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Analysis of Style of Rockery Building and Stone Stacking Technique in the Royal Garden of the Song Dynasty: A Case Study of Genyue Royal Garden

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Abstract Rockery building and stone stacking is a technique commonly used in building of classical gardens. Its emergence allows the fairy thought of "one pond and three mountains" to be reflected in different classical gardens. In the Northern Song Dynasty, the style of rockery building and stone stacking in the royal garden was an artistic climax in the history of the garden, and the technique of rockery building and stone stacking in Genyue Royal Garden was considered as the beginning of specialization. Through sorting out the records of the royal gardens in the Song Dynasty, this paper summarized the content of studying the royal gardens of the Song Dynasty, and systematically sorted out the development history of the techniques and styles of the royal gardens of the Song Dynasty and applied them into construction of some gardens.

Key words Royal gardens of the Song Dynasty, Rockery building and stone stacking, Artistic style

1 Introduction

Since the development of Chinese classical gardens, there is still a problem in the accumulation of the art and technology of the ancient gardens of rockery building and stone stacking. As a result, the continuity of both the artistic and technical aspects of the classical rockery building and stone stacking has been affected and threatened. At present, China's landscape design is in a period of vigorous development. However, it is blindly following the landscape techniques and forms of Western landscape, so that the essence of true Chinese classical gardens gets slowly lost. In this paper, we analyzed in depth the arts of the royal gardens in the Song Dynasty. This is favorable for guiding the restoration of rockery in royal gardens, and better guiding the construction of rockery in modern gardens.

2 Generation of rockery building and stone stacking

2.1 Definition of rock and stone As the "skeleton" of Chinese classical garden planning, stone exists in the gardening of ancient Chinese gardens. Its existence can be either a component of the mountain or a representative of the "mountain"^[1-2]. A pile of stones can create a mountain. Therefore, to study mountain, we must first study stone. The stones are scattered in various forms and shapes throughout the ancient gardens to brighten and beautify the landscape.

2.2 Development of rockery building and stone stacking In ancient royal gardens, stones for rockery building and stone stacking were rich and diverse. Since the Northern Song Dynasty, there have been written records of stone materials, indicating that since then,

people have begun to study stones, using rockery and stones as a carrier of tour and appreciation, and using them for construction of Chinese royal gardens. In the Song Dynasty, there were already books detailing the types of stones—*Stone Compendium of Cloudy Forest*, which recorded 1 601 kinds of strange stones: Taihu, Lingbi, Qingzhou, Wuweijun, Lin'an, Wukang, Changshan, Jianghua, Kunshan, Kaihua, Yingshi, and Jiangzhou stones^[3]. It recorded their production areas in detail, described their methods, and recorded their forms and materials. In the Northern Song Dynasty, stones of Genyue Royal Garden were basically divided into two types—water stone and mountain stone, and the areas for collecting stones were wide, including Jiangsu, Zhejiang, Henan, Jiangxi, and Anhui provinces. Stone types and forms were various and nearly cover all famous stones in the Northern Song Dynasty, such as Taihu, Lingbi, Qiuchi, Wenshi, and Linlu stones.

2.3 Types of mountain rocks and stones In the early literature, most of the rocks and stones were named using the area, color, or style of the production, and the text described the characteristics of the rocks and rocks. According to the records in ancient books, the following garden stones are the most common. (i) Taihu stone. Taihu stone is collective name for all karst carbonate rocks of various shapes. It has many holes and is exquisite. Its aesthetic criteria are famous, it can be judged from 15 standards: slimness, wrinkliness, leakiness, penetrability, elegance, clarity, naughtiness, ugliness, robustness, strangeness, quality, colour, shape, oddness and majesty. Leakiness: many holes on the stones; penetrability: giving people the penetrating and ethereal feeling; slimness: no dependence; strangeness: strange shape and beautiful; wrinkliness: wrinkled surface; ugliness: ugly shape^[4]. A stone can present a clever idea, so it is an optimal choice for rockery building and stone stacking and building the ec-

