

PRAJÑĀCAKṢU PAṆḌIT ŚRĪ SUKHALALJI
BHĀRATĪYA VIDYĀ GRANTHAMĀLĀ-4

JINADATTA SŪRI'S
SUVARṆA-RAUPYA-SIDDHI-ŚĀŚTRA

EDITED BY
J. C. SIKDAR



L. D. INSTITUTE OF INDOLOGY
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**GENERAL EDITORS
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Edited and Translated by
J. C. Sikdar

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FOREWORD

The Sanskrit work, whose essence with translation is presented in this volume, deals with the alchemic methods and experiments on how to generate gold and silver. All manuscripts of this work give the name of Jinadatta Sūri (of Kharatara-gaccha, first half of the 12th Cent. A. D.) as the author. However, the text includes information on such experiments which not only seem later in origin but also go against the Jaina doctrine of non-violence. It may therefore be averred that, in the text of the original work of Jinadatta Sūri, additions were periodically made and hence the over all work has become a sort of compilation. In the opinion of some experts, only the first chapter had been composed by the original author, the rest had been included in the work at different periods. (Some of the experiments, in point of truth, may be just for arousing the curiosity.)

The work under reference, in light of its title and content, could be of interest to scholars working in the field of ancient chemistry/alchemy. The work for long had remained unpublished because of the presence of secret terms and mystic symbols in the exposition of experiments. The verses' inner meanings, in point of fact, differ from the apparent implications and literal connotations. It is still a problem as to what the real meanings of the vegetative and animalic terms involved in the phraseology of the text, particularly the one relating to for the experiments. With painstaking efforts, then, the editor Dr. J. C. Sikdar has done this difficult job, suggesting as he did the plausible meanings : these endeavours involving much thinking and investigation deserve compliments.

Ahmedabad-1997

Dalsukh Malvania

SUVARNA-RAUPYA-SIDDHI-ŚĀSTRA

PREFACE

It is revealed by a study of the *Suvarṇa-Raupya-Siddhi-Śāstra* of Jinadatta Śrī that Alchemy appeared to be the principle forerunner of chemistry in India. It is to be observed that there are two aspects of the history of Chemistry in India, viz. (i) The continuous and growing inter-connection between medicine and chemical preparations which merit special attention, while unfolding the historical antecedents of chemistry and (ii) ancient practical chemistry, albeit its technological overtones, which presents its claims in the history of chemistry as indicated in the *Suvarṇa-Raupya-Siddhi-Śāstra*.

The Jaina alchemists, who nurtured chemistry as a practical art and through their varied endeavours, provided the growth-points from time to time along with other Indian alchemists. They introduced new chemicals including mineral acids and more importantly evolved a number of apparatus, despite the esoteric theories.

The origins of alchemical art are shrouded in the darkness of antiquity. The word 'alchemy' is an Arabic modification of the Greek word 'Chemieia'. Towards the end of the fourth century A.D., an Alexandrian Hellenic alchemist named osmimos made use of the word 'Chemieia' for the first time, relating it to the art of transmutation. The Greek word 'Chemieia' or 'Chemi' denotes black and it was used to identify Egypt because of the black soil of the Nile Valley and to signify the 'blackening' stage of the so-called transmutation process¹.

It is difficult to determine historically the time and place of alchemical beginnings. It appears that the Chinese alchemy devoted itself to the making of longevity compositions or pills of immortality, as is found in Indian alchemy in general. In China alchemy developed with Taoism² and the theory of Yin (female) and Yangly (male principle). The

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1. From Alchemy to Chemistry, Dr. B. V. Subbarayappa, Indian National Science Academy, New Delhi, Summer School of History of Science, P. 342, 1974.
 2. Needham II, PP. 33ff (1 y.) Mason, PP. 55-57.

Chinese alchemy had developed certain growth-points by the fourth century B. C. and by the second century B. C. the Chinese imperial edict mentioned punishment by the public executive of those who made counterfeit gold.¹

It is a debatable question whether the Chinese alchemy influenced the alchemical thought and practice in Alexandria with which the Chinese had brisk trade in the first few centuries of the Christian era. But it is certain that the Hellenic or Alexandrian form of the alchemical art was almost contemporaneous with the Chinese alchemy.² So historically alchemy was known from the early times in the west. The tradition of metal making or the birth of alchemy in the west was probably derived from the secrete knowledge of Egyptian priesthood.³

In India also alchemy began to develop in the early centuries of B. C. as is evidenced by the citation of making gold through mercurial transmutation in Kauṭilya's Arthaśāstra "Rasaviddham Suvarṇam".⁴

Alchemy was first known as divine art,⁵ but after some time it came to be known as the science of metal making (dhātuvada⁶). It follows a set of methods and procedures which converts lower metals into higher metals, e. g. copper into silver, silver into gold.⁷

Some historians are of opinion that alchemy was first evolved in the west and from there it came to the East through the Arabs as the western seaboard of India was visited by the Arab merchants from the early times (at least from the 1st cen. A. D. according to the Periplus of the Erythraean sea). But as regards the alchemical knowledge of India it may be said that it ran either parallel to the west or came even earlier as is evidenced by the citation of 'Rasaviddham Suvarṇam' in Kauṭilya's Arthaśāstra (320 B. C.). So it is inferrable that alchemy and its practice were well-known in India prior to the period of Kauṭilya. Besides this fact, mercury was recognized in India as the most powerful transmuting agent by this time for converting lower metals into higher metals.⁸

1. Summer School of History of Science P. 342, 1974.

2. Ibid.

3. Indian Alchemy and Tantras, Dr. Damodar Joshi, Summer School of History of Science, P. 366.

4. Arthaśāstra, Kauṭilya, Chapter, 29/13/2 1st, Edition, 1962.

5. See Rasarpava.

6. Suvarṇa-Raupya-Siddhi-Śāstra, Ch. I. V.

7. Ibid., Chapters. I, II, III, up to the XIV chapter.

8. Indian Alchemy and Tantras, Dr. Damodar Joshi, Summer School of History of Science, 1974.

It is a question of controversy whether alchemy of the Greeks, the Chinese and the Arabs had influenced Indian alchemy in general. Al-beruni (1030 A. D.) states that the Hindus do not pay particular attention to alchemy, but no nation is entirely free from it; for we find that many intelligent people are entirely given up to alchemy, whilst ignorant people ridicule the art and its adepts..... The adepts in this art try to keep it concealed, and shrink back from intercourse with those who do not belong to them. Therefore, I have not been able to learn, from the Hindus which methods they follow in this science and what element they principally use, whether a mineral or an animal or a vegetable one. I only heard them speaking of the process of sublimation, of calcination, of analysis, and of the waxing of talc, which they call in their language *talak* and so I guess that they incline towards the mineralogical method of alchemy".¹

Next Al-beruni mentions *Rasāyana* which is said to be, according to Patañjali, one of the means for attaining liberation. "They have a science similar to alchemy which is quite peculiar to them. They call it *Rasāyana*, a word composed with *rasa*, i. e. gold. It means an art which is restricted to certain operations, drugs and compound medicines, most of which are taken from plants. Its principles restore healths of those who were ill beyond hope, and give back youth to fading old age, so that people become again what they were in the age near puberty, white hair becomes again black, the keenness of the senses is restored as well as the capacity for juvenile agility, and even for cohabitation, and the life of people in this world is even extended to a long period".²

Al-beruni identifies *Nāgarjuna* on *Rasāyana*. "A famous representative of this art was *Nāgarjuna*, a native of the fort *Daihak*, near *Somnath*. He excelled in it and composed a book which contains the substance of the whole literature on this subject and is very rare. He lived nearly a hundred years before our time"³ (i. e. about 900 A. D.).

Al-beruni tells us three different stories of three different periods with his impression on Indian alchemy. He first mentions the alchemical experiments of *Vyāḍi Rasasiddha* of *Ujjain* with which King *Vikramāditya* (380 A. D. to 4th cen. A. D.) of *Ujjain* was associated.⁴

Next he refers to the alchemical experiments of an alchemist of *Dhar* with which its King *Bhojadeva* (1018 A. D. - 1080 A. D.), the king of *Malava* was associated.⁵

1, Al-beruni's India, ed. by Edward. C. Sachau, PP. 187-88.

2. Ibid., pp. 188-189.

3. Ibid., pp. 189.

4. Ibid., p. 189-90.

5. Ibid., p. 191.

Lastly he mentions another alchemical experiment of an alchemist with which King Vallabh of the city of Gujarat (775 A. D.) was associated.¹

The impression of Al-beruni on Indian alchemy was that "the greediness of the ignorant Hindu princes for gold-making does not know any limit. If any one wanted to carry out a scheme of gold-making and people advised him to kill a number of fine little children, the monster would not refrain from such a crime."²

It appears from a study of Al-beruni's observation on Indian alchemy that his view on it was mixed with prejudice and Charlatism, for he considered everything Hindu as bad. It may be concluded that Indian alchemy was an independent system of chemical science without any influence from the Greeks, Arabs and Chinese systems of alchemy in the beginning.

It was developing on its own course steadily and uninterruptedly from the fourth century B. C.³ up to the 18th century A. D.⁴ As regards alchemy of the Jainas it may be suggested that it might have been influenced, to some extent, by the alchemy of the Arabs⁵ and the Chinese⁶ and other culture-areas of India.⁷

The Indian alchemical works including those of the Jainas contain hundreds of recipes or formulae for making gold, silver and other precious objects. Indian alchemy was concerned with inorganic substances, but the drugs of vegetable and animal origin were also used for chemical preparations in this art. So the term 'Rasavāda' was used to denote alchemy.

A study of the Indian literature on alchemy of the Tantric and Iatrochemical periods shows that alchemy in India seems to have been closely associated with Transcendentalism in later period.⁸

1. Ibid., p. 192.

2. Ibid., p. 193.

3. According to Kauṣilya, but according to Suvarṇa-Raupya-Siddhi-Śāstra, Nāgarjuna- (2nd B. C.) was the founder of alchemy, See. ch. I.

4. The contents of some MSS. of 18th century A. D., now kept in the Library of L. D. Institute of Indology, show that alchemy has continued in India at least up to the 18th century A. D.

5. Suvarṇa-Raupya-Siddhi-Śāstra refers to one Sekham Ali, a Muslim alchemist, (probably an Arab).

6. The reference to Chobchini, ciniakapur (China smilax) in the Jaina and non-Jaina MSS. to cure phirangiroga (syphilis) suggests the Chinese influence on the alchemy of the Jainas in later period.

7. The reference to Nāgarjuna, Carpaṇa, Nātha, Gaṇḍu, etc, in the Suvarṇa-Raupya-Siddhi-Śāstra indicates that the alchemy of the Jainas was greatly influenced by alchemy of the Hindus of different culture-areas of India.

8. Origin and Development of Tantras, Bagchi M. C., pp. 214-215. Second ed. 1966.

The aims and objects of Indian alchemy was to drive away poverty, disease and old age of the people.¹ The Rasasiddhas were not satisfied with the achievements only in the field of lohasiddhi (alchemy of metal) to secure Kayasiddhi—deathlessness and longevity with diseaseless body.²

They evolved a highly specialized branch of learning—the iatro-chemistry or Rasaśāstra along with alchemy through which different methods were discovered for the use of mercury, metals and minerals in the body with a view to securing Dehasiddhi.³

The period between IX A.D. to XV or XVIII cen. A.D. witnessed a remarkable progress in the field of alchemy and iatro chemistry.

From the examination of the material culture of the āgamic and post-āgamic period as can be extracted from the Āgamas, the post-āgamic works and the latest MSS of Jinadatta Sūri (VS. 1210) and other Jaina MSS. of different authors (13th–18th cen. A.D.), combined with their interpretation, in the light of archaeological and other Indian literary evidences, we can arrive at a certain conclusion about the scientific ideas and the practices of the Jainas.

The period of Jinadattasūri (VS. 1210) constitutes the most flourishing and fruitful age of ancient India relating to the accumulation of knowledge in chemical science which was then closely associated with medicine. The abstract theories relate to the physical and chemical and biological theories, embracing the process of the entire cosmic evolution and the methodology of Science.

As Jaina alchemy or chemistry had to deal primarily with the composition and changes of matter, a concise preliminary summary of some of these theories will be given in the beginning in the introduction to deal with the development in its practical aspect.

It may be stated that the theories were purely speculative in character with little or no experimental verification, being the result of only systematic and logical chemical thoughts, yet they may be said to stand in good comparison with some of the most recent and advanced scientific ideas of our time and to bear the stamp of high intellectual perfection and sublime intuition of the time of Jinadatta Sūri.

1. *Suvarṇa-Raupya-Siddhi-Sāstra*, ch. 14.

2. *Rasatṛidaya Tantraṁ*, Govinda Bhagavatpada, chapter 1/10, Motilal Banarsidass, Lahore, 1927.

3. *Indian Alchemy and Tantras*, pp. 369–70.

In connection with the editing of the *Suvarṇa-Raupya-Siddhi-Śāstra* of Jinadatta Sūri. I express my gratitude to Prof. **Dr. Harivallabh Bhayani**, L. D. Institute of Indology, for kindly going through the prepared text of the *Suvarṇa-Raupya-Siddhi Śāstra* and suggesting a few changes in some linguistic forms of Sanskrit, Prakrit, Apabhraṃśa and old Gujarati words of this text with corrections and helping me in studying different Chandas (metres) used by the author in the composition of the first and fourteenth chapters. I am indebted very much to **Pandit Śrī Laxmanbhai Hiralal Bhojak**, a Research Assistant, and **Pandit Babubhai Shah**, an ex. Research Assistant of L.D. Indology, for their assistance in studying the original MSS. of the *Suvarṇa-Raupya-Siddhi-Śāstra* and preparing its text with variant readings. I am thankful to my young fellow brother, **Dr. K. V. Sheth**, a research officer, L. D. Institute, for his valuable suggestions in editing the *Suvarṇa-Raupya-Siddhi-Śāstra*.

I am very much grateful to Prof. **Dalsukh D. Malvania**, ex-Director, L. D. Institute of Indology, for encouraging me in editing such a tough Jaina alchemical work written in different languages and going through my work.

J. C. Sikdar.

INTRODUCTION

(I) A Critical description of the manuscripts used, indicating their mutual relation.

There are three MSS. of *Suvarṇa-Raupya-Siddhi-Śāstra* of Jinadattasūri at the Library of the L. D. Institute of Indology, Ahmedabad-9.

- (1) MS. - A Regd. No. 27596, L. D. Institute of Indology, Ahmedabad-9, patras (folios)-43, written on palm-leaf with black ink, R. S. Date of composition - VS. 1210, copied in the 18th century A. D.
- (2) MS. -B. *Suvarṇa-Raupya-Siddhi-Prayoga-Śāstra* composed by Jinadatta Sūri (purchased), Regd. Sūci No. 6566, L. D. Institute of Indology, Ahmedabad-9, patras (folios)-17, written with silvery ink (rūperī śāhī) on paper R. S. Date of composition -VS. 1210, copied in the 18th cen. A. D.
- (3) MS. - C. -*Suvarṇa-Raupya-Siddhi-Prayoga-Śāstra*. (it is incomplete), composed by Jinadattasūri, Regd. Sūci 6565, L. D. Institute of Indology, Ahmedabad-9, patras 10-17, written with golden ink on palm-leaf. R. S. Date of composition-VS. 1210, copied in the 18th Cen. A. D.

These three MSS. have been used by me in editing the *Suvarṇa-Raupya-Siddhi-Śāstra*. MS. No. C in its incomplete form does not differ from the reading of MS. -B. So I had to depend solely on MS-A. and B. for editing the *Suvarṇa-Raupya-Siddhi-Śāstra*.

MS.-A. This is a well preserved MS. in good hand - writing in Devanagari Script. It has 43 folios of palm-leaf, measuring 42x5. c. m. = 16½"x2", 2 c. m. = half inch on right and left, a little less on top and bottom, eight lines on the first page, five lines on the last page and nine to ten lines on the intermediate pages. The marginal space does not vary and the whole MS. is written by one hand. It has 70-90 letters to a line due to the space left in the middle and the use of big types of letters.

The colophons (see the last verse of the 14th chapter) clearly say that the work was composed by Jinadattasūri of Kharataragaccha on Akṣaya tṛtiyā day in VS. 1210. The elaborate praśasti stanza at the end gives the genealogy of the teacher of the author.

The margins of the text are indicated by thick black lines on both sides-right and left and two dots in on both sides. The dots are perforated and the edges of the hole are worn, indicating that palm leaf MS. was preserved by binding with string.

The MS. is written on a thick palm-leaf and its black ink is well preserved. The corrections in the MS. are indicated by a *kākapada* in the line and the same in the margin. Usual punctuation signs, i. e. *daṇḍa* and *ardha-daṇḍa*, are used. Vertical strokes over the words are used as a device for the punctuations. Usually *paṇimātrā* is used.

The MS. begins with :- “Sri Gotamāya namaḥ atha Saṃskṛtaprakṛtapabramśabhāṣayā svarṇarūpya-siddhaya liṅkhyante gadyapadyabamdhena” and ends with “mayā lekhi lokānaṃ duḥkhaṇaṣiṇi dine, kṣayaṭṭriyāyaṃ Jinadattena sūriṇa”

The text presented by this MS. is as good as an autograph copy, but at the same time an autopsy and a comparison with MS. - B. show that the haplographies and other eye-mistakes cannot be explained with the existence of a lost autograph. This MS. is counted as the main one in the prepared edition of the *Suvarṇa-Raupya-Siddhi-Śāstra*.

MS. B. This is also a well-preserved MS. in good hand writing (in Devanāgarī Script). It has 17 patras (folios), measuring 41×9 c. m. = 16½”×3½”, margins of 2 c. m. = half inch on right and left, a little less on top and bottom; 21-23 lines to a page except the last one which contains 10 lines.

The marginal space does not vary and the whole MS. is written by one hand. It has an average of 90-108 letters to a line due to the space left in the middle.

The colophons (see the last stanza of the 14th chapter) give the same date of composition) that it was composed by Jinadatta Sūri on Akṣayaṭṭriyā day, VS. 1210. The elaborate praśasti stanza at the end gives the genealogy of the teacher of the author.

The margins of the text are indicated by thick silvery lines on both sides. The MS. is written on a thick red paper with silvery ink. The corrections in the MS. are indicated by a *Kākapada* in the line and the same in the margin. Usual punctuation signs, i. e. of *daṇḍa* and *ardha-daṇḍa*, are used. Vertical strokes over the words are used as a device for the punctuations. Usually *paṇimātrā* is used.

This MS. begins with “Om Gaṇeśāya namaḥ. Atha Saṃskṛta-prakṛta-Apabhrāmśa-bhāṣayā liṅkhyante”, etc. and ends with “dine kṣayaṭṭriyāyaṃ Jinadattena Sūriṇa”, as found in MS-A.

The text preserved by this MS - B. is as good as that of MS. - A.

MS.-C. As pointed out, it is incomplete, for one-nine patras (folios) in the beginning are missing. Only it contains 8 patras (folios) from 10-17 patras and the onward patras after the 17th up to the concluding patra containing the last stanza—are also missing. So this MS. could not be used fully. No doubt, whatever portion is existing, (it) is a well-preserved MS. in good hand-writing. It has only 8 folios, measuring 43×6 c. m. = $17'' \times 2\frac{1}{4}$ —margin of 2 c. m. = half inch on right and left, a little less on top and bottom; ten lines to a page. The marginal space does not vary, and the whole MS. is written by one hand. It has an average of 80-85 letters to a line due to the space left in the middle.

The margin of the text are indicated by thick golden lines on both sides and two dots on two sides. Both the dots are perforated. The edges of the holes are worn, indicating that the palm-leaf MS. was also preserved by binding with string.

The MS. is written on thick palm-leaf with golden ink. The corrections in the MS. are indicated by a kakapada in the line and the same in the margin. Usual punctuation signs, i. e. of daṇḍa and ardha-daṇḍa are used. Vertical strokes over the words are used as a device for the punctuations.

METHOD OF EDITING

- (ii) Principles of text-constitution adopted, while choosing certain readings or following a certain recension.

* * *

From a study of the above-mentioned three MSS. the MS.-A is considered here as the main one, as it can be regarded as the oldest one on the basis of language, mode of writing and date. The edited text has been prepared mainly on the basis of the said MS. Besides this, the alternate readings of other MSS. are noted here. The notes of the variant readings (pāṭhāntara) has been prepared according to the numbers of stanza, lines and formulae of the MS.-A. No additional words or lines found in other MSS. are taken in the edited text, except in the case of a necessity for reference.

The stanzas or lines found in the MS.-A., but not found in any other MSS. have been kept in the edited text.

If, in some cases, the edited text has not been found up to the mark from the point of view of its reference, spelling, antiquity and appropriateness of meaning, than the text of other MSS. which appeared to be up to the mark from those points of view has been taken into the edited text and the text of the main MS.-A has also been noted in the foot notes.

Generally the MS.-A has been taken as standard as a rule from every aspect -evidence, order, language and spelling, etc.

The edited text is prepared on the following principles;

- (1) Here the Ms.- A is counted as the main one and generally its text is accepted and the importance of the alternate text of other MSS. is also noted.
- (2) Pāṭhāntara (alternate or variant reading) regarding pādapāraka (complementariness) of paryāyātmka (synonymous version) is not noted.
- (3) The note of every place whether there is more or less reading, has been taken.
- (4) The special note of the alternate readings has been taken by considering the importance of language, meaning and other important points of view.
- (5) No imaginary reading which is not found in the MSS. has been taken in the edited text.
- (6) In the editing the spelling has been followed according to that of the MS. - A. Of course, sometimes, it has been corrected from the linguistic point of view by comparing the spelling of the text of all the MSS.
- (7) If the reading of the recent time has been found more standard than that of the MS. - A, then it has been accepted in the edited text.

(III) Life and Age of the author of the Suvarṇa-Raupya-Siddhi-Śāstra.

It is clearly stated by the author of the Suvarṇa-Raupya-Siddhi-Śāstra in the last verse of the 14th chapter that "the Suvarṇa-Raupya-Siddhi-Śāstra has been written by me, Jinadattasūri, having an experience (and) belonging to the pure celebrated Kharatara Gaccha in the world in VS. 1210 (1153 A. D.) on the day of Akṣaya tṛtiyā for removing the misery of the people."¹

According to one view, it was Jinadatta Sūri ² a pupil of Jina-vallabha sūri, who was the real founder of Kharataragaccha at Ajmer in VS. 1179. Dharmasāgara Sūri maintains the view that it was founded by him in VS. 1204. ³

It is alleged that Jinadatta Sūri was obliged to fly on the back of a mule (khara).⁴ He had hence the nick-name 'Kharatara'. Another explanation of this gaccha is that Jinadatta Sūri was a redoubtable master (khara) of controversy.⁵ His activities equally account for his further names - Cāmūṇḍika, because he dedicated a prayer to Cāmūṇḍā and Austrika⁶ as he was obliged to fly on the back of a mule.⁷ Whatever may be the explanation of the origin of Kharataragaccha, it prospered and flourished vigorously in Rajasthan. And it is one of the most important celebrated Śvetāmbara schools.

It is to be observed here that Jinadattasūri stands as the fifth Ācārya from Jineśvara Sūri in the line of Kharataragaccha according to the Kharataragaccha paṭṭāvalī.⁸ It is possible that Kharataragaccha was founded by Jineśvarasūri at Pātan outside Rajasthan, but it became much celebrated under the leadership of Jinadatta Sūri in Rajasthan, So it was natural according to one view, that he was the founder of Kharatara gaccha. But it is to be noted here that Jineśvarasūri obtained the title "Kharatara" in 1017 A. D. at the court of king Duralabharāja of Pātan by defeating the Caityaṇvāsī monks.

1. Akāṣendukara kāle Vikaramato gate / Svacche Kharataragacche Vikhyāte Jagatitāte // Svānubhūta mayā lekhi lokānām duḥkhānāṣiṇi / Dine (a) Kṣayatrīyāyām Jinadattena Sūriṇā // Suvarṇa - Raupya - Siddhi - Śāstra, ch, 14, 68
2. Jaina Sahityano Itihās, p. 233.
3. According to Dharmasāgar Upādhyaya, it was Jinadatta (VS. 1204) who was the founder of Kharataragaccha, See pravacana Parikṣā, Dharmasāgar Upādhyaya, p. 323, line 17.
4. In regard to peculiarities of Kharatara it is known from Jinadatta himself by an Utsātrapadāghaṇkulaka (309) by a samācārī (Dharmasāgar gurvāvalī in Ajitadeva sūri series No. 41, weber, Kup., p. 804).
5. "Pattane pausadhaśalivanavade kuvalāṅga Kharataragacchaicete namaṁ abhāt", Paṭṭāvalī Samuccaya, Pt. I, pp. 56, 154.
6. Pravacana Parikṣā, Dharmasāgar Upādhyaya, p. 231.
7. See Bhandarkar's Report, 1883-84 A.D. p. 149.
8. Kharatagaccha Paṭṭāvalī, Pt. II, pp. 24 ff., Pt. III, pp. 47 ff.

A critical study of all evidences of the paṭṭāvalis shows that Kharataragaccha started with Jinadatta Sūri, although the Kharataragaccha Paṭṭāvali traces its origin from Jineśvara Sūri, a pupil of Dharmasāgara Sūri, a grand-pupil of Udyotana Sūri of Vanavāsī gaccha.

Jinadatta Sūri was born in the family of Vachigamantri and his wife Vahadadevi, the residents of Dhandhukānagara, belonging to Humvaḍa gotra, in VS. 1132. His original name was Somacandra. He took to initiation at the hands of Vācaka Dharmadeva on the sixth day of Vaiśākhavadi in VS. 1141 in the City of Citrakūṭa (Chitor). He was installed as Ācārya by Śrī Devabhadra cārya with the attribute of name "Jinadatta Sūri" in VS. 1169,

It is found that the monks of the Kharataragaccha took much interest in alchemy and occultism as a course of study in later periods, as it is notable that Jinadattasūri first started the study of alchemy and occultism in the Kharataragaccha for the benefit of the people.

2. Author's indebtedness to earlier authors and the relative position of the work - Suvarṇa-Raupya-Siddhi-Śāstra in the allied branches of literature.

Jinadattasūri, the author of the Suvarṇa-Raupya-Siddhi-Śāstra declares his indebtedness to the previous Ācāryas like Nāgarjuna,¹ Padāliptasūri,² Carpaṭa,³ Nātha,⁴ Sekham Ali⁵ and Others⁶ for a knowledge of certain processes of alchemy as is found in the case of other Indian works on alchemy.

It appears clearly that the Suvarṇa-Raupya-Siddhi-Śāstra is a composition based on some standard works on alchemy, medicine and occultism and the contribution of the adepts. The peculiarity of the work is this that it is based upon the Indian Āyurveda texts on the one hand and the Indian Tantric chemical treatises on the other. It appears from a comparative study of the contents of this work that it is more or less compilation based upon many other Indian alchemical works of the Tantric period on the same problem or there might have been a common Indian source from which all the Indian schools of alchemy might have drawn their respective alchemical information.

A Summary of the Contentes (Chapterwise) of the Suvarṇa-Raupya-Siddhi-Śāstra

The Suvarṇa-Raupya-Siddhi-Śāstra contains fourteen chapters dealing with alchemy - chemistry and metallurgy, medicines and occultism.

The first chapter consisting of 61 verses treats of the accomplishment of the process of metallurgy of gold, silver, etc., the processes of killing mercury, gold, Napalese copper and gold-making⁷ in the 1st verse, purification of orpiment and mercury, making of gold from the base metals-copper, iron and lead⁸, fixation of orpiment and mercury, purification of copper⁹ in the 2nd verse, invocation to Mahāvira¹⁰ in the 3rd verse, mercury, mineral calamine, realgar and sulphur, orpiment and gold¹¹ in the 4th verse and the necessary materials for chemistry and metallurgy¹² in the 5th verse.

1. Suvarṇa-Raupya-Siddhi-Śāstra, ch. 1. 60

2. Ibid., ch. II. 4.

3. Ibid., ch. I. 8, 14, 17, 36, 39

4. Ibid., ch. I. 19

5. Ibid., ch. I. 60 MS. B

6. Ibid., ch. I. II (Gaṇḍu)

7. Suvarṇa-Raupya-Siddhi-Śāstra ch. 1. 1.

8. SRSS. ch. 1. 2.

9. Ibid., ch. 1. 2.

10. Ibid., ch. 1. 3.

11. Ibid., ch. 1. 4.

12. Ibid., ch. 1. 5.

Next this chapter deals the processes of gold¹ and silver²-making in most of the remaining verses and refers to the alchemical sects – Dhātavedhī, Gavavedhī and Dhūmravedhī. Carapaṭa yogiyā³ in the 13th verse, sources of mercury⁴ in the 30th verse, the process of making Rasasindūr (a mercurial medicine),⁵ in the 31st verse, the process of killing lead and mercury and that of making pearl⁷ in the 51st and 52nd verses respectively, that of making lead⁸ in the 53rd verse, killing of mercury in the 55th verse and testing of iron¹⁰ in the 56th verse.

The second chapter comprising 15 sūtras and an eulogy to Mahāvira is a commentary on the first chapter, interpreting the secret meanings of alchemical thoughts and practices hidden in the code letters and words of some of the verses,¹¹ of the first chapter. It ends with an eulogy to Mahāvira which contains the secret theories of alchemical processes. For example, “Kharamaṭaḥāsamatulyam Vajrikṣīrenabhavitam bahusol.” (1-26) Kha = Kharpara = mineral calamine. Ra = rasa = mercury. Ma = manahṣilā = realger, Ta = taṁkana = borax, Ha = haratāla = orpiment. Take equal portions of each of them and grind them; they are to be saturated with the milk of Vajri (Euphorbia antiquorum).

“Dhammo maṅgalamukkiṭṭam ahimsā saṁjamo tavo / Devā vi taṁ namanisanti jassa dhamme sayā maṇo // (1.1.) Dhammo = mercury, maṅgalaṁ = gold, ukkiṭṭam = Nepalese copper, ahimsā = Kamtheri (capparis sepiaria), saṁjamo = rakta agastya (red-flowered agasta, sesbania glandiflora) tavo = kṛṣṇakanaka = black thorny apple, devā vi = pīṭ devadālī (yellow Andropogon serratus).

Mercury is killed with the juice of thorny apple, gold is killed with the juice of red sesbania glandiflora, the Nepalese copper is killed with the juice of Capparia Sepiaria.

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1. SRSS., ch. 1. 6, 7, 9, 10, 12, 13, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 27, 28, 29, 32, 33, 35, 36, 37, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 50, 59, 60, 61
 2. SRSS., ch. 1. 8, 11, 22, 26, 27, 34, 35, 49, 54, 57
 3. Ibid., ch. 1. 13
 4. Ibid., ch. 1. 30
 5. Ibid., ch. 1. 31
 6. Ibid., ch. 1. 51
 7. Ibid., ch. 1. 52
 8. SRSS. ch. 1. 53.
 9. Ibid., ch. 1. 55.
 10. Ibid., ch. 1. 56.
 11. Ibid., ch. 1. 1, 2, 7, 10, 16, 26, 33, 34, 38, 45, 46, 48, 49,

Having rubbed three (mercury, gold and copper) with the juice of yellow *Andropogon serratus*, the essence of these measuring and *gūṇja* should be given into copper weighing one tola. There will be the accomplishment of gold. (1.1).

The third chapter consisting of 109 formulae of alchemy deals with various alchemical process of gold-making¹ and silver-making,² some chemical processes,³ remedy for paralytic rheumatism,⁴ fixation of mercury,⁵ process of making mercury out of mica,⁶ medicine,⁷ process of making cinnabar,⁸ process of copper-making,⁹ process of making *meṇamudra*,¹⁰ purification of copper,¹¹ making of *guṭikas* (pills) for using in the practice of occultism,¹² etc., process of making the essence of mineral calamine,¹³ and the process of making mercury fire—proved.¹⁴

The fourth chapter consisting of 30 formulae deals with the chemical processes of gold making¹⁵, silver making¹⁶, the chemical process of increasing the carat of gold¹⁷ in *Kavacyantra*, process of making medicinal pill,¹⁸ process of making the essence of orpiment¹⁹, process of increasing the weight of gold,²⁰ medicine,²¹ process of making copper²² from the stones of earth passed by the earth worms and purification of Zinc²³ ?

