Indigo and Its Impact on East Asian Textile

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When one thinks of a blue dye, one usually thinks of the Indian indigo, as Indians had mastered the art of dyeing blue using indigo in 3rd millennium BCE when most of the developed countries of today only could use it to dye black as late as in 13th century CE. When Marco Polo visited India, he was surprised to see blue colour achieved by indigo at Colium in State of Travancore. He said "They (Indians) also have abundance of a very fine indigo (ynde)." (cited Tolat, Vol. I 1980: 29)

1. Natural Indigo Plants and the Dye

In India, the natural indigo of commerce was extracted from the leaves of species of plants belonging to genus Indigofera. In India about 40 species of Indigofera genus are found, out of which four were commercially exploited for bulk production due to their higher dye content and their suitability to the climates and soil of the place of cultivation. These were Indigoferaarrecta, Indigoferasuffruticosa (I. anil), IndigoferaSumatrana and Indigoferatinctorial (Tolat, 1980, p. 50). From the leaves of these plants, the indigo dye was extracted by steeping the plants in water, beating the liquid obtained after steeping, collecting the settled dye from the vat, and then draining it to make the paste, boiling the paste and compressing it into the cakes and finally drying them to sell in the markets. These indigo dye cakes, which are very light in weight, were transported to various centres in India as well were exported. They also have no expiry date as they last for years. For example, the natural indigo cakes bought by author in 1979, still gives excellent colour and have not got spoilt. This could be one reason for feasibility of its export through the land and sea routes, which took years to complete the voyage, in the ancient times.

In Northeast India, other plant belonging mainly to the genus Strobilanthes were used for extracting the blue dye. Most frequently used were the Strobilanthesflaccidifolius and the Stobilanthescusia. In 1984, Author had covered about 8 tribes using this plant for dyeing their yarn to weave their shawls, skirts, loin cloths, or use for tattooing, etc. Leaves of these plants were fermented and the cakes were made and dried to use them for dyeing cotton yarn or fabric throughout the year.

In Southwest China, author has covered about 16 minorities which uses Assam Indigo in year 2003. They mainly make the indigo paste and use it locally. They did not make any dye cakes may be because they were not transporting the dye from one place to the other but made only for their local use within the village.

In Okinawa Prefecture of Japan the Assam Indigo is cultivated and used for extracting the dye paste, which is used for dyeing textiles.

In West China as well as in **South Korea** Polygonum tinctorium is used for preparing indigo paste which is used for dyeing textiles.

In the mainland Japan, though the Polygonum tinctorium is cultivated, they use totally different process to ferment the leaves of the plant. The fermented leaves are called *sukumo.* They are packed in gunny sacks and transported all over Japan for dyeing using it.

2. Names of Indigo Plants and Their Meanings

The Sanskrit name for the indigo is *neel*or *nila.* Many Indian languages carry the word *neel* to describe the varieties of Indigo. *Neel* is also the deep blue colour and is also the black, *ghanashyam*(literally jet black); which is used for describing the colour of Krishna as well as of the clouds.

Names of indigo in several local languages of India vary a great deal. Some of these names describe the process of indigo extraction or the quality of indigo. For example, in Kannada, indigo plant is called *ollenilli*, where *olle* means good and *nilli* is for indigo. They also call it as *Hennunilli* meaning female indigo. In Tamil, one of the process is described by name *aviri*, which means boiled, while the other name *karundoshi*, meaning black indigo; describing the colour obtained. In Sanskrit there are many names for indigo. The most used word *nila* means blue, while the *vajaranili*(Watt, 1885, p. 391) means hard blue, thus describing it quality of fastness. The Gujarati name for indigo is *gali*, which means decoction. The reason seems to be, indigo needs to be fermented/ decocted to set up a vat for dyeing using it, hence name *gali.*

In India, '*nila*' not only meant blue, but was associated with black as well because the dye plant was also used to prepare a black colour before its property of achieving blue was discovered. The word '*nila*' is also used as an adjective in the case of human beings, animals, plants and minerals. For example, the prefix '*nila*', '*nil*' or '*nel*' is used with a large number of plants like the water-lily (Nymphea Lotus, Nilufar, Nuphar), Sacred Lotus (Nelumbium) etc. So, it seems that the meaning of the word '*nila*' ranges from the general to the specific and probably obtained its restricted meaning from Indigofers in India, and that too perhaps only during comparatively modern times (Tolat, 1980, p. 28).

As the indigo plants and the dye originated in India, their names contain Indi means India. Due to its popularity and great demand, the word indigo became synonym for all the blue dyes produced from plants other than genus Indigofera. For example, the other blue dye yielding plant growing in Northeast India is known as Assam Indigo in English, in spite of the fact that it is extracted from the species of Strobilanthes and not of Indigofera. Strobilanthesflaccidifolius and Strobilanthescusia, Nees, now named as Bapicacanthuscusia, Nees. grow in Lower Himalayas of Northeast India and is used extensively by several tribes of Northeast India. The plants belonging to Strobilanthes species, are all commonly known as the Assam Indigo and are also found in Yunnan and Guizhou Provinces of Southwest China, Taiwan and in Islands of Okinawa, in South Japan. The same plant is also found in the South and Southeast Asian countries such as Bhutan, Bangladesh, Myanmar, Thailand, Laos, Vietnam, etc.Among the tribes of Northeast India, Assam indigo is known as various names such as *rum*, *gum*, osak, etc. while in China it is known as *balankan* (pronounced as *palankan*).

In Japan, Japanese indigo, Ryukyu Indigo and Indian Indigo and to a little extent woad are used for dyeing blue. They all are called by same name '*ai'* in Japanese. The Japanese indigo

(Polygonum tinctorium) is called *Tadeai* in Japan, while the Indian indigo of commerce (Species of Indigofera genus such as Indigoferatinctoria, IndigoferaSumatrana, etc.) are known as *Indo ai.* The Assam Indigo (species of Strobilanthes, Strobilanthesflaccidifolius or Strobilanthescusia, now called as Bapicacanthuscusia), which are mainly used in Okinawa group of Islands is called Ryukyu *ai* in Japan asthe Okinawa group of Islands were earlier a part of separate Kingdom called Ryukyu, which was not part of the Japan. Okinawa's climate is closer to the climate of Northeast India, which suited the growth of Assam indigo hence found its rooting there. Indian indigo of commerce, which needs warmer climate, was adopted only in Kohima *jima* (Kohima island) in the southern part of Okinawa group of islands. Now a entrepreneur has started cultivating it in Ishigaki island with the initial help of the author.

