



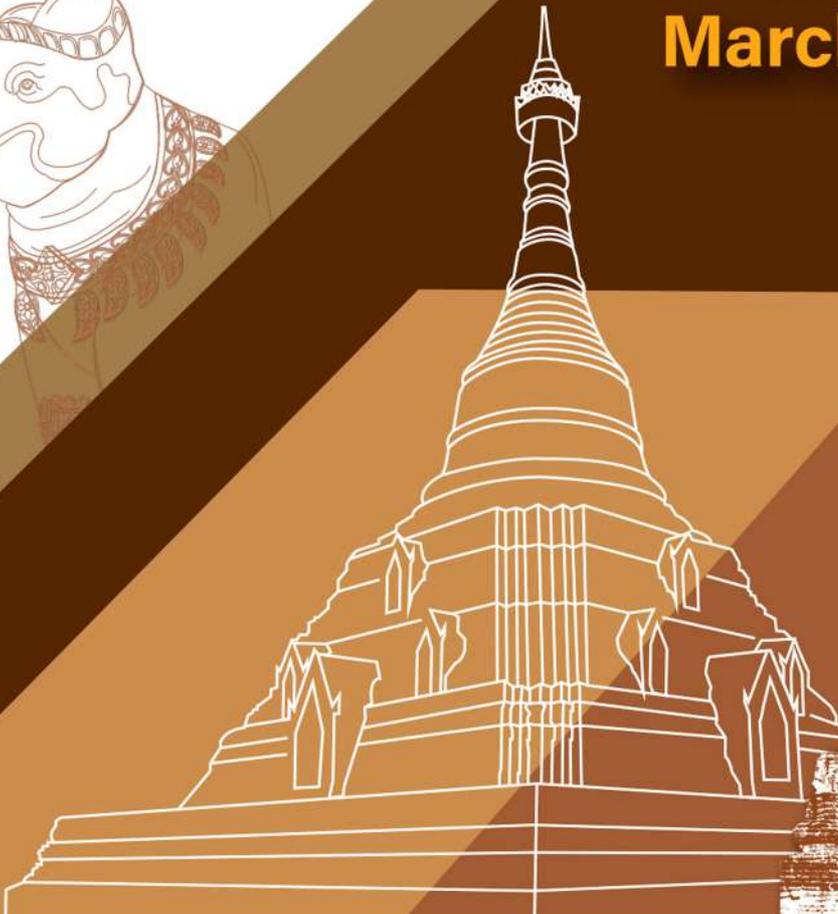
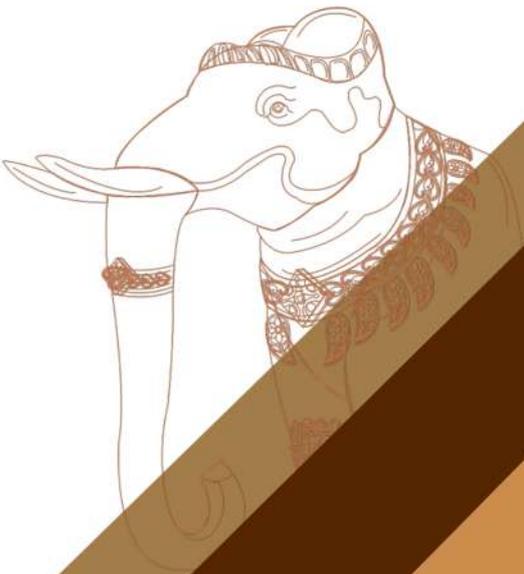
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Phran Kratai Marble

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Introduction

The Phran Kratai Marble was discovered around the year 1969 by Sawan Marble Company. It was found that the crushed stone that the company sold was mixed with marble so they excavated the mountain core and found that the inside contained green, grayish pink, yellowish green, and grayish white marble. The main fact of the pink marble is that it can be found only in a particular area of Thailand. The marble mine, where is able to produce pink, ivory, white and gray marble in Khao Ton, Thew Khao Sawang (Chookiat Nuemai, 2016), has currently held the concession area of 22 rai since 5th of October 1981. Sila Kamphaeng Phet Limited Partnership 88/2, Village No. 13, Phran Kratai, Kamphaeng Phet, received a concession for land mining at Tham Krathong Thong Subdistrict, Phran Kratai, aged 10 years commencing from the 4th of September 2014 and expiring on the 3rd of September 2014 with an area of 108 rai 3 ngan 72 square wa.