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1. *Suvarṇa-Raupya-Siddhi-Śāstra* ch. 3. 1, 2, 3, 4, 6, 7, 9, 9x, 19, 20, 21, 25, 33, 36, 37, 49, 50, 52, 53, 57, 58, 60, 63, 73, 75, 76, 77, 85, 86, 103, 105, 107, 109,
 2. *Ibid.*, ch. 3. 10, 11, 12, 13, 14, 16, 17, 18, 23, 24, 26, 28, 30, 31, 32, 34, 35, 39, 43, 44, 45, 46, 47, 48, 54, 62, 65, 67, 68, 69, 70, 71, 72, 74, 102, 104, 106.
 3. *Ibid.* ch. 3. 5, 15
 4. *Ibid.* ch. 3. 6x
 5. *Ibid.* ch. 3. 22, 55, 56, 59, 64, 78, 81,
 6. *Ibid.* ch. 3. 27.
 7. *Ibid.* ch. 3. 38, 40, 51,
 8. *Ibid.* ch. 3. 41,
 9. *Ibid.* ch. 3. 61,
 10. *Ibid.* ch. 3. 66,
 11. *Ibid.* ch. 3. 66x
 12. *Ibid.* ch. 3. 78-80, 82, 83,
 13. *Ibid.* ch. 3. 84
 14. *Ibid.*, ch. 3. 108.
 15. *Ibid.*, ch. 4. 3, 7, 12, 14, 18, 23, 25, 27, 28.
 16. *Ibid.* ch. 4. 2, 4, 8, 13, 15, 16, 17, 19, 20, 22, 24, 29.
 17. *Ibid.* 4. 1.
 18. *Ibid.* 4. 5.
 19. *Ibid.* 4. 6.
 20. *Ibid.* 4. 9.
 21. *Ibid.* 4. 10, 11, 30.
 22. *Ibid.* 4. 26.
 23. *Ibid.* 4. 27,

The fifth chapter consisting of forty five formulae of the alchemical processes of killing all kind of metal¹ with orpiment and realgar, making essence,² killing mercury, Sulphur, Kaneri, realgar, orpiment and oxide of arsenic with the juice of *Aristolochia bracteata*,³ converting silver into gold⁴, other processes of gold-making⁵ and silver-making⁶, fixing of mercury⁷, incineration of mercury,⁸ making of mercurial pill,⁹ making mercury fire-proved,¹⁰ purification of mineral Calamine¹¹ Chemical processes of increasing carat of gold,¹² process of piercing of silver and copper.¹³ process of making oil of Sulphur,¹⁴ making of mercury out of the leaves of mica,¹⁵ making of medicine for disease,¹⁶ and process of making madanamudra¹⁷ (seal with wax).

The sixth chapter containing forty two formulae makes a study of the processes of gold-making¹⁸ and silver-making,¹⁹ process of killing copper,²⁰ making essence,²¹ purification of Copper,²² occultism to see hidden treasure and to become invisible²³ with the application of Dravyanjana, etc. process of making out poison,²⁴ process of making Jalayantra,²⁵ fixation of mercury²⁶ incineration of mercury,²⁷ remedy of impotency,²⁸ medicinal preparation²⁹ incineration of silver³⁰ and Vaṣikaraṇa (enchanting art.)

1. Ibid. 5. 1.
2. Ibid. 5. 2, 20, 43
3. Ibid. 5. 3.
4. Ibid.
5. Ibid. 5. 3x, 4, 5, 10, 12, 13, 15, 17, 18, 19, 24, 26, 29, 32, 39, 40.
6. Ibid. 5. 9, 12, 16, 21, 23, 25, 27, 28, 33, 34, 38
7. Ibid. 5. 6, 41,
8. Ibid. 5. 7, 8, 44
9. Ibid. 5. 11.
10. Ibid. 5. 14
11. Ibid. 5. 16
12. Ibid. 5. 21, 22, 30, 36
13. Ibid. 5. 31,
14. Ibid. 5. 35.
15. Ibid. 5. 37
16. Ibid. 5. 42
17. Ibid. 5. 45.
18. Ibid. ch. 6. 1, 4, 7, 8, 9x, 10, 10x, 14, 17x, 19, 21, 22, 26, 28, 36, 40.
19. Ibid. ch. 1x, 2, 3, 5, 9, 20, 30, 31, 33, 34, 36, 39,
20. Ibid. ch. 6. 5
21. Ibid. ch. 6. 6, 17, 29,
22. Ibid. ch. 6. 7
23. Ibid. ch. 6. 11, 12, 14, 15
24. Ibid. ch. 6. 17x
25. Ibid. ch. 6. 18, 27, 25
26. Ibid. ch. 6. 23, 24,
27. Ibid. ch. 6. 25,
28. Ibid. ch. 6. 32, 37, 38, 41
29. Ibid. ch. 6. 41,
30. Ibid. ch. 6. 41,
31. Ibid. ch. 6. 42,

The seventh chapter consisting of twenty eight formulae deals with the process of purification of mica,¹ medicines for typhoid fever, gonorrhoea, bloody bileousness (rakta pitta), dysponoea and epilepsy,² medicine for eye, scanty urination, jholo (a kind of disease), mabarakhī (a kind of disease), huk, cuk, nala, and barahalla (these disease not yet identified), aṣṭagulma (eight kinds of tumour), giddiness, arthritis and bhramara coraṅgi disease, diet, etc.³ The process of making pure mica out of black mica,⁴ a Tantric incantation "Aum Hṛīm..... Kuru Svāhā",⁵ medicine for breathing trouble and semen trouble,⁶ prayer to Bagavati for making rain,⁷ some chemical processes,⁸ process of making white copper,⁹ medicinal pills for curing boils,¹⁰ some medicine,¹¹ process of making gold of 10 carats,¹² 11 carats,¹³ 14 carats,¹⁴ process of gold-making,¹⁵ process of silver making,¹⁶ process of Madanamudrā,¹⁷ (seal with wax), Menamudrā,¹⁸ (seal with wax), other Mudrās,¹⁹ process of making strong crucible²⁰ of killing lead and converting it into silver and gold,²¹ process of making the chemical essence,²² processing of mercury and lead,²³ process of making water of mercury,²⁴ and process of making water of Sal-ammoniac.²⁵

1. Ibid., ch. 7. 1.
2. Ibid., ch. 7. 1.
3. Ibid., ch. 7. 2.
4. Ibid., ch. 7. 3.
5. Ibid., ch. 7. 4.
6. Ibid., ch. 7. 5.
7. Ibid., ch. 7. 6.
8. Ibid., ch. 7. 7.
9. Ibid., ch. 7. 8.
10. Ibid., ch. 7. 9.
11. Ibid., ch. 7. 10.
12. Ibid., ch. 7. 25.
13. Ibid., ch. 7. 11, 25.
14. Ibid., ch. 7. 26.
15. Ibid., ch. 7. 19, 23.
16. Ibid., ch. 7. 12, 19, 20, 22,
17. Ibid., ch. 7. 13.
18. Ibid., ch. 7. 14, 17, 18.
19. Ibid., ch. 7. 15.
20. Ibid., ch. 7. 16.
21. Ibid., ch. 7. 19.
22. Ibid., ch. 7. 21.
23. Ibid., ch. 7. 24.
24. Ibid., ch. 7. 27.
25. Ibid., ch. 7. 28,

The eighth chapter having thirty five chemical formulae presents an account of the processes of gold-making¹ and silver-making,² purification of Kathira³ (tin), vaṣikaraṇa⁴ (enchaining woman), making the chemical essence in Jalayantra,⁵ chemical process of mercury and sal-ammoniac,⁶ calcination of mercury,⁷ medical recipes for urticaria, eczema, leucoderma and itching,⁸ process of making mercury,⁹ Degāmi Navasāra¹⁰ (a kind of sal-ammoniac), making of medicinal essence,¹¹ killing of mercury and piercing of mercury into metal,¹² preparation of chemicals¹³, making mouth into mercury by chemical processes¹⁴, fixation of mercury¹⁵, making chemical essence of mercury¹⁶, chemical processes¹⁷, process of making of copper from Silver¹⁸ and gold-making¹⁹.

The ninth chapter consisting of seventy chemical formulae deals with the chemical processing of hill-water in the preparation of alchemicals²⁰ medical recipes²¹, fixation of mercury and making of mouth into fixed mercury,²² elixir vitae by taking water of mercurial pill,²³ strengthening of body with the mercurial pills,²⁴ piercing of all metals by the chemical mineral essence prepared with mercury, etc.,²⁵ location of hill water,²⁶ process of making

1. SRSS., ch. 8. 1, 3, 8, 19, 21, 23

2. Ibid. ch. 8. 2, 4, 5, 7, 9, 15, 18.

3. Ibid. ch. 8. 6.

4. Ibid. ch. 8. 10.

5. Ibid. ch. 8. 11, 12

6. Ibid. ch. 8. 13.

7. Ibid. ch. 8. 14.

8. Ibid. ch. 8. 16

9. Ibid. ch. 8. 17

10. Ibid. ch. 8. 20

11. Ibid. ch. 8. 21

12. Ibid. ch. 8. 24,

13. Ibid. ch. 8. 25, 27.

14. Ibid. ch. 8. 26, 28, 29, 29x.

15. Ibid. ch. 8. 30.

16. Ibid. ch. 8. 31

17. Ibid. ch. 8. 32, 33, 34x, 35

18. Ibid. ch. 8. 34.

19. Ibid. ch. 8. 34x.

20. Ibid. ch. 9. 1.

21. Ibid. ch. 9. 2, 31,

22. Ibid. ch. 9. 3.

23. Ibid. ch. 9. 4.

24. Ibid. ch. 9. 5, 6

25. Ibid. ch. 9. 7

26. Ibid. ch. 9. 8

lead white,¹ some chemical processes,² process of making iron,³ that of making silver,⁴ that of burning of mercury,⁵ process of making cinnabar,⁶ white cinnabar,⁷ mercurial preparation of pill for old fever,⁸ medicines for fevers,⁹ all types of fever,¹⁰ mercurial medicine for appetite and sex-exciting,¹¹ medicine for impotency,¹² mercurial medicines for all types of fever, cough and chilliness,¹³ mercurial medicine for typhoid fever,¹⁴ etc., medicine for intermittent fevers—tryahnik and caturahnik¹⁵ (tertian and quartan) mercurial medicines for fevers,¹⁵ mercurial medicines for all fevers—rheumatic fevers,¹⁷ medicine for impotency, gastralgia and sex-excitation and for lost sexual power,¹⁸ reducing of mercury to ashes,¹⁹ process of making mercury silver-like,²⁰ killing of mercury,²¹ purification of mercury,²² making it white, chemical essence,²³ fixation of mercury,²⁴ process of silver-making,²⁵ some chemical processes²⁶ Khahipo Khamina Mudra,²⁷ making seal in the medicine of Menamudra,²⁸ process of calomel

1. Ibid. ch. 9. 9
2. Ibid. ch. 9. 10, 19.
3. Ibid. ch. 9. 11.
4. Ibid. ch. 9. 12. 13.
5. Ibid. ch. 9. 14.
6. Ibid. ch. 9. 15, 17, 18, 44
7. Ibid. ch. 9. 16.
8. Ibid. ch. 9. 20.
9. Ibid. ch. 9. 21, 30.
10. Ibid. ch. 9. 22.
11. Ibid. ch. 9. 23.
12. Ibid. ch. 9. 24.
13. Ibid. ch. 9. 25.
14. Ibid. ch. 9. 26.
15. Ibid. ch. 9. 27.
16. Ibid. ch. 9. 28.
17. Ibid. ch. 9. 29.
18. Ibid. ch. 9. 30.
19. Ibid. ch. 9. 32.
20. Ibid. ch. 9. 33.
21. Ibid. ch. 9. 34.
22. Ibid. ch. 9. 35.
23. Ibid. ch. 9. 36.
24. Ibid. ch. 9. 37, 38.
25. Ibid. ch. 9. 39, 41, 47, 52.
26. Ibid. ch. 9. 40, 41x, 42, 45, 46, 49, 53, 54, 56, 66,
27. Ibid. ch. 9. 40x,
28. Ibid. ch. 9. 40y.

perchloride of mercury,¹ process of making gold,² chemical pill,³ medicine for strength,⁴ process of making copper white,⁵ killing of mercury and oxide of arsenic with the conch-shell powder,⁶ chemical process to make lead white,⁷ medicine for gonorrhoea⁸ and appetite, some medicine,⁹ medicine for roughness of skin,¹⁰ medicine for eczema,¹¹ medicine for blisters of ulcers,¹² medicine for sceptic ulcer,¹³ medicine for skin-swelling,¹⁴ medicine for taking out worm from the nose,¹⁵ and medicine for rheumatism.¹⁶

The tenth chapter comprising seventy four chemical formulae makes a study of various medical and chemical processes, such as, medicine for taking out worms from the nose,¹⁷ process of giving roasting to white copper, melting of blue vitriol, copper and iron.¹⁸ chemical process of nitrate of salt pater, mercury, calomel, calamine, copper, ect.¹⁹, medicine for lost sexual power,²⁰ tumour,²¹ medicine for appetite;²² Himgalomudrā,²³ process of making 12 Carat-silver from copper,²⁴ some chemical processes,²⁵ process of purifying copper,²⁶ process of gold-making,²⁷ chemical process,²⁸

1. Ibid. ch. 9. 43
2. Ibid. ch. 9. 43x
3. Ibid. ch. 9. 48
4. Ibid. ch. 9. 49(1)
5. Ibid. ch. 9. 49(2) 50
6. Ibid. ch. 9. 51
7. Ibid. ch. 9. 57, 67
8. Ibid. ch. 9. 58, 60
9. Ibid. ch. 9. 59, 68
10. Ibid. ch. 9. 61
11. Ibid. ch. 9. 62
12. Ibid. ch. 9. 63
13. Ibid. ch. 9. 64
14. Ibid. ch. 9. 65
15. Ibid. ch. 9. 69
16. Ibid. ch. 9. 70
17. SRSS. ch. 10. 1.
18. Ibid.
19. Ibid. ch. 10. 1x
20. Ibid. ch. 10. 2, 3
21. Ibid. ch. 10. 3.
22. Ibid. ch. 10. 4, 12, 16
23. Ibid. ch. 10. 5
24. Ibid. ch. 10. 5
25. Ibid. ch. 10. 6
26. Ibid. ch. 10. 7
27. Ibid. ch. 10. 8, 30,
28. Ibid. ch. 10. 9, 11, 17, 21, 22, 26, 27, 31, 35, 36, 43, 43x, 48, 59,

for the removal of blackness of brass,¹ medicine for sexual excitement,² medicine for Dhalma,³ (Gulma ? = tumour), medicine for gas,⁴ some medicines,⁵ chemical process for medicine,⁶ process of making Jalayantra,⁷ Minamudrā,⁸ (process of making wax seal), process of making medicinal oil,⁹ process of increasing the carat of gold,¹⁰ process of fixing mercury,¹¹ solvents of copper-ash of bone of the neck of camel, bone of boar and tail of rat,¹² some mercurial process,¹³ process of silver-making,¹⁴ process of making gold,¹⁵ process of Sal-ammoniac,¹⁶ medicine for sceptic ulcer,¹⁷ medicine for boil on head and all types of headache¹⁸ medicine for removal of blackness of the face,¹⁹ medicine for burning sensation in the body,²⁰ process of making Degāmī Navasār (Sal-ammoniac),²¹ mercurial medicine,²² medicine for incurable haemorrhage and jaundice,²³ process of calcination of mercury,²⁴ mercurial medicine for sexual appetite and strength,²⁵ some mercurial medicines,²⁶ process of making the lump of mercury and mica fire-proved,²⁷ and purification of copper,²⁸

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1. Ibid. ch. 10, 10
 2. Ibid. ch. 10, 12, 57
 3. Ibid. ch. 10, 13
 4. Ibid. ch. 10, 14
 5. Ibid. ch. 10, 15, 18, 20, 27, 28, 67, 68
 6. Ibid. ch. 10, 19, 24, 27
 7. Ibid. ch. 10, 23
 8. Ibid. ch. 10, 25
 9. Ibid. ch. 10, 28
 10. Ibid. ch. 10, 29
 11. Ibid. ch. 10, 32, 44, 55, 73,
 12. Ibid. ch. 10, 33, 34
 13. Ibid. ch. 10, 37
 14. Ibid. ch. 10, 38, 40, 42, 47, 54, 61, 62, 63,
 15. Ibid. ch. 10, 39, 41, 46, 56
 16. Ibid. ch. 10, 45
 17. Ibid. ch. 10, 49, 50
 18. Ibid. ch. 10, 51
 19. Ibid. ch. 10, 52
 20. Ibid. ch. 10, 53
 21. Ibid. ch. 10, 58.
 22. Ibid. ch. 10, 60.
 23. Ibid. ch. 10, 64.
 24. Ibid. ch. 10, 65, 66,
 25. Ibid. ch. 10, 69.
 26. Ibid. ch. 10, 71, 71.
 27. Ibid. ch. 10, 72
 28. Ibid. ch. 10, 74

The eleventh chapter consisting of two sections, having 42 and 40 chemical formulae respectively treats of chemical process,¹ Vaśikaraṇa (enchanting of man by woman)² through occultism, making the peace of husband and wife disturbed by the influence of occultism,³ Vaśikaraṇa of woman,⁴ Vaśikaraṇa of woman by writing some incantation figures.⁵ the process of silver-making,⁶ process of making gold,⁷ fixing of mercury,⁸ killing of mercury,⁹ calcination of mercury,¹⁰ chemical processes,¹¹ process of making Mudrā,¹² process of increasing carat of gold,¹³ process of making Degamī Navasāra (sal-ammoniac)¹⁴, fixation of sulphur,¹⁵ process of making oil of orpiment and resin,¹⁶ process of making crucible,¹⁷ seven process of taking out the chemical essence,¹⁸ mercurial (medicinal pill),¹⁹ processes of increasing sexual appetite with mercurial pill,²⁰ process of making copper white and silver bright, process of making orpiment,²¹ medicine,²² occultism of going anywhere with the help of guṭikā (specially prepared),²³ remedy for impotency,²⁴ and Saṁta guṭikā (pill).²⁵

The twelfth chapter having thirty two formulae makes a study of the process of purification of copper,²⁶ process of silver-making,²⁷ process of making Pegamī Navasār,²⁸ some chemical process,²⁹ process of gold-making,³⁰

1. Suvarṇa-Raupya-Siddhi - Śāstra, ch. 11. 1. 1, 11, 12, 24.
2. Ibid. ch. 11. 12.
3. Ibid. ch. 11. 1. 3
4. Ibid. ch. 11. 1. 4
5. Ibid. ch. 11. 1. 5
6. Ibid. ch. 11. 1. 6, 15, 23, 27, 31, 33
11. 2. 9, 12, 18, 20, 26, 27, 31, 32
7. Ibid. ch. 11. 1. 7, 10, 11, 13, 16, 22, 24, 24x, 25, 28, 34, 35, 36, 37, 38, 39, 40, 41;
11. 2. 3, 4, 5, 10, 11, 14, 15, 16, 17, 20, 21, 22, 23, 28, 29, 30, 39, 40.
8. Ibid. ch. 11. 1. 8, 9, 14, 19, 29, 30x, 33.
9. Ibid. ch. 11. 1. 20.
10. Ibid. ch. 11. 2. 7.
11. Ibid. ch. 11. 1. 11x, 18
12. Ibid. ch. 11. 1. 12.
13. Ibid. ch. 11. 1. 17, 26.
14. Ibid. ch. 11. 1. 21.
15. Ibid. ch. 11. 1. 32.
16. Ibid. ch. 11. 1. 42.
17. Ibid. ch. 11. 2. 1, 22, 36.
18. Ibid. ch. 11. 2. 6.
19. Ibid. ch. 11. 2. 8.
20. Ibid. ch. 11. 2. 13.
21. Ibid. ch. 11. 2. 18.
22. Ibid. ch. 11. 2. 19.
23. Ibid. ch. 11. 2. 25.
24. Ibid. ch. 11. 2. 33.
25. Ibid. ch. 11. 2. 34, 37
26. Ibid. ch. 11. 2. 39
27. Ibid. ch. 11. 1.
28. Ibid. ch. 12. 2. 6, 13, 17, 21, 25, 26x, 29, 30
29. Ibid. ch. 12. 3. 4
30. Ibid. ch. 12. 5. 10, 12, 23, 24

occultism to see underground treasure,¹ medicine for producing male child,² process of taking out poison from the stomach,³ and occultism to be invisible.⁴

The thirteenth chapter consisting of two sections having twenty seven and sixteen chemical formulae respectively deals with Vaṣikaraṇa⁵ (process of enchanting), process of making mercury from rice,⁶ process of silver-making,⁷ process of preicing copper with chemical essence and making gold,⁸ camphor-making,⁹ remedy for impotency,¹⁰ some chemical processes,¹¹ mercurial process of making chemical essence for making gold,¹² purification of mercury,¹³ process of demonstrating puṣa chemical roasting and preparing medicine,¹⁴ medicine for appetite and strength,¹⁵ production of mercury,¹⁶ medicine,¹⁷ process of preicing metal leaves,¹⁸ process of making the essence of mineral calamine,¹⁹ process of Menamudrā (seal made of wax),²⁰ Madanamudrā,²¹ process of making gold²² of carats, ²³ remedy for impotency,²⁴ process of piercing of silver, tin and copper with the chemical essence for making gold.²⁵

The fourteen chapter having two sections comprising fourteen and sixty nine respectively makes an analysis of the first and second khecarī guṭikās (pills) in the first section, by throwing light upon the process of preparation and efficaciousness for elixir vitae and 64 kinds of disease²⁶ and rejuvenation health.²⁷

1. Ibid. ch. 12. 14, 15, 16

2. Ibid. ch. 12. 22.

3. Ibid. ch. 12. 31.

4. Ibid. ch. 12. 32.

5. Suvarṇa-Raupya-Siddhi-Sastra, ch. 13. 11.

6. Ibid. ch. 12. 1. 2.

7. Ibid. ch. 13. 1. 4. 5. 14, 17, 26.

8. Ibid. ch. 13. 1. 6, 7, 8: 9, 20, 23, 25

13. 2. 4. 8. 9. 10

9. Ibid. ch. 13. 1. 10. 11

10. Ibid. ch. 13. 1. 12, 13.

11. Ibid. ch. 13. 1. 15. 24. 13, 2, 3, 11,

12. Ibid. ch. 13. 1. 16.

13. Ibid. ch. 13. 1. 18.

14. Ibid. ch. 13. 1. 19.

15. Ibid. ch. 13. 1. 20.

16. Ibid. ch. 13. 1. 22, 13, 2, 4.

17. Ibid. ch. 13. 1. 27, 13, 2, 13, 15

18. Ibid. ch. 13. 2. 1.

19. Ibid. ch. 13. 2. 2.

20. Ibid. ch. 13. 2. 5.

21. Ibid. ch. 13. 2. 6.

22. Ibid. ch. 13. 2. 7.

23. Ibid. ch. 13. 2. 13.

24. Ibid. ch. 13. 2. 16.

25. SRSS. ch. 14. 1, 1-12

26. Ibid. ch. 14. 1, 13-14.

27. Ibid. ch. 14. 2. 1,

The second section of the fourteenth chapter forms concluding part of the Suvarṇa-Raupya - Siddhi-Śāstra and deals with the necessary requirements for alchemy,¹ invocation to the Jina² and the Tīrthaṅkaras,³ process of gold making,⁴ some chemical processes with garlic,⁵ and process of making oil of sulphur, orpiment, oxide of arsenic one others for making gold.⁶

Next it proceeds on to explain how to make gold⁷ by different methods and commends the efficacy of mercurial medicine⁸ (bhasma), remedies for impotency,⁹ leprosy (kuṣṭha),¹⁰ leucoderma,¹¹ Jaundice,¹² dropsy,¹³ comatose,¹⁴ epilepsy¹⁵ dyspnoea,¹⁶ psoriasis¹⁷ and all diseases,¹⁸ and some other medicines for different kinds of diseases,¹⁹ copper oxide (ash),²⁰ and the colophanthe monastic genealogy of Jinadatta Sūri and date of the composition of his work - the Suvarṇa-Raupya - Siddhi - Śāstra.

In short it is to be summed up that this work treats of mercury, minerals and metals, the construction of apparatus, the mystic formulae for the purification of metal and minerals, the extraction of essence, liquefaction and incineration of minerals and metals, the processes of converting base metals into superior metals, virtues of mercury and elixir vitae, medical recipes and occultism.

1. Ibid., ch. 14. 2. 2.
2. Ibid., ch. 14. 2. 3
3. Ibid., ch. 14. 2. 4
4. Ibid., ch. 14. 2. 5
5. Ibid., ch. 14. 2. 15-20
6. Ibid., ch. 14. 2. 15-20 21-28,
29-43, 62, 67.
7. Ibid., ch. 14. 2. 44
8. Ibid., ch. 14. 2. 20.
9. Ibid., ch. 14. 2. 51.
10. Ibid., ch. 14. 2. 52.
11. Ibid., ch. 14. 2. 53.
12. Ibid., ch. 14. 2. 54.
13. Ibid., ch. 14. 2. 54.
14. Ibid., ch. 14. 2. 57.
15. Ibid., ch. 14. 2. 58.
16. Ibid., ch. 14. 2. 59.
17. Ibid., ch. 14. 2. 60.
18. Ibid., ch. 14. 2. 63, 64, 65.
19. Ibid., ch. 14. 2. 66.
20. Ibid., ch. 14. 2. 66-9.

History and Geography arising out of the study of the text of the Suvarṇa - Raupya - Siddhi - Śāstra.

The Suvarṇa - Raupya - Siddhi - Śāstra is of great value in the history of Science in India, for it throws important light upon the history of alchemy of the Tantric period and a sidelight on some aspects of Indian history, such as social and economic conditions, education, religion - heterodox religious sects, alchemical sects and their systems of alchemical thoughts and practices, and different personalities.

The work provides some informations regarding the social system - the caste, the superiority of the Brāhmaṇas, conjugal relation, family relation, social belief in custom, alchemy, and occultism, and diseases, remedies and diets, etc.

It throws a side light upon the prevailing economic conditions. A current of poverty flowed underneath the social surface of opulence of wealth in the hands of a few rich people. It was written by Jinadattasūri with the purpose of removing poverty, disease and old age from the society by making gold, silver, etc. from the base metals and preparing medicines with minerals (mercury, etc.) and herbs through the alchemical processes. The Suvarṇa - Raupya - Siddhi - Śāstra refers to various kinds of minerals, metals and herbs with their chemical preparations, apparatus used in them, measuring system - weights, e. g. tāṅk, vāla, paisā - bhāra, gadyāna, Janāvadi, prastha, seer, maund, etc. and measurement of land - Yojana measurement of time - prabhara and ghaḍi gaṭikā, etc.

As regards education, the composition of the text of the Suvarṇa - Raupya - Siddhi - Śāstra is an evidence of the education of the society. The very first line of this work that : "Suvarṇa - Raupya - Siddhis are written in Sanskrit, Prakrit and Apabhraṃśa languages with prosaic and poetic order" indicates that the literature written in these languages was studied by the literate people of the days of Jinadattasūri in Gujarat.

The use of palm - leaf and black ink and hand-made paper and silvery and golden ink for writing alchemical works in old Devanāgarī script shows an advancement in the field of education of the people in this area. It is also a mastery in the art of writing alchemical ~~inventions and practices~~ in the age in code letters with secret meanings.

In regard to religion, it is clearly shown that Brahmanism and Jainism flourished side by side at the time of the author with mutual harmonious relation in Gujarat. The references to the Brāhmaṇas, the Jainas

(Kharātaragaccha), Tantric sect and Aghorapanthi sect, Muslim (Sekham Ali) in the field of alchemy show their mutual respect for one another. The work begins with the invocation to Gautama Gaṇadhara and the concept of Jainadharma – ahiṃsā (non-violence), saṁyama (self-control), tapa (austerity), meditation on Mahāvira with his Caturvidha Saṁgha.

It appears from the mention of Dhātavedhī, Gavavedhī and Dhūmra-vedhī (Carapaṭa Yogiya) that there were flourishing at least three alchemical sects besides the sects of Nāgārjuna, Nātha, Gaṇḍu, Sekham Ali and others during the time of Jinadattasūri.

It is known from the study of the SRSS. that the historical personalities like Paśvanath, Mahāvira, Gautama Gaṇadhara, Padalīpta Sūri, Nāgārjuna, Carpaṭa, Nātha, Gaṇḍu, and Sekham Ali flourished in their respective ages and also the mythology of the twenty four Tīrthaṅkaras.

Geography :

The SRSS. throws a side-light upon the geographical belt covering Rājasthān, Madhyapradeśa, Mahārāṣṭra where alchemical thoughts and practices were prevailing, as it is found in its casual references to the places where Śailodaka (hill-water) is available for the use of chemical processes.

They are as follows :

Kalyāṇanagarī, Gīrnār, Tāringā, Gahuyārī, Vegavala, Gaurapārvata, Tuṅgiyā, Bhoḥagiri, Ahmednagar, Bhaṭamāra, Pāranera, Gīrmāra, Bhurḍignā, Bagalāna, Kaṇyārī, Dhārānagar, Śūlapāṇa, Ratnamālā, Abu and many other places.¹

Peculiarities of language, metres, style of writing, method of exposition, etc. adopted in the composition of the Suvarṇa - Raupya - Siddhi - Śāstra.

The language of the Suvarṇa - Raupya - Siddhi - Śāstra is not uniform as it has clearly been stated in the beginning that this work has been written in Sanskrit, Prakṛit and Apabhraṁśa by prosaic and poetic (versical) order.² When the entire language of the work is critically judged, there are found not only these three languages, but the bulk of it is to be traced in old Gujarati, sometimes here and there in western Rājasthān on Rājasthānī and Vrajabulī with a touch of eastern dialect or sometimes in a mixed language.

1. SRSS. ch. 9. 8.

2. "Atha Saṁskṛta-Prakṛita-Apabhraṁśabhaṣayā-Svarṇarūpyasiddhayaḥ likhyante gadya-padyabandhena"

For examples :

Sanskrit language :-

“ध्यानाजिज्ञेश भवतो भविनः क्षणेन ।
 देहं विदाय परमात्मदशां व्रजन्ति ॥
 तीव्रानलादुपलभावमपास्य लोके ।
 चासीकरतत्त्वमचिरादिव धातुभेदाः ॥२. २॥
 इत्यादि

Prakrit language :-

धम्मो मंगलमुक्किट्ठं अहिंसा संजमो तवो ।
 देवा वि तं नमंसंति जरस धम्मो सया मणे ॥१. २॥
 इत्यादि -

Apabhramśa language :

वे घडला वे सामला वे रत्तुपलवण्ण ।
 मरगयवण्ण दुण्णि जिण सोलस कंचनवण्ण ॥१. ४॥
 इत्यादि

Old Gujarati language :

हाटविलासणि अनुरतारी ।
 दूहुं बिचाले भुयंगम मारि ॥
 मारि भुयंगम बाधिले सुया ।
 चरपट बोले कंचन हुया ॥१. २७॥
 इत्यादि

Old Western Rājsthāni language :

देा रस्ता देा पीथला चंदा वरणा ज्यार ।
 खप्परि रंधो खीचड़ी चेला (भूख न भार) ॥१. ७॥
 इत्यादि

Old Rājsthāni :

रसनागर रक्कर सम करी जारो ।
 तरणि चित्रक दे करि भारो ॥
 गंडू बोले होवे आन ।
 रंजे तार हुये दस वान ॥१. २२॥
 इत्यादि

Old Vrajaboli or old Hindi :

हाटे फूली बाटे फूली ।
 हाढे पूली, ते फिटकरी ।
 बाटे फूली, ते सीपौनि ।
 बाटे मासा तनकतोड़ी ।
 रांगमें दीजे [] चरपट करे तमासा ॥ २. ८ ॥
 इत्यादि

There is an absence of self-persistent orthography of Prakrit, Apabhraṃśa and old Gujarati due to the effect of gradual entrance of the vernacular in which this work was written mostly and the spellings represent the original stratum, the most modern are representing the form immediately pending the composition of this alchemical text. So the core of the language of the Suvarṇa - Raupya - Siddhi-Śāstra is old Gujarati, having its birth in Gujarat, although Sanskrit, Prakrit, Apabhraṃśa, Old Western Rajasthani or Rajasthāni, and Vrajaboli are found to be used in this work.