3. Colours Yielded by Indigo, their Names and Meanings inDifferent Cultures

Presently when one talks of indigo colour, it is imagined as a deep blue, almost close to black, yet having a kind of shin, brightness adhered to it in case of Indian indigo. At times indigo colour is deep yet with a tinge of red, especially if it is dyed using Japanese indigo. But these are not the only colours that indigo can dye. To achieve deep blue, the yarn or the fabric needs to be dipped in the indigo dye vat. and then aired. The first dip in indigo vat dyes the yarn or the cloth to light blue colour. The repeated immersion of fabric in indigo dye vat and airing the fabrics increases the intensity of the blue, slowly turning it to the gradations of light to middle to dark blues. These variations have given several names to the indigo dyed colours in each country, which relates them to the colours of nature. For example, the light blue in India is known as *asamani*, meaning colour of the light blue sky, while in Japan it is known as*mizuiro* meaning colour of the water. The middle blue is called *nila*, while the dark blue is called *ghanashyam* in India, relating it to the deep dark blue clouds as well to the colour of God Krishna. In Japan names such as *ai iro, kachiiro* (blue colour of the deep ocean), *konju* and *kon* are used for variations of dark blues, while *ao, hanadairo*are some of the middle blues; *mizuiro, mizuasagi* and *sorairo* are some of the light blue colours achieved from indigo. However, in Japan, the colour *ao*, i.e blue is not always blue but at times includes greenish tinge to the blues or also some of the greens. For example, colour *asagi*is a greenish blue, which is also included in the range of blues.

When indigo is used in combination with other dyes, such as yellow, colouring dye, it gives green and when combined with red, yields purple colours. Each of these also have different names too.

Just like in India, the East Asian countries follow the five-element ideology. For example, in the Korean yin-yang and the five-element ideology the blue represents wood element, East direction, Spring and the God of Direction is Blue Dragon. In India, in Sanskrit the five-elements are called *panch-bhoota* or *pancha -mahabhoota.*

4. Indigo Routes

Even before the Silk Road was established, trade between Assam and China was taking place via Silk Road of the East, which was a difficult track between Manipur and China, (Chandra 1977: 2) Before the establishment of the famous Silk Road, when Han China had no knowledge of the Western part of present China, India had already established trade routes with Shu (the present Sichuan Prefecture of Western China) and Qiong presently in Western China.This route passed through Burma (present Myanmar) and reached Southwest China.

This route seems to be a likely route through which the Assam indigo could have travelled to Burmaand to the Yunnanin Southwest China. From Yunnan it would have travelled to the neighbouring prefecture, Guizhou. Reference to this route is made in 138 BCE by Zhang Qian, who was sent by Han Emperor Wu to forge an alliance with Yue-zhi nomads in Afghanistan, on his way, saw textiles from Shu traded to Bactria via India. Zhang Qian's report recorded by historian SunaQien, noted, "When I was in Dasha [The Bactria of Greeks], I saw bamboo canes from Qiong and cloths made in province of Shu. When I asked people how they had received such articles, they replied that their merchants went to buy them in the markets of Shen-du [India]." (quoted in Vollmer et al.11, Balaram, 2012, p.14-15). "Zhang Qian also speculated that the safest route to the Central Asian markets might be through India, since the Northern routes were controlled by the Xiong-nu [a federation of tribes which kept attacking China]" (Vollmer et al.11). Guy also seems to be of this opinion as he has also mentioned, "Indian cotton was also reaching China overland from Bengal via Assam and Yunnan and via Central Asia overland route" (Guy, 1998, 153).

The second route could also be via Tibet, which enters China through Yunnan, where an Indian colony was already established during Emperor Ashoka period. The trade between India and China was carried out using this Eastern route even before establishment of Silk Road in 1st C. CE.

The third route could be the **Silk Road of the Sea**, by which the indigo and indigo dyed textiles reached Ryukyu Kingdom, now part of Okinawa Prefecture of Japan; via ports of South China and Southeast Asia such as Malacca, Palembang, Java, Sumatra, Annam, etc.

Ryukyu *ai* (Strobilanthesflaccidifolius and Strobilanthescusia, Nees), which is used in Islands of Okinawa Prefecture in present Japan, is known as Assam Indigo in India. There is a possibility of it being travelled to Ryukyu Kingdom between 13th to 16th centuries, when Okinawa Prefecture was a separate Ryukyu Kingdom, which had a flourishing trade with 8 important Ports of Southeast Asia, Korea, China and Japan. Ryukyu Kingdom (i.e. present Okinawa Prefecture of Japan) due to its strategic location was a convenient place to carry out international sea trade. For example, every year they sent about two ships to Malacca (Present Melaka in Malaysia), where they procured Indian Textiles, most of those textiles had indigo at least as one of the colours, if not a completely indigo dyed textile. They could have also bought the indigo and come across the Indian Indigo plant which they could have adopted to start indigo cultivation, manufacture and dyeing in Ryukyu Kingdom. Other possibility is that the Assam Indigo travelled through ports of Southwest China to Japan.

5. Indian Indigo, Its Use and Export in the Ancient World

Natural Indigo is one of the oldest and fastest dye of the world which has its origin in India. India excelled in extracting the indigo dye and creating exquisitely patterned textiles using it. The vats found during the recent excavations at Rakhigarhi in present State of Hariyana in India confirms its early use during Indus Valley Civilisation.

