Introduction of the Hand-weaving Technology of Wooden-loomed Zhuanghua of Nanjing Yunjin

Nanjing Yunjin has a long history of over 1500 years with regard to the hand-weaving technology. The technique of wooden-loom Zhuanghua for Yunjin is the only traditional hand-weaving technology that cannot be realized with modern machines nowadays among those developed over the silk weaving history of more than 4700 years and the brocade making history of more than 3000 years. It is a traditional technology carried over from generation to generation with the experience of weaving, the sensation on spot and aesthetic feelings of predecessors. All work pieces completed are exquisite and beautiful handicraft articles.

As recorded in “Record of Danyang” by Shan Qianzhi in Liu Song Dynasty (420~479 A.D.), hand-weaving of Nanjing Yunjin was started in Yixi years of Eastern Jin Dynasty (379~420 A.D.) in the three Dynasty. In the Yuan, Ming and Qing Dynasties, Nanjing Yunjin was chosen as the material only for the royal family.

Nanjing Yunjin is woven by a Dahualou wooden draw-loom, 5.6 meters long, 1.4 meters wide and 4 meters high, through coordinated manual operation of a Zhuai Hua worker and a weaver. The draw-loom is made up of 1924 parts. The Zhuai Hua worker, sitting on the upper level of the loom, lifts the warp while the weaver, sitting at the lower part the loom, passes the weft and applies gold-threads and colors. Because of the complexity of the technique, these two workers are only able to weave about 5 or 6 cm of Yunjin per day. So, there is the old Chinese saying “an inch of Yunjin equals to an inch of gold”. This working process was recorded and described in detail in such ancient literatures as “Naifu” of “Creation of Things by Nature” by Song Yingxing in the Ming Dynasty and “Collected Works on Mulberry and Silk Cocoons” by Wei Jie in the Qing Dynasty.

Both Zhuai Hua workers and weavers have to be trained and practise for many years before being able to operate skillfully. Its technique was usually kept as a secret.

The varieties of Yunjin hand-woven by people in ancient times are chiefly composed of “Zhijin”, “Kujin”, “Kuduan” and “Zhuanghua”. The former three can be produced by machines nowadays while the techniques of “Swivel coiled weaving” and “Varying color from flower to flower” in Zhuanghua can only be handled by hands due to the special requirements on design and weaving process.

Hand-woven Nanjing Yunjin was the cultural envoy of China in history Nanjing Yunjin was transported to the Mediterranean area along the Silk Road via central Asia and Turkey. In the
Ming Dynasty and afterwards, Yunjin products were sold to the southeastern Asia, Europe and other places along the “Silk Road on Sea”.

Nanjing Yunjin, which has been making itself a school ever since the Song Dynasty, is the best among all kinds of brocade. Its technology can be taken as a typical example of the weaving technology in ancient China, with its influence extending to the modern times.

“Tiaohua Jieben” in the weaving technology of Nanjing Yunjin is the first and key step during the course of Yunjin weaving and it is very difficult to accomplish it. The Huaben produced in this step serves as the bridge to pass patterns on drawings to fabrics. The Huaben is a fabric woven with silk and cotton threads according to pattern designs using the ancient practice of tying knots to keep record.

The weaving technology of Nanjing Yunjin is complicated systematic engineering. For example, the weft introduction for swivel coiled weaving technique in “Full length warps and spliced wefts” alone involves many secret pithy mnemonic formulas and techniques which are not supposed to be made known to the public. The so called “Full length warps and spliced wefts” refers to full length of warps while wefts consisting of varied number of colored weft sections spliced together. “Swivel coiled weaving” is also called “Swivel coiling through pipes”, such a way of weaving is unique in the weaving technology of Yunjin Zhuanghua. With this technique, wefts with dozens of colors can be arranged in the same shuttle pass in latitudinal direction, to create a special effect of “varying colors from flower to flower”.

Yunjin craftsmen have kept on summarizing work experience in practice, and worked out many pithy mnemonic formulas in concise and generalized language. For example, in manual operation, there is the pithy formula of five words “nip, build, bend, feed, skid” for making knots, the pithy formula of nine words “one Lun, two Jue, three chao, four Hui, five Ti, six Peng, seven Zhuai, eight Tao, nine Sai” in Zhuaihua operation, and “gold thread should not be longer than the finger while the flannelette should not be longer than an inch”. When craftsmen are weaving, the Zhuaihua worker and weaver speak to each other in harmony, which has become the local folk vocal art forms—Nanjing Baiju. When some complex Zhuanghua fabrics are being woven, a weaver (craftsmen) is required to be highly concentrated with regard to his/her hands, brain, mind, eyes and mouth. He/she often has to memorize several dozens of pithy mnemonic formulas which serve to direct all his/ her movements in operation: stepping the switch with feet, passing shuttles with hands, reciting pithy formula with mouth, planning color arrangement with brain, viewing all direction with eyes, and coordinating all parts of the body. This shows that Yunjin weaving calls for high labor intensity and techniques.