In its composition care was certainly taken by the author to retain a part of the old grammatical form of old Gujarati. But a change in the original form of language of the work took place, when it was written in the form which was taken by the language of the time and place of writing for its comprehension of the common people of Gujarat. This influence of an inevitable change in the spoken dialect was possible, as the purpose of the author was at least to make it understandable to the people of the period. A study of the language-old Gujarati and its contents lend support to the assignment of its date to the 12th century A.D.

Metres :

The metre of the verses of the first and fourteenth chapters of the Suvarṇa - Raupya - Siddhi Śāstra used in the presentation of their contents and treatment of their subject-matters is of varied characters; such as, Anuṣṭubh, Vāsanta - tilakā, Ārya - gāthā, Dohā, Padakulakā, Vadanakā (a kind of Padakulakā), Bhujaṅga - prayāta; Mandakrāntā, Varnśastha, Mālīnī, Indravajrā, Upajati; Druta-vilamvita; Sragdhara, etc.

Anuṣṭubh Chanda :

The first verse of the first chapter is composed in Prakrit with Anuṣṭubh chanda.

धम्मो मंगलमुक्किट्ठं अहिंसा सज्जमो तवो ।
 देवा वि तं नमसंति जस्स धम्मो सया मणो ॥ १. १ ॥

The same chanda (metre) has been used by Jinadatta Suri, the author of the Suvarṇa-Raupya-Siddhi-Śāstra in the 10th, 20th, 41st, 46th, 52nd and 57th verses of the first chapter and in all the verses of the fourteenth chapter except in the 13th and 14th verses of its 1st Pariccheda and in the 1st, 2nd, 3rd, 4th, 61st, 62nd, 63rd, 64th, 65th, 66th and 67th verses of the second pariccheda.

Vasantatilakā Chanda :

The second verse of the 1st chapter of the Suvarṇa - Raupya - Siddhi - Śāstra begins with Vasantatilakā chanda :

ध्यानाजिनेश भवतो भविनः क्षणेन ।
देहं विहाय परमात्मदशां व्रजन्ति ॥
तीत्रानलावुपलभादमपास्य लोके ।
चामीकरत्वमचिरादिव धातुभेदाः ॥१. २॥

This chanda has been used in the composition of the 55th verse of the first chapter.

Gāthā - Ārya - Chanda :

The author has composed the third verse of the first chapter of the SRSS. in gāthā chanda.

संपुण्यं चंदयणो सिंहासणसंतिष्ठो सपरिवारो
भाग्यवतो जिनबंधो केवलगाणुज्जलो धवलो ॥२. ३॥

He has used the same metre in the composition of the 5th, 6th, 25th, 26th, 33rd and 48th verses of the first chapter and followed it in the 13th verse of the first pariccheda and in the 1st, 2nd and 4th verses of the 2nd pariccheda of the fourteenth chapter respectively.

धूमावलोकितरसे पंचमहारतजारिते सरिते ।
बीजेन गगणसत्त्वे माक्षिकान्नप्रयुक्तेन ॥२८. १३॥

Dohā Chanda :

The fourth verse of the first chapter is composed in Apabhramṣa language with Dohā Chanda.

बे घडला बे सामला बे रत्तुप्पलवण ।
मरगयवण दुणि जिण, सोलस कंचनवण ॥१. ४॥

The same chanda has been applied in the composition of the 7th, 23rd, 28th, 29th, 37th, 39th (one line), 40th, 45th, 59th and 61st verses of the 1st chapter and 3rd verse¹ of the second pariccheda of the fourteenth chapter.

1. It is the repetition of the 4th verse of the 1st chapter.

Padākulaka Chanda :

This chanda has been used by the author in the composition of the 8th verse of the first chapter :

हाटे फूली बाटे फूली ।
 हाटे फूली, ते फिटकरी ।
 बाटे फूली, ते सीपौनि ।
 वारे मासा, तनकतोड़ी ।
 रांगमें बीजे [] चरपट करे तमासा ॥

It is also applied by him in the composition of the 11th, 15th, 17th, 18th, 19th, 22nd, 24th, 30th, 35th, 39th, 43rd, 44th, 51st, and 54th verses of first chapter.

“रस नागा खपर समकरी जऱो ।
 तरणि खिचक दे करि मोरो ॥
 गंइ बोले होवे आन ।
 रंजे तार हुये दसवान ॥१. १२॥

Vadanaka (a kind of Padākulaka) :

The ninth verse of the first chapter is composed by the author in old Western Rajasthanī - Gujarātī with Vadanaka chanda.

गरुड मयंगम स(म)करि सुता ।
 देवदालि रसि खरलह पूता ॥
 हालर हुलर म करीस खेती ।
 चोसटिठ तोले वेधे एक रती ॥२. १॥

He adopted this chanda in the composition of the 12th, 27th, 31st, 36th, and 69th verses of the first chapter.

Bhujanga Prayāta Chanda :

This chanda has been used only in the 14th verse of the first chapter as noted below :

रसं गंधकं तारकं कुनट कुनटी ।
 इमे मयैते सिद्धि प्रगटी ॥
 कोइ घातवेधी, कोइ गाववेधी ।
 अमे चरपट योगीया धूमवेधी ॥१. १४॥

Mandākrāntā Chanda :

Mandākrāntā Chanda has been applied in the formation of the 16th and 56th verses of the first chapter, e. g.....

तालं ताप्यं कुण्ट कुन्दी सूतकस्याद्धर्भागम् ।
 खल्वे कृत्वा त्रिदिनमथितं काचमाचौरसेने ॥
 लोहे मांढे प्रहरतृतीयं पाचनीयं लेप्यम् ।
 श्रुत्वातीतं भवति कनकं संबलं पयकानाम् ॥११६॥
 पात्रे यस्याद्दृष्टि जलमये तेलचिन्दुर्न सर्पित ।
 हि'गुर्ग'धं विसृजति निर्जां तिक्ततां नि'बकल्कः ॥
 छत्राकारं भवति पयसो नैति भूमिप्रदेशम् ।
 कांतं लोहं तदिदमुचितं लक्षणोक्तं चान्यत् ॥११७॥

Varṇāsthā Chanda :

The 42nd verse of the first chapter has been composed in Varṇāsthā chanda as noted below :

किमत्र चित्रं यदि रत्नगंधकम् ।
 पलास(श)यष्ठीवनकत्कलितम् ॥
 अरण्यजैरूपलकैर्विपाचितम् ।
 करोति तारं त्रिपुटेन कांचनम् ॥११४२॥

Mālinī Chanda

The author has applied Mālinī Chanda in the composition of the 47th verse of the 1st chapter, e. g.,

रसकुञ्जसमभागं सारितं तारतुल्यम् ।
 दिव्यगुणमपि सुतालं मर्दितं भानुदुधैः ॥
 अतसितिल्विपक्कं वासराण्येव पंच ।
 स भवति शतवेधी तारताम्रे भुजगे ॥ १. ४७॥

Indravajrā Chanda :

Indravajra chanda has been used by him in the composition of the 49th verse as noted below.

साक्षिकनागरसंगंधकं च मनःशिलमिथितहि'गुल्लकम् ।
 एतांलि पंचाशपुटैर्विमदय नागे मृते तारवतांशवेधः ॥१. ४९॥

Upagati Chanda :

The fourteenth verse of the first pariccheda of the 14th chapter is composed in Upagati chanda.

खेत्वरसंज्ञा गुटिका पतति मुखे क्षिप्तमात्रेण ।

देवासुरसिद्धगणैः पूज्यतमो भवति चेन्द्रादयैः ॥१४. २४॥

Drutavilambita Chanda :

This chanda has been used in the composition of the 61st verse of the second Pariccheda of the 14th chapter as noted here.

नमदनुग्रहदत्तनिजेच्छया ।

प्रकथितं कृपया जगदंबया ॥

गुरुपरंपरायाभिगतं भवेत् ।

रुनकपरंपोरुषवत् परमस्यम् ॥१४. २. ६२॥

Sragdhara Chanda :

Lastly Jinadatta Suri, the author of the Suvarṇa-Raupya-Siddhi-Śāstra has adopted a Sragdhara chanda in the composition of the 62nd, 63rd, 64th, 65th, 66th, and 67th, verses of the second Pariccheda of the fourteenth chapter, e. g.

भ्यायन् ह्रींकारमादौ पलभितमुपसंगृह्य शुद्धं रसेन्द्रम् ।

नित्यं तन्माषमात्रं नवनव यदनेष्टारसेर्भादयित्वा ।

सूक्ष्मेण स्वर्णपिण्डेण सह पलमितेनैव समद्वयं खल्वे ॥

शुद्धं सिद्धं तदेतन्निरुपमगुटिकाकारतः कल्पयेत्तत् ॥१४. २. ६२॥

Style of writing and method of exposition.

The style of a work is the voice of words uttered by its author, producing an effect on the feelings of the readers by its action working upon their conscious minds. It may be both personal and impersonal.

The style of the Suvarṇa-Raupya-Siddhi-Śāstra used by its author, Jinadatta Suri in presentation of its contents and in dealing with its subject-matter is mainly of two characters, viz., poetry and prose, with some variations. It begins with the metre of poetry in composing its verses in the first chapter and ends with the metre in the composition of the last chapter (14th chapter). But all the intermediate chapters originate with prose containing alchemical thoughts and practices. The first chapter consists of sixty one verses in Sanskrit, Prākṛit, Apabhraṁśa and Old Gujarati, while the fourteenth chapter comprises eighty three verses in Sanskrit only.

It is the classical Sanskrit exhibiting its rich style in both the first and fourteenth chapters. The second chapter is a Sanskrit commentary on a few verses of the first chapter, having hidden (secret) meaning of alchemical thoughts and practices. The third to the thirteenth chapters of the *Suvarṇa-Raupya-Siddhi-Śāstra* have been written in Gujarati by prose-order to convey the alchemical thoughts and ideas through the language of the people among whom the author moved. So the style of this part is the style of the people's dialect which distinguishes itself from that of the Sanskrit, Prākṛit and Apabhraṃśa literature. Here the purpose of the author was to teach alchemy to the people in a natural style but not in an artificial one of the Sanskrit Prākṛit, and Apabhraṃśa and Old Gujarati verses.

When the style of the *Suvarṇa-Raupya-Siddhi-Śāstra* is judged with an objective approach, it is found that it has served its purpose in full by embodying the teachings on alchemy in both the classical and spoken language.

It contains some literary flourishes in the form of verses faithfully transmitted from generation to generation and in the manner of expression of the author in prose to convey the alchemical thoughts and ideas to the people. This method of explaining the alchemical concepts and medical theories and occultism made them easily comprehensible and intelligible to the general mass.

Jinadatta Sūri moved among all classes of people of the society, so he took care to make his alchemical teachings understandable to them by drawing on the familiar method of exposition occurring in their life.

The author has made a study of alchemical truth with the purpose of attaining resultant truth with devotion on the basis of his scheme. He searched out something and got a line of meaning in the things of alchemy and medicine and occultism as satisfying his inquisitive mind. Here the style of expression is scientific. So the voice of words spoken by him is impersonally logical with a stress laid on the facts of science.

6. Estimate of the literary and aesthetic aspects of the Suvarṇa-Raupya-Siddhi-Śāstra.

Literature is to be judged by its value to humanity. Its value is determined by the principles to what extent does it contribute to the progress of mankind by enabling him to live with more happiness, more intensity, more profoundness, more wisdom and more freedom in the mundane world. Next comes up the question of technique used in the work for proper criticism which distinguishes its subject-matter, guiding one to a finer appreciation of writing and making him realize more clearly and completely what the author has meant there. Literature carries the message of knowledge and cultural heritage of a people of a country from the distant past up to the present and preserves the treasure of different branches of learning of to-day for the future generations through the successive stages of the social evolution. It vitalizes and revitalizes the individual, social national and international life, shapes and reshapes, adjusts and readjusts, transforms and retransforms the human society to a considerable extent by conveying the message of its knowledge and truth. From this angle of vision on the literature the Suvarṇa-Raupya-Siddhi-Śāstra testifies sufficiently to the linguistic and literary development of its age and (to) its value to mankind by conveying the alchemical knowledge to some extent.

It deals with Mahārasas (superior minerals), Uparasas (inferior minerals) Sādhārāṇarasas (common minerals), Ratnas (gems) and Lohas (metals) with their chemical processes, apparatus (Yantras), various chemical processes, processes of making gold and silver for removing poverty, medical recipes for curing diseases and elixir vitae and lastly, occultism for acquiring supernatural power to achieve one's objective.

Besides these literary contributions, the SRSS. throws light upon the various ācāryas of alchemical thought and their systems particularly of Nāgarjuna, Pādālipta Śūri, Carpaṭa, Nātha, Gaṇḍu, Śekhamaṇi, etc., geography (e. g. location of some hills in a western India) within its purview.

In regard to the language, metre and style, as previously discussed, they represent an age different from the present, in which the Jaina alchemy teachers used to impart alchemical teachings to their followers in particular to make them intelligible in both poetic and prosaic spoken languages. The total effect of the texture and spirit of the language of the Suvarṇa-Raupya-Siddhi-Śāstra, enriched with some literary flourishes, explaining the alchemical thoughts and ideas inspires one to dive deep into its subject-matters with more energy and effort to collect the hidden treasure of alchemical

knowledge preserved in it. It is remarkable to observe how the richness of its vocabularies in the first and fourteen chapters in particular, produces an equal effect on the minds of its readers, by truly expressing, explaining and interpreting all aspects of its varied contents it has touched upon without faltering, slowness and haziness by presenting a clear and concise conception about them.

As regards the technique of the style the SRSS. originates with poetry embodying the alchemical thoughts and ideas, and practices of various alchemists and conveys them through different poetic languages composed with different metres and also through the language of the people (3rd-13 chapters) in their natural Style in prose, for here the purpose was to teach alchemy to the people.

In the *Suvarṇa-Raupya-Siddhi-Śāstra*, the author has used three styles, viz. descriptive, explanatory and emotive in the presentation of its varied alchemical contents and explaining its subject-matters in clear, concise and explicit manner, of course, sometimes in-code letters.

The literary value of the SRSS. lies in the fact that its rich language expresses clearly by its proper terminologies the alchemical thoughts and ideas of its creative genius, dealing with various aspects of alchemy.

7. The Contents of the *Suvarṇa-Raupya Siddhi-Śāstra*, viewed as a part of Indian alchemical literature and as a part of recorded knowledge.

A close comparative Study of Indian alchemical literature of the tantric period (700 A. D. to circa 1300 A.D.) and the *Suvarṇa-Raupya-Siddhi-Śāstra* (VS. 1210) reveals that "Indian alchemy very largely derived its colour, flavour and in fact, its nourishment from the Tantric cult"¹ The contents of the *Suvarṇa - Raupya - Siddhi - Śāstra* can be viewed as part of Indian alchemical literature, as the progress of chemistry in both can be traced to medicine and a belief in the artificial gold-making or silver-making or the transmutation of the base metals into gold, as well as to the search, after the vital elixir of life of the philosopher's stone. So the contents of the SRSS. is a part of recorded knowledge.

1. History of Chemistry. In Ancient and Medieval India, Dr. P. C. Ray, p. 113.

Medicine and alchemy as found in the Indian literature on alchemy of the Tāntric period had their origin and growth with a higher end in view, as necessary aids and helping agents to spiritual pursuit. Like the Tantras the SRSS. deals with medicinal preparations consisting of mercury, etc. calculated to make the body undecaying and immortal for achieving emancipation from all miseries. The word 'rasa' has been used in this work and other Tāntric works on alchemy to mean mercury. They came to the repositories of many chemical informations and alchemical recipes.

The name of Nāgarjuna as stated in the Suvarṇa - Raupya - Siddhi - Śāstra and other Indian alchemical works stands pre-eminent among the Indian alchemists like Carpaṭa, Nātha, Guṇḍu and others. This legendary figure - Nāgarjuna appears in the Hindu, Bauddha and Jaina alchemical works as a great alchemist. But there is much controversy about the age of Nāgarjuna. On judging from the internal evidences derived from the Suvarṇa - Raupya - Siddhi - Śāstra itself, it can be concluded that this is a typical production of the Jaina author, Jinadatta Śrī, representing the Tāntric period of intellectual activity and must have been composed later than the time of Nāgarjuna, the author of Rasaratnākara (8th cen. A.D.). There is found mention of recipes for a number of mercurial preparations, as well as descriptions of processes and apparatus. Like Rasārṇava a Brahmanical Tāntric work of the 12th Century A.D. the SRSS. throws a flood of light on the chemical knowledge of the Indians in those days. There are evidences that it has been compiled from pre-existing alchemical works, for instance, it has not hesitated to borrow from the works of Nāgarjuna, Carpaṭa, Nātha, Guṇḍu, Sekham Ali and others. The Suvarṇa - Raupya - Siddhi - Śāstra deals largely with mercury and mercurial preparations, the virtues of which have been prominently extolled in Rasārṇava and other Tantras. Mercury can improve not only the quality of metals (i. e., it can convert the base metals into gold) but can make the body undecaying and imperishable (amar Kāya kare). The merit of the Jaina alchemical work SRSS. is that it is the inspirer of several Jaina alchemical works of the following period, the Iatrochemical period, notably Nāgarjunī yogamālartī of Rasaratnasamuccay of Mānikyadeva Śrī, Yogaratnākara copai of Nayanasekhara, Nāgarjunīvidyā, Vaidyaka Saṁgraha of Harṣakīrtī, Parada-vadhī, Vaidyaka Saṁgraha of Mahimaraṅga Ganin and others.

* * *

प्रथम अध्यायः

श्री गौतमाय ^१नमः ।

अथ संस्कृत-प्राकृत-अपभ्रंशभाषया स्वर्णरूप्यसिद्धयो लिख्यन्ते गद्यपद्यबंधेन ।

धम्मो मंगलमुक्कि(कि)^२ द्दं, अहिंसा संजमो तओ ।

देवा वि तं नमंसंति, जस्स धम्मो सया मणो^३ × ॥१॥

+ ध्यानाज्जिनेश भवतो भविनः क्षणेन । देहं विहाय परमात्मदशां व्रजन्ति ॥

तीव्रानलादुपलभावमपास्य लोके । चामीकरत्वमचिरादिव धातुमेदाः ॥२॥

संपुण्ण(न्त)चंदवयणो सिंहासणसंठि(ठी)ओ सपरिवारो ।

झायव्वो जिनच'दो * केवलणानुज्जलो धवल्लो ॥३॥

बे धउल्ला बे सामल्ला, बे रत्तुःपलवण्ण ।

भरगयवण्णा दुण्णि जिण, सोलस कंचनवण्ण ॥४॥

सूओ ओसहजुयलं अग्गिपमाणं दो सरावाइ^४ ।

ईओ धाऊवाओ अवरे आड'ब(व)रा सेसा ॥५॥

त'बं तुंविंति-सहियं टोड्डमूलेन परिगयं कुज्जा ।

धमिअ^५ हवइ सुवण्णं, तं त'^३ भणियं जिणिदेहि^६ ॥६॥

दो रत्ता दो पीयला^५, च'दा-वरणा च्यार ।

रवप्परि र'धो खीचडी, चेला (भूख न भार)^६ ॥७॥

हाटे फूली बाटे फूली^७ । हाटेफूली, ते फिटकरी,

बाटे फूली, ते सीपौनि । वारे मासा तनकतोडी रांगमे^८ दीजे [] चरपट करे तमासा ॥८॥

गरुड भुयंगम स(स)रि सूता । देवदालि रसि खरलहु पूता ॥

हालर हूलर म करीस खेती^९ । चोसट्टि^९ तोले बेधे एक रती ॥९॥

1. श्री गणेशाय, व ।

2. मंगलेति; व ।

3. प्तं प्तं, अ ।

4. गाथा २-६, 'ब' प्रतमें नहीं मिलती है ।

5. पीयला, व ।

6. मरे, व ।

7. फू० बारमासा, व ।

8. खेती, अ । खेती, व ।

9. चोसट्टी, व ।

२ × Dasavaikālika V. I

+ * Kalyāṇamaṇḍirastotra V. 15

Siddhasena Divākara

आरं तारं समं कृत्वा मृतवंगं नियोजयेत् ।
 एषा राजवती विद्या, पित्रा^१ पुत्रं न कथ्यते+ ॥१०॥
 रस नागर खपर सम करी जारो । तरणि चित्रक दे करि मारो ॥
 गंधू^२ बोले होवे आन । रंजे तार हुये दस वान ॥११॥
 एक नाग दस वंगा खाइ । दरद कुनटि(टी) वैसा^३ आई ॥
 जैठ वंगा नागे चावे । तस धरि लखमी मंगल गावे^४ ॥१२॥
 साजी भाजी फिटकड़ी, रस दूणों^५ हरताल ।
 तांवे दीजे जुगतीस्यू, काहे करे दुकाल^६ ॥१३॥
 रसं गंधकं तारकं कुनट कुनटी । इमे मर्दते मर्दते सिद्धि प्रगटी^७ ॥
 कोइ धातवेधी [धि], कोइ गाववेधी । अमे चरपटा योगीया धूसवेधी ॥१४॥
 अमीनागा^८ ऊमीनागा, दोनों कीणे भाग विभागा ।
 नीचे सूवा(ता) ऊपरि टंकण, चरपट कहे पेहरो कंकण ॥१५॥
 तालं ताप्यं कुनट कुनटी, सूतकस्याद्धभागम् ।
 खल्वे कृत्वा त्रिदिनमथितं^९, काच(क)माचीरसेन ॥
 लोहे भांडे प्रहरतृतीय^{१०} पाचनीयं च लेप्यम् ।
 श्रुत्वातीतं भवति कनकं, सवर्लं पंथकानाम्^{११} ॥१६॥
 हाटविलासणि अनु रत नाली(री) । दूहुं विचाले भुयंगम मारि ।
 मारि भुयंगम बाधिले सूया । चरपट बोले कंचन हुया ॥१७॥
 हाटविलासणि अण वर नारी । उन दोनों में पीतर ठारि ॥
 उस पीतर की स्याही भेटे । दुखदारिद्र्य^{१२} सब दूरि हटे ॥१८॥

१. पिता, अ, ब ।

२. गंड, ब ।

+ Quoted from Pāradasamihitā ? P. 5

३. विद्या, ब ।

४. गावि, ब ।

५. दूणा, ब ।

६. दुकाल, ब ।

७. प्रगटि, ब ।

८. उभिनागा, अ ।

९. त्रिदिनमथितं, ब ।

१०. प्रहरतृतीयं, अ, प्रहरतृतीयं, ब ।

११. पंथकानाम्, ब ।

१२. दुखदारिद्र्य, अ ।

एक भाग वंग दोह भाग पारा । ए दूहूँ विचाले नांग रे संचारा ॥
 लाखे लोद्रे धोवो काली^१ । नाथ बोले एता सदा दिवाली ॥१९॥
 गंधकेन हतं शुक्लं दरदैन समं कुरु । मातुल्लिगरसमर्थं नागपत्राणि लेपयेत् ॥
 त्रिपुटैर्भ्रियते नागं सिंदूरगणसंज्ञिभं षोडशा[पां]शं वेधयेच्च^२ तारमायाति कांचनम् ॥२०-२१॥
 बूढो^३ बांभण जो पाबीजे । बाटी कुटी^४ भूको कीजे ॥
 खरनरमूत्रे भावन दीजे । वंग नवंगी पृथिव कीजे ॥२२॥
 तार त्रिलोचन-चूनड़ी, भावो भातुरसेन ।
 ए नागार्जुन की चूनड़ी, नहु फीटे वरिसेण ॥२३॥
 खपरा भारो लुणे । तो राज करो चिहु खुणे ॥
 नाथ कहे मनमें नाले^५म करि) विचारा । दुख दारिद्र्य[द्र][क] जाई सारा ॥२४॥
 अंतर्धूमविपाचितं गंधकराजराजितं शुभम् ।
 भवति हि सहस्रवेधी तारे तान्ने भुजंगे वा ॥२५॥
 खरमटहासमतुल्यं बन्नीक्षीरेण भावितं बहुसो ।
 अग्नी^६-ऊपरि^७ पक्क, हवई^८ कौदुजलं^९ सच्चम् ॥२६॥
 दुइ आर दुइ तार । दुइ^{१०} साजी दुइ टंकण खार ।
 स्वेतकाच उपरि तले दीजे । महियलि^{११} बेठा^{१२} राज करीजे ॥२७॥
 घणगंठी अरु बहुफली, कूपत^{१३}लावे वास ।
 एकलड़ी रस भेलवे, करि दरिद्रह नास^{१४} ॥२८॥

1. काला, व ।
2. वेधयेतारमायाति, व ।
3. बूढो, व ।
4. कुटी, व, कुटि, अ ।
5. नारे अ ।
6. अग्नी, अ ।
7. उपरी, अ ।
8. हवई, अ ।
9. कौदुजले, व ।
10. दुई, व ।
11. महियाल, अ ।
12. बेठा, अ ।
13. भुप, व ।
14. नास, व ।

उदिरिकण्णि बहुफली,^१ दोव(न) तलोव तलि होइ ।
 पहीले पुटे पारो भरे, दुजे कांचन होइ ॥२९॥
 के रस रहे गगनके प्रासे । के रस रहे कामिनी पासे ॥
 के रस रहे तारके भरे । के रस रहे गुरु के कहे ॥३०॥
 बीस गंधक विसही पारा ।^२दस नवसाररसे^३ दि विचारा ॥
 प्रहर तीस की होवे आगि । रससिद्धर विधिसंयोगि ॥३१॥
 नागायोगी खप्पर पूरे, ऊपरि भरजे गू(सू) आ ।
 गोरा माई भात परोसे, कचनका घर हुआ ॥३२॥
 नागिणिफणिआमूल^४ नागिणितोयेण गव्वप्तागेण ।
 नाग^५ होइ सुवण्णं, धम्मत्थं तवायेण ॥३३॥
 अस्थिमक्षमलमारित(खि)वंगं, तालकाभविष^६सूतदंकणम् ।
 भानुवज्रपयसाभिर्मर्दितं, भो नरेन्द्र ! कुरु तारपर्वतम्^७ ॥३४॥
 सावू-साजी-सोमलसार । स्वेतकाच अवर हरताल ॥
 अमरी दुधे करती सोखीये । सतर वाणी(नी) (रू)पू परखीये^८ ॥३५॥
 नाग भरे रसपंजर वेधे । विनु नागहि रस मरत न दीसे ॥
 नागपासिले^९ बंधहु सु(सू)आ । चरपट बोले कंचन हुआ ॥३६॥
 नागायोगी खप्पर पीवे, खप्पर पीवे सु(सू)आ ।
 खप्पर कटोरी^{१०} फूटन लागी, धरि धरि आनंद हुआ ॥३७॥
 नाहिनागलतिकेंदु^{११}वल्लभा । द्रोणपुष्पि(वपी)^{१२}रसमर्दितः क्रमात् ॥
 सप्तधामृदुपुभितापितः^{१३} । पारदः सपदि याति भस्मताम् ॥३८॥
 साजी सिंघा फिटकड़ि गोदंती हरताल ।
 गरुड विहंगम सम करि मेला, एक रतीने एकहि तोला ॥३९॥

१. बहुफलि, अ, ब ।
२. रस, अ ।
३. दै, ब ।
४. त्रिखसूतदंकणं, अ ।
५. तारपर्वतम्, ब ।
६. कटोरी, ब ।
७. केंदुवल्लभ, ब ।
८. द्रोणपुष्पि, अ । द्रोणपुष्पे, ब ।
९. पिता 'न' प्रतमें नहीं मिलती है । तापिता अ ।

सैमरल्लूण जंबीररस, अने जडीरस पाउ ।

पाके भांडे कलंक करि, फेड़ि दारिद्र्य ठाउ ॥४०॥

गंधकं गैरिकायुक्तं समभागेन सूतकम् ।

देवदालि^१रससंयुक्तं शुल्कं(त्वं) भवति कांचनम् ॥४१॥

किमत्र चित्रं यदि रक्त-गंधकम् । पलासयष्टीवनकल्ककलिकतम् ॥

अरण्यजैरुत्पलकैर्विपाचितम् । करोति तारं त्रिपुटेन कांचनम् ॥४२॥

दुग्गुण हेम चतुर्गुण पारा । षट्गुण^२ गंधक आमलसारा ॥

ते स्तंभना कहं हुंतिहारा । कंचन हुवें लावव उदारा ॥४३॥

खपर सूता सम करि लीजे । मध्य कुमारिको रस दीजे ॥

गुंजा प्रमाणे सुलवे दीजे । पीत सुखे करि एहु लीजे ॥४४॥

दस रत्ता, दस स(मं)त्ता, पंडुवरणा चारि ॥

खपर रंधहु खोचड़ी, चेला मुख न मारि ॥४५॥

शुकशोणितपीताभ्यां भागद्वित्रिकपंचकैः [कै] ।

कालिकारहितं शुल्कमेषा^३[खा] विद्या नैर्दुघैः ॥४६॥

रसकुठसमभागं मारितं तारतुल्यं । द्विगुणमपि मुतालं मर्दितं भानुदुग्धैः ॥

अतसितिलविपक्वं वासराण्येव पंच । स भवति शतवेधी तारत्तात्रे भुजंगे ॥४७॥

मुणिकुसुमरसभावियं मणोसिलःचुण्णदिण्णपड्डवायं ।

तिवारेहि^४ जादू वंगं कलहाय-सारिच्छं ॥४८॥

माक्षिकनागं रस-गंधकं च, मनःशि(सि)लामिश्रितहिं गुल्फकम् ।

एतानि पंचाशपुटैर्विमर्दय, नागे मृते तारशतांशवेधः ॥४९॥

नाइणरसे रसिउं ससिसिगै पारअं हि मारेइ ।

तारं होइ सुवण्णं, इय भणियं वीयरार्येण^५ ॥५०॥

आदिका^६ अंतिका । ते मध्ये दो अक्खरा ॥

नाग मरे रस' सीखाइ । लोक सवे भागी करिं खाइ ॥५१॥

1. देल्लिदालि, व ।

2. खट्गुण, अ ।

3. मेखाविद्या, अ ।

4. तिवारेहे, व ।

5. वीयरार्येण, व ।

6. आदिका, व ।

7. दस, व ।

स्वे(श्वे)तकाचसमं तारं हेमांशं श(स)तयोजितम् ।

रत्नराज-समं व्याप्य मौक्तिकं देवभूषणम्^१ ॥५२॥

एक भाग वंग, दोइ भाग पारा । राजा टां० १, वंग, १ ॥

नाग टां० १, लाख ते राल, टां० २, लोद(दट) टां० २ ।

गजपुटाग्नि ३, स्वे(श्वे)तनाग वा कल्कम्^२ ॥५३॥

षट्गुण वंगा तीखा सार । चेला कही वारहि वार ॥

लाखा लोधा होइ दिवालि । तार न हुअे तो दीजे गाली ॥५४॥

^३ओदुंबराकवटदुग्ध पले पले च । ^४लाक्षापलं पलचतुष्टयचुंबकेन ॥

संश्लिष्टमानमतसीकलतैलपक्वं । श्रीपारदस्य मरणे मदनारुखमुद्रा ॥५५॥

पात्रे यस्योद्धृति जलमये तैलश्लिष्टुर्न सर्पेत् ।

हिंगुगंधं विसृजति निजां ^५तिस्ततां निबकलकः ॥

छत्राकारं भवति पयसः नैति भूमिप्रदेशम् ।

कांत छोई तदिदमुचितं लक्षणोक्तं न चान्यत् ॥५६॥

निर्जीवं शुक्तिजं वंगं कांते क्षिप्त्वा रसं ततः ॥

माताऽग्निं तदधो दद्याद्रु(रू)प्यं भवति पारदः ॥५७॥

गुप्तु स् स्म ग्ग् गोगिर ददर ।

ऊनदभिसराजर कुन छई तिस्त कीमीया ॥५८॥

बीस भीलाभु लांगली, अन्न करंजह तेल ।

बेभह आरह संचीया, लहिं सुवण्ह मूल ॥५९॥

तौरारसगंधक, सुररसपारा । दोजन मध्ये नाग संचारा ॥

नाग विरुआ वेधिले सु(सू)आ । चरपट बोले कं[चन] हुआ ॥

काला राता हरिया नाग । कृष्ण तारके सप्त विभाग ॥

चोखा सोनासेती जोड़ा । नागार्जुन^६ कहे धंधा थोड़ा ॥६०॥

पारो साजी थोहर तुरी, विहुभागे^७ हरियाल ।

श्रांवू थाइ पांडरु, काउ करे दुकाल ॥६१॥

1. देखभूषणं, अ ।

2. 'एकभागं...कल्कम्' व प्रत में मिलती नहीं ।

3. उदुंबराक, व ।

4. ण लाक्षा, व ।

5. तिस्तता, व ।

6. सेखम आली, व ।

7. विहुभासे, व ।

द्वितीय अध्यायः

स्वस्ति श्रीपार्श्वमानस्य यातुर्वादमहोदयाम् ।
श्रीसिद्धांतशिरोरत्नटीकां कुर्वे सप्रत्ययाम्^१ ॥१॥