ological landscape. (ii) Lingbi stone. Lingbi stone is a type of ethereal stone and it can be made into a stone musical instrument because it can give out beautiful sound. Rockery and small landscape made by Lingbi stones have the mild and indirect beauty. Lingbi stone has slim, wrinkled, leaky and permeable characteristics and has an elegant shape, pleasing color, multiple patterns and good sound. It is considered a high-quality ornamental stone. It is reputed as the first stone in the world. (iii) Yellow stone. Yellow stone is hard, thick and rough, with sharp edges and corners. The surface is dull, vigorous and unsophisticated, and has masculine beauty. It is difficult to repair with tools, but the texture of yellow stone is quaint and simple. Yellow stone is quite different from Taihu stone. Taihu stone is famous for its strangeness and elegance, while yellow stone is famous for its rough and vigorous. In the book *Art of Gardening* (Yuan Ye), there were records of many important stone materials for rockery building and stone stacking. In the royal gardens of the Song Dynasty, yellow stone became one of the most common elements such as rockery, footpaths, and revetments. In addition, many private gardens in Suzhou flexibly used these significant characteristics of yellow stone to design and build the interior of the gardens.

3 Methods of rockery building and stone stacking

Rockery building and stone stacking are mountain landscape formed by individual rockery or several rockeries or stones. Emperor Song Huizong of the Northern Song Dynasty paid much attention to the skills such as rockery building and stone stacking, and pond digging. Within the garden, there were undulating mountains. In the east, there was Genyue Peak; in the south, there was Shou Mountain; in the west, there was Wansong Ridge. Using the method of rockery building and stone stacking, it extended the fairy thought of "one pond and three mountains" in Qin and Han dynasties, and created the fairy place pursued by human beings^[5]. Therefore, Genyue is the royal garden with the most magnificent scale and most exquisite structure and using stones to build mountains with stones. In the construction of Genyue Royal Garden, it adopted the many methods of rockery building and stone stacking. In this paper, we selected several methods that are widely applied in rockery building and stone stacking.

3.1 Special arrangement Large stone with special shape is used as a separate landscape object. Such stone is called standing stone. Stone for standing stone should be large and have clear profile or strange or special shape, or should be smooth, in horizontal or vertical arrangement. Generally, commonly used stone for special arrangement is called peak stone. Therefore, the requirement for shape and quality of such stone is relatively high. When arranging such stones, it can be one stone, or many pieces of stones. In case of many pieces, there should be clear division of primary and secondary, which is a common idea of rockery building and stone stacking. In limited houses and courtyards, it is necessary to

arrange few and delicate stones. Specially arranged stones become central landscape due to their beautiful shape and prominence.

3.2 Symmetrical arrangement The stones are arranged symmetrically along both sides of the axis, and they may not be completely symmetrical in the position. However, stones in both sides should basically be looking to each other. Stones arranged in such manner are generally placed in halls, or sides of roads, or entrance of gate, symbolizing two receiving boys or appearing to represent the host is receiving the coming guests^[6]. The symmetrically arranged stones do not need to be completely equal and identical in form, number, and volume. They can be vertical, horizontal, and tilt. They only need to be relatively balanced and harmonious, and echo each other in the form.

3.3 Scattered arrangement Scattered arrangement is the so-called "three scattered and five centralized", "scattered arrangement with general rule but no fixed form". In general, stones are arranged in odd number. In particular, scattered arrangement of stones in three stones is most common. In such manner, it likes end of mountain range, or seems as the falling stones among mountains. Scattered or centralized, continuous or intermittent, having clear division of primary and secondary roles. The requirement of scattered arrangement is much lower than that of special arrangement, but it is required to guarantee the beauty of stone combination. Such method of arrangement is generally applied in both sides of garden gate, in pavilions, bamboo woods, or hillside, river banks, steps, corners of pavilions, or combination of other landscape elements.

3.4 Other methods of arrangement There are many other methods of arrangement for rockery building and stone stacking, such as corner arrangement of stone, and mountain rock and flower bed arrangement. It can be said that the rockery building and stone stacking has been developed to a new height in the Northern Song Dynasty.

