CHAPTER VII

SOME PARALLELS BETWEEN MEDIEVAL INDIAN ALCHEMY AND THAT DESCRIBED IN THE CHINESE TEXT "CHUN ZHU JI WEN"

RECORDS OF THINGS HEARD AT SPRING ISLAND

In the previous two chapters we have discussed a few cases of transmission of alchemical and chemical ideas between India and China, when direct references to the transmissions were available and also when, in the absence of direct references, etymological and linguistic studies helped in establishing the nature, direction and period of certain transmissions. In the chapter on "Transmutation of Base Metals into Gold as Described in the Text Rasārṇavakalpa", we have discovered the parallels between Indian and Chinese alchemical practice. In the present chapter we will discuss some more parallels which are unearthed by a study of an eleventh century Chinese text.

"Chun zhu ji wen" is a Chinese text written by "He Wei" about 1095 AD. The tenth chapter of this text

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1 Chun zhu ji wen See Primary Sources.

2 He Wei
is devoted to alchemical operations the author and his friend, Su Tong-bo,³ had seen and heard of. Su Tong-bo (1036-1101 AD), the great poet, was interested in metallurgical alchemy and iatrochemistry. This fact is evident from various Chinese texts of the medieval period such as Su Shen liang fang⁴ (Beneficial Prescriptions Collected by Su Tong-bo and Shen Qua⁵) published around 1120 AD, Lu huo jian jie lu⁶ (warnings against inadvisable practices in the work of the stove by

³ 蘇東坡

⁴ 蘇沈良方

⁵ 沈括

⁶ 煮火監戒錄
You Yan of 1285 AD, "Sun-gong tan-pu" (The venerable Mr. Sun's conversation garden) written about 1085 AD by Sun Sheng.  


"In his lu-huo jian-jie lu, You Yan (+ 1285) says, Su Tong-bo was conversant with aurifaction and argentification and demonstrated his skill to his (elderly) friend Chen Xi-liang, a great enthusiast for the art. This was expressly recorded by his brother Su Che in his book Long-chuan lue-zhi.

... When Su Tong-bo first took up appointment in the civil service at the age of twenty six at Qi Xia, a strange monk obliged him to accept a formula for the transmutation of gold. After receiving it, he sealed it (in a container). Later he passed it to his younger brother (su) Ying-bin who kept it (likewise)."
In the above texts we notice that Su Tong-bo and He Wei had several encounters with the Taoists and the Buddhists and that they witnessed a number of alchemical and metallurgical operations performed by them. It was He Wei who wrote them down in the form of a book. The tenth chapter of this book, Chun zhu ji wen, is devoted to gold-silver making processes, using mercury and other compounds, and sometimes plants. These

In his "Sun-gong tan-pu", Sun Sheng says, "When (Su) Zi zhan (Su Tong-po) was an official in Feng Xiang, the local Prefect, Chen zhong liang was an admirer of the art of the yellow and the white. Now in the district there was a spagyrical monk who gave the impression of being quite out of the ordinary. (Chen) Zhong-liang many times pressed him to tell his secrets, but he always made excuses, avoiding the Prefect or refusing to come out. But (Su) Zi-zhan found an opportunity to visit the temple, and opening a door, found the monk inside, so he asked him what it was all about. The monk replied: 'Chen Zhong-liang is a covetous man and therefore is not worthy to be taught the art' but he was willing to impart his knowledge to (Su) Zi-zhan. His procedure was to take one oz. of gold and one tenth of an oz. of cinnabar and heat them together, then very soon the mixture turned into purple gold worthy many times the original (ingredients) in value. Afterwards (Su) Zi-zhan went away and told (Chen) Zhong-liang, who called the monk before him and had the matter verified; it turned out just as he said. Then (Chen) Zhong-liang made a lot of (purple gold) and built himself a residence (out of the proceeds). But soon his official career came to a disastrous end, it was not long before he died."
processes no doubt point to the metallurgical alchemy practised in China in the eleventh century AD, yet we find that certain methods are different from those normally adopted by medieval Chinese alchemists described in such texts. It is interesting to note that similar processes are described in Sanskrit alchemical texts of the medieval period, viz. Rasārṇava and Rasārṇavakalpa. On account of the fact that Buddhists, who were interested in alchemy, visited China frequently in the medieval period, it seems possible that the Chinese Buddhists and Taoists, who practised alchemy, learned some of these methods from the Indian Buddhists; and probably it was through them that Su Tong-bo and He Wei came to know about them. Here an attempt is made to reveal the parallels between such special cases of Chun zhu ji wen and those come across in Sanskrit alchemical texts, pointing thereby to the transmission of alchemical ideas between India and China.