तत्र प्रथमं-द्यम्भो मंगलेति व्याख्या:-द्यम्भो कहेता पारदः, बाल ४ (अ) थ (बा) ५. मंगलं-हेमः, बाल-३. उत्कृष्ट (उकिट्ठ) नेपालदेशोद्भवं^२ ताम्रं, बाल १३,^३ अहिंसा-कंधेरि, संजमो-रातो अगथिउ, तवो-कृष्णकनकः, देवा वि-पीली देव-दाली, धर्मः शूतूरकरसेन त्रि[त्री]यते, मंगलं संयमेन त्रि[त्री]यते, उत्कृष्ट अहिंसा-रसेन त्रि[त्री]यते । त्रीण्यपि पीतदेवालिसेन मर्द[र्द]य शुल्बे^४ (वे) तोलकमिते गुंजा^५[ता]मितं ददेत् । पीतसिद्धि स्यात् ।

अथ द्वितीयं व्याख्यानं-द्यम्भेति^६-पारदादिसंज्ञा^७ पूर्वोक्तं ज्ञेया । अहिंसा नाहीति 'केचिदाचार्याः^८ वदन्ति' ।

सर्वौषधमारणविधिः ॥

पारो टां० १ कृष्णकनकरसेन मर्दयते, पीतवालिकं रत्ता अगस्तपत्ररसेन, ताम्र(म)बाल १ पीतनाहिरसेन, त्रीणि^९ [त्रयः] वस्तूनि^{१०}[वस्तु] एकीकृत्य पीतदेवदालिरसेन मर्दयते, दिन चत्वार प्रतिपुट ७ सप्तकं प्रत्यहं दीयते । धर्मं स्वरलिप्ति[त्री]यते ।
^१ कोष्ठक-मृत्तिकायाः कुल्हड़ीका^{१२} क्रियते, गुटिका मध्ये ध्रियते । शुष्के^{१३} सति मृण्मल-

१. स्वस्ति....सप्रत्ययाम्, ब । 'अ' प्रत में नहीं मिलती ।
२. देशोद्भवं, ब ।
३. १२. ब ।
४. शुल्ब, ब ।
५. गुंतामितं, अ ।
६. द्यमेति, ब ।
७. पारददि, अ ।
८. केचिदाचार्याः वदन्ति, ब प्रतमें दो बार लिखित है ।
९. त्रयः, अ, ब ।
१०. वस्तु, अ, ब ।
११. कोष्ठकमृत्तिकायाः, ब ।
१२. कुल्हड़ीका, अ ।
१३. शुष्के, ब ।

सप्तकं प्रदीयते । ततः प्र(प्प)माणा^१ चतुरस्रा^२ गतीं क्रियते । तन्मध्ये अरण्यलूगणां^३ भूत्वा^४ तत्^५ कुल्हड मध्ये धृत्वा चतुर्दिक्षुरग्निः प्रज्वाल्यते । स्वांगशीते निष्कास्यते । एतावता^६ कलनिष्पत्तिर्जाता, ताम्रे तोले वाल २ ॥

‘ध्यानादिति’ भवौ अत्र संप्रदायो, यथा जिनः-कृष्णः, ईशः-ईश्वरः, तद्भवौ हरितालपारदौ, तयोरिति; जिनेश्च भवतः सार्वत्रिकस्तस् । तयोः ध्यानाग्निश्चली-करणात् शीघ्रं^७—हिगुविषभेदश्च^८ ॥ अथानलस्तस्मात्तत्, संयोगा धातुभेदाः-शुद्धता-म्रलोह सीसकत्वं चामीकरत्वं याति । किं कृत्वा, भविनः-रसराजस्य कज्जलिकां विहाय-दूरीकृत्य, केन क्षणेन-कृष्ण-सू[च]तूरकरसेन^९ परमिति-पुनरर्थे तेन पुनः किं कृत्वा, आत्मदेशान्तरां विहाय-प्रापयित्वा, पुनः किं कृत्वा, उपलभ्य पाथरीनामौषधि-^{१०} रसभावना । तान्नशोधनं गुर्वाम्नायाद्ध्येयं । एतद्व्याख्यानेन कल्याणमदिरमिति स्तोत्रनामसमर्थितं कल्याणं कनकं हेममिति विश्वः २॥

दो^{११} रत्नेति-तलीयो खापरी आणीने वेगण आणी तेमाहे चोपखे २० च्यार २, कुटका धातीये । ते वेगण अव्यावर ह्योटडी तेहना मूत्रसुं भावना ७ छ वलवती ते वेगणने देवी ॥ अधमण मूत्रसुं ७ सप्त भावना दीजे । पछे खापरीयो बाहिर काढीये । वेगण सातेवारे नवीन २ आणी[नी]ये । आ वेगण मध्ये खापरीयाना-खंड भाजे तिम न कीजे । अखंडानि निष्कास्यते । सप्त भावना अनंतरं खपरौ पूर्ण क्रि[क्री]यते । इति कल्कसिद्धिः ॥

तदनंतरं ताम्र भाग २, रजत भा० २, द्वादशं सुवर्णभाग ४ गाल्यते । एवं सर्व वाल, ८, गालितानंतरं^{१२} वाल ८, ते कल्कं^{१३} मुच्यते । पीतं भवति । नूनमनु(नू)भूतं ३ ॥१॥

1. प्यमाणा, अ ।
2. चतुरस्रो, व ।
3. अरण्यलूगणा, व ।
4. भूत्य, व ।
5. तत्, व ।
6. एतादेता, व ।
7. तिघ्रं, अ ।
8. हिगुविषभेदश्च, अ ।
9. कृष्णचतुरकरसेन, व ।
10. नामौषधा, व ।
11. रतेति, व ।
12. कल्कः, व ।
13. ‘गालितानंतरं वाल ८, ‘व’ प्रत में नहीं मिलती है ।
14. कल्कं, व ।

पुनः द्वितीयं व्याख्यानं : द्वाँ माषौ ¹तामे २, द्वाँ ²माषकौ ³सुवर्णं २, चतुरो ⁴माषकानि रजतानि ४, ⁵स्वार्परमाषकाः ४ अ. ८ एते सर्वे ⁶पिषयित्वा जंबूपत्राणि नवीनानि रक्तानि, तेषां रसेन मर्दयते । तांबूलेन सर्वं ⁷पिषयित्वा ⁸जंबूपत्राण्येकीकृत्य तत्रसेन स्वरलं क्रियते । वासर ४, पक्के ⁹मूषायां उपरि क्षिप्यते । मूषा काचमयी क्रियते, ते मध्ये औषधं विमुच्य तांबूलं मूषायां अंबूकृतं क्रियते । ¹⁰काचमूषकाचमूषया सह संपुटं दीयते । तांबूलं धुतकारेण चीवरं ¹¹आद्रीकृत्य उपरि ¹²मूषार्यां स्थाप्यते । ¹³तदुपरि मृन्मलं प्रदीयते । ततः सैर १ लिङ्गाला मध्ये अस्मौ तापयेत् । स्वांगशीतं ¹⁴गृह्यते । ¹⁵पीतं स्यात् ॥२॥

¹⁶अथ काचमूषाविधिः

प्रथमं काचचडिकायाः ¹⁷सूक्ष्मचूर्णं क्रियते । प्रथमं ¹⁸गुदं ¹⁹आद्री-
क्रियते । तेन सह स्वरलयित्वा ²⁰मूषा क्रियते । केचिदाचार्या एषं ²¹वदन्ति-गुद-

1. ताम्रे, अ ।
2. माषकौ, अ ।
3. सुवर्णः; व 'द्वौ' माषकौ मासुवर्णः, 2. 'व' प्रत में पुनरावृत्ति है ।
4. चतुरे माषकानि, अ ।
चतुरो माषकाः, व ।
5. स्वार्परमाषकाः, अ ।
6. पीषयित्वा, अ ।
7. जंबूपत्राणि, अ । जंबूपत्राणि, व ।
8. फियायित्वा, व ।
9. मूषायां अ ।
10. काचमूषकाचमूषाया, अ । काचमूषकाचमूषाक, व ।
11. तांबूलं, व ।
12. आद, व ।
13. मूषार्या, अ ।
14. तदिपुरि, अ ।
15. स्वांगशीत, व ।
16. पीतः, व ।
17. काचमूषाविधिः, अ ।
18. सूक्ष्मचूर्णः, व ।
19. गुद, अ ।
20. आद, व ।
21. मूषा, अ ।
22. वदति, व ।

प्रेषण सह ^१वारंस्तरणोदये क्षिप्यका^२ मूषायां तापयिष्वा इवीभूतं, महिषीभोमये उड्डीकृते
ढालयेत् । तारं^३ भवति ॥३॥

^४अस्थिमक्षेति । प्रथम अस्थिमक्ष-विष्टाये वंग भारीहं-ते वंग कुंधालि-
(ली)में घालीजे, टां० २, बी(वि,चे, ^५तांको टां० २, ते उपरि रूपा टां० २, ए विट्टनी
मंछि पाङ्गिजे । ते उपरि टीकड़ी मूखुकीने । ते उपरि बलि बंगनी सीकड़ी दीजे
टां० २, संपुट बीडीने कापडामाटी बी(जे), लुकाकीने गजपुट सी(मे), प्र० (इर)
१ अथ०(का) २ । अग्नि छी(सी)रल भये, लीजे । ते कल्क तांकी कोको, कालो
१ । पोसम् ॥८॥

^६आद्यर्थः : दस रतेवि-लु(सु)द्वय तां १०, खर्परसः १५,
सोना टां० ४, एकठां अंधसूसे गमलिये । एतळे पीत जोटक ॥६॥
शुकेति-तारा टां० २, शुद्ध तां २, खर्परसः १५, एकज कडी लाकी
मूसी चा(गा)लीये । पळे आदिमूसी(सि) गालिये । पी(पि)त जोटक ॥१०॥

नाइण रसेयेति-नायणेइ, पारो-ईदवर, गंधक, कणेरी मण्डिल, इस्ताक,
ससिसोमल ।

पारो टां० ८, गंधक टां० ८, मण्डिल(स)ल कणेविधुं टां० ४, इस्ताक ४
२, सोमल टां० १, एकत्र करी नाहनीमोटी नागार्जुनीना रस पुट ७ दे(जा) । पळे
^८नागरवेलिका रस पानका ^९पुट ७ देणा । काथाचूना चालि रस कादिये ।
^{१०}उन्मत्तका ^{११}पत्रका पुट ७ । ^{१२}आसीझाडाकी(कि)पुट ७ । पुनः मेढासीभी का रसका
पुट ७, मरहटी पुट ७, हीरवणीरुइ पुट ७ । पुनः आजीजाडा पुट ७ देणा ।

१. चारं, व ।
२. छेता, व ।
३. तार, व ।
४. मक्षेते, व ।
५. तांका, व ।
६. आदिये, व ।
७. पि, व प्रत में नहीं है ।
८. नागलिका, अ ।
९. पानका, अ ।
१०. उन्मत्तका, अ ।
११. पत्रका, अ ।
१२. असीझाडा
१३. देणी, व ।
१४. पोलकायें, व ।

सीसी घातीने मुद्रा दीजे । वेलुकायंत्रे प्र० (हर) १२ अक्षिन् दीजे । स्वांगशीतल करी उतारिये । इति श्रीसिद्धांतोपदेशन्याख्यालेखार्थः ॥११॥

वीतरागोक्तं आरतारैति-प्रथमं वंगविधिः ।

टां० ५ पारो, टां० ५, हरताल, टां० ३ टंकण, बार सोध्यो मणशील टां० ३, १ एतेषां चूर्णं अतिसूक्ष्मं २ एषां ६ औषधानां चतुर्भांगं वंगं, वंगस्य पत्राणि क्रियते । बारद्वयं त्रयं शुष्ककोकृत्य पश्चात् सराजसंपुटे, एकस्थोपरि एको मुच्यते । मृन्वस्त्रं ३ दीयते । पश्चात्-गजपुटे ग्रहर (२) ज्वालनीया । शीतलं यदा भवति, निष्कासनीयं । वंगं मृतो भवति ॥ तदनु रीरी वाल ८, सर्वं एकत्र गालिने वाल १२ नी पुटिका बंधयित्वा मोचयित्वा पश्चात् (तु) तेलमध्ये डालनीयं । तदा भव्यं किं पि न दृश्यते, तदा पुनः (ः) डालनीयं । शेषं गुरुगम्यं ॥२२॥

मणिकुसुमि-मनःशि(सि)ला सूक्ष्मीकृत्य १ रक्तागस्तिकपुष्परसेन खल्वे मर्दयेत् । एषां भाषना २१ देया । चूर्णं कृत्वाधोधः, ततश्च वंगं जंबी(र)रसेन बारद्वित्रिच- (चु)तुः संशो(सो)ध्य पश्चात् सुवंगं गालयित्वा मनः शि(सि)लाचूर्णनेनैव प्रातःवायो देयः बारत्रिकं । तृतीयवेलायां तेलमध्ये डालनीयं । वंगस्तमं ॥१२॥

माक्षिकेति-तोला ५ नाग, तो० ५ माक्षीक, तो० १, हांगलो १ तो० १ हरताल, तो० १, गंधक, तोलो १ मणशाल, रसेन्द्रगोपीरसभाषना २८ दीजे । सुं(सू) पुटे २८ दीजे । खरलीये पचे(छे)ते चूर्णं करी, पचेइयंत्रे घाती करी कपडामाटी दीजे । वेलुकायंत्रे प्र० १२ नी अग्नि दीजे । शी(सी)तल थाये लीजे । रूप्य तोलो २२ दीजे । पीतम् ॥१४॥

रा०(जा) पं० १, करकचना रसमा वाटे^५ । जलौका सदृशो भवति^० । पछे एनो रसे सेर ५ दूयी दीजे, शबुल्व रंगे^६, निश्चे । बल्लभदास उक्तं । एणे

१. एतेषां, अ ।
२. एषां, अ ।
३. औषधानां, अ ।
४. रक्ता, व ।
५. मनःसिली, व ।
६. चूर्णव, व ।
७. वाछे, अ ।
८. मोचति, व ।
९. रंगि, व ।

रसे तेर १ पायो हतो । स्वकल्पं । नागयुक्तं^१ कलही, ब्रह्मदंजिलपरिपरं-ए बेमां
कठ[ट]ण^२ स्वेत थाइ ।

वंग भाग १. राजा भा० २, नाग भा० १, लाख बोरडीनी भा० ४, छोइ
भा० ४, 'स्याही मिटे । वंग-पारानी गादी(ठी) 'खांडस्यु मर्दे 'स्याही मिटे' ।
पोचूडीणे' ब्रह्ममर्देडिमां बुझावे' । सूरण रसने छीकनी रसमां बुझावे । अमृतवेळिने
गळो वा दु(दू)धि, पाज पीपर ॥२५॥

गाहजु(जू)अलेण जिणम् :

मयमोहविवज्जिअ-जिअकसायं ।

योसामि तिसंधाएणं तं निसंगं महावीरं ॥१॥

सुकुमाल, धीर, सोम, रक्तसि(ण)पंडुरा सिरिनिकेया ।

सीयअंकुसराहभीरु, जलथलनहमंडणा तिणिण ॥२॥

न चयंति वीरलीळं हाव जे सुरहिमतपडिपुण्णा ।

पंकय-गह्व-चंदा, लोअणवंकम्मिअमुहाणं ॥३॥

एवं वीरजिणिदो, अचछरगणसंघसंथुओ भयव' ।

पालितय-मइ(य)-महिओ, दिसड खयं सव्वदुरियाणं ॥४॥

गा०-अभ्रकम् ॥ हा-हारितालो । जु(जू)अलेण 'तारमुच्यते । जिन'(णं)

पादं, कथंभूतं-मयमो(ह)विवज्जिअं 'जिआणंगं' मलशिखिविषं, दोषत्रयवर्जितं^९,

योसामिति-स्तंभयाभि, केन कृत्वा-त्रिसंघातेन^{१०}-सिताभ्रकं-हरितालकं तारं-त्रयाणां

^{११}योगेन ^{१२}बल्य ^{१३}तथौषधविधिसमवायेन-जारण-स्वेदन-^{१४}'विधि' विधास्यामि । कथंभूतं-

जिणं तं

१. नागयुक्तं, अ ।

२. कटण, अ ।

३. ४१ याही, व ।

४. खांडस्यु, अ । खांडस्यु, व ।

५. १ याही, व ।

६. मुच्यति, व ।

७. अआणंगं, व जिआणंगं, अ ।

८. शिखि, व ।

९. विष, व ।

१०. त्रिसंघातेन, व ।

११. योगे, व ।

१२. बल्य, व ।

१३. तथौषध, व । 'विधि', नहीं मिलती है ।

१४. 'विधि' व ।

निरुग-तीर्जसग-सुतसप्तगुण-वंगोत्तीर्ण(णं) । एतावत् श्वेत(विधि)दर्शिता ॥

अधुना पीतविधिमाह ॥

महावीर-म०-हेममक्षक, हा०-हाटक, वी०-कृष्णाभ्रक, ए०-रसमित्यर्थः ।
शेषा औषधयः(ध्यः) समाना ॥१॥

सुक०-नाइणि, धीर-नाइ, ^१सोमा-सोमवल्ली, त्रयं । ^२रक्त-रक्तदुग्धिका
कसिण-बह(हु)फली-काचणिका, पडुरी-देवदाल, 'सि'-शृंगबेरकं, पंचक(रि)-लघुरि-
गणी, निकेया-केतकी सीया-^३लांगलिका, कुसगह-अहिखर-बीजाणि, भीरु-संकोइणि-
लज्जूल, जलमांडिका-जलं च, ^४तादशी नभमंडपिका, ^५थल०-अंगवती ॥२॥

इदानीं रोचनक्रामणा उद्धा[ट]नविधिमाह ॥

पंकयं-^६गगणं, गयंदं-मत्तनागं, चंद-तारं हेमं^७ वा । त्र(त्रि)यमपि
रोचनमित्यर्थः, तथा कामणं, तथोद्धाटनमित्यर्थः ।

“यदुक्त” :-

तारहि तारु, सुवण्णस्स । सुवणि(णि)हि-सूयोरेव नहु वज्जुइ, ^८अग्निं कामणु ।

वेहुगघाळणु ^९नाइं दब्बीकरणु होइरसराइ ॥३॥

एषं कृत्वा जिणिदी, अच्छरगण इति-अम्लवर्गः-वरगण इति क्षारवर्गः,
गुण-संघ इति-समुदावेन एभिः संशुड (ओ)संस्तु त्य-स्तमितेत्यर्थः^{१०} । भगवान्-संद्गः
कृष्यो भवति । कर्मकृद् भवति ।

पालितय मइ(य)-महिओ-महिलः परिकर्मितः, दिशु, क्षयं सर्वदुरिता-
नामित्यर्थः ॥

अणसेइओन्तरलो न निम्मलो^{११} होइ । सद्दणा रहिओ साअण-रहिओ पसरेंइ ।
कामिओ नेंअ कमइ लोहेसु ॥४॥

1. सोमा, 'व' प्रत दो बार उल्लिखित है ।
2. रक्त, व. ।
3. लांगलिका, अ ।
4. तादशी, व ।
5. थल, व । घ, अ ।
6. गगणां, व ।
7. हेत, व ।
8. अग्ने, व ।
9. ताइ, व ।
10. स्तमितेत्यर्थ, व ।
11. निम्मलो व ।

अथात्र स्वर्णसिद्धि प्रकारेण व्याख्याः

तिसृणां औषधीनां रक्तदुग्धिका-सोमवल्ली-बहुफली(ला)नां सञ्जातेन समवायेन थोसामिति, खेदनमुखोद्घाटनजारणादिविधिं विधास्यामि । तत्र स्वेदनं-गोमहिष्यजान-रक्षरत्रुत्रैः काजिकसहितैर्दोलायत्रेण । जारणं-बिडनिष्पादनेन । गोरौचना, स्फटिकी, नवसार, गंधक, हरिताल, स्थद, सौभाग्यरूपऔषधकर्चूणं समांशं अजापित्तके निक्षिप्य मासमेकं चुल्ला उपरि धार्यं ।

इत्थं बिडं निष्पाद्य मुखमध्यादयते । तत्स्वेत्तु कृष्णभ्रमेकपत्रं कृत्वा यथारनालमध्ये प्रहराष्टं निक्षिप्यते । फोगकवलं दुर्याजालैर्वा सहवक्ष्येण गाल्यते । तद्गृह्यरूपं स्ताविषजितं । रसस्य हि प्रथमे दोष मलं-शिल्वी-विषं चेति । ततो 'भयमोह विवर्जिय' इति अनेन मलविषलक्षणदोषद्वावर्जितं उक्त्वा संप्रति दहनं दोषनिरासार्थंविशेषणमाह ॥

जियकसारंति-जितः स्वात्मनि लीनः कृतः, कषायक्षिफलाख्यो येन स तथा तं । अनेनेदं उक्तं भवति । यत् त्रिफलया तस्य शिखिदोषाख्यो अपनीत इति ॥ तथा च रस ग्रन्थः मलशिखि-विष नैसर्गिका नामानो नैसर्गिका अयो दोषा । गृहकन्या हरतिमलं, त्रिफलनिं चित्रकस्तु विषं इति ॥ थोसामि-स्तभयिष्यामि । केन कृत्वा, त्रिसंजातेन-सितवर्णकं, सालकं, तारं, एतेषां त्रयाणां-संजातेन योगेनेत्येके अन्ये तु व्याचक्षते । दुग्धिकादीनां स्व० रसं, रस मध्ये दद्यात् । औषधीशुष्कत्वे तु तासां क्वाथं कृत्वा तद्रसं निक्षिपेत् । अत्र च रक्तदुग्धिका-सोमवल्ली बहुफलीनां अन्यस्तमथापि कार्यं सिध्यति । तथापि तिस्रो ग्राह्या इत्यम्मायः । पुनः कथं जिनं-पारदं, तीर्णसंगं-सृतसप्तगुणसं(वं)गोक्षीर्णं, अस्य संप्रदाये गुरुहस्तात् श्रोत्रक एतावता इवेतनालिर्दर्शिता । अधुना पीतविधिमाह । महगिरं-‘मे इति-हेममाक्षिकं । ‘हा’ इति हाटकं । ‘वी’ इति-कृष्णभ्रकं । ‘र’ इति रसः । तं स्तोष्यामि । शेषा औषधयः समाना एव इति प्रथमं गाथाधैः ।

सुकुमाल इति-नाइणि । धीर-इति नाइ । सोमा इति सोमवल्ली-त्रयं, सोमा वा कुची, ‘रत्त’ इति रक्तदुग्धिका, कक्षिण इति कृष्ण बहुफली-काचनिका । पंडुरा इति-देवदाली । ‘सि’ इति श्रृंगिष्विषं । ‘रि’ इति लघुरिगकी ‘विकेया’ इति केतकी । तस्मिन्यासः । ‘सीया’ इति-लांगलिका । कुसगह इति-अहिखरीबीजानि, अपामार्गबीजानि वा । ‘भीरु’ इति-लज्जालूका ‘जलमंडनिका’-मंडुकभाषी, ‘स्थल’ मंडनिका-अंवावनी-अववंगोरी । ‘नभो मंडनिका-सुनाली आकाशवल्ली बेल्येके । एतास्तिस्र औषधयः । औषधीनां बहुत्वेपि तिन्निति-अभिधानं मंडनशब्दोपनासा-भ्यात् इति द्वितीयगाथाधैः ॥

इदानीं रोचन-कामणोद्घाटनविधिमाह ॥ 'न चयंति' वीरोऽग्निस्तस्य लीलां
अग्निरूपतां हातुं-त्यक्तुं, न शक्नुवंति भास्वरकार्तस्वरूपत्वात् । के ते 'पंकय गहंद
चंदा' -पंकय इति गगन' अभ्रकं इत्यर्थः । गहंद इति-मृतनागं, चंद इति हेमं,
श्रितयमपि वा । एते च पंकजादयः कीदृशाः संतो वीरलीलां न त्यजंति इत्याह ।
'सुरहिमत पडिपुन्ना' (सुरभिमात्रा प्रतिपूर्णाः) समग्रा यथोक्तमात्रोल्लंघने हि न सिद्धि-
रतस्ते सुरभिमात्राप्रतिपूर्णा इति । केषां कार्याणां संपादयित्री या 'मत्ता' (मात्रा)
अत आह, 'लोयण चकम्मिय मुद्धानंति' 'लोयण' इति रलयोरेक्यात् 'रोचन'-वेध
इत्यर्थः । चकम्मिय' इति कामणं ।

चुचुंधरि सवंगं महिलाभयटकणेण कयलेवं सव्वट्ठ देसु कमणं निवि-
ट्ठं वीवरारणेण ॥१॥ 'मुद्' इति उद्घाटनं, श्वेते नागोत्तारणं, पीते दानं यथोक्तं
सूतसंहितायाम् ।

उद्घाटनेनपुढान्नान्यः क्रमेण कांतमिच्छति ।

न शुल्वाद्वजकः कश्चिन्न मक्षिकात् प्रकाशकः ॥

अन्यत्रापि उक्तं--

तारिहिं तारु सुवण्णु-सुविण्णइ' ।

सुड रे नहु वज्जहेइ अग्निइ कामणं वेदुडघाटन नाइ ॥

वक्षीकरुणु होइ रसरइ ॥ इति तृतीयागाथार्थः ॥३॥ (९२ ५१)

(४) अथ निगमयन्नाह-

एवं पूर्वोक्तप्रकारेण वी० रसेद्र रसज्ञः । अछ अः-अम्लवर्गः, छः इ०-
क्षारवर्गो मूत्रलवणादिः, रः-रसवर्गः । एषां त्रयरूपो गणस्तस्य संचः समवायस्तेन सं-
परिचितः संस्तुत्य स्तमितः ॥

भगवान् ऐश्वर्यांतपूज्यः, पालित्य-पादलिप्तो रसविद्धासिद्धः सूरिः, तस्य
भतेनाभिप्रायेण

'मथितः अणसेइओ न तरलो न निम्मलो होइ मद्दणा-रहिओ' ।

सारण-रहिओ पसरेइ कामिओ नेय कमइ लोहेसु ॥

इत्यादि युक्त्या परिकर्मितो विंशतुः 'क्षय', सर्वे०-दारिद्र्यरोगजरादिनां ।
पाठां(तरे)-पादलिप्तस्य मत्वा मथितः । चतुर्थयागार्थः । इत्थं-स्वरूपतया, भक्तः
सितपीतसिद्धिरूपतया श्री पादलिप्तचित्तः वीरस्तवमयावृत्तिः इति-जिनप्रभसूरिभिः ।

संवत् १३८० वर्षे कृतायः श्रीवीरस्तववृत्तेः संक्षिप्यावचूरिः उपाध्याय
श्रीउदयधर्मगणिभिर्लिखिता ग्रं(थाः) ।

SUVARNA - RAUPYA - SIDDHI - ŚĀSTRA

TRANSLATION OF THE TEXT

FIRST CHAPTER

Salutation to Śrī Gautama

The treatises on the accomplishment of the process of metallurgy of gold, silver, etc. are written in Sanskrit, Prakrit and Apabhramṣa by prose and poetic (versal) order.

1. Dharma¹ (religion or virtue) (based on) non-violence, self-control and austerity is best bliss or auspicious. Gods even salute him whose mind is always absorbed in virtue.²
2. Oh Jineśa ! the Bhavinas³ (who are capable to attain liberation) attain instantly the state of the supreme soul by giving up the body by meditation upon you just as some kinds of metal attain brightness (or gold-ness) soon by throwing away the state of stone due to the intense fire in the world.
3. The Jina who is like the full-moon faced, seated on the throne with his family (of Saṃgha), bright and white with (the ray of) omniscience should be meditated upon.
4. Two are white⁴ (mercury), two are black⁵ (mineral calamine), two are red lotus-coloured⁶ (realgar and sulphur). Two are emerald-coloured⁷ (orpiment) and sixteen are of golden colour.⁸

1. Dhamma means mercury; it is a code word.

2. The whole verse is quoted from Daśavaikalika Sūtra V. 1. It is a secret formula for mercury, gold etc. with their chemical processes for gold making.

3. Bhavinas means technically mercury. It is also a code word. The whole verse is taken from Kalyāṇamandira stotra, V. 1. Siddhasena Divakara.

4. Twenty four Tirthankaras symbolically represent different minerals and metals. Two are white, representing mercury.

5. Two are black representing mineral calamine.

6. Two are red lotus-coloured, representing realgar and sulphur.

7. Two are emerald-coloured representing orpiment.

8. The remaining sixteen are of golden colour.

5. Mercury, two medicines, quantum of fire and lids (pots) are (necessary). Now (I shall speak of) chemistry and metallurgy (dhāovāo), covering (or leaving) the remaining show or demonstration (aḍaribadā).
6. Copper together with long gourd (Tumba gourd) is to be mixed with the root of Tīḍu (Tīḍgorā) (Cocceinia Indica). When the mixture is heated, (it) becomes gold. That – that is said by Jinendra.
7. Two are red,¹ two (are) yellow, four (are) moon – coloured. Cook them together in a vessel. Pupil ! (do not die of starvation).
8. Hāṭephūli, Vāṭephūli, Hāṭephūli is alum, Vāṭephūli is śīpanī (a kind of sea – shell or oyster – shell.) (Take them), give 12 (parts of) tanaktoḍī (tejan toḍī māṭī) in rāṅg (a kind of tin). Carapaṭa makes a magic – performance.
9. Taking emerald (or gold) and lead (of equal proportion) and mercury having equal quantity of them, grind (them) with butt (putā) in the juice of Andropogon serratus (devadāli). Do not do (carry on) cultivation (agriculture) laboriously. One rati of the essence (Kalka) pierces 64 tolas of any metal (to make gold ?)
10. Apply killed tin by taking (or making) equal portion of mercury, and orpiment. This is Rājvatī vidyā (art) which is not to told by the son.
11. Taking equal portion (of each of) mercury, cyperus pectenulis (nāgara) and mineral calamine, make them calcinated (bhasma = Jāro) and kill them by giving Aloe perfoliata and plumbago rosia. Gaṇḍu says, (that) it will be āna, silver will be of 10 carats (vāṇṭis).
12. One (part of) lead eats up (assimilates) ten parts of tin. Cinnabar and realgar have in this way. Old tin wants (absorbs) lead. The god of wealth will sing in his house.
13. Give (mix) (one part of) carbonate of soda, (one part of) rice gruel (bhājī), (one part of) alum, (one part of) mercury, two parts (double) of orpiment (sulphide of arsenic) into copper with reason. What does the famine do ?.
14. The success (or accomplishment) becomes manifest in rubbing and rubbing mercury, sulphur, gold, sulphide of mercury, realgar (maṇaṣilā Kunaṭa and Kunaṭī). Some are Dhātuvedhi (piercer of metal), some are Gāvavedhi (piercer of gava). We, the Carapaṭa yogin, are Dhūmravedhis (alchemists of Dhūmra = smoke).