Having a large coastline, India had already started building ships and ports and travelled to various countries first to the Western Asia, Africa and Europe, and later to the Eastern side of South, Southeast and east Asia. These travels helped Indians to know the likings of the people belonging to the different regions, due to which India excelled in catering to the specific market, producing a large variety of textiles, to suit the needs of each individual markets. The knowledge of the sea and the land routes, and the ability to produce quality

textiles with exquisite designs, helped India to start exporting indigo as well as indigo dyed textiles as early as the period of Indus Valley Civilisation. Apart from indigo dyeing, India had mastered mordant dyeing technique to dye brilliant and fast reds, and other bright colours. This led to export of fast multicoloured Indian textiles, including blues, greens and purples achieved by dyeing and overdyeing with indigo apart from reds, yellows dyed using mordent dyeing techniques; which other countries could not produce for centuries to come. "Madder dyed textiles were created in Western India for foreign customers as early as third millennium BCE during Indus Valley Civilisation." (Maxwell 2003:112)

Towards the West, India had developed a flourishing trade with Roman Empire (Aprox 753 BCE to 565 CE). Indigo was exported to Rome where "Indigo was used as a colour. Cotton cloths were used as articles of wear" (Chandra 1977: 111). Periplus has mentioned that the port of Barbaricum (located in the mouth of Indus)exported costus, bdellium, lycium, nard, turquoise, lapis-lazuli, Seric skins, cotton cloth, silk yarn and indigo to Rome. (Periplus (39), Chandra, 1977, p.126)

6. Early Visual References and Evidences of Early Indigo Dyed Textiles of India

The earliest visual examples of indigo dyed textiles are found in the cave paintings of Ajanta dating back to 5th c. CE. These include indigo coloured plain, striped, chequered,single and double ikat, wax resist painted or printed textiles; tie-dyed *bandhanas,* and brocades.

The earliest sample of Indigo dyed textiles, is found at Mohenjo-daro which was mordent dyed, resist printed and dyed using madder and indigo. Another example is of a large collection of Indigo dyed textiles, most of them from Gujarat; excavated from Fustat near Cairo in Egypt. They are carbon dated 9th to 16th c. CE. These are grouped in three types based on the colours used. They include:

1. Blue and White Cottons: These were block printed or at times painted using wax or mud resist and then deep dyed in Natural Indigo vats.
2. Red, Blue and White Cottons: These textiles were first block printed using mordents, dyed using red dye such as madder, resisted using mud or wax and then dyed in indigo.
3. Red, Black and White Cottons: These were manufactured using mordent dyeing technique, without using indigo. However, to create the white patterns on the dark ground such as deep red or black, the wax or mud was used as a resist. (summarised from Barnes, 1990)

Apart from painting and block printing, some of these textiles were also tie-dyed. These include fabric tie-dye such as *bandhana* from West India

Fig.1: Sleeves of the dancer having*bandhana* (tie-dye) pattern on dark blue indigo dyed ground, Ajanta cave no.1 Story of Mahajana Jataka

Fig.2: Resist-printed and indigo-dyed cotton from Gujarat, found at Fustat near Cairo, 15th-16th c. CE

Source: Fig. 1 (Behl, 2005) Fig. 2: Victoria and Albert Museum

7. Cultural Impact of Indigo and Its Use in India and in East Asia

Indigo was extensively used for dyeing textiles in India and East Asian countries. In India, indigo was predominantly used for dyeing cotton, while in Japan indigo was used for dyeing flax, linen and hemp. During Edo Period, indigo became very popular to dye the newly introduced cotton, which was found more comfortable to wear and suitable to dye using indigo. The farmers adopted indigo dyed cottons as they kept reptiles and insects away.

Apart from dyeing textiles, natural indigo was also used in dyeing background for painting religious paintings and manuscripts or for painting them, as it protected the fabric and the paper it is painted on from moths. In India, for painting using indigo, indigo cake itself was used while in China, Korea and Japan a special stick was prepared from extracted indigo to paint it on the paper as well as on textile, which acted in a similar manner as a pigment colour. It is called *aibo* in Japan and is still manufactured in Japan using a similar process which is used for making *sumi*, the black ink; used for drawing Chinese and Japanese calligraphy and paper paintings called *sumie* in Japanese.

In India, the painters used indigo cake itself to paint manuscripts on paper as well as the textile wall hangings such as Hindu *pichwai*, Jain *tirthankarpata*, *mandala* and *tantra*, Buddhist *tangkha* and *mandala* on textiles and sometimes also on papers.

Mandala and *tangkha* paintings of Buddhism, also had travelled from India to Japan via China and Korea.

7.1 Use of Indigo in Religious Paintings

Natural Indigo was used in the religious paintings painted for the three ancient religions of India namely Hinduism, Jainism and Buddhism. While it was used in the Buddhist paintings in China, Korea and Japan. Indian paintings such as Hindu *pichhwai* and *kalamkari*, Jain *pata*, *mandala* and *tantric yantra*, Buddhist *tangkha* and *mandala* paintings in India and the Buddhist paintings such as *tangkha*(also spelt as*tanghwa*,*tanka*,etc.) and *mandala* in China, Korea and Japan, all used indigo for painting.

a. The Religious Impact

Buddhist *tankha* paintings were prepared for the use of monks to pray while travelling. They were rolled while travelling and opened up every day to pray, during the daily halt for food and refreshments.Though spelt differently, *tangkha*paintings are painted in all the nations wherever the Budhhism is practised. In the Himalayan region of India such as in Arunachal Pradesh, Sikkim and Ladakh they are still painted and used. Apart from India, they are also painted in Bhutan, Nepal, Tibet, China, Korea and Japan. The style of each place varies to some extent, though the subject is always related to Buddhism, and most of the times, the Budhhas, Bodhisatvas or the pious figures and their stories are depicted.

Fig. 3. *KamalankiPichhwai*, early 20th century CE. 178x 154 cm
Fig. 4: *Suri Mantra Pata* with lotus in centre used indigo to paint Jain religious painting 15th c. CE.
Fig. 5: Korean Tangwa painted using Indigo
Fig. 6: Central panel of reproduced Kojima *mandala* with lotus, Buddhas sitting on each of the lotus petals, painted on an indigo dyed silk using real gold and silver. The original is housed in Kojima-dera Temple.