The tenth chapter of Chun zhū ji wen is subdivided into sections, each describing an incident leading to some alchemical process. Out of the total twelve sections, five are discussed here. These cases show similarities with Indian methods or ingredients.
Case of making treasure using mercury and a gourd. "Treasure forms when mercury is taken from a gourd."

The Gentleman for Discussion, He Zhizhong told me that the nephew of Ren Deweng once accompanied Deweng to the capital. While mooring his boat at the bridge near the Xiangquo Temple he met a master of various formulas who invited him along to a teahouse. The man took out a small gourd and said,

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11 piao nei chu hong cheng pao: A section in "chun zhu ji wen" of He Wei, 10th chapter, p. 147.

See Primary Sources.
"I can tell you by looking at you that you must have been devoted to alchemy for some years, but not yet had any success. Now if you can give me hundred coins I can give the gourd to you. If at night you put an ounce of mercury into it, when you fetch it the next morning you can take from it two ounces of dry silver."

Ren (i.e., the nephew) thought to himself that this could not possibly be true, but he also could not refuse this request. Rummaging through his satchel he found a hundred coins, and gave them to (his host). He tucked the gourd into his sleeve and went home.

FN. 11 continued

遇一道人邀坐茶，肆，手出小藥瓢云，吾視貴人監留心丹竈有年，而未有所得者。
今能施我百鍊，當以此瓢為贈。夜以水銀一兩投中，翌早
That night he took some mercury and put it in the gourd to try it out. He put (the gourd) away in his pillow. The next evening, while drunk, he felt for the gourd and shook it, but what he heard was a sound like "tong-tong", the mercury had not changed. He put (the gourd) away and did not look at it again.

One day Deweng needed mercury for some use. Ren (i.e., the nephew) pleased with himself, took out a vessel so that he could divide (what was in the gourd). As soon as he poured (the contents) into the vessel,

FN. 11 continued
they hardened to form the Treasure! When he subjected it to the fire to heat it up, there was not the slightest loss (of weight). From this time on, every evening he poured (mercury in), taking it out in the morning, and never did the Treasure fail to form.

(Ren reasoned) that (the gourd) was made from elixir medicines by perfected immortals, so that the mercury responded to the qi of the elixir and congealed.

FN. 11 continued

中探手撫瓢，則其聲\n董董然，柔如故也。置之不復視。一日德翁須汞為用，\n任欣然取器分取，既傾器中，則堅凝成寶矣。入火\n烹煉，了無耗折。自此夕注
automatically. But he did not realise why it did not congeal until it left the gourd, so that one would have to break the gourd to take it out, one (would be able to use the gourd) only one single time. This is an instance of the unlimited divine transforming powers of the perfected immortals, which (people in) the mundane world are unable to comprehend.

FN. 11 continued

晨取無不成藥者。蓋真仙丹藥所製，素感丹氣，自然凝結。但不知出瓢始凝之理，向便在瓢既堅，則破瓢而取，止於一瓢而已。此亦真仙神化無方，非塵凡之可度者。
Ren was unencumbered with wife and children, and his expenses had been very limited. Now that he was reaping a mere spark of profit every day, he treated himself lavishly. Before a year had passed he fell ill and died. The gourd was lost with his passing.

In this process mercury is dyed yellow by the virtue of the gourd's chemical constituents, to get alchemical gold. It appears that mercury in this form does not volatilise when heated in fire.

We come across a number of references to bitter or hot gourd (langenaria vulgaris) and its dying action.

FN. 11 continued
in various Sanskrit alchemical texts. In Rasārṇava we find the following verse:

Calamine with the exudation from katūkālābu (bitter gourd) becomes pure, free from its impurities and becomes yellow.

Shl. 30, Section 7,
Rasārṇava, p. 102

Bitter gourd was also used in purifying various substances. "Keeping in kusmanda (fruit of Benir̥sara Cerifera), orphiment is well-steamed for a hundred days and then with milky juice of bitter gourd (Langenaria Vulgaris) separately seven times each."

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12 Rasārṇava, see Primary Sources, p. 102.

13 Rasārṇava, see Primary Sources, Chapter No. 7, shl. 75.
Further in the chapter on dyeing, bitter gourd is included in the list of plants making metals yellow.