1. The meaning of the verse is explained in the 2nd chapter P. 199 Do ratteti means borax and calamine.

15. Making pieces of both ubhināgā (a kind of lead ?) and ubhināgā (a kind of lead), give mercury below (them) and borax above (them). Caripaṭa says, put on (golden) bangles.
16. (Take) orpiment, golden pyrites, sulphide of mercury, and realgar – all equal to the quantity of half part of mercury. Grinding (them) in a stone vessel or mortar (Khala), the whole thing is to be mixed up with the juice of Kākamācī (Solanum nigrum). (The whole thing) is to be cooked in an iron vessel for 3 praharas and smeared (on the metal leaf). Heard in the past, (it) becomes gold, the support of the travellers.
17. Killing lead in Hāṭavilāsaṇini (a kind of vanaspati) and Anurata Naḥi (ṛi) (a kind of Vanaspati = Gandha Bhādālī) which is a medicine for dysentery), bind (fix) mercury by killing lead. Carpaṭa says : (it) becomes gold.
18. Keep brass cooked in these two – Hāṭavilāsaṇini (a kind of Vanaspati) and varanārī (a kind of Vanaspati). Blackness of that brass is removed. Misery and poverty – all go away.
19. (Take) one part of tin, two parts of mercury. Blackness of these two is washed away in the juice of Symplocos, racemosa. Nātha says (that) there is always Divālī (light of victory or success and happiness).
20. Copper is to be killed with sulphur. Make it equal with or to cinnabar. The plates (leaves) of lead are to be smeared by rubbing them with the juice of citrus medica.
21. Lead is killed with three puṭas (roastings), like Vermilion (Sinduragaṇa-sannibham). One sixteenth part of it pierces into silver (and) silver gets converted into gold.
22. (An) old pinal (wood) which one gets hold of. Make powder (of it) by cutting (it into pieces) and crushing it, and then infuse or saturate the powder with the urine of a male ass. (Next) mix tin (with) Pistetia Itagirinia (Navāngi = Kākāḍa – singi) (and) spreading Hogbid (Saṭoḍi Vanaspati).
23. Infuse silver – Trilocanacuṇaḍi with the juice of Calotropis gigantea. This is the cuṇaḍi (golden colour) of Nāgārjuna, it does not get destroyed by a year.
24. Kill mineral calamine in salt, (then) rule over the four corners (of the world). Nātha says “do not think (doubt) in mind. Misery of poverty will completely go away.”
25. Befitting (Worthy) best (red) sulphur well – cooked in internal smoke becomes well – piercing thousand times into silver, copper or lead.

26. (It) is to be saturated equally with the milk (sap) of Euphorbia Tragonia (Vajri), calamine (Kha), mercury (ra.), realgar (ma.), borax (ṭa) and orpiment (ha.). (It is to be) cooked on fire many times, (it) becomes bright like Kondūla (Mograpuṣpa), (it is) true.
27. (Take) two parts of brass (āra), two parts of silver (tāra), two parts of carbonate of soda (natron) (sāji), two parts of borax, give śvetakāca (white glass) above and below. Rule over the earth, sitting on it.
28. Many knotted Ayapomia Reniformis and bahuphalī - C. antichorus whose living (residence) is in the well and pond (or at the bottom of the well). If only mercury is mixed with them, poverty will be destroyed (removed).
29. Ayapomia Reniformis and C. antichorus—both of them grow at the bottom of pond. Mercury is killed by the first puṭa (roasting) with (their juice), there becomes gold by the second puṭa.
30. Some rasa (mercury) exists in the grāsa (womb) of sky (gagana = mica). Some rasa (mercury) exists in the possession of Kāminī (murraya exotica), some rasa (mercury) exists in star and planets, some rasa exists in the words of the guru.
31. Give 20 parts of Sulphur and 20 parts of mercury into 10 parts of Sal-amomonica rasa (mineral) with (by) consideration. There should be fire for thirty praharas. (i. e. the whole thing is to be put on fire). Then there takes place the process of Rasasindura Saṁyoga, (combination.)
32. Nāgāyogī = Lead fills up (assimilates) calamine (Zinc carbonate), put mercury (Sūya or gūyā) above, Gorāmāi, (Gora = yellow mother) serves rice, there becomes a house of gold.
33. Mix the juice of the root of the plant of Serpentina with the urine of Sundarī elephant, lead becomes gold by garbhanāga (when put into the womb of essence of the medicine) after heating it.
34. First kill tin (vaṅga) with the stool of a dog, (put that into a plate) and (rub) orpiment, mica, poison, mercury, and borax with the milk of Calotropis gigantea and Euphorbia antiquorum (Bhānuvajja). O king ! make the hill of silver.
35. (Take) Sāvu - khāra (a kind of Carbonate of soda), Carbonate of soda (natron), oxide of arsenic white glass (Śvetakāca) and orpiment, get them dried up in the milk of Amarbel (Cuscuta reflexa = alokalatā), Testify 17 carat silver.

36. Lead gets killed, pierces (into) the body of mercury. Mercury is not found killed without lead. Fix (bind) mercury with the ropes of lead. Carpaṭa says : it becomes gold.
37. Lead drinks (assimilates) calamine (zinc carbonate), Zinc carbonate drinks (assimilates) mercury. When the vessels of zinc carbonate begin to break up, there is joy in every house (because of making gold ?)
38. Mercury rubbed with the juice of musket (moschus = nāhi), piper beetle (Nāgalatikā.), water lily (Induvallabha) (Soymida febrifuga) and Droṇa-puṣpi = Kuba (lotus), (heated) roasted gently in succession (one by one) seven times, quickly attains the state of āśh, i. e., (gets killed).
39. Mix carbonate of soda, chloride of Sodium, alum, Godanti orpiment and emerald (garuḍa) – vihaṃgama by taking them in equal proportion. If one rati (of this essence) is mixed with one tola (of copper) (these become gold).
40. Drench Sambhara lona (Salt of sambara lake) in the juice of citrus lemon and the juice of its jaḍi (roots), make the essence in a burnt (cooked) earthen pot and destroy the residence of poverty again.
41. Copper combined with sulphur red ochre, mixed with equal portion of mercury and combined with Andropogon serratus (devadāli) becomes gold.
42. What is the wonder here, if red sulphur mixed with the essence of Butea frondosa (palāśa), Liccaris (Jeṭhrvana) and cooked (fermented) with wild lotus (utpala) converts silver into gold with Tripuṭas (3 roastings ?).
43. Take 2 parts of gold, four parts of mercury, six parts of amalsar sulphur, fix them carefully, (there will be) gold – much quickly.
44. Take equal parts of mineral calamine and mercury, give the juice of Aloe vera (Barbados Aloes) into them. Then give (add) one guṇj of copper. Take gold by making it with happiness.
45. Combine pure copper tā. 10 and mineral calamine tā-10, gold tā 4 and melt them together in a covered crucible, (there will be gold), O Pupil ! do not die of starvation.
46. Take silver tā 2, pure copper tā 3 and mineral calamine tā 5, put them in a covered (closed) crucible and melt them with copper without blackness. It becomes gold. This is the art of the intelligent men.
47. Equal parts of mercury and Saussurea lappa ? (Kuṭha = Kuṣṭha ?) are to be killed like silver and take double (the quantity of) good (pure)

orpiment (mixed) with the milk of *Calotropis gigantea* (arka), (they) are to be cooked with linseed oil for five days. That oil becomes Śatavedhī (piercing hundred per cent) into silver, copper and lead (to convert them into gold.)

48. By making realgar fine, it is to be rubbed in a Khala (mortar) with the juice of *Sesbania glandiflora* (Agastyapuṣpa), and give puṭas to tin infused with the juice of citrus medica with the powder of purified realgar three times. It becomes gold-like (Kaladhauti)
49. Pyrites, lead, mercury and sulphur and cinnabar mixed with realgar are to be rubbed together and to be roasted by 50 puṭas (roastings) in fire. In the act of killing of lead, there comes out silver with 100% piercing.
50. Kill mercury, sulphur, Kaneri realgar, orpiment, oxide of arsenic (sasṃomala) with the juice of *Aristolochia bracteata*; apply the essence to silver, it becomes gold. It is said by Vitarāga (the Dispassionate).
51. The first letter is ka, the last letter is ka. Between them there lie two letters, i. e. Kuravaka (*Berberia cristata*). Lead is killed with it, mercury is dried up. The people eat (enjoy) (it) by dividing (it).
52. (Take) silver with equal portion of Śvetakāca (with glass ?) and 100th part of gold. There becomes pearl, the ornament of the gods, by their combination with mercury.
53. (Combine) one part of tin, 2 parts of mercury. Mercury t̥ā 1, tin t̥ā 1 (?), lead t̥ā 1, lac t̥ā 2 (rālā - yellow resin) and *symplochos racemosa* t̥ā 2, and give (them) 3 gajapuṭāgnis, (3) fire roastings (in a pit measuring cubic yard). There becomes white lead or essence.
54. (Take) six times of tin - pure and best, O pupil ! (I) say again and again, (mix it up with) lac and resin. (As a result) there becomes (takes place) happiness (divāli). If the essence does not become silver, abuse me.
55. (Take) one pala of milk of *Ficus glomerata* (Odumbara), *Calotropis gigantea*, *Ficus Bengalensis* (vaṭa), lac - pala 1, magnetic iron - palas 4. When (they are) mixed together and cooked with the oil of linseed, their essence (is helpful) in killing mercury. It is called Madanamudrā.
56. If the drop of oil does not spread out in the water of a vessel of Kānta iron, the smell of *Ferula asafotida* is generated in its water, the juice of Neem (nimba) generates bitterness in itself, if put in that vessel. (If) milk is boiled in it, it becomes high like the shape of an umbrella, it does not go down (fall) to the ground. Kānta iron is that which possesses this aforesaid characteristic (marks), not any other (things).

57. Cast pearl born of Oyster shell and tin into (the pan of) Kānta iron, then mercury, (into it). Then Bhāṭāgni is to be given below it (to give heat to the mixture). (As a result) mercury becomes silver.

58.

गुप्तु सू सूस् गल गोगिर दद ।

ऊनदमिसराजर कुन दइ तिस्तकीभीया ' ॥

59. Take poison, Anacardium (Semecarpus anacardium), aquatic pipala and other thing. Oil of pongamia glabra, Vebhaha, (not identified), brass together (samciyā) are the roots of gold (preparation).

60. Lead moves in between Taurārasa - Sulphur (and) murarasa mercury. Lead becomes modified, pierceing mercury. Carpaṭa says it becomes gold. If black, red, yellow lead is (put) into black silver - 7 divisions, (is) combined with pure gold, Nāgarjuna says; occupation is little necessary.

61. (If) Mercury, carbonate of soda, milk's hedge, alum, 2 parts of orpiment (are mixed with copper), the essence becomes yellow. What harm the famine can do ?

1. It is difficult to translate correctly this verse in the absence of its Commentary, as it is written in a code form.

SECOND CHAPTER

On saluting the auspicious Śrī Pārśvanātha I am writing the commentary on the great science and technology – Chemistry and Metallurgy – Śrī Siddhāntasīrotratnaṭīkā, with certainty based on evidence. (1)

There first is the explanation :-

With reference to 1st gāthā of 1st chapter :

‘Dhammo maṅgaleti’ : Dhammo is called mercury-vāla 4 (or) 5, maṅgala = gold, vāla 3, ukkiṭṭhaṃ (utkṛṣṭam) = Nepalese copper, vāla, 13, ahimśa = Kamtheri (capparis sepiaria), a kind of thorny plant, Saṃjamo = rakta agastya (red flowered agasta, sesbania glandiflora), tavo = black thorny apple or datura (Kṛṣṇakanaka), devā vi = yellow Andropogon serratus (Pīlī deva-dālī) (Bandālī = breastly lynpha).

Mercury is killed (calcinated) with the juice of thorny apple, gold is killed with the juice of red sesbania glandiflora, the Nepalese copper is killed with the juice of capparia sepiaria. Having rubbed three (mercury, gold and copper) with the juice of yellow Andropogon serratus, the essence of these measuring (weighing) one guṇj should be given into copper measuring (weighing) one 1 tola. There will be the accomplishment of gold.

Now the second explanation :

Dhammeti should be known as mercury, etc. as said before. Ahimśa is Nāhi (Rāsna = Vanda roxburghii !), say some Ācāryas.

The process of Killing all medicines.

Mercury ५ I is to be rubbed with the juice of black thorny apple, grains of gold are rubbed with the juice of red sesbania glandiflora, copper-vāla I is rubbed with the juice of yellow Vanda roxburghii. Having mixed these three things together, (they) are to be rubbed with the juice of yellow Andropogon serratus (breasty lynpha) for four days. Seven prati-puṣas (roastings) are to be given to the essence every day. It is to be put into mercury in a mortar (kharala). A Kulhiḍi (pot) of Koṣṭhaka earth is to be made, then guṭīkā (tablet) of that is to be held (placed) in the Kulhaḍi. On its getting dried up, seven layers of clay and cloth are

to be put (given) over it (kulhaḍi.) Then square pit is to be dug. On filling (putting) dry pieces of wild cowdung into it and holding that earthen pot (Kulhaḍam) in it. Lit fire (to the cowdung) on all sides. When all things get cooled down, take out the earthen pot (Kulhaḍi). By this process there takes place the end of the fruit Kalka (essence), vāla 1 should be put into 1 tola of copper.

With the reference to the 2nd gāthā of the 1st chapter :-

Dhyānāditi means here sampradāya (Sect), as for example, Jinaḥ-Kṛṣṇa, Īśa-Īśvara, i. e. haritāla pāradau (orpiment-mercury) born (generated from) of them. (Kṛṣṇa = Hari = haritāla = orpiment; Īśa = Īśvara = pārada (mercury). Of them thus O Jineśa ! bhavinaḥ (mercury), everywhere 'tas' pratyaya is applicable; 'tayordhyānāt' means niṣcalikaraṇāt = by fixation of them (orpiment and mercury); tivrām means Cinnabar and a class of poison. Now, anala means fire, by the contact of which the classes of metal, pure copper, iron and lead get converted into gold (or goldness)—by doing what? By removing the blackness of Bhavinaḥ (mercury), by what moment (Kena-kṣaṇena) = with the juice of black datura meta (black thorny apple), paramiti = (in the sense of) again. Then again, by doing what? Vihāya = prapayitvā (causing attainment), ātmadeśāntarīm = deham (body); again by doing what?, (by) the saturation of the juice of medicine called pāthari (upalabhāva).

The process of purification of copper should be known from Gurvāmṇaya.

By this explantion 'Kalyāṇam' supported by Kalyāṇamandiramiti stotra by name, is Kankam = hemaṁ (gold) (See Viśva 2).

With reference to the gāthā 7 of the 1st chapter :

'Do ratteti' - means (by) bringing taliya borax and calamine and brinjal, put 4 - 4 - pieces of (each of) borax and calamine into the brinjal on all sides. Give seven chavalamvatī bhāvanās (saturation) to that brinjal with ½ maund of urine of she buffalo heifer, bring afresh (new - new) bringals seven times. Then take out the calamine from inside of the brinjal. Do it in such a way that the pieces of calamine do not break into this brinjal. They should be taken out as unbroken (pieces). After seven saturations calamine is to be crushed (ground). Thus (is) the accomplishment of essence (Kalamkasiddhi).

After that, copper - 2 parts, silver - 2 parts and Dvadaśam, Suvarṇa (12 carat gold) bhāja - 4 parts are to be melted (together). After melting them all - vālas 8, put (place) that (above mentioned) essence into 8 vālas of these melted metals. There becomes gold. It is surely experienced (3) (1).

Again the second explanation :-

By crushing 2 māṣās of copper, 2 māṣās of gold, 4 māṣās of silver, 4 or 8 māṣās of calamine – all these, rub them with the juice of new red leaves of Jambolanum. By crushing them all with beetle leaf, make them rubbed in a Kharala (Mortar) with the juice of leaves of Jambu for 4 days by combining them together. Next it is to be cast into a crucible. Musa (crucible) is to be made of glass. Putting (placing) the medicines into it, beetle (leaf) is to be ambukṛtām (taking out its juice) in the crucible. Kācamuṣā (glass) crucible. Kācamuṣā is to be given saṃpuṭa, covering with a Kācamuṣā. Cīvara (a piece of cloth) made wet with the spit of tumbula (Betel leaf) is to be placed on the crucible. Over it a layer of clay and cloth (coating) is to be given. Then it is to be heated on fire of seer of coal. On its being cooled down it is to be taken out; its (essence) becomes gold. (2)

Now the process of making Kācamuṣā (Crucible of Glass) :-

First fine powder of glass bangle is to be made. Then first make gund (gum) wet, (then) make the crucible by rubbing the (glass) powder with it. Some Ācāryas say thus (that) 'make crucible by rubbing (the powder), with honey instead of gund, (gum).' Then put bheṣajas (medicines) into it (crucible).

Thus is the process of making the Crucible of glass.

Ref. to the gāthā 16 of 1st chapter.

Tālaṃ tāpyam – (take) orpiment $\frac{1}{2}$, golden pyrite $\frac{1}{2}$, sulphide of mercury $\frac{1}{2}$, realgar $\frac{1}{2}$, mercury $\frac{1}{2}$, copper $\frac{1}{2}$, silver māṣā $\frac{3}{4}$, and melt them by putting them together with fire. Make their Kaṇṭakavedipatras (thorn-piercing leaves), rub the medicine with the juice of Solanum nigrum or Makaunake (yellow bhāgra = Trailing Eclipta) for 3 days in a mortar, later on smear the leaf by putting all medicines. On its drying up, melt it in a closed (or covered) crucible. It is to be heated for a prahara. There becomes gold.

With reference to the gāthā No. 38 of 1st chapter :

Nāhiti – give bhāvanā (saturation) to mercury with the juice of musket (nāhi), next give seven puṭas (roastings ?) to it with the juice of Nāgarbeli (piper beetle), then give seven puṭas (roastings) with the juice of water-lily (poyani) (Soyimida febrifuga, rohiṇī = Induvallabha ?), then give it cūyā (dropping) of $\frac{1}{2}$ maund (10 seers) of the juice of Kūbā (droṇapuṣpi = water-lily = lotus). Mercury is killed (calcinated) and tenfold (5).

With ref. to the gāthā No. 33, of the 1st chapter :- Nāgiti

Take the plant of Nāgaphaṇi (Serpentina = thora = phaṇimanāsa = sleepers' thorn), its root with the urine of Sinduri elephant; lead becomes gold.

(how ?), take out the juice of the leaf of Nāgaphaṇi, combine it with the urine of Sinduri elephant. By heating lead and rāṅg (Kalai = tin), put them into the essence of the medicine. There becomes gold.

With reference to the gāthā No. 26 of the 1st chapter

'Kha' iti = calamine, 'ra' = mercury, ma = realgar, 'ta' = borax, 'ha' = orpiment.

By taking equal portions of each of these and grinding them, they are to be saturated with the milk of Vajri (Euphorbia antiquorum.) Cast the whole thing into Varamstaranodra¹ with copper plate; it is to be melted by heating in a crucible. Then it is to be poured into the dung of buffalo, having made (by digging) a pit; it becomes silver (7).

With ref. to the gāthā No. 34 of the 1st Chapter :-

Asthi bhakṣeti - first kill tin (vaṅga) with the stool of a dog, put that vaṅgam (tin) into a plate, put into tā 2 of tin (killed), copper tā 2 and put (on it) silver tā 2, combine them together (gāthi pādije), put tikaḍi (tablet) (of tin) on them, again put tikaḍi of Vaṅga - tā 2, close the Sampuṭa (ṣarā = lid) and give a layer of cloth and Clay; on its getting dried up, give it gajapuṭa (roasting in fire in a pit of 1 sq. yard) for 1 or 2 praharas. After the whole thing gets cooled (extinguished), take it out, give the essence (Kalka) into one tola of copper. (There becomes) gold (8).

With reference to the gāthā No. 45 of the 1st chapter :

The first meaning :-

'Dasa ratteti' - take pure copper tā. 10., essence of mineral calamine tā 10, gold tā 4, melt them together in a covered (closed) crucible, i. e., it becomes pita guṭikā (gold pieces) (9).

With ref. to the gāthā 46 of the 1st chapter :-

Sūkreṭi - Silver tā 2, pure copper tā 2, mineral calamine tā 2. By mixing them together melt them in a closed crucible, later on melt them into an open crucible. The whole thing becomes pita joṭaka (gold-pieces) (10).

(1) It is difficult to explain it.

With reference to the gāthā No. 50 of the 1st chapter :-

Nāmaraseṇeti - nāyānei means mercury, sulphure, Kaneri realgar, orpiment, śāsi somalakhāra (Oxide of arsenic).

By mixing mercury tā 2, realgar - Kaneriyu tā - 4, orpiment tā 2, Oxide of arsenic - tā 1, together, give (them) seven puṣas (roastings) with the juice of small and large Nāgarjuni (Euphorbia pulutifera), give (them) 7 puṣas with the juice of the leaf of Nāgarveli (piper betel), putting Kāthacūṇā (lime) into it, take out the essence (rasa), give it 7 puṣas (with) the juice of the leaf of Unmatta (dhatura = datura), give it 7 puṣas of Ājhijhārā,¹ give it 7 puṣas of the juice of Medhasingī (Helli - cterus, Isora), give it seven puṣas of maraḥaṭṭi (= peniroyal ?), give it 7 puṣas with Hiravaṇṭrui (cotton of Hiravaṇṭ). Again give it 7 puṣas with the juice of Ājhijhārā, putting it into a bottle, seal it up. Then (cook) heat it into a Valukayantra with fire for 12 praharas. Take it out by making it completely cooled down. Thus Śrī Siddhantopadeśavyākhyā Leśārihah. (11).

With reference to the gāthā No. 10 of the 1st chapter :-

It is said by the Dispassionate. 'Aratāreti' means 'first is the process of killing tin (vaṅga)'.

(take) mercury tā. 5, orpiment tā. 5, borax tā. 3, well purified realgar tā 3, their finest powder, tin weighting 1/4 part of these medicines, make the leaves of tin. Make them dry twice or thrice, place them into a Śarvāvā - Saṁpuṣa, one above another, give (put) 3 layers of clay - cloth over it. Later on it is to be heated (roasted) in gajapuṣa for two praharas. When it becomes cold, it is to be taken out. Tin becomes killed.

After that take brass (riri) vālā 8. By combining together all, and melting them, making (binding) puṣikā of vālā 12 and releasing, later on, it is to be poured into oil. Then if it is not seen beautiful, then again it is to be poured. The remaining is to be known from the guru (12).

With reference to the gāthā No. 48, of the 1st chapter :-

'Muni Kusumiti' means - by making realgar fine (powdered), it is to be rubbed in Khala (mortar) with the juice of Agastyaṣuṣa (Sesbania glandiflora). Thus 21 bhāvanās (saturation or infusion) are to be given to it by grinding it; it is purified. Then purifying tin with the juice of citrus medica thrice, four times and later on melting good tin, it is to be given prativāya with the powder of realgar three times. In the time of third velā (occasion, it is to be poured into oil. It becomes Vaṅgastambha (fixation of tin) (13).

1. It is not yet identified.

With reference to verse No. 49 of the 1st chapter :-

'Maksiketi' - Take lead 5 tolas, gold - 2 tolas, native cinnabar - 2 tolas, orpiment - 1 tola, sulphur - 1 tola, realgar - 1 tola, give them 28 bhavanās (saturation) with the juice of rasendragopi (a kind of plant), give them 28 ampuṭas, (roastings), cook them after grinding them in a Kharala (mortar).

By grinding them in a Kharala and putting them into paceiyantra (a kind of apparatus), give it layer of cloth and clay (covering the paceiyantra). Next give it heat in a Valuka-yantra (a kind apparatus) for 12 praharas. On its being cooled down, take it out, mix silver-tolas 22 with the Kalka (essence), (it becomes) gold (14). Rub (or grind) mercury pai, (sā) 1 in the juice of Krakaca (a kind of vanaspati), it becomes like the Jalauka (leech = Annelid). Next give tuya (dropping) of its juice - 5 seers, (i.e. of Krakac) (to copper), it certainly gets coloured. It is said by Vallabhadāsa. It was quenched in its juice-1 seer. It was prepared according to my own conception (imagination). Kalahi (a kind of tin) combined with lead becomes hard silver in the juice of Lamprachoenium microcephalum and Gloriso superba (Jalapipara) 15. The combination of tin-1 part, mercury-2 parts, lead-1 part, lac generated from prumb tree - 4 parts. Symlocos racemosa - 4 parts (together) is made, (their) blackness is removed. Rub the gāṭhi (gāḍhi) (lump) of tin and mercury with sugar, their blackness is removed, it is to be quenched in (the juice of) pūcuḍi (a kind of Vanaspati) and Brahmadaṇḍi (Lamprachoenium), and it is to be quenched in the juice of Surāṇa (Amorphophallus campanulatus) and Ilio-dendranaglacum (Chikanti). It is to be quenched in the juice of Amṛtbel (Ambrosia) and galo (Tinospora codifolia = guḍuci) or white gourd (dudhi) and onion and long piper. (15).

Eulogy to this Jina with the couplet of Verses :-

1. I eulogise that Aparigrahaṇ (possessionless) Mahāvira who is devoid of pride and delusion and conqueror of passions, by the combination (of activities) of mind, speech and body. He is very tender, resolute, and quiet.
- 2-3. Red lotus, black elephant and bright (white) moon which are the abodes of Lakṣmī (goddess of wealth), (which are) afraid of cold, goad and Rāhugraha (Rahu-planet) (respectively), (which are) the three decorating water, land and sky (respectively) and which are fragrant, intoxicated (echorus) and full-round (respectively), cannot attain the same beauty of the eyes, motion (gaity) and face of Mahāvira (respectively).

4. Such is Vira Jinendra, the lord, eulogised by the heavenly gods and goddesses and caturvidhasaṅgha and worshipped by the three lords of Urdhvaloka, Tiryakloka and Adhahloka (respectively) with joy. (O Lord) ! show (order) the destruction of all poverty, diseases and old age (all these).

Scientific interpretation of the Verses.

Gā = abhṛakam = mica, hā = haritāla = orpiment 'Jualēṇa' = tāramucyate = silver is meant by jualēṇa, Jīnam = pāradam = mercury which is free from dirt, fire and poison. Maya - mohavivajjiam, 'jia Kasayam' = devoid of three impurities - dirt, or dregs (mala), fire (sikhī) and poison. (Viṣam). I fix it by the process of burning (heating) it with the combination of three - white mica, orpiment and silver (Kamtara).

Another interpretation :-

Then with the combination of the process of medicine I shall speak or (analyse) the process of svedan¹ - jāraṇa of (Medicines).

Svedanam :- Medicine is to be cooked in a Dolayantra, (a kind of apparatus) with Kānjikā of urine of cow, buffalo, goat, men and ass. Jāraṇa :- It is to be accomplished by making bida (Bīṭalūṇa) powder of equal portions of each of the medicines like gorocanā (golestone orbinimer a scented article named gorocanā), alum, Sal-ammoniac, sulphur, orpiment, syada,¹ borax (saubhagya) (and silver) are to be cast into the bile of goat and the whole thing is to be placed on the furnace for a month.

Thus having made bida (bitakhāra), it should be put into a crucible (or mouth?). Then by making a leaf of black mica, it is to be cast into Yavarānaḥ (fire lit by the straw of barley) for 8 prahars; it is to be melted with Sahavastra with phogakandalas or durvājālas (kinds of Vanaspatis). It comes (gets) flowing and is free from Shā (dhātu = element).

'Jiyakasayam' :- The impurity of fire in mercury is purified by triphalāmalakī (phyllanthus emblica), (Terminalia Chebula) haritakī and Vaheda (Terminalia pelerica).

'Kathambhutam (how?) - (Jīnam tam - nisamgam,) Jīnam - pāradam - (mercury) tam hi samgam; - mṛtasaptaguṇa - Vargottirnam - killed impurities free from artificial defects, alloys - tin and lead (vargottirnam) by means of distillation. Upto this time only the process of making silver has been demonstrated.

(1) Not identified.

Now the process of making gold is explained. 'Mahaviram' 'Ma' = Hemamākṣikam (golden pyrites) hā = hāṭakam = gold, Vi = black mica, 'ra' = rasam = mercury. The remaining medicines are equal. 'Sukumala' = Nāṇi (Nāgadanti = Croton obongifolia), Dhira = Nāi, (Aristolochia bracteata), 'somā' = somā valī (Sarostemma brevistigama) - these three.

Ratta = Raktadugdhiḥ (Red Euphorbia piluifera), 'Kasiṇa iti' = Kṛṣṇa bahuphalī = Cantichorus = Kāmcānikā (māsaparṇi = wild adad, a kind of pulse).

'Pamḍura' = devadāla (luffa echinata. Andropogon serratus); 'Si' iti = Sṛṅgikavisam (Acontium chasmanthamum); 'Ri' iti = Laghu rīgaṇi (small brinjal). 'Nikeya' iti = Ketaki (agave). Their essence is to be taken.

'Siyā' iti = Lāngalikā (Gloriosa - Superba), 'Kusa gaha' iti = Ahikh-aribijāni (seeds of Ahikharī) = Ahror, 'Bhīru' iti = Lajjalukā (Mimosa), 'Jalamarḍanikā = Maṇḍukabrahmi (Maṇḍukaparnī = Hydrocotyle asiatica)

'Sthalamarḍanikā = Ambavāni (?) 'Nabhamarḍanikā = Sunālī (Ākāṣavallī = Amarbel = Cuscuta reflexa)

'Na cayanīti' (does not give up), 'Viro' agnistasya (fire), its hīlām = agāirūpatām (fireness or brightness), hātum = tyaktum (to give up), na śaknuvāmīti cannot (or is not able to give up), bhāṣvarakārtasvarūpatvat (due to its brightness like gold).

That is to say, mica, killed lead and gold cannot give up fire - form due to their brightness. What are pamkaya gaimda and Camḍa? 'Pamkaya' = gaganam = abhṛakam ityarthā = mica, 'Gaimda' iti = mṛtanaga (killed lead), 'Gaimda' iti = mṛtanaga (killed lead) 'Camḍaiti = hemam (gold). Trity-ampai vā I. Ete capamkagādayaḥ kidṛṣā santo Virālilām na tyajanti ityāha 'Surihimatta paḍipunna' = Surabhimātrā pratipūṇāḥ samagrā yathoktamātroll-amghnehi, na siddhirataste surabhimātrā pratipūṇa iti.

That is to say, mica, killed lead and gold cannot give up fire-form = brightness, because of being full of their quantities (Mātrā) of brightness. Keṣam Kāryāṇām sampādayitṛi yā mātā ata āha :-

'Loyaṇam camkammiya muhāṇam ti' = Locanam = rocanam = Vedha ityarthāḥ (intensification or piercing process).

The process by which mercury is mixed with Vyavayi medicines (i.e., opium, etc.) and cast into any metal is called Vedha.

'Camkammiya.' iti = Krāmaṇa. It is the process of alchemy which is made by taking equal portion of each of the dirt of the ear of buffalo, woman's milk and borax to rub them together throughout the day,

Then make the essence of poison, cinnabar, calamine, red kântaka (a kind of iron), Indragopa (a kind of insect born in the rainy season), wax, and stool of crow and put mercury in the middle, alum and the essence above and below respectively.

Having given glass-powder into it, heat the same in a closed crucible. If it is done, mercury becomes Kramāṇa, accomplished by this process. 'Muha' iti = Udghāṭanam.

The process by which clear (transparent) colour is brought about into a purified thing by removing its impurities (dirts or dregs) in (with) mercury by purifying, it is called udghāṭanam I.

'Svete nāgottaranam,' 'pite dānam'. In the case of silver or lead is to be taken out, while in the case of gold, lead is to be given.

By doing thus 'Virajinimdo = rasendra = mercury is (purified). 'acchara-gaṇa', iti means = amlavargaḥ (group of acids). 'Vargana' iti cha = Kṣaravargaḥ = (group of salts), i.e. urine and salts, etc. 'ra = rasavargaḥ = group of minerals. 'gaṇa' = combination of these three groups of articles. 'Samgha' = its assembly which mercury (bhavinaḥ) is fixed (Samthuo = stambhitaḥ). That is, Lord (mercury) is worshipped. 'Pālittaya-mai (or mada)-mahio' = Mercury purified (worshipped) by the intellect of Pādalipta sūri, an alchemist. O Lord (mercury) ! (show the process of destruction of all sins-poverty, disease and old age (sarvaduritas).

