



## Jade Artifacts in the Philippine Archaeological Record

By Cynthia O. Valdes

### What is Jade?

**Jade** is actually two stones. Nowadays, the word “jade” is applied to two different types of gemstones that modern science has allowed us to identify with more confidence: **Nephrite** (the stone known in prehistoric sites) and **jadeite** (believed to have come in quantity to China only sometime in the 18<sup>th</sup> c. during the reign of Emperor Qianlong of the Qing Dynasty).

**Nephrite:** a silicate of magnesium and calcium. It belongs to the “amphibole” group of minerals and is made up of tremolite and actinolite crystals. Tremolite is white to grey in color. When ferrous iron is present in small amounts, it gradually turns green and grades into actinolite. Thus, the more actinolite is present in a piece of nephrite, the greener it will appear. If the proportion of tremolite is greater, the nephrite will appear whiter. When you are studying a stone under high magnification and you see clusters of filament fibers in wavy and uneven bundles, it is likely to be nephrite. Under high magnification, you will note a compact and tightly compressed crystal structure. This compact fibrous structure is what makes nephrite one of the toughest of known minerals. Nephrite is tougher than most steel. Thus, it was fashioned into axes, adzes, chisels, arrowheads, and spearheads in human prehistory.

Nephrite has a hardness of 6 to 6.5 on the Mohs scale. In its pure form, nephrite is colorless or white (the Chinese value most white jade which they call “mutton fat”) but nephrite can come in variety of colors depending on the presence of trace elements in its chemical composition. Nephrite can be green, yellow, or dark brown; it can also be grey or black.

**Jadeite:** a silicate of sodium and magnesium. It belongs to the pyroxene group of minerals. Under magnification, the cleavage of jadeite is splintery. The crystals appear short and granular and are tightly interlocked, looking like a mosaic. Jadeite measures 7 on the Mohs scale, it is slightly harder than nephrite; both nephrite and jadeite are considered to be tough stones able to withstand considerable pressure. The Chinese call jadeite “*fei cui*” (sometimes, it is said to mean “kingfisher feathers because the colors of *fei cui* are similar to the brilliant plumage at the neck of the kingfisher). But its most common reading of the term is simply that jadeite is a stone that can come in two colors: green and red.

The rarest and most beautiful of jadeite is called “imperial jade”. Its color is a highly translucent and brilliant emerald green. Scientific studies have shown that the higher the percentage of chrome, the more vibrant its green color will appear. In the world of gems, it is chrome that also gives emeralds its bright green color. In its purest form, jadeite, like nephrite is also white. But the color is not popular because it lacks translucency (unlike nephrite). “Impurities” in the stone such as iron, give jadeite its red and yellow color; manganese causes it to become purple; other elements create other colors in jadeite. Sometimes it is artificially treated, bleached, and dyed in order to deceive unsuspecting new collectors. These days, jadeite is the more popular (and expensive) type of gemstone because of its use in jewelry.

## Sources of Jade:

The major source of nephrite in China has always been Hetien (sometimes written as Hotan), in Xinjiang in Central Asia and the Kunlun Mountains which is south of Xinjiang in the northwest of China. Other sources are Nantien in Shanxi and Yutien (also near Hetien or Hotan). It is believed that these sources of nephrite are geologically linked.

Canada or British Columbia began to produce nephrite in quantity in the 1970s. Nephrite was discovered in Russia in the 1800s. The Maori people of New Zealand used nephrite to make tools and weapons; ceremonial and religious objects; and jewelry. It was around a thousand years ago when a large group of Maori people left their homes in Polynesia, paddled their canoes 2,000 miles across the Pacific Ocean and landed in New Zealand. Australia and North America (particularly Wyoming) are also known sources of nephrite. There have been recent reports of numerous prehistoric jade workshops in several parts of Northern and Central Vietnam. The best known source of jadeite is Upper Burma.