Source: Fig. 3: Ambalal, 1990, plate 149, Fig. 4: Dr. Shridhar Andhare, Fig. 6: Kojima Mandala, 2006, p. 9

"Kojima mandala is a representative of two-universe mandalas, which dates back to the Heian period. They are now the property of the Kojima–dera temple in the town Takatori in Nara prefecture in Japan. It is said that this piece was given during the Choho Era (999-1004 CE) by Emperor Ichijo to Shingo (938-1008 CE), who restored the Kojima-dera temple. This

mandala is painted using gold and silver on indigo dyed dark blue twill fabric. Buddhist paintings painted using gold and silver on dark blue indigo dyed silk are also found in China and Korea. In the original Kojima Mandala, the silver painted patterns are not clearly visible as the silver had oxidized. In July 2006, Nara National Museum held an exhibition of the original as well as the meticulously reproduced Kojima Mandala of 350 cm. height." (Balaram 2012:104)

7.2 Use of indigo in Miniature Paintings, Illustrated and Illuminated Manuscripts on Paper

a. Use of Indigo in Miniature Paintings

In India indigo was used frequently to paint the manuscripts and miniature paintings. Various tones of indigo are amply used in illustrating Hindu Gita Govinda manuscript from Kangara. Ragamala paintings especially of the *abhisarika* going to meet her lover Krishna at night are painted using indigo to illustrate the dark night and the blue colour of Krishna.

Fig.7: Companion persuading Radha as Krishna flutes, Folio from Lambagraon Gita Govinda painted using indigo

Source: https://i.pinimg.com/originals/73/df/7a/73df7af9191ed611ab7994c163105c1b.jpg

b. Use of indigo in Illustrated and Illuminated Religious Manuscripts

- **Jain manuscripts** show ample examples of use of indigo. For example, in Kalpasutra dated 14th c. CE, indigo is used to illustrate the resist printed indigo dyed lower garment with design of famous *hamsa*, painted using indigo.

Fig. 8: Folio from the Kalpasutra Manuscript, probably from Patan in Gujarat, c. 1375-1400 CE displaying most famous hamsa design used for lower garments printed using resist technique and dyed in indigo.

Source: Prince of Wales Museum, Mumbai. (quoted. in Guy, 1998, 52).

- **Illuminated Buddhist Manuscripts from Korea**

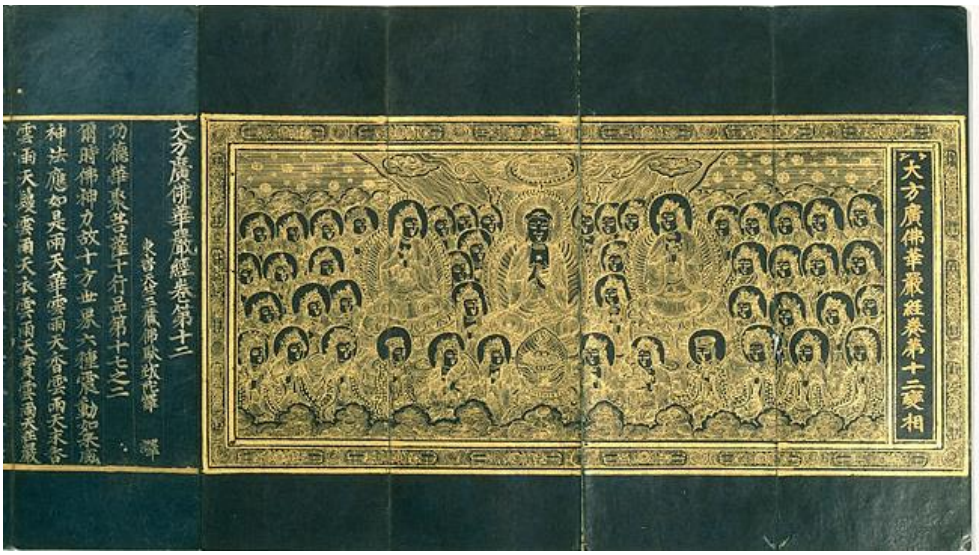
Buddhist manuscripts were either painted with indigo or were painted on indigo dyed paper. The second variety came to be known as illuminated manuscript. The art of painting illuminated manuscript flourished in Korea during Goryeo (Koryo) Dynasty (918 to 1392 CE). During this period, arts, architecture and literature flourished.

"Another Buddhist contribution to the (Korean) arts is *sagyong*, the illuminated manuscripts. These *sagyong* are usually of texts from the sutras (sermons) attributed to Buddha and formed scrolls and folded books. They were written by monk-scribes on indigo dyed Korean *hanji*papers using bright dyes and sometimes using silver and gold. Buddhist monks also painted frescoes and silk wall hangings using indigo to decorate temples, with bodhisattvas and water-flowers being the most popular subjects". (Cartwright, 15 November 2016)

Painting illustrated manuscripts on indigo dyed *hanji* paper flourished after the art of making extremely strong *hanji* paper was mastered. Initially the illuminated manuscripts of *sutra*s were painted by the Buddhist monks. Apart from spreading Buddhism and the Buddha's sermon; it was believed that painting these *sutra* meticulously helped the monks to improve their meditation and brought them closer to the enlightenment. Their increasing demand led to the establishment of Royal Sutra Scriptorium (*Sagyongwon*) in the 12th century CE. After which, apart from monks, professional calligraphers also worked to produce these popular religious texts. (Cartwright, 20 November 2016).

The technique used for these manuscripts is similar to the one mentioned earlier of painting Kojima mandala in Japan. Hence the appearance of them is similar too.

Fig.9: Front cover of illuminated Manuscript of AvatamsakaSutra with illustration of Buddha preaching alongside his followers in paradise, with the title written in Chinese script.