53. Melt 1 *Vala* of copper and 2 *valas* of gum (*gund*) of the fruit of *Giramala* (purging cassia) together. Next put milk of *Kṣīraṇi* (*Gambhari* = *arkapuṣpa-dugghika* = *Euphorbia pilulifera*) into that mixture. There becomes gold.

54. Make the leaf of *ṭin* (*Kalahi*, -1 *sr.* as thin as thorn-piercing. Next put it into an earthen pot and pour the juice of citrus lemon on it by pressing up to part 1 with 150 citrus lemons. Next keep the leaf by washing. Then make fine powder of lime of oyster shell by crushing it. Then make a cup by making a hole into the main root of the wood of *Sālar* (*Shora rofusta*). Then give the powder of lime of oyster shell under and over the leaf, give it layer by layer. By closing the mouth of the cup, put (give) a layer of cloth and clay. Give it *gajapuṭāgaṇi* (cakes) with fire of dung dry with cakes (of, goat). On its getting cooled down, take it out. There becomes silver. True.

55. Make *Dhanyābhra*¹ (mica combination with paddy 3) or a kind of mica of *śvetābhra* (white mica), cook it by putting into the juice (milk) of the ripe leaf of *Kaṇṭāli Thohara* (Milk's Hedge = *Euphorbia Tragogona*). Put milk *pai* 4 and mercury *tā* 9—this much. There will be pill of mercury. True—3.

56. If mercury *pai* 1 is rubbed (or reduced to paste) with these two—the juice of *Uṭaktā* (Thistle = *Simhali pipali* = *Brahmadandī*) *pai* 1 and that of the tuber (*gāṭhā*) green turmeric *pai* 1 *bhār*, there will be butter (of mercury), i.e. it will be soft like butter.

57. Take mineral calamine *tola* 1 1/4 and cook (ferment) it by putting it into the urine of goat—Urine 1/4 *sr.*, cook it with gentle fire. Next dry it up by taking it out. Grind it finely and put 2 *māṣas*; it becomes roundish at the time of grinding (or crushing); put (it) and grind (it), then put it into an earthen crucible and put into it (crucible) copper 3 *māṣas* by purifying it. Do it thus in oil, butter milk and cow's urine. Put that copper (into the crucible), put (give) a layer of cloth and clay over the crucible again by closing its mouth. Heat it in coal up to *ghaṭis* 2 or 3, (there becomes) gold.

58. Thus pour the same into a crucible twice or thrice. If stirred up (or turned round) there becomes best gold (*aṣṭapada*).

59. Rub the juice of *Sarapūmkhā* *pai* 5 and mercury *pai* 2 for two days. (The whole thing becomes like) white butter. Take milk of she-camel, giving the first birth, before the suckling of her milk by the new born calf. Cook mercury *bhār* and tin (*Kathir*) *pai*, *bhār* of each into that milk by putting them into it. If milk *pai* 4 and mercury *tā* 9 are fermented, *goṭakao* (pill of mercury) is accomplished.

1. Mica mixed with paddy grains and reduced to powder, tied in a piece of cloth and suspended in sour gruel and then passed through linen is known as *dhanyābhra*.

60. Take copper of the wing of peacock, put it into a crucible and make fire underneath slowly and slowly, grind some wild cowdung and spread out the same into it and melt copper. There becomes gold. It is certain.

61. Take the wing of peacock-10 srs., put it into an earthen pot; next put Teliu borax $\frac{3}{4}$ into it; put the powder of the wing of peacock 5 srs. again over it (borax) inside. Heat the pot by lighting fire. There comes out in it copper $\frac{3}{4}$. If it does not become silver-like, take out copper by washing and giving it with borax.

62. If accomplished galija mercury is found, put it into a crucible and put a little oxide of arsenic. Lit fire under it, go on giving cova (drops) of the juice of Lippia nodiflora (galapipar). Mercury will turn into silver.

63. Take tail of peacock $2\frac{3}{4}$ srs. Take 2 big earthen lids (Saravala), put it into them, close the two by putting borax $\frac{3}{4}$ into them, next give (put) a layer of cloth and clay over them by closing them. Give it gajaputagni. Then open the Saripuṭa and blow ashes from it. There will come out gold $1\frac{1}{2}$ māṣās from it. Make a small and thin pot out of it (gold). Put mercury into it as far as it can contain. Put a little quantity of wild dry cowdung cakes over it, hold (lit) fire on it. There becomes gold. Again mercury becomes gold in that kulaḍi put in this way. True.

As many times, as gold is made, there becomes gold. It is the wish-yielding cup like kāmadhenu (Wish-yielding cow).

64. (Take) the powder (or grains) of pure gajavela iron-pai. 4, put the juice of citrus medica (jamvira)-2 srs. into a glass-casket and a pot of Nimadas, put the powder of iron into Nimada (neem?), put the powder of iron into them and close the mouth. Stir it up in (for) 4 or 5 days, again keep it, again stir it up for 4 or 5 days. In this way keep the same for 25 days. Iron, getting melted, becomes water. Reduce mercury to paste with all these; after rubbing, mercury becomes butter-like, True.

65. Salt (lūṇa), hāra (khāra?) and alkali or caustics (Khāra) are (found) in Māḍakaraṇakunḍa in the Deccan (South). If there is brass 12 paisā bhāra, take pai or $2\frac{1}{2}$ bhāras of salt (lūṇa) and Rāra, alkali (Khāra) (of the same quantity of each?). First if brass is pai. 12, take swine's milk pai. 5 bhar. Smear the leaf (of brass?) three times, give fire to it. Next crush alkali with water, smear it (with it) and give it fire; put it into a crucible and blow it into the fire of dry wild cow dung cakes up to an hour. On its getting cooled down, take it out. There becomes silver.

66. Grind *Barlaria prionitis* (Dilawālī Kurāṇḍa) fine, filter it in a piece of cloth, rub it with varnish oil (rogān) for 2 or 3 days. Next put it into a thālyantra (a kind of apparatus). It is Menamudrā (the process of making wax.)

66x Make copper leaf purified and quench it in horse-urine by making it red (in fire) for 21 times. Next put it into Chāchī lūṇa (salt) for 1 prahara and wash it. Thus putting new and new chāchī lūṇa, (repeat the process) for 21 days. Next rub it for seven days. Keep it by dipping it into the juice of ginger. Quench that copper by making it hot for 7 or 14 or 21 times. Thus know the process of making copper purified.

67. Give 7 puṭas (roastings) of the juice of brinjal to oxide of arsenic. Next give 7 saturations (bhāvanās) of gobhi (*Euphantopsus Scaber*) to it. Then give 1 māśā of the essence into tola of copper by melting it. Copper becomes white. Combine $\frac{1}{2}$ of silver, (it is) good (Śrikara).

68. Rub oxide of arsenic and mercury each equal portion with pulp of seed of castor for 1 prahara, give the tablet of 1 māśā of the essence into copper 1 tola; combine $\frac{1}{2}$ of silver into it. Silver.

69. Take oxide of arsenic-1 sr. and combining together these two-water curd-2 srs. and the juice of citrus lemon $\frac{1}{2}$ sr. go on putting or pouring the juice little by little on oxide of arsenic into a pot with an iron spoon and give fire under it, cook it by Bhalāgni (fire quantum for cooking rica). Thus give it puṭa for 42 days, in 2 srs. of curd-water and $\frac{1}{2}$ sr. of citrus lemon. On the fourth day or in fourth puṭa (roasting), rub it (oxide of arsenic) alone one day for 1 or 2 praharas. That is, oxide of arsenic is accomplished. Stir it up with the spoon of sisam wood; bind (put on) gloves on hands; do not take smoke in the eyes. Next, it is produced. Then put 2 māśās of the essence into 1 tola of copper. Make pills of silver māśā 1. Melt copper and put pill (of silver.), next again there will be silver. Next, by putting it into a bottle, hang it on. If there becomes thuthaḍī (?) (there will be) silver. True.

70. Bring sal-ammoniac, take an earthen pot of the shape of a water jar. First spread out lime (Kalicūno = lime of snail's shell) in the form of a circle, spread out sal-ammoniac on that (lime). Make a border (Pāliśi), give time on that, give fire below (the earthen pot). When sal-ammoniac gently gets bubbled, give lime into it. When the bubbling stops, then it gets cooled down, take it out. Crush or rub the whole thing and put it into phūkānā (a kind of vessel ?) and close its mouth. Keep it into hot water. Make fire below the pot. Take it out by keeping it for 1 or 2 ghaḍīs. Put lime (Kalicūno) into one pot. Into that put the water of sal-ammoniac, which is there from Phūkānā, into lime, give a seal into the mouth of the

pot, put it into the furnace of a potter. Take it out after its getting cooled. On taking out the whole thing from the pot (jar), crush it, put it again into *phūkana* (blowing apparatus), bind (seal up) its mouth hard, pour cold water into the jar. Put *phūkana* into that. If it is kept for 2 or 3 *ghaṭis*, there will become water of sal-ammoniac. Pour it into a plate of china clay (Chinese plate) from that *phūkana*, keep it in the shade for 1 or 2 days. It will become *papaḍi* (*parpaṭi*).

Keep that *papaḍi* in one place. There becomes essence. Melt zinc and put sal-ammoniac into it little by little. At the time of filtering put again sal-ammoniac *vāla* 1 into zinc. There will be silver.

71. Mix mercury *pai* 2½ and oxide of arsenic *ṭā* 1. Next put whole thing into an iron pan and go on putting little by little the juice of Aloe vera-5 *srs.* with a spoon by taking out 5 *srs.* of it (first). Next take cow's urine, put it little by little into that. When it gets burnt up (heated), wash it (the mixture) with water, then make a cup of *gajavela* iron, grind or crush alum *ṭā* 1 and orpiment *ṭā* 1 into it, spread them over and under, give a layer of cloth and clay (over the cup), heat it in fire of wild cow dung cakes for 4 *ghaṭis*. Mix 1 *ratī* of the essence into 1 *tola* of tin. It becomes silver.

72. Fill stool of dog into an earthen pot and put the leaves of *kathir* (a kind of tin) into it in three layers by making each leaf-*pai* 1. Next give fire to it, when it (stool) gets burnt up, blow up ashes (out of it) and take out that tin; crush it together with orpiment *pai*-1, 1 *bhār*, oxide of arsenic *pai* 1, *segu vacanāga* (*Aconitum ferox* or a kind of poison)-*paśā* 1 and borax *pai* 1 *bhār* in 2 *srs.* of milk of *calotropis gigantea*; next crush them in 2 *srs.* of Milk's Hedge. Then put the whole thing into a flat (glass) bottle and seal it up by giving a lid (into its mouth). Next give it fire. Then fill sand into an earthen jar and put the *kupī* (casket or glass bottle) in the middle, close the jar and give fire to it for 11 *praharas*. Mix 1 *ratī* of the essence with copper *ṭā* 5. (There will be silver or gold.)

73. Melt zinc 10 times in an iron cup and put it into oil. That is, the process of purification of zinc. Melting tin (*Kathir*), put it into a pot of open mouth; crush small pieces of bark or sapling (*choḍia*) of mango, filter it with a piece of cloth and spread hot *rāṅ* (a kind of metal) over it and stir it up with a wooden piece of *Butea monosperma*. Thus when *rāṅ* becomes ash take it out, put it into a spoon and heat it, next give it fire. *Rāṅ* becomes lively (*sajiva*), put it into oil. Thus there becomes an accomplishment of the essence. Take both the things (zinc and essence of *kathir-rāṅ*)-*māśā* 1 of each; then purify 1 *tola* of copper. Whatever

portions is new, that much is to be taken and put it into them. After that, make the thorn piercing copper leaf, heat and quench it into salt and sal-ammoniac 5 times. (There will be gold ?)

74. Rub oxide of arsenic tola 1 and grains (powder) of silver tola 1 in the juice of elephantopus scaber (gojihvā) up to 4 praharas. Next put the whole thing into a Dābaḍi (a pot) and give (put) a layer of cloth and clay over it. Give fire of wild cow dung in a pit, measuring 1 cubic yard (gajapuṭa). On its getting cooled down, take it out. Mix (give) 1 māśā of the essence into 1 tola of copper. Next pour it into cowdung, then crush sal-ammoniac and salt (lūṇa) together. O desirer of silver! smear the essence on the copper leaf and heat it in fire. Next pour it into āmalasāra sulphur, even if there comes up blackness; make it hot and quench it with the juice of cirapoṭikā (a kind of plant). That goes to be thus : 1 tola of silver becomes new and pure. True. Goṭakam is produced by the grace of god.

75. Chew the inner bark of Tectona grandis = Indian Tik tree (Teliyasāg) in the mouth, take the sputum (or saliva) (out of it) into an oyster shell. (Take) sputam tola-1. Melt copper tola 4, when copper becomes watery, cast (spit) sputum or spittle into copper. There will be gold. True.

76. Melt gold tola-1, mix pure silver māśā 3 into it. After getting it melted, make the molten thing cold. Make 10 leaves of that gold and give a smearing of the following medicines to them. Take sal-ammoniac ṭā 1, alum ṭā 2, powder (or a grain) of copper ṭā-3, Chloride of sodium ṭā-4, red ochre (geru = girimāṭi) ṭā 5, and rub them with water. Next smear the leaves of gold (with this mixture), give fire to these leaves slowly and slowly by putting dry wild cowdung cakes = $\frac{1}{2}$ Sr. into earthen pot sherd, three times. Again by this process smear the leaves with medicine; give fire of wild dry cowdung to these leaves in an earthen potsherd, (ḥikarā) three times slowly. Thus again smearing the leaves of gold, again give fire to them. Thus give sa-ammoniac and fire to three smearings or coatings. That is, gold will be marvellous.

77. The meaning of the gāthā "Do rattā, do piyalā" all these..... Combine together two māśās of copper, two māśās of gold, four māśās of silver and 4 or 8 māśās of mineral calamine and crush and rubs them in a mortar without water. Take out the leaf of Davu (gāvu) which becomes red, while shooting forth. Crush that with the juice of betel leaf. Next put it into a crucible. Make a crucible of glass. Put the medicine into that crucible. By chewing together betel leaf, lime (Kātho) and areca nut, put the spittle into the crucible, give a seal of glass into the crucible. Then wrap a piece of cloth soaked with spittle of betel leaf over the crucible.

Next give a cover of cloth and clay over it with spittle. Then get it dried up and burn (or heat) it in coal (fire) 1 sr. By making cooled down, take it out. There becomes gold.

78. The five processes of making medicinal pills (goṭakā).

(1) Put mercury 1ā into the mouth of a frog and sew it. Next bring a black snake, put that frog into an earthen jar and close its mouth. Then pour 15 srs. of oil into it and boil it, put the snake into it. When the boiling oil comes down to the point of 5 srs. take out the snake. See it making (cutting) it into pieces. Goṭakā is accomplished. Take it out. If luck favours (the work gets done successfully). There becomes mouth. If there does not become mouth, there becomes goṭikā, it is true.

Next keep each piece separately into the fruit of seven leaved (Saptadā) daturā, press one leaf of daturā every day and put the juice into the fruit. Do it thus every day. Keep them by your side by putting them into a bag. While getting juice (every day), there will be mouth into the pieces (of the body of the snake) after six months. Amongst these guṭikās, two kinds of guṭika are produced. One is the accomplished guṭika of frog, it is called Buḍanta. Its importance (or power) is now stated. A river flows, even then one can cross the flood water, water will get separated to (on) both sides. Thus is the process of Buḍanta golikā.

79 (2) The second one is produced (or accomplished) into the belly of the snake. Its name is called Gaḍanta guṭikā by which magic (or miracle) is shown to the people. As a yogin takes cave, just so one (magician) digs a pit and enters, into it by keeping the goṭikā with him, and is covered (spread) over with dust, he sits on the brink (side) of the pit by coming out of it. The people do not see him. The people know that he is inside (the pit). The pit is filled up with dust, the people go to the house. The man himself roams about from country to country with pleasure. After some days he sends letters. The people ask wherefrom he has got out. Thus is the process of one goḍanta guṭikā. These are the processes of two guṭikās.

(80) (3) Now the third is Uḍanta goṭaka. Its process is written.

A kite (bird) has made a nest. Take out an egg from there and pierce it with a needle. Put mercury 1ā 1/4 into it, then give a cover over (on) it by filling it up with wax. Next put it into the nest, give incense frankincense to the nest for 2 or 3 days. After some days the eggs of the kite become large, then the kids fly away (after hatching). Next take out the egg and keep it in a separate place. Every day, after taking food, give fresh incense, put it in its proper place. By doing thus, a period of 6 months and 6 days is passed, then taking out the egg, pierce it and look into it;

goṭaka is produced. Next if luck favours or karma gets fulfilled, if there becomes mouth into it, there becomes uḍatma goṭika. Goṭakā If it is kept on hand, one goes to that place of which he thinks. He will come back by going to a distance of 100 or 1000 gāṇs.¹ This is the process of Uḍanta gutikā.

Now is the process of making the fourth Goṭikā :-

(4) Sow a sātpaḍo (Seven petalled) datura in an earthen pot. After its growing large, make a hole in between two joints and put mercury (into it) and give (put) wax into the hole. Keep it for 6 months and 6 days (in this condition). Next see it splitting its branch that goṭikā is into its stem and root and into the earth by the side of root. Take it out by digging earth with a spade. Having taken it out from there, keep it with you. The king and the subjects become loyal (obedient) or submissive to you by its influence or power. If there becomes mouth into it, silver is produced from trapu (a kind of tin).

(5) Now is the process of the fifth goṭakā

Now the process of gadibaddha goṭakā is written :-

A famous hero dies by fighting in a battle, while confronting his enemy, his face (head) gets cut off and his head falls on the ground. Take it. Having brought it to the house, put mercury into the mouth, of the cut off dead soldier on Sunday and hang it up by the side of a stem of a tree. Keep it there for 6 months and 6 days. Next take it out. Goṭaka is produced (accomplished.). By keeping it with one, he can fight 1000 soldiers, the enemy gets defeated. Thus is the process of the fifth goṭakā :

(81) Give saturation to mercury tā 9 equally with kahlara phṇaḍṭi a (kind of vanaspati?) and Aloḥ vera. Next put the juice of Rodanti 7 srs. (a kind of creeper) into an iron dāvḍa (pan). Pour 1 sr. of it into mercury, heat it with fine (gentle) fire, go on putting juice, while getting it dried up. Make fire thus for 7 days. Bind mercury in a gāṭhi (bundle) of piece of cloth, put the gāṭhadi (bundle) into horse-dung. 2 srs. Put 2 srs. of-horsedung over it, spread out 4 srs. of dust over it, keep it for 2 or 4 days in that state and cover it up. That is, it gets bound (lumped). It is accomplished.

The second process is written. :-

(82) (Take) about $\frac{1}{2}$ maund of leaves of Datura, make 2 divisions of 1 (portion), dig a pit, measuring 1 cubic yard. Spread out some horse-dung- 4 srs. Put on it pan goṭaka (full leaf of Datura), put about 10 srs. of horse dung on (over) it, put mercury tā into it. Put thakato golo on it, put again 4 srs. of horse dung. Cover it (spread out) (a layer) of dust-2 fingers thick

(1) A kind of Indian measurement of length of distance.

over it. Give fire on it for 4 or 5 days. That is, goṭako is accomplished. Offer 4 āhūtis (sacrifices) and bring down 4 āhuts, give āhūtis of clarified butter and sugar. Do not bring own sight. That is Chemical goṭaka.

83. Melt mercury t̄a 9 into the milk of citrullus for 3 days; then fix it up, put it into an earthen potsherd (Thitkarī) and give fire below (it), put the milk of citrullus (uttaravārūṇi) into it. Put a lamp below by lighting its wick made of 14 threads. Next stir up the goṭaka. After the milk getting dried up, take it out, do it for 3 days. Next give saturation to it in the milk of Banian tree. Give (put) it into the mouth of fire in an earthen potsherd, do it for 3 days. Next bind it in a piece of thin cloth, give fire (heat) to it with 5 srs. of citrus lemon, etc. in a Dolikāyantra, thus four 7 days. Thus give saturation or roasting to it in the juice of Datura for 7 days. Give saturation or roasting (Paṭa) in the juice of castor for 7 days, give it paṭa in the juice of Citrullus colocynthis (Uttaravārūṇi) for 7 days, paṭa in the juice of Tamarind for 7 days, in the juice of citrus medica for 7 days, in the juice of Bakāyānt (a kind of Limaḍo) = Melia ozadarach, in the milk of phyllanthus niruri (Tāḍi) for 7 days and give mudrā (seals) into (inside) the fruit of datura with the juice of 15 citrus lemons by closing the datura, give it paṭa (roasting) of cloth and clay for 20 days. When Kaurisā is not found, then do not leave (put) the juice of citrus lemon. All these paṭas are to be given in a Dolikāyantra on fire, etc. Sūryapuṭa (puṭa of the sun) in day, agnipuṭa (puṭa of fire) at night; next if nothing is available then rub it with spittle on palms and give puṭa of milk of Uttaraavarunt (citrullus colocynthis); do not power, do not pour pāni paṭa, i.e. stop paṭa, but do not allow even a day go in vain. Next put it into cooking paddy (rice). Do not put salt, keep it into it up to that time. Do not allow woman touch it. Next keep it into the mouth. Keep it in a tree for 15 days. Thus keeping many things, give puṭa (roasting or saturation) of dews for 15 or 21 days, paṭa of fruits of Daturā for 108 times.

Keep it away from all these-oil of Ferula alliacea (Hingtel), Spilanthus oleracia (Peniroyal = marahaṭi) Alhaju Maurorum (Javāso) for 8 or 13 months. Then give paṭa, it is accomplished. Do not keep it starved for a day. Next make it drink milk, put it in 1½ maund (of milk). That is, the chemical is produced. Know it as accomplished guṭiko.

84. The process of making the essence of mineral calamine (khāpariya-Sattvidhi) written :-

(Take) mineral calamine Isr. natron, t̄a 20, borax (Saubhāgya) t̄a 5, molasses t̄a 12, make cāsant of molasses, and put ½ pāu of cowdung, combine all these medicines and make valī (wick), next put them into a tube (nālī) and heat them by putting them into Jhājhojantra (a kind of apparatus).

Take (out) the essence. Thus is the process of making the essence of mineral calamine.

(85) Take a cup of the essence of that mineral calamine $\text{tā } 6$, next mercury $\text{tā } 1$, sulphur $\text{tā } 1$, realgar $\text{tā } 1$ orpiment $\text{tā } 1$ and dadimiyo Somala (oxide of arsenic) $\text{tā } 1$ and combine all these medicines, crush and rub them in a mortar. By reducing them to paste, give them 7 puṭas (roastings) in the juice of citrus lemon, 7 puṭas in the juice of Aloe vera, 7 puṭas in the juice of Kavaī and sūruyapuṭa (puṭa in the sun). Next make tablets of (them). Hold them by the side of medicine, hold the cup of the essence of mineral calamine above. Give a seal on (over) it. Place it into a Valukāyantra. Make worship, lit (make) fire of (for) 8 praharas. Next take out the thing and make worship; that is the essence.

Combine together pure copper $\text{tā } 2$, the essence $\text{tā } 1$, silver $\text{tā } 3$, best gold $\text{tā } 5$, and melt them first in an open crucible (Udhamṣā). Next crush them and fill them up, and put the remaining all in a jar. Put valukā (sand) over it srs. 1. give saindhāḷun salt over it. Melt them into an open crucible, next pour the whole thing, there becomes gold-goṭaka (pieces).

(86) Take red saṁdhava salt-5 srs. and fill that much of it into the belly of a just born child, which may be contained into it; close it and put it into a Ukaṛāḍā (village-dustbin) and take it out after 6 months. It (salt) becomes the essence. Purify silver-1 sr. and melt it. Put the essence into it. There becomes gold.

Some sūtras, are missing here, from 87-101.

(102) Make one bread of the fruit of Tamarind, make another bread of Carthamus tinctorius (Kusāmbha), next make pieces of oxide of arsenic and alum like that of rice, get them parched in the 1st bread and give (put) the second bread over it, close the broder of the breads. Cook it in a pan (earthen) (Kālhaḍā). The roṭali (bread) is produced (accomplished). With that put together copper $\text{tā } 5$, best brass $\text{tā } 5$, silver $\text{tā } 5 : 1$, this essence oxide of arsenic. $\text{tā } 5$, (There becomes) silver.

(103) Take zinc $\text{tā } 9$, make 3 leaves of it, crush cinnabar $\text{tā } 1\frac{1}{2}$, orpiment $1\frac{1}{2}$ realgar $\text{tā } 1\frac{1}{2}$, green vitriol (sulphate of iron) $\text{tā } 1\frac{1}{2}$ and āmālsār sulphur $\text{tā } 1\frac{1}{2}$ and rub them in the juice of Aloe vera, rub (smear) them on the leaf of zinc. Next put those leaves one above another in an earthen cooking vessel. Give a seal into the mouth of the earthen vessel with the cake of Aḍad (a kind of pulse). Then melt them and incinerate (reduce) them to ashes. Melt that powder 1 ratī, silver vāla 3, & copper vāla 13 together. Melt gold vāla 4

and put khāra (ash) into it. Melt it in a closed crucible, heat it much. Next melt it into an open crucible. That is (there becomes) gold pieces. True.

(104) Melt zinc 21 times in all these juices—urine of horse, urine of man, urine of ass, milk of *calotropis gigantea*, milk of milk's Hedge, juice of *Datura*, juice of citrus, lemon and juice of *sābuni tejnāvi* and pour it. Next, whatever juice remains, melt that in crucible; put sal-ammoniac from above by filling with *cāpū* (pot or finger), put it, while melting. sal-ammoniac, borax—Khār salt, *kaṭit*—that is, mineral calamine, becomes pure. Next combine that mineral calamine 1 tola and silver 1 tola and melt them, cover and put them in a crucible. That is, there becomes silver-piece, (*goṭāka*) of 18 *visvās*.

(105) Crush lead *ṭā* 9, mercury *ṭā* 9, mineral calamine *ṭā*-9, *Rāvaṇakācha* *ṭā*-4, *āmaśāra* sulphur *ṭā* 9—all these one by one and mix them. Next give the mixture 7 *puṭas* of the juice of *Aloe vera*, 7 *puṭas* of *Āuliphupa* 7 *puṭas* of *kesu*, 7 *puṭas* of the leaves of tree without name (*nanāmajhāḍa*), 7 *puṭas* of *Dādimaphūla*; next grind them all with *tambola* (betel leaf = the leaf of piper beetl) and put them into a *Valūkāyantra*, placing it on fire, give fire of three kinds for 12 *praharas*. Next, again crush 1/4 part (part of lead) and give it 3 *puṭas* of *Dādimaphūla*, then again place *sīsī* (lead bottle) on the fire and heat it for 24 *praharas*. Next give it 3 *puṭas* of *auliphul* with fire for 48 *praharas*. Next, give it 3 *puṭas* with the juice of the leaf of *pāna* (betel-leaf), give it fire of 96 *praharas*—three kinds of fire. That is, the essence is produced. Mix 1 *vāla* of the essence into 1 *gadyāṇā* of copper. There becomes gold. Thus work is like truth.

(106) (Take) $\frac{1}{2}$ sr. of powder of jowar and $\frac{1}{2}$ sr. of powder of wheat—two combining, it comes to about 1 sr. Mix 1 tola of grain of tin (*Kathir*) into that. Next make bread and feed a cock. Take its stool. Mix that stool into 15 srs. of juice of *Euphorbia* *bia Pilulifera*. Take *coya* (drops) into a *pātālayantra*, give it fire, it falls down. That becomes silver.

(107) Take zinc *paśā* 5 *bhār*. Put it in a *Sampuṭa*, spread out the leaf of *gaḍāralapaṭi* *pai* 5 at the bottom, put the pieces of zinc at the centre, put the leaf of *gaḍāralapaṭi* *pai* 5 *bhār* over them. By closing the *sampuṭa* make a strong seal (into it), give 5 or 7 layers of cloth and clay and spread out coal 5 srs, put the *sampuṭa* at the centre, give again 4 srs. of coal over it. That is, there becomes 10 srs. of coal, give fire to the *sampuṭa* (by lighting fire) with a fan. On getting the whole thing cooled down, take out the *sampuṭa*. If the lid (cover) of zinc flies up, let it fly; if it remains again in this way,

(spread out) the leaf of gāḍarlipaṭā coal 10 srs. and give fire to it (saṃpuṭa treatment) three times. Put the whole thing into a saṃpuṭa; there becomes pure (or fixed) zinc. It does not fly up. Next put mercury just equal to zinc and make gaṭhi (lump or paste).

By this process take wax of 2 fingers into the oil of wild saffron (carthumus Tinctorious). Fry or (boil) it and when it becomes thick of 3 fingers, take it; fry mīṇa kīyā (wax piece) with oil, next put mercury into that oil. Then melt that zinc, melt it by giving borax, then pour it into the oil. The lump (paste) of mercury and zinc is produced. Next take out the juice of Hastakanda (a kind of vanaspati) into it and put it into an earthen vessel, give a seal into its mouth. Give it fire of dry wild cowdung cakes 5 or 7 srs. Like this (continue the process) 21 times. Take the juice of Hastakanda every day and give 21 puṭas of it. The essence is produced. Mix 1 māsa of the essence into 1 tola of copper. There becomes gold.

108. Take the juice of the leaf of castor plant, give ṭuyā (drops) to mercury with it for by days 21 putting mercury into an earthen vessel. Mercury becomes fire-proved.

109. Make a cup of zinc pai, 3 or 5 bhār. Take out the juice of sprouts or shoots of Sovanasāga (a kind of vanaspati), measuring $\frac{1}{2}$ cup and rub mercury with (it) for 2 or 4 praharas. Next put that mercury into the cup. Rub salt with the juice of Sovanasāga for 1 prahara. Fill that salt into the cup by putting it. Next bring an earthen vessel, fill salt into it by crushing it. Press the cup upside down into that salt, its brim remains covered with salt (or uncrushed salt). Next place the vessel on the furnace; give fire of wood under (it) slowly and slowly, give it coyā (drops) of the juice of the sprout of sovanasāga from above, for (up to) 12 praharas. When the cup bursts out and becomes well (vakase); the essence is accomplished. (Mix) 1 ratī of that essence into 1 tola of copper. Gold (will be obtained).

FOURTH CHAPTER

1. There will be gold and gold pieces of established stone of *Lājavaradā*, it is tā 3—crush all these and make them fine (by grinding). Rub them with the milk of ewe (she-sheep) for 4 praharas. Next bind pill of 1 tola (with it). Then at the time of action, put together honey, clarified butter, borax, molasses and dāli ($\frac{1}{2}$) of guñja—these five just equal to the pill and rub them in a mortar for 1 prahara. Then make leaf of gold—1 tola by rubbing. Rub that pill, make its smearing 1 tola the leaf. Make fire of 10 srs. of dry wild cowdung cakes, put the leaf into a kavaciyantra (a kind of apparatus). Put (give) a layer of cloth and clay over it and give it fire. On its getting cooled down, take it out. Next again smear the leaf with $\frac{1}{2}$ tola of that (pill), give it fire of 10 srs. of dry wild cowdung cakes in a Kavaciyantra, take it out on its being cooled down. Again make smearing on it (leaf) with $\frac{1}{4}$ th tola of the pill and heat it in a kavaciyantra on fire of 10 srs. of dry wild cowdung cakes. Take it out on its getting cooled down. There will come Rs. 12 on the sale of the leaf of gold. There will come Rs. 16.00 on its sale, (if) its carat gets increased (18).