Nanjing Yunjin is made with exquisite materials. Usually, color threads, gold and silver threads and peafowl feather are the main and characteristic materials. There are two shapes of gold threads: circular and flat. Flat gold threads are made by cutting hammered gold foil backed on paper; and circular gold threads are made by twisting flat gold threads. The peafowl feather threads are made by entwisting villus of peafowl onto silk threads. They will not fade and show same luster and color when viewed from the different angles.

The cultural and artistic styles of Nanjing Yunjin can be boiled down to the charm of the entire art form, the gorgeousness of the harmony of halo, the exquisiteness of the creative principle of weaving technology and the uniqueness of auspicious patterns. The styles and the school it represents are rarely seen in China and the world.
Apart from being used by the royal family and as precious gifts that the emperor granted to foreign envoys and nobilities, Yunjin products are also popular among such nationalities as Mongolian, Tibetan and Uygur as their garment fabrics, and religious streamers and column decorations in temples as well, having laid considerable foundation for the exchanges and unity among people of different nationalities.

In recent years, Nanjing Yunjin Research Institute has successively reproduced five “Dragon Robe of Ryukyu King” for Shuri City in Japan. Nanjing Yunjin products were also exhibited in over ten countries such as the USA, France, Belgium, Norway, Austria, Japan, the Republic of Korea, Singapore and Malaysia in addition to Taiwan and Hong Kong along with the demonstration of hand-weaving operation on the spot. The hand-woven Nanjing Yunjin has made its contribution to promoting the unity of peoples of all nationalities and the friendship and cultural exchange among the people of the whole world.

It is particularly worth noting that Jiangning Weaving Bureau in the Qing Dynasty not only created the glory of Chinese Yunjin in its heyday, but also created Cao Xueqin (1711-1763 A.D.), a great writer of classic literature. Cao was born in the aristocratic family of weaving. He was deeply influenced by national culture, propitious culture and royal culture. This cultural accumulation made full preparations for his great works “The Dream of the Red Chamber”. It can be said that without hand-woven Nanjing Yunjin, there could be no Jiangning Weaving Bureau, nor could there be “The Dream of the Red Chamber” by Cao Xueqin.

The challenges facing in the safeguarding and developing
With the end of the Qing Dynasty in the early 20th century, hand-woven Nanjing Yunjin lost the biggest market and the industry fell into depression, forcing its craftsmen to change for other jobs for a living. According to statistics, in 1949, there were only 3 Yunjin looms and 4 craftsmen left in Nanjing in the field of hand-woven Yunjin. As people did not pay much attention to the fact that traditional handicrafts carried over manually may easily got lost, some varieties of Yunjin products became extinct in history, such as precious Zhuanghua satin, Zhuanghua thin silk and Zhuanghua thinner silk mentioned in “Records of Heavenly Water and Ice mountain” (a list of clothing confiscated from the home of prime minister Yan Song). These products are only known by names without substantial existence.

Like other kinds of traditional handicrafts, the market demand for Nanjing Yunjin is decreasing with the development of modern science and technology, the extensive application of computers in industries, the continuous emerging of new silk woven products and the accelerated upgrading of garment fabrics. Moreover, it takes a long period to learn the techniques of manual weaving of Nanjing Yunjin, and the labor intensity is high, making morden young people unwilling to do the job, therefore the traditional handicraft of wooden-loomed Zhuanghua Nanjing Yunjin is still at the edge of extinction.

What’s more, the masters engaged in the hand-weaving of Yunjin are all advanced in age, and inheritors are lacking, so the hand-weaving technology of wooden-loomed Zhuanghua of Nanjing Yunjin is facing the danger of extinction.

The approaches to safeguarding Nanjin Yunjin
The Chinese government pays much attention to the protection of Nanjing Yunjin. Early in 1957, Nanjing Yunjin Research Institute was set up. It collected and sorted out 970 pieces of objects of Yunjin (most of which are important cultural relics), 2000 pieces of drawing documents of Yunjin (including the “Hanfu draft” left by the official Weaving Bureau) and 58000 volumes of books about Yunjin, and also organized Yunjin craftsmen scattered in society to restore production, to rescue and protect the hand-woven Yunjin technology that was on the verge of being lost.

Legal protection against the exploitation of the cultural manifestations concerned

On May 20, 1997, the State Council of the People's Republic of China issued the Order No. 217 “Regulations for protecting traditional arts and handicrafts”; In July 1997, the Standing Committee of Jiangsu Provincial People's Congress passed “Regulations for protecting traditional arts and handicrafts of Jiangsu Province”. Nanjing Yunjin was included in the scope of protection thanks to its qualification.

Legal protection for inheritors of handicraft techniques is specified in Article 13 of Order No. 217 “Regulations for protecting traditional arts and handicrafts” of the State Council of PRC, and in Chapter 4 of “Regulations for protecting traditional arts and handicrafts of Jiangsu Province”.