Phran Kratai marble is approximately 300-400 million years old, caused by crystallization of limestone with a stone layer of about 150 meters thick. The first product that was introduced was a paving stone and wall. Later, marble was carved and machined into various forms now that it has become local products for sale in Phran Kratai District.

The objectives of this article are to study 1. The history of the Phran Kratai Marble 2. The characteristics of the Phran Kratai marble 3. Marble quarries and production processes 4. Products from the Phran Kratai Marble

The history of Phran Kratai Marble

In Phran Kratai District it was once found that in the crushed stone there was marble mixed in, so a machine was used to drill into the mountain axis to find more marble. Its colors appear green, pinkish gray, yellowish green, grayish white. The pink stone is especially colorful and beautiful and found only in this area of the country. The marble here is about 300-400 million years old, caused by crystallization of limestone with a layer of stone about 150 meters thick. Currently, the marble is developed to be used for construction and fabricated as various objects. The marble produced at Phran Kratai is considered a good quality marble with beautiful colors, especially the pink onewhich is splendid and solid. After getting polished out, it is shining beautifully and naturally. All marble products eventually become local products of Phran Kratai District.

In September 2001, a group was formed and founded a marble cooperative located at 558/2 Village No. 2, Phran Kratai Sub-District Phran Kratai District, Kamphaeng Phet, 62100 in order to develop the production potential and distribution

with management, marketing, production and capital (Phran Kratai Marble Cooperative Ltd.)

The characteristics of the Phran Kratai marble

Marble has many different types according to the nature of the stone. It does not absorb water, nor store heat, but is a sort of stone that absorbs cold and can be easily cleaned. Marble is less strong than granite. There are many different colors and patterns of marble in the country, which determine its costs. Moreover, marble's colors can be various in patterns or single-color. Marble looks similar to granite, but marble is easier to scratch and has a higher price than granite. It looks clear and fine but when being exposed to acids, it will appear smudges and gain more weight. Marble is available in the country and also imported from foreign countries. Domestic marble is mostly found in Nakhon Ratchasima, where is the source with the most production. The color and beauty are less than imported marble with higher price. Domestic marble widely used is Phran Kratai Pink, Black Thai, Khao Ngob, Red Prachin, Tah Whan (Sweet Eye), Travertine, Pink Thap Kwang, Saraburi White. Popular imported marble is more expensive and difficult to maintain, including Crema Marfil, Italian Green, Emperado, Golden Dragon (Geometry Design Company Limited).

Marble is a stone that is transformed from limestone or dolomite. It consists of calcium carbonate which has crystallized into calcite. Before becoming a marble, this must undergo accumulation for a long time. To illustrate, it is like when money is accumulated into a large sum of money, then disintegrated and finally crystallized into marble. If you use a camera or magnifying glass to see, you will see many calcite crystals. Furthermore, when its surface is scrubbed, it will appear shiny and beautiful, while the color of the stone is diverse depending on the origin or source. We can see its beauty of patterns and colors after marble is formed. By looking at the physical characteristics we also recognize how much beautiful its shapes and patterns are. It may be gorgeousness you can touch and feel from marble. Phran Kratai marble is various in colors, but the most common color is pink, as in Picture 1.



Picture 1 Pink marble Of Phran Kratai District, Kamphaeng Phet Province

From the interview the owner of the Wanpen marble factory at Phran Kratai District, Kamphaeng Phet province found that nothing is clear to estimate the price of marble. It depends on popularity to being the primary stone that people use in their personal projects in each period and sometimes also depends on the physical appearance of the stone, such as white or black, very red, or bright colors, etc. These things are the value of that stone type including the pattern of the marble that has been cut. If the pattern is not beautiful, the color is not clear, there is a defect, or there are many mineral lines, the price will decrease (Un-Ruean Kasee, 2019), so the value of the stone depends on its beauty that we can touch and accept the proposed price. It's said that the Phran Kratai Marble products will be able to be sold at a high price during the months of December – February. This is the time when consumers will look at marble products as a souvenir (Suwit Wongboonmak, 2015, p. 83) as in Picture 2.



