA of a few centuries ago, princes filled their treasure chambers with precious glittering pebbles, almost by the bucketful. Many of these priceless jewels—such as the pearl scarf of the Maharajah of Indore, worth perhaps \$6,000,000—have descended through dynasties of Hindu rajahs to the native princes of today.

Although India is famous beyond all other countries for its superb collections of jewels, gems and precious stones have been valued highly in all lands and ages. They are ranked according to color, luster, hardness, durability, and rarity. Diamonds, rubies, sapphires, emeralds, topazes, garnets, and chrysoberyl rank first in value. In the second class are turquoise, tourmaline, opal, agate, jasper, Chinese jade, and onyx; in the third class are the less precious but still ornamental stones such as lapis lazuli and moonstone. Other jewelry substances are the costly pearls and less valuable coral, derived from animals; and amber, a fossil resin of vegetable origin.

The sparkling diamond, the "king of gems," which is pure crystallized carbon, is the hardest of the precious stones. It has been estimated that there are less than 47,000,000 carats of cut and polished diamonds in existence, and that these altogether would weigh only ten and one-fourth tons.

Rubies and sapphires rank next for

hardness. The best rubies—which are usually a pure carmine red—come from Burmah, Thailand, and Ceylon, all near neighbors of the Philippines. Large rubies are very rare, and specimens weighing three or four carats are worth from two to five times as much as diamonds of the same size. Two of the largest rubies known, belonging to a native prince in India, are each worth a fortune; it is said one weighs nearly 51 carats and the other nearly 18 carats.

A fine variety of garnets is found in Australia, South Africa, and the western United States; they are sometimes mistaken for rubies.

The pretty bright blue sapphires, which are found mainly in Burmah, Thailand, Ceylon, and India, are valued chiefly for quality rather than size, although one specimen was found which weighed 951 carats. In the state of Montana are found a considerable number of sapphires, nearly all of which are used for bearings in watches and delicate instruments.

The beautiful deep green emerald is the same material as beryl, which varies from blue to light green and yellow. Flawless emeralds are rarely found, and rank with the diamond in value. The modern supply comes for the most part from Colombia in South America. The ancient supply came chiefly from Upper Egypt, where mines are still worked. Some specimens are of great size; one found in the Ural Mountains weighed six



Cup Set with Precious Stones

and three-fourths pounds.

The trade in gems, cut and uncut, both mounted and unmounted, is enormous. In New York City alone there are more than \$500,000,000 worth of cut gems, while the total value of precious stones in France before the Second World War was about two billion pesos.

Imitation gems have been made since the earliest times. The usual basis is a kind of hard, clear, and brilliant glass called "paste." Immense quantities of these "paste" gems are made in large factories to be used as cheap jewelry. Rubies and sapphires are now manufactured in the electric furnace. These synthetic stones, as they are called, have nearly all the actual qualities of the natural stones. The Orient is a large buyer of these synthetic stones.

Gem cutting and engraving—the lapidary's art—has been practiced from very ancient times. Great numbers of precious and semi-precious stones have been found in Mesopotamia cut into cylindrical form and bearing engraved figures. When rolled over the soft clay of writing tablets, these cylinders left the design in relief to serve as a personal seal. This art was developed to a high degree of perfection by the ancients as early as 3000 B. C. Seals engraved with the sacred beetles, called scarabs, were in use in Egypt by the same time.

Pearls are very highly prized. These beautiful gems of white, pink, black, etc. are the secretions of the living membranes of various kinds of shellfish. The pearls of commerce come chiefly from the

pearl oyster.

The topaz is a translucent gem of a yellow color, although sometimes pale blue, green, brown, or white. The finest topazes come from Brazil or Ceylon. The garnet, usually red, but sometimes brown, yellow, green, or black, is found in Bohemia, Ceylon, Peru, and Brazil. Chrysoberyl is a bright, very hard, rare stone of yellow, brown, and light green. Turquoise, a hard greenish-blue stone, is found mostly in Persia. Opals are bluish, black, or yellowish-white, with a beautiful play of brilliant colors. The finest come from Hungary. Common opals are white, yellow, green, red, and brown,

without any play of color. Jade is a hard green stone much prized in Oriental countries for making ornaments. Amethyst, a purple stone, is found in Brazil, Ceylon, and elsewhere.

Many superstitious beliefs are attached to the wearing of certain precious stones. The turquoise is supposed to bring prosperity; the emerald is thought to bring success in love; by some the opal is said to bring bad luck; and so on.

There is a group of stones known as birthday stones. You should have a list of birthday stones and their supposed significance. Of course, this is only an old superstition, but anyway, it is a pretty belief, especially when choosing a stone as a birthday gift. You will find the list on this page.

BIRTHDAY STONES		
<i>The following are the birthday stones and their supposed significance.</i>		
January.....	Garnet.....	Constancy
February.....	Amethyst.....	Sincerity
March.....	Bloodstone.....	Courage
April.....	Diamond.....	Innocence
May.....	Emerald.....	Success in love
June.....	Agate.....	Health and long life
July.....	Carnelian.....	Content
August.....	Sardonyx.....	Conjugal felicity
September.....	Chrysolite.....	Antidote to madness
October.....	Opal.....	Hope
November.....	Topaz.....	Fidelity
December.....	Turquoise.....	Prosperity

ANSWER THESE

1. Where is India?

(Please turn to page 375.)