4 Skills and reference significance of rockery building and stone stacking in Genyue Roral Garden

4.1 Piling stones and arranging pavilions at mountain top In Genyue Royal Garden, the method of rockery building and stone stacking was first using soil to pile up, then using stone to build rockery. Through such arrangement, "mountain in the left and river in the right" pattern appeared in Genyue garden. Although it was built by men, it still showed the natural beauty. According to description in *Records of Huayang Palace*, stones were built to a very high level, added with Taihu stones and Lingbi Stones, grand and steep, wonderful workmanship excelling nature. From such description, it can be seen that rockery building and stone stacking for Genyue garden was first using soil to pile up, then build rockery to create grand and magnificent mountain and river. In *A Hundred Poem for Genyue-Jieting* written by Li Zhi, Jieting pavilion stands out several mountains, showing that stone peak in the front

of Jieting pavilion was not isolated, instead, it was arranged among several mountains. In Genyue garden of Song Dynasty, main peak of Shoushan mountain was also arranged with pavilion, also named Jieting pavilion, to give prominence to the imposing power of the peak. In Yuan Dynasty, the rockery of Longfu Palace was also arranged with temple, and the landscape gardens of Ming Dynasty were also arranged with five pavilions^[7]. Nevertheless, such craftsmanship of setting pavilion in isolated large stone was unique in Genyue garden. Stones used in Genyue garden were in large volume. It even reached the effect that one stone is a mountain, and a pavilion can be arranged in such stone^[8]. Such method of manifesting the charm of stone is difficult in the late application of rockery building and stone stacking, and gradually gets abandoned.

4.2 Arranging stones among mounds Arranging stones among mounds is a major method for creating the artistic beauty of mountain and river in Genyue garden. Stone peaks such as Meiling, Jiaoya, Xingxiu, Dingzhang, Longbaipo, and Zheshi in Genyue garden are typical examples of arranging stones among mounds. In *Records of Huayang Palace*, there are words of piling stones into banks, keeping the strangeness of stones, not adding any mark of digging or axe cutting, fixing the remaining soil to accumulate into rockery, exposing smooth mountain skeleton. From these descriptions, it can be seen that the process of rockery building and stone stacking in ancient time applied the method of arranging stones among mounds, to reflect the high craftsmanship of "not seeing the mountain before hillfoot, and showing the natural cragged mountain situation"^[9]. If without stone peak skeleton, a mound will lose its essence and it is vulnerable to collapse. By comparison, if without mounds, stone mountain will be hard to avoid thin and cragged, and it is not favorable for plant growth, and accordingly it is difficult to create lush and green natural atmosphere. The method of arranging stones among mounds takes full advantage of stone mountains and mounds, and it is helpful for creating excellent effect of "having power in a far distance, and having beauty in a near place". Usually, it will be able to produce the effect of "pretence becoming reality". The theory of arranging stone mountains among mounds proposed by gardening experts such as Zhang Nanyuan and Ji Cheng in Ming Dynasty fully covers the idea of mixing stones and mounds in rockery building and stone stacking. At the top of mountain peak, arranging peaks to reinforce the imposing power of mountain is the essence of the method of mounds carrying stones. Stacking soil is to create the basic appearance of a mountain, while the power and expression of rockery building and stone stacking depend on placing stone peaks at the mountain top. Such method often produces the effect of "using the few to defeat the many" and "adding a crucial touch". The rockery building and stone stacking developed by Zhang Nanyuan can be depicted as "arranging several stones at the top, the overall mountain will look like flying, and show the imposing power". The method of combining soil and stones had nearly appeared be-

fore the Northern Song Dynasty, its form was extremely similar to Fantou Method in mountains-and-waters painting of Song and Yuan dynasties. After Song and Yuan dynasties, the skills of rockery building and stone stacking and traditional mountains-and-waters painting method obtained further development.