2. Give 21 puṭas (roastings) to raw salt with the juice of white Bandālī and rub it. Next, first bind the tablet of mercury with Mora Thuthu (Thuthā). Spread (give) that salt at the bottom in a crucible. Put the tablet (of mercury) in the centre and give the salt over it. Seal up the crucible and give it fire for ghaṭī 1. That tablet becomes silver. (19)

3. (Take) 1 sr. of the juice of the tender leaves of Babul, Pai. 1 of the juice of the tender leaves of Jambū (tree), pai. 1 of the juice of red leaves of Oleander (Kaṇṇera), pai. 1 of the juice of the leaves of piper beetle (Nāgavallī), and crush pai. 1 of Māgaphula, half of it, and put it in the juice of the four medicines. Make paste (lump) of copper māsās 9 and zinc māsās 3. Keep three gaṭhi bāṭis of that rasa separate. Then melt that lump and quench it into separate rasas (juices) thrice, its blackness is removed. There will be gold. (20)

4. Make lump of these four things—silver mā. 3, zinc. mā. 3, Kathir (tin) māsā 3, and lead mā 3 and put it into an earthen pot. Next melt it and put 4 māsās of mercury into it. Then crush 4 māsā of Saṃkhiu somala, and turn it over 5 or 7 times and go on putting it into the mixture by tips.

When the essence becomes smokeless, take it out. That table becomes reduced to ashes. By melting silver mā. 6 and brass māsa-6, put this ash into the mixture. There becomes silver.

The process of making medicinal pill (goṭiko bādabhavanī vidhiḥ).

5. Bring the fruits of Neem tree (Liboili) $\frac{1}{2}$ sr. and take out its juice. The inner part (inside) of it is green. After that, crush the fresh seed of black Datura and take out its juice. Rub mercury $1\frac{1}{2}$ tola with that juice for 3 praharas, that is, there becomes the pill and it gets bound. Next put the pill into a sarab (earthen lid) and close it with the second śarab (lid) and put (give) 7 layers of cloth and clay over it. Burn it in the fire of 50 dry wild cowdung cakes. On its getting cooled down, take it out. There it becomes dry. (It is the process of making pill) gotikavidhiḥ (22).

6. The process of making the essence of orpiment :-

Combine together equal quantity of godanti orpiment $\frac{1}{4}$ sr., Dālī ($\frac{1}{2}$) of cinothi (Abrus precatorius linn) $\frac{1}{4}$ sr. and the seed of Palāsa Papaḍa $\frac{1}{4}$ sr. and dipping (drenching) them into the urine of she-goat, give them 3 paṭas (roastings).

Give a strong seal by putting them into an earthen vessel. By making a hole into the inner jar (jar between two jars), put the paḍo (parikhā = quantity) of the medicine into that jar, give a strong seal to (with) the earthen jar. By filling the dung of she-goat in the upper jar give fire. The essence of orpiment comes out. (23).

(7). Copper is pierced, silver is pierced. Keep the leaf of orpiment, in the juice of Tripaṇī sādhi (Khātī) (raw Desmodium gangeticum) for 5 or 7 days. Next take it out and put it on fire. If it gets boiled with bubbling sound, it is accomplished. Next put mercury just equal to it and rub with it for 1 or 2 praharas. Then melt copper tola-1 by mixing 1 māsa of the essence with it. Gold (25). i.e. there becomes gold.

(8). (Take) while cinothi (Abrus precatorius linne) and a wood of Myrobelani (Bahiḍā). $2\frac{1}{2}$ sr, make a hole into the wood of Bāhiḍā and put the powder of Abrus precatorius into it, melt old copper into that, put (it) into the juice. Next (take) 5 srs. of lime, and its fire generated by sprinkling water, next make fire of dry cow-dung cakes for 1 prahara and put it on it. Then take it out and filter the thing (essence), put mala phiṭakii (alum) vāla 2 into copper to. 1. Silver is produced (26).

9... Purify zinc by melting it. If mineral calamine $\frac{1}{2}$ sr. is melted, there remains $1\frac{1}{2}$ paup (pāi) from 1-9 ($2\frac{1}{4}$) of (the combination). Take the juice of the root of Ājhijhārā (a kind of Vanaspati) $1\frac{1}{2}$ Srs, mix 3 srs. of the juice of the root colocynth with it. Melt mineral calamine in an earthen pot. After melting, give coyā (drops) by putting the previous juice and give it fire of the wood of poplar leaved fig tree (= Ficus religiosa) and it is to be stirred up with a wooden piece of pipal. The essence is accomplished. Melt together these three—copper, silver, and the essence. There becomes silver (by the chemical action). If gold is light, by melting the same, if gadiyāna of the essence is given into 1 tola of gold, the weight increases. (27)

(10) Put Barāsa Karpur (Camphor from Java) tola-2 and mercury to. 1 into a plate. Give camphor under and over mercury. Cover mercury. Cover it up with a cup and seal it up with wax. Make dipāgni by putting it under, give fire of for 1 prahāra. All these will become the essence. Mix 1 rati of the essence into 1 tola copper. If 1 rati of the essence is taken with betel leaf, there will be an appetite of 10 Srs. (28).

(11). Put Hirāvola (a kind of mineral ?) tola 2 into a plate, put mercury tola 1, give Hirāvola over it, put a cup over it and give a menamudrā (seal with wax) to it. (Then) pour water into the plate and make dipāgni to it for 1 prahara. Mix 1 rati of the essence into 1 tola of copper. Gold. (29). If pure essence-pai. 1 bhār is taken, there will be an appetite of 10 srs. of food. True. Thus Jalayantravidyā. (29)

(12). Bring the tuber of turmeric and mercury double than it. Make pill (Ball) by rubbing these two. Make it dry and bind it with the juice of Citrus lemon. Press its juice by cutting it into two piecess. Put the pill (goli) between these two pieces of citrus lemon. Place the second piece of it over the first one. Make a smearing over it with the powder of Udaḍ (Phaseolus radiatus linn). Put it, on a piece of dry cowdung cake and give the second piece over it. Next give 1 or 2 pieces of dry cowdung, make fire. On its getting cooled down, take it out. That mercury, getting swelled, becomes Patāsā (like) (a king sweet). If 1 rati of it is taken, there becomes an appetite. Mix 1 rati of the essence with 1 tola of copper. Gold. It is tested. (30)

(13). Rub all these together—mercury—tolā 1, Oxide of arsenic—tolā 1 and alum—tolā 1 with curd for three days. Next put the lump (or paste) into curd. Then take it out after 11 days and rub it in the juice of citrus

lemon for 4 praharas. Next put it into a samputa (lid) and give it fire of cowdung, gentle fire of 4 praharas. On its being cooled down there becomes the essence. Mix 1 māṣā of the essence with 1 tola of copper. There becomes silver (31).

(14). Rub sulphur pai. 5 with the juice of Kesuphul¹ (a kind of vanaspati) for 4 praharas. Next after 1 or 3 days put it into a bottle; give mūḷa- (bhair) into its mouth. Keep it into the mouth of the second bottle. Put the mouth of the bottle in a pālāla Yantra and giving fire under it, take out (squeeze) oil. Smear that oil on the copper leaf, dry it up like pāpaḍi (thin crisp cake made of flour mixed with spices) on fire. Put 5 or 7 drops of oil on it. Gold (32).

(15) Having taken sal-ammomiac, rub it in the juice of Visakhāparā (a kind of vanaspati ?) for 4 praharas. Next make powder of it by crushing it. Melt kathir (a kind of tin) and put sal-ammoniac into it. Sal-ammoniac will come up, remove it. Thus put sal-ammoniac 3 or 4 times. (There will be) silver (33).

(16) Take water of Kāthir (a kind of tin), put 1 māṣā of it into 1 tola of copper by melting it, there becomes silver. Water dries up.

The means of making it soft is written :

By taking out the root of white Visakhāpraṣ, take its bark and get it dried up. Keep it by making its powder. Melt that which becomes phuta dhata (metal) and spread that powder over it. It will be soft.

The substance is produced. True (34).

(17) Make pieces of Lūṇiue Somala khāra (a kind of oxide of arsenic) tola 1, cook (ferment) it in a Dolikāyantra with the milk of she-goat. Mix the essence 1 māṣā into 1 tola of copper. There becomes silver (35).

(18) Rub sulphur tola 1 and mercury tola 1 with the juice of Amaraveli (cassutha-filiformis) up to 1 day. Rub them in a plate with the wood of Limba (citrus lemon) in the shade. Do not expose it in the sunshine, do as such, hold it in the sunshine in caitra-vaiśākh. Oil comes out of it. Smear it on the leaf of copper. (There becomes) gold. (36)

(19) Place kalahi (a kind of tin)-tola 2 and carbonate of potash (javak-hāra) under and over, there is white cumin seed. Take out the juice of it. Go on giving juice to them till (they are) quenched. Heat this combination, next heat it in a closed crucible. There becomes Silver. (37)

1. Flower of Butea frondosa = Saffron-coloured flowers.

(20) Melt kathir (a kind of tin) $\frac{1}{2}$ sr. and pour it into oil and curd 2-7 times. Next pour it into the juice of Neem seven times. Then melt tin in an earthen vessel. Put tamarind over it by crushing and pounding it. Secondly lit fire under it and cover it with a lid over it. On getting burnt the content is reduced to ashes. It becomes deadlike. Next put 4 vāṇas (things). Then take bhūpāḍala (a kind of vanaspati) and rub (or reduce to paste) mercury pai 1 bhār. Next put it into a sampuṭa (lid) in a crucible and give a hard seal into its mouth; give it fire of the goat's dung for 4 praharas. It becomes white. Next give (mix) ratī of the essence into 1 tola of copper. (There becomes silver) (38).

(21) Rub mercury with the juice of Euphorbia pilulifera (Nāgarjuni) in a mortar for a day. Put it on fire and reduce it to paste for 7 praharas in a mortar, go on putting juice; mercury gets killed (38 X).

(22) (Take) mercury pai-1, zinc pai. 3 bhār, nīla thuthu (a kind of poison) pai. 1 and put them together on an oven and give them fire for (of) ghaṭī 2. Mercury becomes fixed. Next make lump (paste) of it with zinc and mix silver just equal to it. There becomes good silver (39).

(23) Give ash of śāṁkha (conch-shell) to mercury, making it (conch-shell) powdered, and to oxide of arsenic (malla) by taking mercury. Mix (take) good alum into milk, mercury-tola, lead and oxide of arsenic hṛ-māsa. 1., (take) sulphur tā 1, natron tā 1, lime tā 1, sal-ammoniac tā 1, oxide of arsenic tā 1, orpiment tā 1. Make lump of mercury and zinc. Next crush the medicines and give (mix) them into copper. Then there is woodfordia fratribunda (Dhāhāṭphul). Putting all together, put Dhāhāṭphul tā 4 (into) copper tā and zinc $\frac{1}{2}$ tola (into the essence). There will be gold (40).

(24) Rub orpiment tā 2, realgar tā 3, sulphide of mercury (cinnabar) tā 2 in a mortar in the milk of calotropis gigantea for a prahara. Filter them in piece of cloth and cook them in Dolikāyantra with milk for 36 praharas. Mix the essence 1 ratī into Rāṅg (a kind of metal). There becomes silver (41).

(25) Combine copper, zinc, lead, mercury and the juice of cedrus deodar (and make the essence by rubbing them). Put 1 ratī of the essence into 16 tolas of copper. (There will be) gold (42).

(26). Wash the earth of earth-worm (annelid) and take out the stones (from it). Next make powder of the wing of a peacock by cutting it (into pieces) with a scissor.

Then put this powder into cowdung and get it dried up in the shade. Next put it into an earthen jar and seal it up; make fire, put it on fire. When burning stops, take it out. On washing ashes, the stones come out, Mix up the stones of the previous earth, then heat them together in a crucible. Next melt them; copper comes out (of them). (44).

(27). Make lump of 1 tola of mercury and 2 tolas of zinc. Next put 2 tolas of mercury into a silver *ḍavaḍi* (small pot) and give a layer of clay and cloth (over it), give it *gajapuṭāgni* of 12 praharas. On its getting cooled down, take it out. Combine 1 1/4 *māsā* of the essence with 1 tola of copper. (gold).

Take mercury pai. 1 and zinc 1 1/4 srs, put oil into an iron pan. Melt zinc three times. Next melting it seven times in a *hādamūsa* (earthen crucible), quench it into the water of *Triphalā* (*Āmalakī* *Haritakī* and *Vaheḍā*). zinc will be purified. Next mix mercury with it, combine 1/2 of them with pure silver. There will be a good combination (45).

(28) Give 22 *puṭas* of urine of tiger to mineral *calamine-gaḍiyānā* 1, borax *tā* 1, turmeric *gaḍiyānā* 1, *Sovanarakhiu-Kāca* (a kind of glass ?) *ga.* 1 and *Mālavi* molasses *ga.* 12, get dried all medicines except molasses in the sunshine and pound them. Mix 2 *gaḍiyānā* of the powder (grain) of silver into them. Next put the whole thing into molasses and make lump, and melt it in a crucible up to 1 prahara. Gold; Silver-carat 10 or 11. Thus is the process of making gold (46).

(29) By crushing the leaf of zinc 1/2 *Sr.* and *Sāmbhara lūṇa* (salt of *Sāmbhara* lake) 1 *sr.*, give them layer by layer. Put them into an earthen pot, and a small piece of colth into its mouth; give a seal on it; give it *gajapuṭāgni* of 21 praharas; purify (wash) copper and mix 1 1/2 *māsas* of the essence into 1 1/2 tola of copper. There becomes silver. (47).

(30) Purify lead 1/4 *sr.*, make a thin leaf of it. Next make collyrium (*Kājali*) of mercury-pai. 2 and sulphur pai 2 for 4 praharas. Then take a jar and give (put) a layer of cloth and clay (over it), spread out *bhoḍala* (leaf of raw mica ?) into it, one leaf under, one leaf over, large *bhoḍala-patra* 1, spread out *surakhāra* (a kind of salt) 1/2 *sr.* over it, put the leaf of lead over *bhoḍala*; sprinkle collyrium over it, give again the leaf of lead, sprinkle collyrium, again, leaf again, collyrium, thus give (put) (them) layer by layer. Again, crush *surakhāra* 1/4 *sr.* (*pāva*) and give (put) it over the leaf of lead and press it; give (place) an earthen pot over it; give (put) 3 or 7 layers of clay and cloth over it (and) get it dried up. Fill sand into it put it on furnace, give it fire while increasing gradually for 8 praharas.

On its getting cooled down, take sand out, take lead. Next make ash of 6 Ājhihara¹ 4 or 5 srs. Bind it in a piece of red cloth like kasaribha² (wild saffron) and put water (into it). Keep that water by filling it into a bottle.

Put that lead and that sulphur Pai. 1½ together and crush them with that water for 4 praharas. Next make tablets of them and put them into an earthen jar like the first process, give the canda (layer ?) of Bhoḍala (mica), crush, surakhara pai. 5 bhār and spread it out. By crushing it and putting Thikaliya (tablets ?), give again surakhara (a kind of oxide) over it. Give (put) a seal into the mouth of the jar by filling sand into it, give it fire of 8 praharas. On its getting cooled down, take it out. Give sulphur pai. 1½ with that water. Do it again like that. Like the previous process, give it fire, etc. Take it out by giving and giving fire, etc. Thus do it seven times.

If that thing ratī-1 is taken, the appetite will be double. It makes many other benefits. Give fire to seven yantras for 8 praharas. (48).

1. Not identified.

2. Saffron coloured piece of cloth.

FIFTH CHAPTER

(1) Metal gets (or is) killed with oil of orpiment. Crush $1\frac{1}{4}$ sr. of orpiment and $\frac{1}{2}$ pai of sal-ammoniac, put them into a bottle and place it in a Tikaliyantra. Oil comes out. All metals get killed with orpiment and realgar. (39).

(2) Sal-ammoniac is fixed in the juice of Umbara (fig tree); crush Morthuthu (a kind of poison) in the juice of croton tiglian (Danti) and give it 7 puṭas. The essence is produced. Alum is fixed in (the juice of) Aśvakanda (whose stem is like the penis of horse), give 7 puṭas of cloth and clay. The essence is produced.

Polad (steel) is fixed in the juice of Āmaṭhi (*Ipomoea sepiaria*), the essence is produced.

(Take) mercury ṭa. 1, a fine strong (hard) piece of cloth—1 cubit (in length); give 5 or 7 puṭas of dew watet (khāra) of gram plant (Cinā). Khār makes it very hard. Put mercury into the clothing by wrapping it. Next sew the cloth. Then putting the cloth into a new earthen vessel, seal it up and keep the earthen vessel into the dustbin of the village for 2 or 3 months. The cloth getting burnt will be reduced to ash. That ash dries up (sucks) kathir (tin) (40).

(3) Kill mercury, sulphur, kaṇeri realgar, orpiment and oxide of arsenic with the juice of Āristo lochia bracteata, apply the essence to silver, it becomes gold. It is said by Vitarāga (The dispassionate).

Nāṇeti :— Mercury, sulphur, Kaṇeri, realgar, orpiment and oxide of arsenic.

Combine mercury ṭa 8, sulphur ṭa 8, kaṇerin manaṣṭila (realgar) ṭa 4, orpiment ṭa 2 and oxide of arsenic ṭa 1 and give 7 puṭas to combination with the juice of small and large Euphoriba pilulifera; next give the combination 7 puṭas, with the juice of leaf of piper betle. Next put lime (Kathocūno) into it and take out the juice. Give it these puṭas—7 puṭas of Datura, 7 puṭas of the juice of Ājhijhāḍā, then 7 puṭas of Dolichondron falcata, 7 puṭas of Peniroyal (Spilanthus oleracia), 7 puṭas of the juice of

Hiraboṇa. Next, again, give it 7 puṭas Ājhijhāḍa, put it into a bottle and sealing it up, put it into a Velukāyantra; give it fire for 8 or 12 praharas. On its getting cooled down, take it out. (It is) completed.

(3x) Grind and crush Gujarati orpiment, Bāgadādī patrālī (leaves) and reduce them to small particles. Rub them in a mortar with the juice of onion for 3 or 4 days. When the combination is heated, then it burns like wax, then know that puṭa as ripe (cooked), then put it into a bottle. Dig a pit measuring equal to the height of the head of a man and fill it up with the horse-dung. Keep the bottle into the horse-dung for 6 months, then take it out; give the essence to the copper leaf. There becomes gold (41).

(4) Mix tin 1/4 sr. and mercury 1/4 sr. with rice meal-milk, curd, clarified butter, urine and stool for 21 days; heat (or burn) the mixture for 1 prahara, put 4 ratis of the essence into 1 tola of copper by melting it. There becomes gold (42).

(5) Put the juice of Tumbī (long gourd) t̃ā 5, and the juice of Diopyros embryopteris (Tidu) t̃ā 5 seven times into copper (t̃ā) 3 by washing (purifying) it. (There becomes) gold (43).

(6) Reduce to paste mercury to. 1 and sal-ammoniac to. 1, the juice of cyperus rotundus (gundi), then blow it up in a Nāliniyantra three times, (then) take it out. The essence is completed; give 1 māsa of it into tin tola 3. Mercury gets dried up (44).

(7) Take mercury t̃ā 3, grind beetle leaf and arica nut and lime together and take out the juice from them, it drinks milk for 1 prahara (i.e. drench the whole thing into milk). Next make sampuṭa of the root of Ankola (Alangium lamarkii-A hexapetallum). Put mercury into it and seal up the sampuṭa, give three layers of clay and cloth to it and put it on fire of cowdung for 4 gaḍhī (24 minutes X4 = 96 minutes). On its getting cooled down, take it out. There will be lime. (45).

(8) Purify mercury t̃ā 3, bind (tie) over 2 thin roots of Alangium lamarkii; keep it into an earthen vessel, put mercury on it, give a seal into the mouth, give it fire of 1 prahara by putting a layer of cloth and clay over it. There becomes pill (goṭikā), it is crushed, it will be lime. It becomes (looks) like cowdung, it does not fly. (46).

(9). Make powder by grinding three things-the powder of Adiantum (T̃ipur̃t-mukhamālī), māṅgaphu, and Pegāmī sal-ammoniac-1. Mix 1 māsa of the essence into 1 tola of copper. (There will be) silver (47).

(10). Grind (or rub) sal-ammoniac $\frac{3}{4}$ 3, particles of copper $\frac{1}{4}$ 1 with the juice of citrus lemon in a copper pot. All becomes liquid (rasa); then it is finished (completed.) Jamgāl essence or verdigris or green rust) is accomplished. Next take jamgāl $\frac{1}{4}$ 3, and fresh particles of tutaha (a kind of chemical substance) $\frac{1}{4}$ 1. Make them wet (drench them) with the juice of citrus lemon for 4 praharas, put borax and melt them; iron comes out separately. There becomes copper. Take it, mix sivler just with equal portion (quantity) of copper. There become 6 carats of it. Next make goṭaka (pieces) of gold (48).

(11). Crush the small fruits of Neem tree, rub or reduce mercury to paste in its oil in a mortar, give 21 puṭas to it, give tin $\frac{1}{4}$ bhār, make pill of them. True. (49).

(12). Take equal portion (of each) of these five (things)-copper $\frac{1}{4}$ bhār, zinc $\frac{1}{4}$ (a tin) $\frac{1}{4}$ bhār and lead $\frac{1}{4}$ bhār. Make a closed crucible. Combining these five together, put them in a crucible with the oil of lin seed. Mix these five in a crucible. Put over them particles (dust) of piper betle by taking the leaf of gangeri (Sida spinosa), putting and cutting (crushing) katho cuno (lime) and areca nut into the crucible, give these five things over it. Close (seal up) the crucible, put (give) a layer of cloth and clay over it. Put it coal of 10 Srs; give it fire. On its getting cooled down, take out the whole thing. Put combination of the five things into 1 tola of copper and melt it. It will be gold. If the combination is given into kathir, (tin) there will be silver. (50).

(13). Take a piece of cinnabar pai, 1 bhār. Next make bread of the powder of wheat and put cinnabar into the bread. Repeat the process, into 108 breads. Then put the piece of cinnabar into an iron cup, put over it these two things-honey-pai $2\frac{1}{2}$ bhār and clarified butter-pai $2\frac{1}{2}$ bhār and cook it. When the piece cinnabar dries up clarified butter and honey, then take (it) out. Next wash the cup or put it into a cup; putting again honey and clarified butter (into it) make fire-fire of coal $\frac{1}{4}$ (Sr.). Like this give it 108 fires. Then it is purified. If 1 ratī (of the essence) is taken with beetle-leaf, there becomes an appetite of 2 or 4 srs. Put 1 māsa of the essence into 1 tola of copper; (there becomes) gold.

It becomes like gold coin. If pure gold is rightly (properly) (correctly) melted, there will come double value of it, true (51).

(14.) Take mortar and pestle of black Alangium lamarkii. Rub mercury to. 10 in it (mortar) for 1 or 2 days. Mercury becomes butter like, and fire proved (52)

(15) Give *ṭṭyā* (drops) of juice of *hoṭha* (a kind of *Vanaspati*) to mercury to. 1; give gentle fire and *ṭṭyā* of the flower of *Hoṭha* over it. It is accomplished. After $1/4$ of 1 *ghaṭi* ($24/4 = 6$ minutes) take out the thing, and blow it into that crucible; again give the juice of the flower of *Hoṭha*; again make it cool, again, put it for the third time in a crucible and give it the juice of the flower of *Hoṭha*. At the bottom swells the essence. Mix it into copper tola 1, gold (53).

First process of purification of mineral Calamine.

(16). Put mineral calamine twice into the milk of *Euphorbia nivulia* or *merifolia* (Thohar), twice into the juice of *Aloe vera* and 8 times in the milk of *calotropis gigantea*. Next (put it) into *sambhara* salt. Smear its leaves with *Alataghṛta*, (a kind of clarified butter), lay out (spread) them into an earthen jar; seal up the jar; give it *gajapuṭāgni*. This is the essence. Next put pure mercury in a mortar and rub it with the juice of squeezed citrus lemon for 11 days, and mix it up. Make equal quantity of mineral calamine and mercury and put them into a crucible and seal it up, put it on fire and heat it with the blowing pipe. Silver (54). True.

(17) Put mercury *ṭā* 7 and sulphur *ṭā* 21 into a mortar and make collyrium (of them). Next give 360 saturations to it with the juice of *Aloe vera*.

Then it should be put on fire. There does not become smoke; such butter-like thing gets melted (liquefied). When fire gets extinguished, it is accomplished. There becomes gold by smearing of the essence on the leaf of silver. (55).

(18) Smear the Nepalese copper-leaf with *Hemakuṣṭha* (dung of first born elephant) and *Bakajala* (a kind of *vanaspati* ?) by piercing it with *taṅka* (thorn). Heat it in fire. There becomes gold (56).

(19). First dung of an elephant just born is called *Hemakuṣṭha*. Reduce it to ash and besmear it with the juice of citrus lemon. It is to be dried up on fire like thin crisp cake made of flour mixed with spices. There becomes gold (57).

(20) Boil thick curd-water, 10 *Srs*. Allow it to be crystalized, (*Vitaraḍava*), when it becomes curd (crystalized) by getting sparated, then bind it in a piece of cloth just as *śrikhaṇḍa* is bound. Take out water (from it). Next put it into a copper vessel. Then put *tesaḍi* 1 *sr*. (into it) like alum.

Pour over (it) the juice of citrus lemon $\frac{1}{2}$ sr. and stir it up and mix together. Next give a copper lid to the mouth of the copper vessel. Then put it into Ukaraḍā (dustbin of the village) for 7 (seven) days. Then take it out and get it dried up. Pure essence is accomplished. Money will come on its sale. (58).

The Chemical process of increasing carats

(21). (Take) one between the two—a little lime and sāji (natron); bring green bark of Jambu (Jambulanum) and mango trees. Take out the juice by grinding them. Sprinkle (spread out) it on the gold-leaf having 11 carats by heating it. The original carat (11) increases to 13 and 14 carats.. Thus carats increase. Apply the root or stem or juice of Clerodendron Siphonanthus and Persian Ricinus communis to tin. (There becomes) silver. Mix $\frac{1}{4}$ sr. and $\frac{1}{4}$ sr. of the juice of Brahmaṇḍī, and Parasa (Erandī) respectively into $\frac{1}{2}$ sr. of copper. (There becomes) silver (by the mixture of) these two (50).

(22) Put paripā (mineral calamine ? a kind of mineral) and borax tā 1, sal-ammoniac tā-1, Surokhāra (a kind of salt ?) tā 1 into the juice of Elephantopus scaber (galajibhi) and stir (them up). Make three leaves of copper brass and quech them (into that medicinal juice) 5 and 7 times, There becomes 5 or 7 carats. If by making light gold (leaf) of carats 3 it is quenched (into that rasa,) there become carats 4 and 5 respectively. Quench the leaf of gold, into the oil of Anacardium by melting it, its carat increases to 7. There increases two carats (60).

(23). Give the juice of Haraṇasūri (a kind of vanaspati) by putting tin (in a pot). Silver (61).

(24) Reduce to paste mercury tā 1. and realgar tā 1 and cook them into an earthen vessel. Put over the combination the gum—the gum Jambu (of Eugenia Jambolanum) Champā. (Michelia champaca) or girmala (purging of cassia). There becomes the essence. Put it into silver, copper and lead. (There becomes) gold. Then there is Dharasatāri (a kind of plant), press (Choli) it in the juice of the vegetable of Luṇṭi (portulacaea) and grind wax, and put silver on them by melting it. There becomes gold of 14 carats. Grind the seed of Side Cordifolia (Balabīja) and make its leaves powdered, put them into copper 11 times by melting it. Gold, good gold is produced (62).

(25). Dip natron (Sāji) tā 1, borax tā. 2, sal-ammoniac tā 3 and lime tā 9 into $1\frac{1}{2}$ Srs. of water. Next keep that water tā 9 and sulphur tā-3 into an iron pot. Damalanai; gold. Put the juice of Lemparachoenium microcephalum $\frac{1}{2}$ sr. into tin or zinc by melting it. There becomes silver. (63).

(26) Make a cup of zinc $\frac{1}{2}$ and put mercury. Crush or grind salt and give it at the bottom of an earthen pot, put the cup (of zinc) over it. Next give cuvo (drops) of the water of upper layer of sour curd on it up to the time till mercury and cup become one. Then mix $\frac{1}{2}$ of the essence into 1 tola of copper. There becomes gold. (64).

27. (Take) $\frac{1}{2}$ sr. of the juice of white Nāgarjuni (Euphorbia pilulifera) and give drops to mercury $\frac{1}{2}$ (with that) by putting it into an earthen vessel. That mercury becomes lump. Mix 1 māsa of it into 1 tola of Kalahi (tin). (There becomes) silver. The juice of sevenfold Datura dries up the water of Vamga (tin) (65).

(28) Give drops to mercury with the juice of Hariṇasūri. Mercury gets fixed. There becomes silver (66).

(29) Purify the thorn-piercing copper leaf and put (quench) it into the juice of Jalasi three times by heating and heating it (in fire). It becomes gold (67).

(30) Rub golden copper pyrite with clarified butter, honey and borax. Heat it and take it out. Next combine that copper with equal quantity of gold, there become 11 carats. There increase two carats in light gold. (68).

(31). Melt lead $\frac{1}{2}$ sr. and give drops of urine of ass 5 or 7 srs. over it. Next that lead becomes powder, it pierces the leaves of silver and copper (69).

(32) Bind the tablets of sal-ammoniac pai. 3, impure carbonate of soda (loḍhā saḥr) pai. 3, oxide of assenic (Somal Khāra) pai. 3, alum pai. 3, Samgharayaph (cinnabar) pai 3 and Kaheravo (a kind of mineral) pai. 5 in the juice of stem of candatus (Mogari Kanda) and put them into an earthen pot. They drink (absorb) the juice of mogari-2 maunds. Mix the tablets with butter-like mercury-tola 121. (There becomes) gold. (69x).

(33) Bring gymnosporia (Bokala) and get it dried up in the shade. Crush it, weeve it and make 2 srs. of its powder. Melt (liquefy) 1 sr. of tin (trapu) and pour that powder into it. There becomes pure Silver. Pour taruna (trapu) into the juice of Jalasi by melting and melting it. There becomes pure silver. True (70).

(34). Do it in the juice of white Trianthema crystallina (Punarnava) just like that. Silver (71).

The process of making oil of sulphur :-

(35) Give 21 paṭas of ripe leaves of Calotropis (Arkapatra) to sulphur $\frac{1}{2}$ Sr. Oil comes out in the sunshine in a pātālayantra. True (22).

The process of making Carat.

(36) Combine all these—two māsās of silver, 1 māsā of copper, 2 māsās of grain (particles) of iron, 2 māsās of bell-metal (Kāmsā), 2 māsās of zinc, 2 māsās of lead in an earthen pot and liquefy. While melting, there remain 3 māsās of them, stop it then, give rāṅ to silver. Then melt Hunnāno silver 7 ratīṣ, with one ratī of Kalka (essence) and with 3 māsās of the above thing. Put the essence, while melting them. Put one ratī of copper of Thuthā. Melt all these. There will be good (pure) gold. If 1 māsā of the essence is put into 3 tolas of vānī (things,) there increase the carat. Thus true (73).

(37). Take out the juice (āsava) of grape, again take out its spirit (tejab). Smear the leaves of mica with that spirit. Tap the leaves of mica after their drying up.

Mercury will come out. Thus tap them (repeat the process) 5 or 7 times by smearing and smearing; mercury comes out of mica. This is called marvellous mercury. (74).

(38) Combine together the pieces of oxide of arsenic (Somal) pai. 5 bhār and mercury pai. 5 bhār and boil them in the water of curd made of the milk of eace (she-sheep)—15 srs.

Mercury flies up (disappears) and oxide of arsenic (somal) becomes wax (like). Rub Oxide of arsenic and mercury in the juice of Kakarūṁdā for 3 days. Next put (give) the whole thing into a Dolikāyantra. Mix 1 ratī of the essence into 1 tola of copper. There becomes silver (75).

(39) Rub mercury to. 1, oxide of arsenic tola 1, alum to. 1, borax to. 1 and Saṁdhava salt to. 1—all these medicines with the juice of citrus lemon in a mortar for 4 praharas.

Next keep an iron pan below. Make tablets of that medicine, put them into that cup, put (give) a copper cup over (it). Press both the puṭas (lids) and give a layer of cloth and clay over it. Get it dried up and cook it in a gajapuṭa. The copper cup swells, crush that and give 1 or 2 ratīṣ, of the essence into 1 tola of copper. Gold (76).