## Taiwan Jade (nephrite from Fengtian site in Eastern Taiwan)

A considerable number of nephrite jade mines have been known to exist in Eastern Taiwan. Prehistoric gravesites have yielded jade ornaments in Beinan (southeastern Taiwan) with the material believed to have been sourced from Fengtian sites near Hualien in Eastern Taiwan. Neolithic archaeological sites in Taiwan as well as in the nearby islands of Penghu, Luda, and Lanyu (Botel Tobago) have yielded nephritic artifacts of both tools and ornaments. It has been generally accepted that the nephrite artifacts found in these sites have come from the Fengtian site in Eastern Taiwan.

## Philippine Jades in Old Archaeological Records

From 1932 to 1941, **Prof. H. Otley Beyer** completed almost a decade of archaeological survey of Batangas province. The first important site was uncovered by his colleague Capt. F. G. Roth while Beyer was out of the country. The most ubiquitous of their finds (70 to 80 %) were white “plain-backed” adzes which they later realized were of nephrite. Beyer tentatively dated these artifacts to the Late Neolithic period (around 1,500 B.C.)

Sometime during the 1960s and again in the 1970s, **Dr. Robert Bradford Fox**, then Head of the Anthropology Division of the National Museum, conducted extensive archaeological activities at the **Tabon Cave Complex** at Lipuun Point, near Quezon in Central Palawan. Fox dated his finds to the Metal Age in the Philippines (ca. 700 B.C. to 200 B.C.) Uyaw Cave at Lipuun Point and Duyong Cave, some distance away from where most of the other caves were located yielded the most jade artifacts and ornaments.

## Other Batangas Sites

During the 1990s, the National Museum continued its archaeological work at the Calatagan area in Batangas. Two of their discoveries were hill sites: **Ulilang Bundok** (a secondary jar burial site) explored by a team headed by Ms. Amalia de la Torre of the National Museum, uncovered several white nephrites similar to the earlier Beyer finds as well as other artifacts

made out of talc, steatite, or mica, called “Mindoro Jade”. At **Kay Daing**, also a hill site (unfortunately a “disturbed” site), among some 50 beads found was a rare green stone pendant, was discovered to be of a type of nephrite sourced from the Fengtian Site in Eastern Taiwan. The bead, called “bell-shaped” (by the Taiwanese) was dated to 1500 to 500 B.C. Artifacts of similar manufacture have been found at prehistoric sites (grave sites) in Beinan, in Southeastern Taiwan.

### **Most Recent Philippine Sites**

**Batanes** (Anaro and other sites) (subject of talk by Dr. Eusebio Z. Dizon of the Archaeology Division of the National Museum); **Ille Rockshelter** and Other Sites at Palawan (subject of talk by Dr. Victor J. Paz of the U.P. Archaeological Studies Program); **Other sites** where nephrites have been found in the Philippines other than the aforementioned sites are: Nagsabaran, Lanna, Arku Cave and Lattu-Lattuc Cave in **Cagayan Valley**: Dimolit in Isabela, Kalanay Cave on Masbate, Bato Cave in Sorsogon, Leta-leta Cave near El Nido in Palawan. Other sites have yielded jade-like artifacts such as talc, steatite, muscovite (also known as “*Mindoro Jade*”). Zambales is said to yield a jade-like stone (sometimes called “*Zambales Jade*”) but which is more likely serpentine or anorthite, a jade simulant.

### **Suggested Further Reading:**

H. Otley Beyer, “**Outline Review of Philippine Archaeology by Islands and Provinces**”, in the Philippine Journal of Science, July-August, 1947, Vol. 77 Nos. 3-4. Institute of Science, Manila, 1949.

H. Otley Beyer, “**Philippine and East Asian Archaeology and its Relation to the Origin of the Pacific Island Population**”, National Research Council of the Philippines, Dec 1948, Bulletin No. 29.

Robert B. Fox, “The Tabon Caves”, Monograph of the National Museum, No., Manila, 1970.

Peter Bellwood and Eusebio Z. Dizon, “**The Batanes Archaeological Project and the “Out of Taiwan” Hypothesis for Austronesian Dispersal**”, Journal of Austronesian Studies, Vol 1, No. 1, June 2005.

-----