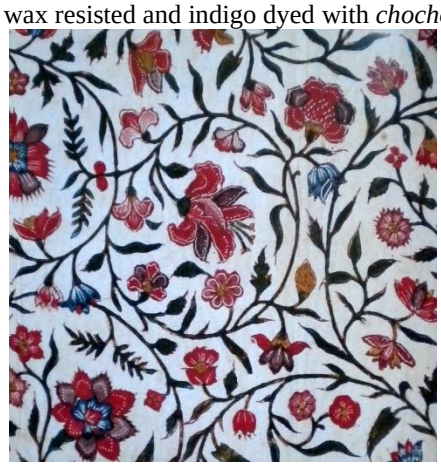
Source: https://www.ancient.eu/article/980/buddhist-illuminated-scripts-of-ancient-korea/

7.3 Indigo in the Trade Textiles and their Use to Establish Political and Cultural Relationships

In India, indigo was used as one of the colours in the multi-colour pallet to produce trade textiles. India traded hundreds of varieties or textiles to various regions of the world. The most important and valued were the Indian double ikat silk *patola* from Gujarat and the Indian mordant and resist dyed chintz. These were traded to various Southeast and East Asian countries a currency for carrying out the spice trade and for giving as gifts to establish political, cultural and social relationships, not only by Indians, but also by Chinese Emperor and the Kings of Southeast Asian and East Asian countries; even before the Europeans entered the Asian sea for trading in spices. As it was important to gift the best textiles by the Kings to build the political relationships, even the Kings from other countries chose Indian *patola* and chintz, which used indigo as one of the colours. Both these textiles influenced the Japanese textiles to a great extent. Various Japanese scholars including SoetsuYanagi, who started Arts and Crafts movement in Japan, has mentioned the influence of Indian *patola* on Japanese *kasuri*. Indian chintz has influenced multi-coloured *bingata* of Okinawa and also was instrumental in starting a whole school of making *Wasarasa* in Japan. (Balaram, 2012, p.178)

Ryukyuans also received various Indian textiles as gift items from the royalties of the countries they traded with. Some of these Indian textiles they further traded to Japan (present mainland Japan).

Fig. 10: *Popatkunjarphulbhat* silk double ikat *patolu*from Patan, Gujatrat
Fig. 11: Floral chintz, painted, mordant-dyed, wax-resist cotton. 17th century CE.
Fig. 12: 100 feather coat of Miao priest is wax resisted and indigo dyed with *chocho* design symbolising fertility


Source: Fig. 10:Kobe Fashion Museum Fig. 11: Tokugawa Family collection, Now in Tokugawa Art Museum, Aichi. (Yoshioka,1993,34), Fig. 12Jenly Jung Private Collection

7.4 Indigo and the Hierarchy

- **Religious Hierarchy: Dress of the Priest**

Dress of the Miao priest is wax painted and dyed using Assam indigo. The highly stylised auspicious motifs painted on his 100feather coat which includes *chocho* the butterfly symbolising fertility.

- **Political Hierarchy: Colour of the Kings and Royalties**

China has always followed the colour code to mark the political hierarchy. This was followed by the Korea as well as Japan, who were heavily under the Chinese influence for centuries. However, the highest colour preserved for the Chinese Emperor was yellow, the colour of the Sun. Chinese Emperor considered himself the King of the world,hence the Emperors and the Kings of other East Asian countries such as Korea and Japan were considered one step lower than him. Therefore, they could not wear yellow colour, which symbolised the importance of Sun in producing food, water cycle, and warmth to survive in the world. Therefore, the Korean and Japanese hierarchy started from the second colour of the Chinese rank becoming the highest colour of the King of Korea and Japan. So, the Han Chinese Emperors did not wear indigo dyed cloths as is used by the Kings of Japan and Korea during certain periods. However, it was used by the colour of the kings of the Chinese minorities as well as of the priests and shamans, who held very high position among the various minorities of China.

- **Indigo Dyed costumes of Royalty and Courtiers of Joson Dynasty in Korea.**

Fig. 13: Traditional indigo dyed dress of the Crown princess has a phoenix pattern embroidered on it. This dress is called *Garye* meaning wedding ceremony.

Fig.14: Traditional indigo dyed dress of the courtiers of Joson Dynasty display embroidered insignia. The symbols of birds signifying high intelligence were placed on Civil officers' official dress.

Fig.15: Korean Palanquin bearers dress was dyed lighter blue using indigo

Photo Credit: Padmini TolatBalaram

- **Colour Hierarchy of Different Periods in Japan**

Following the China, Japan also followed the colour hierarchy system, which changed time to time. The following chart shows the colour hierarchy followed from 603 to 724 CE in Japan. In Japan the purple was considered the highest colour which could be worn only by the Emperor and his wife. Hence the prominent use of purples is seen for the highest ranks; except 985 and 690, when the red became the most superior colour of the King and the Queen. The reason for it was that complex mordent dyeing to dye brilliant red was introduced to Japan at that time, thus this new colour took the highest rank for some time. In 701 it was replaced by the deep purple colour as purple was another most difficult and most expensive colour to dye. From 609 to 724, one can see the middle blue and the lighter blues being kept for the last two ranks of the courtiers respectively. The reason for assigning the light blue to the lowest rank could be as to dye light blue colour only one or two times the fabric had to be dye, while to achieve deep blue, the dyeing went up to 20 times, thus consuming more time, more materials, as well as giving much more lasting result and strength to the colour and making the dyed fabric more expensive, worthy of the people holding higher ranks in the court, than the ones wearing middle blue and the lighter blues as their costumes. This is again seen among the Koreans (fig. --)

During Edo Period (1616 -1867 CE), there was a class system in Japan. People were divided into 4 classes. The highest was the Samurai and the warrior class, next were the farmers, third was the class of craftspeople such as hat makers, wood turners, fan makers, braid makers, sculptor, weavers, embroiderers, umbrella makers, potters, sword-smiths, carpenters, bronze casters, etc. and the last and the lowest class was of the merchants. This caste system was abolished at the beginning of the Meiji Period in 1838.

In Japan, *kinran*, the brocades; woven using supplementary gold thread to weave patterns on blue, purple or white silk were worn by Kings since Heian period (794-1185 CE). After Momoyama period (1573-1615 CE), noblemen got poorer and the warrior class came up. And took place of noblemen (Emperor and the followers of the Emperor), so the noblemen could hardly afford these *kinran* and they became the costumes for the Noh play.

- **Colour of the Samurai**

Indigo started being popular in 16th c. CE in Japan, when Japan finally succeeded in cultivating cotton. Initially indigo dyed cloths were not used by samurai. Once the healing properties of indigo dyed cloths were discovered, Samurai's started wearing indigo dyed clothes under the armour so that while fighting if they blead, the indigo dyed cloths would protect them from the bacterial attacks. **"**The natural indigo dyed fabrics are richer than the chemical blues used on most fabrics today … and has a surprising range of qualities: on fabric it is antibacterial, flame resistant and repels odour and dirt. With roots in Japanese culture dating back to the 1600s, indigo-dyed fabrics were worn under the armour of samurais to help keep harmful bacteria away from wounds".(The Link Between Japanese Samurai and Real Indigo, 2018)

- **Colour for the Fire Fighters Clothing**

Indigo dyed cloth has one more lesser known quality. In Japan, it was used as fire fighters' clothing as it retorted flame up to 1500 Fahrenheit.