Picture 2 The interview with Khun Oun Ruankasee,
The owner of Wanpen Marble Factory, Phran Kratai District, Kamphaeng Phet
Province

Marble quarries and production processes

Important marble resources in Kamphaeng Phet Province located in Phran Kratai District over Sawang Arom mountain range. It is geologically considered that the marble in Sawang Arom Mountain is 300 - 400 million years old, which is a newly crystallized limestone called marble in trade terms. Sawang Arom Mountain is a spire mountain located to the northwest of Phran Kratai Market. There is a steep cliff just like a general limestone mountain consisting of newly crystallized limestone. Generally, there are thick layers of white, light gray, medium gray limestone. All the layers are approximately 150 meters thick, as in Figure 3.



Picture 3 Marble excavation at Phran Kratai District, Kamphaeng Phet Province

According to the study of knowledge management of the local wisdom of Phran Kratai marble handicrafts, Phran Kratai District Kamphaeng Phet Province, it reveals that the production process of the Phran Kratai marble handicrafts consists 8 steps as follows (Suwit Wongbunmak, 2015, p. 89).

1. Select the preferred color of marble to make the products.
2. Cut the marble with diamond chainsaw. While cutting the stone to various sizes, it is necessary to lubricate the machine with oil all the time to prevent the stone from cracking, dust spreading of rocks, and machinery from overheating.
3. Design the products based on experience and the creativity of each marble crafter or on the customer to order the Phran Kratai Marble products.
4. Polish the marble to the size as designed and the desired shape.
5. Hone and lathe marble with a lathe of different sizes according to the type of product.
6. Polish the marble by machinery and use the manual labor to scrub it with sandpaper with different resolutions for products' perfect resolution.
7. Apply polish and use newspaper to wipe the polish out.
8. Assemble each part of products by glue and then the products are ready to come out.

Phran Kratai Marble Products

Knowledge management, local knowledge, marble handicraft Phran Kratai District Kamphaeng Phet Province Prayat Krai marble products are divided into 3 types which are 1. Religions, traditions and cultures of Thai and Chinese 2. Furniture, household items and miscellaneous objects and 3. carvings of worship (Suwit Wongbunmak, 2015, pages 90-91).

1. For religions, traditions and cultures of Thai and Chinese, Phran Kratai Marble Products include Buddha images, altar table, alms bowls for holy water, incense burner, Thai spirit houses, and Chinese joss houses with dragons wrapped around poles, urns, and Guanyin images, as picture 4



Picture 4 Religions, traditions and cultures of Thai and Chinese

2. Furniture, household items and miscellaneous objects include ivory-shaped marbles, marble pillars, round tables, small jars, large jars, computer tables, marble balls, marble fountain balls, a bird's water jars (in the cage of red-whiskered bulbuls) and name tags, as picture 5



Picture 5 Furniture, household items and miscellaneous objects

3. Carvings and offering items: 12 zodiac animals, horses, elephants, goats, lions, turtles, rabbits, chickens, pigs, cows, buffalo, fish (Clown fish), chicken eggs, duck eggs, Pixiu images, pineapples and pumpkins, as shown in Picture 6.



Picture 6 Carvings and offering items

Summary

The study of Phran Krai marble consists of 1. History of Phran Krai marble: it was found that Phran Krai marble is caused by crystallization of limestone with a stone layer about 150 meters thick. There are red, gray, white and pink. The pink marble is famous throughout the country because there is only one place in Thailand. 2. Characteristics of marble: It is found that Phran Kratai marble looks similar to granite, but marble is more easily scratched. Another difference is the price which is higher than granite. Marble is a stone that has been transformed from limestone or dolomite, consisting of calcium carbonate that then crystallizes into calcite 3. Marble quarries and production processes: it revealed that the important marble source in Kamphaeng Phet province located in Phran Kratai District over Sawang mountain range. It is geologically considered that the marble in Khao Sawang Arom is around 300 - 400 million years old. It is changed into products in 8 procedures. 4. Phran Krai marble products: it was found that Phran Krai marble products are divided into 3 types which are 1. Product for religions, traditions and cultures of Thai and Chinese 2. Furniture, household items and miscellaneous objects, and 3. Carvings and offering items

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