

## HOW TO IDENTIFY GEMS

The Gemological Institute of America owes its origin to the curiosity of its founder, Robert Shipley. In the early 20s Shipley became the proprietor of a retail jewelry store in Wichita, Kansas, by the simple expedient of marrying the boss' daughter. A conscientious individual by nature, Shipley felt keenly his lack of knowledge of the jewelry business. The main source of information was the often inaccurate word of the traveling salesmen. The only textbooks dealt with gems from minerological considerations. When circumstances compelled him to close his store, Shipley went to England where he could receive a formalized training in gemology.

Late in 1929 Shipley returned to this country to apply his newly acquired knowledge to the operation of a jewelry store in Los Angeles, but America was in the midst

of panic. He decided to establish himself as a consultant in anticipation of more propitious times. A group of jewelers prevailed upon him to give a series of lectures at the University of Southern California. Over eighty jewelers registered, some coming from a distance of over 200 miles. Soon Shipley was mailing his lectures throughout the country and, in 1931, the Gemological Institute of America had its official beginning.

Many old timers still pride themselves on their ability at sight identification. A customer returned a ring with a large purplish stone to the jewelry store where it was purchased. The ring had been dropped on the bathroom floor, and the stone had shattered. Since the jeweler had bought the stone for amethyst and under the impression that genuine stones are durable, he return-

ed the ring to the manufacturer with an outraged letter demanding immediate replacement. The manufacturer agreed that a stone which had so fractured could only be an imitation and as such, not the stone he had sold. The argument was referred to the Gemological Institute of America who confirmed that the stone was indeed amethyst which, while less fragile than glass, is highly breakable when subjected to a blow of sufficient severity.

Transparent or translucent stones may be separated into species with the use of a refractometer, an instrument which measures the degree of bending of a light ray passing through a stone, in conjunction with a polariscope, an instrument for determining the crystal structure. Imitations are easily detected, but synthetic stones similar to the genuine in every chemical, physical and optical property are occasionally very deceptive, particularly in the small sizes running anywhere from ten to fifty to the carat. Tiny gas bubbles and curved striae detectable

under high magnification by a skilled technician provide the clues. Dealers who employ the institute consultants are sometimes rewarded for their precaution.

The most common failing of the layman in recognizing stones is the attempt to classify by color. Thus a ruby is red and a sapphire is blue, and conversely any red gemstone is thought to be a ruby and any blue to be a sapphire. The fabulous ruby which for five hundred years graced the imperial crown worn by the rulers of England and described by Ruskin as "the loveliest precious stone of which I have any knowledge" has been proven under modern instrumentation to be a red spinel, a material ordinarily less valuable than ruby, but nevertheless of great rarity since spinels so large in size are almost unknown.

Since coloring is caused in most gems by foreign material and is not a part of their chemical component, stones can occur in a variety of shades. Sapphire, tourmaline and quartz have been found in every color of the spectrum.

Ruby and sapphire are actually the same material. Ruby is merely the name given to the red variety. Amethyst is a purple quartz. Emerald and aquamarine are the identical material. Emerald is infinitely more valuable because of the dearth of fine green beryl in large crystals. Even the fabulous diamond has been found in all colors except purple, and that is not to say that the diamond does not occur in purple but merely that no natural specimen has been discovered as yet. The fa-

mous Hope diamond is a wonderful rich blue more reminiscent of fine Ceylon sapphire. Precious topaz, popularly known as a brown stone, has been found in all colors with blues and pinks as the loveliest varieties. With some gem materials color changes can be induced by baking the stones in a furnace at temperatures which duplicate the heating process in nature. In a few species such as topaz this entails a risk of cracking the stone. — *W. Untermeyer, Jr. from the American Mercury.*

### ACHIEVEMENT BY COLLABORATION

It is because the earth is round that we have become human: you see, we could not get away, we could not help but rub against each other; and this rubbing polished our minds, sent the mental temperature up; in such heat minds became flexible, moved with speed; became involved and convoluted and related in ten billion ways. Now, suddenly today, we are only a few hours from every man on earth, and our minds are showing a startling leap forward toward complexity: men in small groups, collaborating, can solve problems in a few weeks or months or even days that one man, working alone and in isolation, could never have solved had he lived a thousand years. — *Teilhard de Chardin.*