4.3 Plank roads, footpaths, stone wall, and screen mountain In the process of rockery building and stone stacking, Genyue garden cared more about the combination of plank roads, footpaths, stone wall, and screen mountain. It often arranged plank roads and footpaths at cliff or steep places. When walking in such mountain, people can not see the mountain top, and what can see is just deep valley, fully reflecting the precipitous mountain. The treatment of two sides of footpaths was diverse, but mainly stone screen or precipice, to give prominence to the realm of "using the near distance to obtain height". The footpaths close to precipice would give people the feeling of precipice. In the later building of rockery of royal gardens, it often arranges footpaths close to rivers or steep cliff, to create the majestic mountain power. Besides, the effect of "using the near distance to obtain height" can be reflected with the aid of arranging footpaths in rockery building and stone stacking, such stone stacking method has become very mature in Genyue in Northern Song Dynasty. For the creation of stone wall and screen mountain, Genyue royal garden of Song Dynasty has special characteristics, in which purple stone wall of Shoushan Mountain is a good example of such skill. According to *Records of Huayang Palace*, stone wall was close to mountain, mountain back side was arranged with wood frame, the top was arranged with deep pond; when the emperor arrived, it would open the sluice gate to pour water, called purple stone wall, also called waterfall screen. Also according to *Records of Huayang Palace*, the stone wall and screen mountain in Genyue garden extended the form of mountain pond and stone wall of Tang Dynasty. For example, in the recreation garden of Taiping Princess of Tang Dynasty, there was balcony and stone wall. In addition, the planning of footpaths in Dongxiguan and Nanping small mountain construction in Wansui Mountain used the screen wall method.

4.4 Arranging cavern The method of arranging cavern also had already a long development history in the Northern Song Dynasty, and cavern form and skills were rich and mature. In *Verses to Genyue Royal Garden*, Cao Zu praised the cavern making skills and stated that the caverns of Genyue had already considered the combination of valley and cliff. Some valleys of Genyue were reputed as "storing the mist and keeping the cloud". From these, it can be seen that the creation of them belonged to such skills, which were recorded by many men of literature and writing in Song and Ming dynasties. In the large scale artificial rockery building and stone stacking, it generally adopts two or several interconnected caverns, to form underground passages corresponding to the outside plank roads. Song Dynasty was the pioneer of such method of penetrating main scenic spots. Qionghua Island of Yuan Dynasty was evolved from the rockery building and stone stacking meth-

od of Genyue in mound frame, cavern penetration, mountain and water treatment, and geomantic omen theory. Therefore, the method of rockery building and stone stacking exerted a great influence on the development of skills of later royal gardens. After Song Dynasty, the skills of rockery building, stone stacking, and cavern making became very rich, while cavern making method becomes the most exquisite skill in the rockery building and stone stacking method of Chinese royal gardens.

5 Conclusions

From the development of Genyue royal garden, it can be seen that the rockery building and stone stacking method of Genyue provides a set of systematic skills with effective development mode. Such method of gardening according to one's impressions started by Genyue obtained further systematic and model-style development after the Southern Song Dynasty. The history of rockery building and stone stacking of Song Dynasty is long, but the summary and study of skills about rockery building and stone stacking are to be improved. Through sorting out the records of the royal gardens in the Song Dynasty, we summarized the content of studying the royal gardens of the Song Dynasty, and systematically sorted out the development history of the techniques and styles of the royal gardens

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ties. Government should encourage land-using units to give priority jobs suitable for farmers' employment as much as possible to land-expropriated farmers, and also support land-expropriated farmers to choose jobs and start their own businesses.

4.6 Constantly developing and strengthening the collective economy

(i) The state should take a portion of the proceeds from land requisition for the rural collective economic organizations whose land is requisitioned to develop township collective enterprises. Township collective enterprises have a great advantage in absorbing surplus rural labor. They can not only create jobs for landless farmers, but also use the profits obtained to return to landless farmers. (ii) It is recommended to encourage rural collective economic organizations to revitalize assets and participate in land development, and allow rural collective economic organizations and farmers to use land use rights as assets and jointly establish joint-stock cooperative companies with investors for joint development. (iii) It is recommended to implement land

of the Song Dynasty. It is expected to help guide the restoration of rockery in ancient gardens and better guide the construction of rockery in modern gardens.

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shareholding to enable landless farmers to obtain permanent income rights from the land.

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