Measures taken to guarantee transmission of the skill or know-how

Raising the salary of Yunjin craftsmen, protecting and encouraging Yunjin inheritors already confirmed. Each of them is now given every month 100 to 200 yuan as an allowance, 50 yuan as confidentiality fee and 100 yuan for teaching apprentices according to his/her technical grade.

Take craftsmen as artists,pay more attention on the practical skills and creation ability than education level,give policy attendance on job appraisal.

Plans have been worked out to incorporate Yunjin as a specialty into the scope of vocational education, and apprentices are trained regularly. Related classes have been set up in Nanjing Zhonghua Vocational School and Nanjing Pukou Vocational School to train Yunjin technicians.

A class of postgraduates for Master degree on Nanjing Yunjin will be planed to set up jointly with Nanjing University, to train senior specialists on Yunjin.

Special professional works about Yunjin will be published. Nanjing Yunjin of China published at 2003, has awarded the prize of“The National Books Prize”. At present, The Riddle of Nanjing Yunjin is on the typesetting, the draft of Nanjing Yunjin---an Oriental gem has finished.

Others:

The Ministry of Culture and the Bureau of Cultural Relics of China as well as the Department of Culture of Jiangsu Province and the Bureau of Culture (Cultural Relics) of Nanjing show great concern for and give energetic support to the protection of Nanjing Yunjin, completing laws and regulations on protection of Nanjing Yunjin; reinforcing the development of contingent of scientific research, safeguarding and protecting various rights and interests of old craftsmen, intensifying the protection of the ruins of Jiangning Weaving Bureau and
preparing to build the Museum of Ruined Jiangning Weaving Bureau, Nanjing Gallery of Yunjin Art, Memorial Hall of Cao Xueqin’s Former Residence. Literature Hall of “The Dream of Red Chamber” based on archaeological excavation and full demonstration of ancient ruins. Nanjing Yunjin of “Jixiang brand”has been listed as the famous brand of Nanjing City and Jiangsu province.

● **Action plan**
  - Protection and construction of the ruins of Jiangning Weaving Bureau;
  - Preparing to construct “Nanjing Yunjin Museum of China”;
  - Holding international academic seminar on Yunjin non-periodical;
  - Publishing professional works about Yunjin, including Yunjin Tiaohuajieben, Weaving of Yunjin, Yunjin crafts;
  - Training professionals for Yunjin at elementary, medium and senior levels; Nanjing Bureau of Education and Nanjing Yunjin Research Institute will incorporate Yunjin technology into vocational education in a planned way, with apprentices trained regularly. every year, 1 to 2 Yunjin professional technical secondary classes will be run jointly with Nanjing Education Bureau. Meanwhile, a class of postgraduates for Master degree on Nanjing Yunjin will be set up jointly with Nanjing University. 20 students will be enrolled every five years, including 5 manual weavers, 5 Zhuaihua weavers, 5 art designers and 5 pattern designers.
  - Reproduction of patterned brocade “Dancing figures and animals” of the middle or late Warring-State period. The 1.5-meter wide Yunjin wooden loom will be used to reproduce quilt facing and other articles for bridal chamber use in royal families for Imperial Palace Museum. Reproduction of “satin robe fabric in Ruyi cloud patterns on blue background”, “Curled dragon and square check gauze”, and “Eight curled dragon satin robe fabric in crimson background” of the Ming Dynasty unearthed from Dingling Museum of the Ming Tombs.
  - A seminar on Nanjing Baiju (Nanjing Baiju is a kind of folk vocal art forms singing in Nanjing dialect, which was created by weaving workers when they were weaving Yunjin) will be held, so that Nanjing Baiju can also be inherited while inheriting Nanjing Yunjin.

● **The organization or body responsible for the implementation of the action plan;**
  Department of Culture of Jiangsu Province, Bureau of Culture (Cultural Relics) of Nanjing, Government of Xuanwu District (location of the ruins of Jiangning Weaving Bureau) of Nanjing, Nanjing Light Industry Group and Nanjing Yunjin Research Institute.

● **The administrative or legal mechanisms for safeguarding the form of cultural expression or the cultural space concerned;**
  Nanjing Municipal People’s Government

● **The sources and level of funding;**
  50 million US dollars are to be raised in the form of stock sharing system.

● **Long-term objectives**
  Nanjing Yunjin will be made an international known brand as a symbolic mark of Nanjing by enforcing and completing local laws and regulations, carrying forward and protecting the traditional technology of Yunjin, constantly bringing up specialized people as reserves, studying and publishing books about Yunjin technology and gradually
restoring the lost varieties of Yunjin products, so that Yunjin will become popular over the world and all people in the world can know about Yunjin.

- **Short-term objectives**
  Efforts will be made to popularize knowledge on Yunjin, let more people know about Yunjin and enhance their awareness that Yunjin is one of the national treasures along with the development of tourism, and to complete the relevant projects in the action plan on schedule.

- **Expected outcomes**
  With the projects mentioned above completed, Nanjing Yunjin will be inherited, protected and carried forward, and will continue to make due contributions to human civilization.