- **Colour of the Farmers and Common People**

Japanese also believed that the indigo dyed textiles kept the reptiles, scorpions, mosquitos away. Hence, they became extremely popular among the Japanese farmers to ward them off while working in the fields.

- **Colour of the First Baby Towel**

Indigo dyed textiles are also considered to be able to ward off the evil eyes, evil souls and protect a person from calamities in India, China and Japan. As it also keeps the infection away, in Japan, lower portion of the baby's first towel is always dyed using indigo to wipe its body so that baby does not catch any infection as well as to keep the evil eye off from the baby. The upper portion of this towel is dyed using *benibana* to wish the baby pink of health. This towel is also decorated with designs of auspicious motifs such as *shochikubai* which flowers even in the sever winter, thus wishing the baby to be as strong as those hardy plants, flowering also in the tough conditions of life.

Koi fish, which represents the strength in Japan, is used to wish a boy to be as strong as koi. Following example is of *koi* fish printed using *shirogata* meaning white ground having blue designs resist printed using reverse stencil and then dyed in Ryukyu *ai*, the Assam indigo.

Fig. 16:Baby's first towel with bamboo design wishing child to remain green like bamboo in the severe winter

Source: Nasusan

Fig. 17:Shirogatafrom Okinawa with *koi*design, symbolising strength. is printed using reversed*kata* (stencil).

Photo credit: Padmini TolatBalaram

Shirogata are textiles having white (*shiro*) ground with blue patterns. To achieve blue pattern on white ground, which is difficult to print directly using indigo, this technique is practised in Okinawa.

In India, indigo of commerce was used to dye yarn bluish black to weave sarees for the widows in Andhra Pradesh. The black colour was associated with the widows by certain communities of Gujarat too. It was used by the desert dwellers in the form of resist printed *ajarakh* or dyed shawls or *dhabalas*. In Northeast India, Manipuris as well as people of various tribesused Assam indigo for dyeing yarn as well as fabrics. Among the tribes, it was one of the prominent colours used for weaving shawls, skirts, loin cloths etc. using indigo dyed yarn.

Fig. 18: Khaimungan Naga men's shawl Fig. 19: Lotha Naga Shawl

Photo Credit: Padmini TolatBalaram

- In China, yarn as well as fabrics were dyed using indigo. Various techniques were used to decorate them including weaving plain cloths, weaving stripes, checks and intricate brocades, embroidering on indigo dyed fabrics as well as producing fine batiks, by the Chinese minorities of Southwest China using Assam Indigo. They even shined their indigo dyed cloth to make them water proof, a technique which was earlier used by Indians to produce their umbrellas and raincoats.

Fig.20: Dongs not only dye their cloths using indigo, but they also shine the indigo dyed fabric to make it water repellent

Fig.21: Hong ThoYaos use earthen jars to ferment their indigo vats and dye cotton fabrics in them. The lady dyer's pants are hand embroidered on indigo dyed cotton textile, which depicts the story of their migration.

Photo Credit: Padmini TolatBalaram

In Japan, during the Edo period (1616 -1867 CE), cotton was widely used for the clothing of the common people. An unique technique of combiningstencil dyeing with *Wasarasa* (Japanese chintz) making technique; called *chugata* was invented, which began to be used by the local dyers. *Chugata*also means middle size patterns for *Katazome*, the stencil painting or printing. Example of these cloths are found among the textiles of 18th and 19th c. CE. These were mass produced, had blue ground and white patterns on thicker cotton fabrics.

In Okinawa, cotton fabric and smaller patterns were used by common people.

Aigatawere the indigo dyed textiles used by common men. In Aigata, the ground was dark blue, having white as well as grey coloured patterns. The grey coloured patterns were painted using *sumi*, the black stick made from carbon used for painting calligraphy as well as paintings in China, Korea and painting *sumie* in Japan. Aigata with white and grey patters were used by the common people, while the one having multi-coloured patterns on blue ground were used by the higher class of people.

Assam indigo was and is extensively used in various types of *kasuri* (ikats) produced in Okinawa. Japanese indigo is used prominently in Kurume *gasuri.*

Shibori, which flourished in Nagoya region, mainly used indigo to tie-dye their fabrics. *Shibori*comprises of a large number of mechanical resist techniques, including tie-dye which has now become extremely popular in the world including India, used for pattering with indigo.

7.5 Utilitarian Textiles

Apart from the textiles for clothing, indigo was used for many utilitarian textiles such as bed covers, draperies, colours for the bags, wrapping clothes etc. in India as well as in China, Korea and Japan. In Japan the wrapping cloths are called *furoshiki* while in Korea *Pochagi*. In Okinawa, *tsutsugaki* was commonly used to paint designs using *nori* (rice paste resist), before dyeing the fabric in Ryukyu *ai*. The *tsustsugaki* usually gave bold designs, hence such fabrics were largely used as utilitarian textiles.

Indigo was used as one of the colours for Indian *palampore*, which were traded all over. *Palampore*are actually *palangposh* meaning bed covers. In case of Japan, indigo dyed *yogi* and bed linens were used for the wedding dowry, which every bride carried to her husband's house. *Yogi* are the quilts made in form of a large size kimono but is used as quilt.

Apart from this, in India, lot of tents for the kings and the wall hangings depicting 'Tree of Life' designs were made using indigo as one of the colours. In Japan, wall hangings for tea ceremony also used indigo. Many of the Indian chintz where indigo was used became *meibutsugire* (precious) textiles in Japan and were used to make covers for the tea ceremony utensils, pouches to keep tobacco, etc.