Cardiosperma\textsuperscript{14} halicacobum, Pongamia Glabra, Langenaria Vulgaris (bitter gourd), Stereospermum Suaveolens, and piper longam (coves) Artemisia Vulgaris, Asclepias Curassavica. . . .

The oils of the above plants were called "Sāraṇā"\textsuperscript{15} oils, i.e., those used in the process called "Sāraṇā". This process consisted of heating pure gold and silver (or their alloys) with mercury and one of the above oils when the metal combines with mercury.

\textsuperscript{14}Rasārṇava, 8th chapter, p. 139.

\textsuperscript{15}Rasārṇava, Index p. 79.
Some more applications of bitter gourd are as given below. The powdered seeds were used for the fixation (making mercury lose its physical form, fluidity and volatility) of mercury.

O Revered one, listen to the heavenly properties of the plant katūmbī (bitter gourd). Collect its seeds and finely powder them. Mix with the juice of the plant Dhātri (= Amlaki or phyllanthus emblica) for twenty one days. Along with milk and dry ginger, place the seeds in the apparatus and collect the oil. Fix mercury with this oil and rub with the juice of the plant Cassia Tora

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16 Rasārṇava, Chapter 12, p. 226.

17 This plant "phyllanthus emblica" was also known to the Chinese along with its applications. Sanskrit names of these plants (varieties of "Chebula"), viz. Haritaki or Hirada, i.e., Terminalia Chebula, Amlaki or Amala, i.e., Phyllanthus Chebula, were also transliterated into Chinese as Ho li la, An mo le.
It was also customary\textsuperscript{18} to collect naturally occurring mineral acids in the hollow of bitter gourd, for its further use in elixir-making and transmutation of metals. This use of a bitter gourd was made known to the Chinese in the seventh century AD, by the Indian-prisoner-scholar who accompanied an Indian prince-prisoner. This episode is described in the Chinese text Yu-Yang za-zu of Duan Cheng-Shi written in 863 AD (Miscellany of the Yu-Yang mountain cave). We have discussed this case in an earlier chapter.

\textbf{Case of an herb transmuting mercury and iron gold.}

In this section,\textsuperscript{19} the author tells us how mercury was converted into gold merely by coming in contact with a particular variety of grass.

\textsuperscript{18}Rasārṇava, p. 244, shl. 244.
Rasārṇava, p. 338, shl. 216.
See also the chapter on "Transmission of . . . China, Pt. II."

\textsuperscript{19}Zao zhi Hong die jie zheng geng - A section in "Chun zhu ji wen" by He Wei, 10th chapter, p. 150.
"There was a container of mercury in the baggage. The stopper of the container accidentally came out. (He) hurriedly searched for it but did not get it. Then he seized a clump of grass on the bank of the river, corked the container with it and then crossed the river. Long after he arrived at Du, when he wanted (mercury) for some use (he saw), after tilting (the container) mercury did not flow out and its weight was as before. He broke the container and saw all (its contents) had been converted into gold."

Further, the same section describes a case when iron was converted into gold by coming in contact with a grass "ma cao".
"When Tai Zong of this dynasty attacked "Ze Lu", a soldier cut grass in the marshes for his horse. In the evening he saw that the blade of the sickle had entirely become golden-coloured. Further when he burned the grass under the pan, the bottom of the pan turned into gold."

本朝太宗征澤潞時，軍士於澤中鍔取熟草，晚歸鍔刀遂成金色，或以草燃釜底，亦成黃金焉。
These episodes describe a process in which mercury and iron are converted into gold. In both the cases a particular variety of grass was effective. This kind of making gold from mercury or iron by means of plant products is a well-known phenomenon in Sanskrit alchemical texts, whereas it is rare in Chinese alchemy. Gold-making\textsuperscript{22,23} by various other methods such as alloy-making, amalgamation, gilding or tinging was quite common.

\textsuperscript{22}Needham, Joseph (1), Vol. 5, Pt. II, pp. 188-281.

\textsuperscript{23}Needham, Joseph (1), Vol. 5, Pt. II. p. 25.

Needham mentions a particular text "Bao-zang lun" of 918 AD, which lists, as sorts of gold, "iron gold or wrought iron gold", and also "zao-sha-jin" \textsuperscript{22} which hints to making of gold from iron and making of gold using a plant. No further information about these golds is available though.
Rasārṇavakalpa\(^{24}\) describes various plants which can make gold from other metals. The juice of a plant Uccata (Abrus Precatorius) could transmute metals on being smeared once with this, and subsequent dipping in urine of cow and roasting.