7.6 The Geographical and Seasonal Impact

- **Indigo Clothing for the Desert**

Thar Desert, also known as the Great Indian Desert, is in India and Pakistan, while the Great *Rann* (desert) of Kutch is in Gujarat State of West India. At both these places, indigo is used for making *ajarakh* prints, which is a mordent and resist printed textiles dyed using natural dyes and natural indigo. The people of these areas, often travels across the desert in hot sun and cold winter nights. They use *ajarakh* as well as other indigo dyed textiles to keep themselves warm in winter and cold nights, and cool in summer and during the hot days. They strongly believe that unlike synthetic dyed textiles, natural indigo allows the textiles to breath by keeping the pours of the cotton and woollen textiles open, which allows the evaporation of sweat taking place, creating the cooler effect to the body of the wearer.

- **Indigo Clothing for Winter and the Cold Region**

In India, as mentioned earlier, indigo dyed *ajarakh* and shawls are used in winter to protect themselves against the cold winters and nights of the deserts.

In India, the people embroidered on top of the layers of old saree, known as *godadi* in Gujarat, Kantha in West Bengal, *sujani* in Bihar. Earlier when indigo dye was vastly used, some of them were made using indigo dyed sarees too, to protect one from cold winter nights. In Japan such layered textiles embroidered using white or blue indigo dyed yarn on indigo dyed fabric with running stitch are known as *sashiko*.*Sashiko*flourished in the Shonai plain of Yamagata Prefecture and Tsugaru region of Aomori Prefecture, both of which are very cold region of Japan. The region became famous for its intricately embroidered blue and white *sashiko.* The ones embroidered using blue thread on blue ground were known as *kakurezashi* meaning hidden stitch.

Based on the *Sashiko, Kogin*, an embroidery folk craft developed for by the agricultural community of Tsugaru district, to make the protective working cloths to work in open fields in cold winters. *Kogin* had charming designs hand-embroidered for the utilitarian textiles. Locally grown ramie or hemp were dyed in indigo and woven loosely for the base fabric. The loose weaving allowed to count the ends and the picks to embroider diamond shaped designs using white yarn. These *kogin* embroidered pieces were used to decorate kimonos, which became special garments to be worn on formal occasions. (Anon, 1992, p. 111)

Japanese also make *yogi*, the quilts; embroidering multiple layers of indigo dyed fabrics to keep themselves warm during the winter nights.

- **Indigo Textiles to Protect from Rain**

Indigo textiles were earlier calendared to make umbrellas in India to protect from the rain. Dong minority of China, even presently calendar their indigo dyed textiles and give a shine, which repels the water from getting absorbed in the cotton textiles dyed using indigo, to protect themselves against the rain.

7.6 Medicinal Value of Indigo and Indigo Dyed Textiles/ Use of Indigo as Medicine

"The fruit of indigo mixed with ghee or clarified butter appears in the list of antidotes to poison in Susruta's compendium, which dates back from a few centuries BC to AD 500, while the process of dyeing is described in *Panchatantra.*" (Ray 2014: 67)

In China, *balankan* (pronounced as *palankan*) is a very well-known medicine against cold. *Balankan* is made from the leaves of Assam indigo.

8 Comparisons

These comparisons are drawn based on the author's research on natural indigo starting from 1979 till today in various parts of India, Japan, China, South Korea, Uzbekistan, Laos PDR, Thailand, etc. One of the experiments the author carried out in Japan in 1995, to compare the strength of Indian indigo, Assam indigo the Ryukyu *ai* and *tadeai*, the Japanese indigo, gave interesting result. The fabric sample dyed 6 times in Indian indigo was as dark as the one dyed 20 time in *tade ai*. That speaks of the colouring strength of the Indian Indigo. No wonder in 17th c. CE Indian indigo was considered valuable enough to be paid for in pearls! (Tolat, 1980, p. 29).

She also had worked out many different methods of setting up indigo vats and repairing some of them when they got flooded overnight due to the thunder storm and heavy rain made the roof leak! Based on that she set up the 1st Natural indigo vat at Dhamadka in 1979, and designed and produced a collection of more than 200 indigo dyed prototypes, which included her experiments in printing the natural indigo without using chemicals, etc. She also dyed her samples and prototypes in the vat set up by her as well as in the traditional vat of Yellappa. She got the indigo dyed sample tested at Ahmedabad Textile Industrial Research Association (ATIRA) in 1979. The light fastness of this sample was reported to be above 6, as ATIRA did not do the last 7 number test as no chemical dyes even reached no. 5 level of light fastness test! (In case of 1 to 7 scale 7 is the fastest and 1 is for the poorest fastness). This proves the highest light fastness quality of Indian indigo, unbeatable by synthetic dyes too.

The most valuable quality of the natural Indian indigo is that it is a zero wastage dye. Starting from its cultivation to manufacture of the dye, to preparing dye vat, no chemical needs to be used. The plant fertilises the soil it grows on, making it excellent for the rice crop to be taken next. Even the plants and the water used for extracting the dye are thrown back to the paddy field as the indigo is a natural fertiliser!

In India, the *neel*, the indigo of commerce, was mainly used along with other natural dyes. It was extensively used in weaving, resist dyeing, embroidering as well as in painting and printing, including resist printing cotton textiles. In case of Patan*patola*, it was also used for tie-dyeing silk yarn to weave the double ikat silk sarees. However, in India, most of the time indigo was used as one of the multi-coloured pallets, except in Northeast India where the tribes used it for entirely blue shawls, skirts and loin cloths too, just like it is used for making predominantly blue attire by the Chinese minorities as well as Japanese farmer's clothing's.

In India, the indigo dyed cloths were used by the people from deserts to keep themselves warm in winter and cool in summer. While in Japan, it became most popular among the farmers to guard themselves from the reptiles and the insects in the fields. In Japan, they also became the fire fighters' clothing due to its flame-resistant capacity, and also the first bay's towel due to its anti-bacterial/anti-fungal qualities. May be due to these reasons among the hills tribes of Northeast India, among the Chinese minorities and among the Japanese, indigo was used predominantly used in their textiles to get the best of it, and they did not use it as one of the colours like in India.

The traditional Indian cloths were more refined, meticulously made, colour fast and long lasting, while the Japanese explored several techniques while adopting some of them, as they seem to be keener on the number of varieties, and its exotic nature, rather than the excellent workmanship. However, this is now rapidly changing.

9 Conclusion

Indigo has a long history starting from Indus Valley Civilisation in India in 3rd millennium BCE. The dye as well as the indigo dyed textiles were exported from India and knowledge of dyeing blue from the indigo was spread from India to the world. During his visit to South India in 13th century CE, Marco Polo was surprised to see indigo being used commercially to dye blue in a large quantity at Colium, in the state of Travancore, as till then the Europe used indigo only to dye black and had no knowledge of dyeing various blues using indigo.

Indigo, the word which includes Indi from India as a prefix, was so much popular that the other blue dye yielding plants also adopted word indigo to call their dyes. For example, Assam Indigo, Japanese Indigo, Chinese and Korean Indigo the blue dyes extracted from different plants, yet carried the name indigo which is originally given to the blue dye extracted from Indigoferatinctoria.

The colours of indigo are plenty. From the lightest blue so light that it almost looks white to the *asmani,* the colour of the sky to the middle blues, and *Ghanashyam*, the colours of the clouds impregnated with the rain. Similarly, several names for the blues are used in Japanese. Japanese also includes greens along with blues among the *ai* colours obtained from Japanese indigo, the *tadeai*.

In China, Korea and Japan, the blue colour was associated with the hierarchy in the political system. Earlier it was used to dye the bast fibres such as hemp and ramie, which are difficult to dye with some other dyes, but absorbed the indigo very well. It became extremely popular during Joson Dynasty in Korea, when preference for the plain dyed cloths became popular to wear and were also adopted for the official staffs of the Government offices. Deed dyed indigo garments became popular among the Northeast Indian tribes, Southwest Chinese minorities, Japanese farmers and the Japanese Samurais. This led to exploring various techniques of creating a large range of designs using indigo especially in Japan. Hence one can see a large variety of indigo dyed textiles in Japan after Edo Period.

Indigo colour was also attached with religion, being the colour of Hindu Gods Rama and Krishna, adopting one of the names of Krishna, *Ghnashyam*. It was also used in Buddhism to represent the Buddha as well as in painting religious textiles such as Hindu *pichwai*s and *kalamkari*s, Buddhist *mandala*s and *tangkha* paintings, Jain *pata*s and *mandala*s. The variations of *mandala*s painted in India, China, Korea and Japan shows a strong cultural impact of Buddhism from India, which further developed in each of these countries to come up with many more explorations and meanings related to the Gods as well as adoption of gold and silver to paint on blue dyed silks and paper.

The magical as well as the medical properties of indigo were all celebrated in these countries. For example, indigo was known for repelling insects including mosquitos, snakes, etc. which

made it extremely popular to be used by the farmers. Its quality of keeping the wearer cool in summer and warm in winter made it extremely popular among the people of deserts such as of Kutch in India and of the African Deserts. Its antifungal medical properties made it most popular as the baby's first towel, as well as the underwear and its healing properties as the garments to be worn under the armour by the soldiers in Japan.

Development of making indigo dyed cloths glossy and waterproof, led it to be used by the farmers as well as the cloth for making umbrellas in Japan and China and India respectively.

Its use as a cloth for the fire fighters in Japan was due to flame resistant quality.

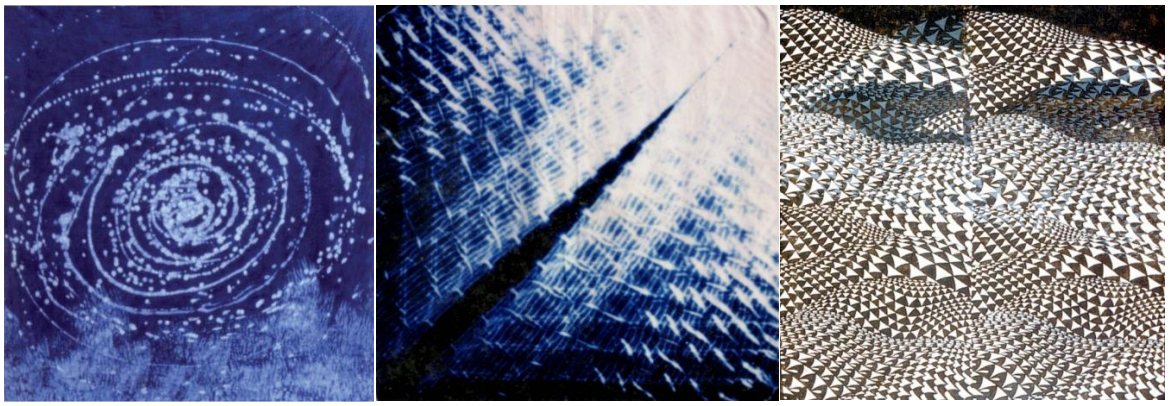
Thus, the indigo impacted not only the textiles, but the whole lifestyle of the East Asia once it was introduced from India along with cotton. The indigo dyed cloths were and are till used extensively among the minorities of Southwest China. The indigo dyed cottons replaced the fabrics made of bast fibres in Japan. (fibres extracted from the stem of the plant such as linen, ramie, jute, banana fibre, etc. are collectively called bast fibres).

Use of indigo for dyeing papers and the covers of the religious books, to write the religious scriptures etc. on it was due to its quality which protected paper from being eaten up by moths.

Hence indigo has been a dye which apart from dyeing textiles in a large range of extremely fast blues, greens and purples, had many advantages due to its medicinal properties, which had changed the life-styles of people of India and East Asia.

Looking at the so many advantages of natural indigo mentioned in the above article, one wonders why should we run after the so called modern synthetic dyes, which has polluted our environment to the core, making our rivers black, underground water unpalatable and carcinogenic in less than one century! If we want to save our water and soil and live a healthy life, let's turn back to our blue black gold, the natural Indian indigo!

Fig.22: 'The Universe' wax painted, dyed using Indian indigo by Padmini TolatBalaram
Fig. 23: 'The Eternal Path' Innovative tie-dyeing, Dyed using *Tade ai* by Padmini TolatBalaram
Fig. 24: The Sand Dunes Resist Printed using stencil, dyed in *Tade ai* by Padmini TolatBalaram



Source: Fig. 22: In collections of Padmini TolatBalaram, Fig. 23: With Eicher Gallery, Fig. 24: With Garden Mills

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