Leaves, flowers, fruits and roots of this plant (Uccata) pounded finely, are to be thrown upon (molten) metals, which when immersed twenty one times in the urine of cow and roasted in intense heat, becomes gold of beautiful appearance.

Note that in the above Chinese texts also we find that in one of the processes heating was involved when grass was burnt under a pan.

\(^{24}\)See Rasārṇavakalpa in Primary Sources, p. 92, section on the plant uccata.
The plant Uccata has synonyms such as kākačinca, kāktūndi, etc. where kākatūndi means crow's beak.

Wang qie (~800-1020 AD), the famous Chinese alchemist, probably used this plant to make his crow's beak gold or "Ya zui jin". The Sanskrit name of this kind of gold was also "kākatūndi" or "crow's beak gold". This case has been discussed in detail in an earlier chapter.

One more verse from the same text tells us about a plant Kuśmandi (Beninsara Cerifera) which could turn iron and mercury into gold.

In the section on Kuśmandi -

The Genuineness of the plant when thus tested, its red juice is to be smeared upon iron. This iron is deposited inside the fire, is to be roasted in intense heat. Iron is

Rasarnavakalpa, p. 93, shl. 441-443 (line 1).
thus turned into gold of the best quality, which is suitable for the ornaments of Gods. After extracting the juice of the plant, mercury is to be rubbed (with this). Mercury by the potency of this heavenly (medicinal) plant, assumes the form of gold of a charming lustre.

The text Rasārnava also mentions the gold-making property of the above-mentioned plant Uccata.

Parvati, \(^{26}\) Now I will tell you about the plant Uccata\(^{27}\) which can fix mercury. A honeylike liquid oozes from this plant. O Parvati! Taking it heat all the metals with it when they are transmuted into gold.

Case of a metal-container becoming golden.

The same section\(^{28}\) of Chun zhu ji wen describes the transmutation of a metal-container, which was used...

\(^{26}\) Rasārnava, see Primary Sources, p. 217.

\(^{27}\) See Chapter VI, p. 187.

\(^{28}\) See FN. 21 of this chapter, p. 151.
for boiling the leaves of a certain plant in water, into gold.

"At the dawn of the next day the owner of the lodge saw this. He could not understand how it could have happened. When the pan was heated for cooking rice, the whole of it turned into gold."

A similar case is seen in the Sanskrit text Rasārṇavam. Oil of the seeds of the creeper Jyotismati (Cardiospermum Halicacabum) when placed in a copper pot,  

29

至明，客氏主人視之，了不測

其何為至此，及濁釜炊飯，

則釜通骨豐成金。

30 Rasārṇava, p. 223, Section No. 12.
after heating converts the pot into gold. This transmutation needs six months though.

Case of purple gold.

Earlier in the section Yo wa zheng jin we come across the method of making purple gold,

FN. 30 continued

31 "Yo wa cheng jin" 紫 金 成 石

A section in Chun zhu ji wen of He Wei, pp. 152-153.

捷令新瓦一片, 手段之, 取
所酌酒 盂, 置 湯鼎上,
投瓦其中, 抄少藥 米鼎上,
復注湯滿 盃。酒 散, 湯
Zi-mo-jin, from broken tile.

"Mr. Jie ordered (someone) to bring a new piece of tile. Breaking it with his hand, he took a cup of liquor. He arranged hot water over a stove. He put the piece in pot of water; mixed thoroughly a little drug (and) again poured hot water to fill the cup. The drinking was over, hot water (was) already diminished to half, he took the tile and inspected, then the two corners (that) were soaked in hot water, all became purple polished gold."

In the next section "bian die zhi wei jin" again we find a conversion of an iron laddle into purple gold.

FN. 31 continued

已耗半，取互视之，别两角
浸沸悉皆成紫磨金，

紫磨金

32

33 "Bian die zhi wei jin"

變鐵器為金
One day he brought the ladle to make paste, then washed it (after its use). He saw five finger marks on the handle of the ladle. And (he) turned it and held it. All had become purple gold in colour.

One more section of this text describes the synthesis of "purple gold". It is "Zhu Si lang fu zhu duan dan sha"\textsuperscript{34}, i.e., Zhu Si lang gives roasted vermilion cinnabar. It is as follows,

\begin{flushleft}
FN. 33 continued
A section in "Chun zhu ji wen" of He Wei, p. 153.
\end{flushleft}

一日取鍊作糊，既濁澆之，
錫鍊柄有五指痕，足轉
揗處皆成紫金色。

\textsuperscript{34} Zhu Si lang fu zhu duan dan sha.
In this method obtain lumps of fine cinnebar, do not calculate how much (i.e., no exact measure is needed). Cover it with the medicine and roast it. . . .

Take roasted vermilion, finely powdered, mix evenly with saliva, smear on the gravel balls, burn ten jin (a measure) of charcoal, a basket of pebble is forged with it. Wait for the fire to glow with a half-purple flame. Take away the fire and take the treasure out. Dip (it) into plum water, then all becomes purple gold.”

FN. 34 continued

A section in "Chun zhu ji wen" of He wei, p. 146.
The case of "purple gold in Chinese alchemy" is discussed by Needham in his volumes on Science and Civilization in China. From his account it seems that purple gold was known to the Chinese probably from Han times, if one identifies purple gold with unicorn foot Pegasus-hoof gold.

"Purple gold" was a kind of alloy of gold, much lighter than gold, with a purple tinge on the surface. It was valued for its attractive colour and softness. Needham tells us that a treatise of AD 712 has a colour sequence of artificial golds, which ends in purple and it is the outcome of the seventh transformation. Hence, in Tang times probably purple gold was looked upon as the best kind of gold. He further writes that all through the intervening centuries from An Shih kao in the late second

FN. 34 continued

則俱成紫磨金。

century AD onwards, translators putting Buddhist sutras into Chinese had made free use of "purple sheen gold" among the embellishments of paradise and its Buddhas. Further Zhang Hong-zhao\textsuperscript{37} suggests that it may have been the standard translation of "Jaṁbūnāda Sūvarṇa", the gold from the Jambū river.

Again, Liu tie (six steps) encyclopaedia of AD 800 says that the country of Po-lu, i.e., Bolur or Hunza nagar, south-east of Pamirs, a region famous for its minerals, was rich in purple gold. The Bao zang Lun\textsuperscript{38} (Discourse on the Contents of the Precious Treasury of the Earth) also written in the regime of the Tang dynasty, says,

Persia used to export it, but we cannot find out much about it now. My belief is that it was really produced in India, but as people of former times got it from Persia, they thought it actually originated from there.

From the aforesaid accounts it seems that "Purple Sheen gold" was known to the Indians, in the Buddhist era

\textsuperscript{37} Zhang Hong-zhao
\textsuperscript{38} Bao zang Lun
and it was probably exported to Persia from where it reached China in ancient times. Rasārṇava\textsuperscript{39} refers to "Jaṁbūnada Sūvarṇa" and also gives the recipe for making it.

Coat the leaf of copper with the milk of the plant Snuhi (Euphorbia Nerifolia) and heat in milk for seven days. Copper attains the lustre of "Jaṁbū nada". Cooked in the oil of Til, Sesamum Indicum, for three days, copper leaves become "Jaṁbūnada".

"Jaṁbūnada" is the gold obtained in the sand of Jambū-nadi or Jaṁbū river, issuing from mount Sumeru and passing through "Jaṁbū dvipa" (ancient name for India). The same text gives a recipe for making mercury purple coloured.

"... By calcining three times mercury becomes of the lustre of the fruit Jambu (i.e. Citrus Medica)."

\textsuperscript{39}See Rasārṇava in Primary Sources, p. 218.
The above-mentioned recipes suggest that gold obtained from the sands of the river "Jambu" was called "Jāmbūnada Śūvarṇa". It was probably purple in colour, since the fruit of (Citrus Medica) Jaṁbīr has a purplish-black shiny skin. Making purple-gold which looked like this Jāmbūnada Śūvarṇa, was also one of the favourite endeavours of the medieval Indian alchemist.

Kautiliyā⁴⁰ Arthaśāstra, the second to third century BC text, written by Kautiliyā, i.e., Čāṇakya, the famous minister of emperor Čandragūpta, gives "Jāmbūnada" as a kind of gold among several others.

In this way we see that certain cases, described in the tenth chapter of the above-mentioned Chinese text, deal with strange substances, such as a gourd, which are not common to Chinese alchemy, especially for the purposes they were applied to in the above text. They resemble the methods adopted by Indian alchemists in the medieval period in their efforts of making noble metals from base metals.

This throws some light on the transmission of alchemical-metallurgical ideas between India and China

⁴⁰See FN. 3 of the chapter on Alchemy in India.
in the medieval period, i.e., at the time when they had the closest and most frequent contacts.