(40) There is Tecoma undulata (Rohiḍo) of 100 years old. Take out the bark of its branch, crush it into powder. Take out 2 srs of bark. Put $\frac{1}{2}$ of that bark into a small earthen vessel. Next take mercury pai. 1. Take lead pai. $1\frac{1}{2}$ bhār. Make hard lump with mercury. Put the tablets of mercury and lead over that powder; give over it again that powder of Rohiḍā. Make that powder tāgharī for 7 or 9 days. There is the dung of a calf of an animal (cow, etc.); make powder (of it) wet by crushing it. Next give a seal to the mouth of an earthen jar (by putting the thing into it). Place that jar into a Velukāyantra, put a bottle (below), put sand into a big jar

and give fire of 8 praharas under it. On its getting cooled down, mix 1 māsa of the essence into 1 tola of copper. (There becomes) gold (77).

(41) Crushing these three-leaf of Karakaca, pai. 2, Sab thuthra (a kind of poison) pai 2 and powder of red wheat, make a crucible. Put mercury pai $\frac{1}{2}$ into that crucible. Put mercury into that crucible. Next dig a pit into the earth and sprinkle it with water and make it wet. Put (mercury ?) into the crucible. Give fire over it for 2 or 4 praharas. Mercury does not fly-up. i.e. it gets fixed up. True (78).

(42) Take out the juice of pure Gorakha Tambola (a kind of betel piper) with it. While rubbing, mercury comes up, take it; by doing thus for 24 praharas, make it ball-like. Make a hole into the stem of scilla Indica (Kolikanda) and put it (Ball of mercury) there and close the mouth (of the hole). Smear the powder of wheat over it, cover it with a layer of cloth and clay; let it dry up. Then remove (the layer of cloth and clay) to the sides and take out mercury (from inside). Feed any body with that mercury ratī 2 or 3 together with betel piper by putting Ficus Tsiela (pipadi) and caryophyllus aromaticus (lavaṅga). If a dose equal to 1 or 2 or 3 maṇḍala (a kind of measure) is taken, all diseases go away. There will be double appetite (79).

(43) Put sal-ammoniac pai 1 and mercury pai. 1 into āgiu (a kind of vanaspati ?) of the inside of brinjal for 4 days and give it fire for 4 praharas. Again crush them and put them into it and give fire to it, for 4 praharas.

(44) Now the lesson of the process of Menamudra (wax-sealing). Combine together these things—magnetic stone $\frac{1}{2}$ sr. and partioles (grains) of iron $\frac{1}{2}$ sr., milk of gular (a kind vanaspati) 1 sr. and wax $\frac{1}{2}$ sr. and grind them for 3 days. Next make pill (of them). Put the pill into a big earthen jar of water. Ferment the pill into it till it comes up into the water. Next give it fire. Then there takes place the accomplishment of the process of Menamudra. True. The mudra (seal) is to be placed over (it); give fire (to it) for 64 praharas. On its getting cooled down, take it out. Thus Bhasma paradaividhih. (80).

The Process of making Madanamudra

(45) Cast wax (Baba) Sāhi 40 srs. into an iron pan; put oil 1 sr. and water 5 srs; give fire under it. As wax settles down at the bottom (of the pan), take it out. Remove the dirt (stuck up) over the wax. Thus do it for 4 days. Next combine together wax tā. 25, magnetic stone tā. 25, milk of Banyan tree tā 25, Betula utilis (bhojapatra) tā. 25, linseed oil tā. 25, old iron tā. 25, pure (good) Kātho (a king of lime) tā 25 and Euphorbia Pilulifera tā. 25 and crush (or grind) them up to 3 or 7 days. Sometimes till they become ripe (well-mixed). Thus is the process of wax. Thus is vaidika (Vadyaka) = medical process is complete.

SIXTH CHAPTER

(1) First put zinc in tamarind-salt and press, wash it seven times, and purify it. Next make a cup of pai. 5 (out of zinc). Put mercury tā 1 into that thorn-piercing cup. Then fill up the juice of yellow *Dodonaea viscosa* (Bandāli) up to its brim and place or put a lid over it. Give dipāgni below it (cup). Go on giving 2 srs. of juice (of yellow Bandāli). Keep the juice up to the brim. After its cooking, when the brim bursts out, then go on mixing the pieces into the cup. When all bursts out, then combine all pieces together, make earthen lids; seal them up; seal them into śarābasamputa (earthen lead) and give it fire of dry cowdung cakes for 1 prahara. Next, on its getting cooled down, take it out. Mix that powder vāla 1 into 1 tola of copper; gold. True according to tradition.

(1x) Make lump of equal quantity of mercury 1, orpiment 1 and zinc 1 and give 3 saturations to the combination with the juice of *phyllanthus niruri*; close (cover) it in a samputa and give (put) a layer of cloth and clay; give khara (salt) under and over; give it two fires. Mix 2 ratis of the essence into 1 tola of tin. It becomes silver.

(2) Make a leaf of gajaveli (a kind of iron), and drench (dip) it in the juice of *Breynia patens* or that of Kutari (*Kākarasana*) 9 times and get it dried up, put it into a crucible. Heat it into a crucible, mix the essence mā. 1 into 1 tola of muhakām copper. Make the leaf of gajaveli iron thin. By heating it, quench it into the juice of *Breynia*. Do thus 9 times. Break the leaf (of gajaveli) and crush it, give, the powder of it. 1 vāla into tin. There will be silver.

(3) (Take) $\frac{1}{2}$ sr. of zinc and make its leaf in Sambhara lūna (salt); give salt (to it) layer by layer into an earthen pot and close its mouth, give gajaputāgni for 1 prahara. Mix then that essence vāla 3 into 1 tola of copper (or) 1 māsa into 2 tolas of copper, otherwise combine equal (quantity) of each, if not piercing, there becomes silver.

(4) Make a cup of silver of 1 tola, put 1 tola of mercury into it. Fill up sand into an earthen vessel, put the cup into it, place it (vessel) on the furnace and give fire of 5 praharas below (it). Give drops (tuya) of *Calotropis gigantea* over the cup drop by drop till the cup and mercury become one. Next mix the essence vāla 1 or māsa 1 into one tola of copper. (Gold)

The process of Killing copper and making silver.

(5) Make a thorn-piercing leaf of copper. Put it into a crucible and melt it. Put 1 tola of the essence just as before said. Next, melt it and quench it. There becomes silver of 21 carats certainly.

(6) Fry or roast (bhaḍatha) oxide of arsenic $\frac{5}{4}$ into three branches of Euphorbia nivulia (or nerifolia), give powder of wheat 21 times over it. Give cowdung over it. Put the standing branch into the fire; place dry wild cowdung cakes on all sides. Like this turn it round. Next make ash of Keli 5 srs (Musa sapientum), make water of khāra, salt or ashes and boil (melt) it. Pour it into an earthen vessel and put a ripe brinjal; give a piece of seal into the mouth. After that, place it in a Dolikāyantra and (heat it) till the water of ashes gets burnt up (dried up). Then take it out. Next bring gudasari (piece of Ipomea aquatica ?) (Nalini of Chāli). Make a hole into it and put oxide of arsenic into it. Give powder (of wheat) and cowdung to it. Give chānā (dry wild cakes) on all sides. Next the essence is accomplished.

Now the process of purifying Copper :-

(7) Take mercury, oxide of arsenic, alum and godanti orpiment. Make copper purified, what does the famine do ?

(8) Like this wash (purify) copper and give 1 vāla of Somala (oxide of arsenic) into 1 tola of copper and quench the combination into alum. Combine silver with it. There becomes Joṭakam (good pieces ?)

(9) Give cūyā (drops) of pueraria tuberosa, Phyllanthus niruri and white (Trianthema portulacastrum.) to tin. Silver.

(9x) Make tablet (or lump) of lead $\frac{1}{4}$ sr. and rub it in the juice of Kuba (lotus ?) 21 times; next rub it in the juice of Kesari (Butea Frondosa) 21 times; the essence is accomplished. Mix 1 māśā of the essence into 1 tola of copper. (There becomes) gold.

(10) Make lime of oyster shell (sipano), mix a little mineral calamine into it, and mix lead into it as said before. Give 30 gajapūṣas (to the combination). Mix the essence māśā 1 into copper tola 1. (There becomes gold.)

Make a leaf of brass $\frac{5}{4}$, combine together the juice of Butea frondosa and that of citrus lemon and rub haṁsapāka cinnabar $\frac{3}{4}$, sal-ammonica (nave) $\frac{1}{4}$ and mercury by combining them together, smear the

leaf (of brass). Make a hole into a wood of *Butea frondosa* and cast it (leaf) thus making hole and closing it, burn it for 4 praharas. There becomes gold ! combine some gold. There becomes Joṭaka (good combination) or pieces of gold.

(11) 'Jina veti',-take of *kālāphul* = *Saṁkhavali* (*Evolvulus alsinoides*) and *Mehadi* (*Henna-Lawsonia alb*) $\frac{1}{4}$ sr. and *Sāthi* rice- $\frac{1}{4}$ Sr. and cook *kṣīra* with them in the milk of ewe (she-sheep) and take it. (Hidden treasure is seen), take it out, after that it is not seen.

Make *añjan* (collyrium) with the root of white *calotropis gigantea* 1 and camphor-1. This is the process of becoming invisible.

Take white *Alanagium lamarkii*, camphor-1 and *pāṭalamadh*, (a kind of honey ?), tie (bind) 7 leaves of *piper longum* (*Fucus Tsiela*), tie 7 layers of cloth over the eyes. It is *dravyāñjana*.

(12) Take these four-pistacia *integerrima* ? or *Sisymbrium irio* (*Kākasi*) -1, *Sonchus aruenois* (*sahadevi*) 1, *Convolvulus microphyllus* (*sāmkhahul*)-1, *Citrullus cotocynthis* (*uttaravārūṇ*)-1, take their roots by reciting incantation (mantra) on sunday. Take them during the time of *Dhaniṣṭha Nakṣatra*. Put them in the wick of *Hiravan* (*Nāgakeśāsa*=*Mesua ferrea*), make light with clarified butter made of milk of a one-coloured cow. One sees wealth by making seated a woman having *devagaṇa*. Extend invitation to *Trin-thema cystallina* (*Sāṭhoḍṭ*) on the 14th of *Divālī*, and take it out on the day of *Divālī* and worship it. Next rub it with cow's urine and black pepper. *Śakini* says all names.

(13) Rub black sulphurate of antimony (*Sarams kṛlo*) 1, pork 1, Placenta of she-elephant 1 and placenta of black she-cat, and wrap them up with eight kinds of metal :- put them into a *mādaliyā* (*Kavaca*) of eight metals. Names of eight metals : (1) iron (2) lead (3) tin (4) copper (5) bell-metal, (6) brass (7) silver and (8) gold. One becomes invisible by putting it on. There is no doubt here.

(14) Make a leaf of lead-1 sr. Make a hole into a branch of green Indian like tree and put it (leaf) into the wall, give it *grabha* (cambium layer) under and over; give (put) a small piece (of cut-out branch) (into that hole) and a layer of cloth and clay over it. Give it *haṭhāgni*. Gold. (It) becomes fit for putting on as household ornaments.

(15) Rub mercury 5 and sulphur 5 in the juice of *Bhola* (a kind of *vanaspati*), put it into a bottle and seal it up; place that bottle into a *Jalabhājan* (water pot), give it fire of 8 days in a *Dolikāyantra*. Take

Pātālamadhu before (a kind of honey ?) before the sunset, and Satapuḍā Kaṇavīra (Seven-leaved sweet-scented oleander) at the root, which has been taken at night, rub these two things and make netrānjana (collyrium for eye). Tie or bind 7 leaves of pipala (piper longum) over the eyes of a boy born in pādajāta or Mūlanakṣatra. If seen into the mouth of veḍakā (frog), he sees wealth.

(16) Take the juice of wild *Amaranthus tricolour* var, tristis (Tāndalo)- $\frac{1}{2}$ Sr. and clarified butter $-\frac{1}{2}$ Sr. Any kind of poison comes out of the body, if they are taken together. If the juice of Soapalery (*Trifoliatum Sapindus*) press out of its choli (bark) is drunk with water, all non-moving poison will come out.

(17) Make wet (drench) opium, copper, lead, orpiment tā 2, sulphur 4 (tā), thutho (a kind of poison) tā 4, Kalicūno (lime) tā-6 in the milk of *calotropis gigantea* and close the crucible by putting them into it, give it fire of 1 topali (basket) of dry wild, cowdung cakes. On its being smokeless, take it out. Give seven or twenty one puṣas to them. There becomes the essence. Give it into amalasāra sulphur.

(17x) Jalayantra :-

Wash (purify) mercury tā-3 in the water of Triphalā-āmalakī (*Phyllanthus emblica*), haritaktī (*Terminalia chebula*) and vahaḍā (*Senecarpus anacardium*) and rub it in a mortar for 3 days, in the juice of citrus lemon for 3 days.

Make a ball of mercury to.-1, amalsāro sulphur to.-6, sal-ammoniac to.-1 and killed white lead to. 1 with the juice of Aloe verā. Cast it into a Jalayantra and worship Kṣetrapāla. Then again worship Kṣetrapāla. (Give it) fire-high, medium and low. First dipāgni for 4 praharas, then dhānyāgni for 4 praharas, then bhātāgni for 8 praharas, then bhātāgni for 16 praharas or (give) it all dhānyāgni for 16 praharas. Next the essence is accomplished. Mix 1 ratī of the essence into 1 tola of silver, copper and lead also. Thus is Jalayantra. True.

(18) (Take) Harabast-its name :- (1) rice, (2) Shrebera *Surietenioides* ? (Naravast) (3) *Rubia cordifolia* (Majīth) (4) Liquorice root = *glycyrrhiza* (Jeḥtmādh) and (5) *Rheum emodi* (Revamcint). Crush these five (things) and take equal portion of each of them. Put 1 māsa of mercury under and 1 māsa of it over it in a Vajramūsa (Strong Crucible); put two ratīs of mercury with 2 māsa of medicine. Mercury swells, mercury should be seen Dheghun ? But Jina knows the tattva (principle). (Mix mercury) with *Ricinus*, *communis* and *centipeda orbicularis* (earaṇḍi and chikani). (Mercury) becomes butter-like.

(19) The meaning of do rattā (two reds) and do piyalā (two yellows) :

Crush Cinnabar tā $1\frac{1}{2}$, realgar to. $1\frac{1}{2}$, realgar to. $\frac{1}{2}$, Sulphur to. $\frac{1}{2}$, orpiment to $\frac{1}{2}$, oxide of arsenic to $\frac{1}{2}$, borax (to) $\frac{1}{2}$, surokhara (a kind of oxide), (to) $\frac{1}{2}$ and alum to. $\frac{1}{2}$; make a pit of brick measuring $\frac{1}{2}$ cubic yard. Dig the pit to that extent in which the cup of medicine is fitted. Keep 1 finger of earth below, crush the medicine, and put its powder on the brick in that pit. Put the cup of zinc pai. 6 bhār on it; put pure mercury pai. 3 bhār into it by turning over, turn over (or hold) the cup with light (gentle) hand, put the medicine on that brick and the cup upside down (turn over) on it. Crush brick and close the joint (gap); go on giving pumbhaḍu (drops ?) of the juice of lemon over it; soak cotton with the juice of lemon and put it on the cup till the cup bursts into pieces. While making fire, keep up to that. First (give) fire little by little. Next on the second day give it fire more and more till the cup breaks up (bursts out) in $\frac{3}{4}$ days. Up to that go on giving wet cotton (soaked in) lemon juice over it. Next mix lemon of the essence with 1 tola of copper. (There becomes) gold.

(20) Make lump of kathir (Kalai = a kind of tin) to. 1 and mercury to. $\frac{1}{2}$. Next give cūyā (drops) to it by putting it into an earthen vessel with the milk of Holostemma. Rhudii (Kṣīranīnu jhāḍ) tā-9, its stalk (Sing) is big, bigger, than Horse radish (and) it is like Horse radish. (There will be) silver.

(21) Pour (put) zinc 1 sr. in the urine of ass 108 times. Mix both in the urine of ass till there remains only pai 2. bhār of zinc; combine together 1 māśā of the essence and 1 to. of copper. (There becomes) gold.

(22) Keep green Cadaba farinosa Forsk (Teliokand) in oil for 4 days. Keep over it tā 1 of oil more, put lead-1 sr. and cadaba forinosa Forsk $\frac{1}{2}$ sr. (There becomes) gold.

(23) (Take) the water of the medicinal plant Dudhju (Glory lily = gloriosa superbia), it exists in the shelter (led) of tank and river, its leaf is like that of ocimum sanctum (tulsi). There exists baribotha on it. But the smell of its leaf becomes like the smell of dead body., if mercury is put (mixed) into its juice, but sāṭguṇa-sulphur gets assimilated (jāraṇa) into it. It is a great art. Crush it in (the juice of) sāṭpuḍā (Seven-leaved) Datura for 1 day. Next give tūyā (drops) to it in an earthen vessel. Silver gets settled; crush it in the juice of Evolvulus alsinoides and Naga-Dhatura. Give it tūyā (drops). There becomes aṣṭ (of mercury).

(24) Crush out the juice of *Sonchus oruenois* (*vernonia cinerea* less *Sahadevi*), *cutoria ternatea* (*girani* = *garani*) and *Evolvulus alsinoides* (*Kalaphul*) and *Edipta alb* (*Bhangra*) and give *tuya* to mercury with it; (it) becomes ash.

(25) Rub mercury $\frac{1}{4}$ with the juice of red *Ricinus communis* (*Rakta eranda*)-rub it with the juice of *gandharva* (*Ricinus communis*) for 3 *praharas*. Bind the pill or ball of it. Next make powder of *gloriosa superba* (*Dudhiu vachanaga*) by crushing it. Then make 2 *vaṭakis* (cups) by crushing lead with the milk of *calotropis gigantea* (*arkadugdha*). Do as such that *Samputa* (*Śarā* = lid) sits fully on it, put the pill into it, close the lid and dry it up. Next get it dried up by wrapping or (*viṭṭi*) it (with) powder, (*Kanake*). Next get it dried up by wrapping or mingling in (with) cowdung. Put it into the earth by digging a pit of 12 *angulas* depth. Give it fire of dry wild cowdung cakes for 12 *ghaḍis* (1 *ghadi* = 24 minutes) in the month of *Bhādra*. It is true. Thus *Rūhāgnāhyā mudrikā* (ring) is held on (Put on) the waist, there becomes fixation of penis (*Sthambhanam*), own conception on disease lessness, (*Svakalpanam*).

(26) Make pieces of sulphur, and put them into a hole of a big *citrus colocynthis* by making it (in it), press (give) a lid *dāvāra* (into its mouth) by putting the *gir* (kernel) of it and close it. Cook it in the fire of 4 or 5 pieces (of cowdung cakes). Thus cook the same in new and new *citrus colocynthis* 108 times. Mix 1 *māsā* of the essence with one *tola* of copper. There becomes gold.

(27) Sulphur is fixed in 108 pieces of big ripe *Euphorbia nivulia*. Mix copper 1 *tola* with the essence-1 *māsā*. Make settled and mix $\frac{1}{2}$ *sr.* of the juice of *Aghāḍā* (*Achyramthus*), mercury $\frac{1}{4}$ -5, $2\frac{1}{2}$ *Srs.* of the juice of *Neem* for 7 days, dry up the juice, give heat of fire to it. Mercury becomes butter-like with fire. True.

Triturate it (Mercury) in a red earthen *Kunda* (vessel) and place it in a *kuba* (shell). The pill (of mercury) thus gets separated.

(28) give 64 *puṭas* to cinnabar $\frac{1}{2}$ *sr.* with the juice of *Śakandara* (*Soragali*) $\frac{1}{2}$ *Sr.* It is a great piercer; crush *Śakandara* which is *Soragali* and extract (put out) the juice and mix it with cinnabar, get it dried up. Give 64 *puṭas* (in this way). Crush the copper-piercing cinnabar $\frac{1}{4}$ 5 and *cissus quadrangularis* (*Haḍasakala*) and put the mixture into an earthen vessel, put pieces of cinnabar into it. Cover *Tā. 5 Cissus quadrangularis* (*Haḍasakala*) with the second crucible and wrap it with a piece of cloth; give (put) it 2 or 3 layers of clay over it. Make powder and lump of 1

piece of dry cowdung cake by breaking it. Make the powder of dry pieces of cowdung cake equal and give over it. Next make fire. On its getting cooled down, again, make 2 earthen vessels of the second Haḍasākala. As explained before, give fire of 2 two pieces of cowdung cakes; if small, give 2½ pieces, not more. By this way give 12 puṭas, give 125 pieces in each puṭa. Next, the essence is accomplished. Mix copper t̃ā 3 and 1 ratī of the essence. Melt silver t̃ā and put 1 ratī of the essence into it. Gold.

(29) Rub mercury t̃ā 5 in the juice of Māmkāṇorī (a kind of plant) t̃ā. 5, in the juice of Phyllanthus neruri (Bhui avilā) t̃ā 5, in the juice of poinciana elata (Saṁdesarā) t̃ā 5, in the juice of Visakhāparā (pigweed = Boerhavia = a kind of plant.) t̃ā. 5 and in the juice of Tribulus ter (gokharu) t̃ā. 5 by crushing (them).

Put the whole thing into a bottle in a Veluyantra and give it fire of two praharas. Close the mouth of the earthen vessel. This is a best combination.

(30) Rub mercury t̃ā. 10 in the juice of the bark of the roof of Poinciana elate (Saṁdhesarā) for 4 Praharas and in the juice of Euphorbia pilulifera (Dudheli) for 2 praharas.

Next put it into an earthen vessel, and pour borax t̃ā-2 and the juice of ginger t̃ā. 9 into it, close it and heat it for 4 praharas. Rub mercury in the juice of Gymno-sporia spinosa ? (Boklar) for 3 days. Then rub it in the juice of yellow loranthus longifolia (p̃li Bandālī) for 3 days. Put it into a bottle in a Vālukāyantra and give it fire for 8 praharas. Mix vāla of the essence with tin t̃ā. 5. There becomes silver.

(31) Reduce to paste (or crush) mercury t̃ā. 5 in Amaniya vesi kontoria (Āgriyāno). t̃ā-10 and Purple lippia-lippia nodiflora (Jalapīpar) t̃ā. 10. Put it into a Kodīā sampuṭa (a kind of lid) and in Sine-yantra and Veluyantra (respectively). Put (Make) a good seal to them. Give fire to it for 12 praharas. If gajapuṭāgni is given, give fire to it for 8 praharas, it (essence) generates great appetite. Next mix the essence into tin. There becomes silver.

(32) Rub mercury t̃ā 9 in the juice of Fudeḍṭ for 1 day, in the juice of antichorus (Bahuphalī) for 1 day and in the juice of Purple lippia (Jalapīpar) for 1 day. Rub it in-pongamia glabra (a kind of oil for making soaps = (Kanjhi)¹ and onion for 1 day and in the egg of hen for 1 day. Next make 1 crucible of clay (earthen crucible), put t̃ā, 10 of Čhotra (piece of

1. A kind of oil for making Soap.

bark or husk) or shell into it by crushing it; put mercury over it, put cho-
tra over it, close the Saṃputa, heat (burn) it in a gajapuṭa fire. On its
being cooled down, take it out.

Give 1 rati only, it is very much sex-exciting. Add anupāna (additional
medicine) of the wood of piper longum, (Pipal) to it. If 1 rati of Kesar (Mesu-
afferrea), 1 rati of caryophyllus, aromaticus (lavang) are taken, there take place
an appetite and the nourishment of the body. It is sexual desire-exciting.
If it is taken with piper longum, constipation stops (i. e. gets cured); if it
is taken with honey and piper, typhoid goes away (is cured).

(33) Crush (rub) mercury tā. 5 with the flower of Solanum xantho-
carpum, make pill (ball) of it, close it into an earthen open crucible (udha-
mṣa), put it into the sand of a river. Keep the mouth of the crucible
open, give it fire by putting dry wild cowdung cakes over it. Mix the es-
sence into tin. Silver.

Gatha Nāgajī Sarimgapure

(34) Purify (mercury) paise 1. Next make a crucible of leaf of spanish
jasmine = jasminum radiflorum (cambeli)-lova 2. Put the pieces of 1 tā of nut
meg = Myristica fragram (Jāyaphala) into it by making it just like phasochis
mung.-green gram, (Maga); put three-tā. 1 of whole Caryophyllus aroma-
ticus (1 lavang), tā. 1 or 2 of visakhāparā (a kind of plant), and pieces
of the root of white datura, under and over Paisā. into a crucible of
Būṭī (herb). Next make an earthen crucible, put those things into it and
close (its mouth), get it dried up, give it fire of 2 dry cowdung cakes. White
lead settles like silver.

True Nāgajikṛtam (done by Nāgajī.)

(35) Jalasī (a kind of vanaspati) is of two kinds. One kind is like the
leaf of ocimum Album (Tulasī) and Bhedi (white basil ?) and the other is of
thick leaf like pipalī (Piper longum). Know that like thohariya Saji goes.
Know that it is born much in the swamps behind the temple of Hanuman
(monkey god) on the bank of the river. Mercury is fixed (in that), there
will be money. True.

(36) While going to the temple of Hanuman, first there will come,
Jalasi born in the swamps (dubasi) in the drain (Nalā), it is called galasi.
it is bitter and pungent (mṛī tarī and kathik) like Tulasī (Ocimum Albama),
rub butter of mercury in it for 7 days. Its flower is of 4 petals. There
become two things white and yellow (Silver and gold.). Copper coin becomes
white in the khāparā (juice) of Kālāphul (a kind of vanaspati) (convol-
vulus microphyllus).

(37) Mercury swells in red *Convolvulus microphylus* or *Evolvulus alsinoides* (*Ctenolepis cersiformis*) (*Saṁkhāholi*). Melt tin $\frac{1}{4}$ sr. and powder of *gynandropis pentaphyla* (*Tilaghaniṭā*) pai. 1 in an iron cup, keep it and stir it up, with a spoon for 1 prahara, (tin gets) killed; just like this it gets killed in the juice of *Euphorbia antiquorum*. True. Tin becomes best. True (it is) beneficial. It is done by Indaraji Nāgaji.

(38) Crush lead pai. 1, sulphur pai. 2 and realgar pai. 1 and close them into a small earthen vessel. (Then) give it *gajapuṭāgni*. It (essence) becomes like the colour of the neck of a peacock, it is beneficial. True.

(39) Melt (1) horse tooth, (2) tooth of ass, (3) tusk (tooth) of elephant, (4) the inner essence of the horn of a cow and the inner essence of the horn of a goat and *Abrus precatorius* (*ciṇothi*). Take out the essence of these six and put 1 tola of silver into it; it becomes pure silver. svak. If (the essence is) put into tin, there will be silver.

(40) Cut black *Bhoḍala* (raw mica) like silver (*rūpaia*) (coin), crush and make silver (coin). Next spread out 1 māsa of silver on 1 tola (of *Bhoḍala-patra*); give (place) them layer by layer—the leaf of mica (*bhoḍala*), over it *surokhāra* (a kind of salt.), over it the leaf, again *surokhāra*, again the leaf. Put them into a paper vessel or a light lid (*Śarab*), and sprinkle water. Give heat to them a little with four cakes of dry cowdung. There becomes gold (*hemavarga*).

(41) Heat the pieces of sulphur in the light of a lamp by putting them into an iron cup, put (give) a cup of sugar (a chinese cup ?) inside or over the iron cup. Do it as such that it remains 1 finger high. Take the upper cup, as bigger than the lower under cup. It is true that the half of sulphur comes out, dip (drench) iron into it for 2 days. *Śvetabhasma*. (Silver gets reduced to ashes). It is beneficial (when it is mixed with the essence). True.

(42) Fill up powder of copper and grain of sulphur into a doll and sprinkle water over it, it becomes hot. Put (place) the hand of a patient over it, say 'your disease is gone' for it has come here. This is miracle. Take a dead leech on Sunday, give fragrance (*dhūpa*) to it for 8 days from Sunday to Sunday. Next on the second Sunday, turn the leech and burn it with fire of pieces of sticks for cleansing teeth. Next take ashes of the leech. Mix it with sweet on the festival day. Apply just a little quantity of measuring a sesamum on somebody. The effect is enchanting (*Vaṣi*) *Rṣi Dudāḍattamṇayah*. (According to tradition of *Rṣi Dudāḍattamṇaya*).

* * *

SEVENTH CHAPTER

The process of purifying Mica

(1) Give 1 puṭa (roasting) of *Eclipta alba-wedelia calendulacca* (Bhān-grā) to black mica, 2 puṭas of *datura meta*, 1 paṭa of *Calotropis gigantea*, 1 paṭa of *Euphorbia pilulifera* (Nāgadudhi), 1 pa, of purple tephrosia (Sarapamkhā), 1 paṭa of adventitious branch of Banyan tree (vaḍavai), 1 puṭa of cow's urine (to it), each puṭa followed by the heat of fire for 24 minutes (ghaḍi).

Viṣama jvara (typhoid fever ?) goes away (if the medicine thus prepared is taken), it is to be taken with butter made of she-buffalo's milk; all types of gonorrhoea (syphotic diseases) go away (i.e. cured) (if it is taken). If cum-inum cymnum (jirā) is taken with vasi pāpi (old water) of 6 months, the disease of Rakta pitta bloody (bile) goes away. If taken with the juice of ginger, cough and dyspnoea (breathing trouble) go away. If taken with rice water, epilepsy goes away and hiccough also goes away.

(2) If collyrium is made with *caryophyllus aromaticus* (lavanṅ) and citrus lemon, all diseases of the eye go away, give anupana (trituration pāṭi = ¼ rati ?) with honey.

Mutrakṛcchata (Scanty urination) stops (gets cured), if it is taken. If *caryophyllus* with clarified butter rati-2 is given to a patient, his Jholo (a kind disease) goes away. If one dose measuring only til (sesamum) is given with rice water, Mabārakhi (not identified) disease goes away. Huka, Cuka, Nala, Barahalla (not identified), aṣṭagulma (8 kind of tumour) go away. If it is taken with water, giddines stops, arthritis (or gout) & bhrama coranigi (not identified) disease go away, If mug, rice, wheat, clarified butter ṭā-15 and rotla are taken, the (weak becomes strong).

(3) Make powder of black mica-1 sr. by grinding it. Keep it drenching in the human urine for 21 days. Next grind it in the juice of pita-holola (Yellow Myrobalans), make paste with the combination of mercury (rasa); give it fire in gajapuṭa, again grind the medicine in such juice, give it gajapuṭagni. Thus give it fire 21 times. That is, good mica is produced.

(4) A Tantric incantation. "Aum Hriṃ Śriṃ Kliṃ Aiṃ tvaṃ Cakre-
śvari Śaṃkhacakraḡadāprahāriṇi mama darsanaṃ Kuru kuru svāhā. This
mantra is to be recited, 108 times in the evening. She will tell of auspicious
or inauspicious things.

(5) Put (fill) coral $\frac{1}{2}$ sr. and black mica tā $1\frac{1}{2}$ (srs) into an earthen
vessel, fill it up to that extent (cas) till (as) they get sunk into the milk of Alōe
vera. Give them gajapuṭāgni. Take the clay of the house of a potter. Next
dig a pit equal to the height of the waist (of a man); fill two gāṭhaḡis
(bundle) of dry wild, cowdung cakes into the pit, place the vessel on fire
of 2 bundles of dry cowdung cakes, fire becomes bright. Again and again,
thus give them fire seven times. The essence benefits that much like mer-
cury. Its price value will come as demanded by mouth. Sell 4 parikās (doses)
for Re., 1 make fire strong. Cough, breathing trouble and semen trouble (gono-
rrihoeal disease) stop. (i.e.) get cured. Give fire for 4 prahas.

(6) "Om salutation to Bhagavati" make and make heavy rain in such
a village. Attract and attract 12 pieces of cloud, svāhā."

The process of worship.

Make 3000 recitations of this mantra, make worship of the goddess with
fragrant flower, make sacrifice with gugāla (Balasmodendron, mukul, Kaṇa-
vira (sweet scented oleander. ?) clarified butter, milk and sugar, for three
days. Loud showers rain. There is no doubt here.

(7) Crush Āgrai Bodārā (ash of lead) and allow it to remain in the ferm-
ented juice (liquor) of grapes for a day. Next give if fire. White Bodārā
is produced by rubbing. "Patra vāle, bhakte akahu kaṃ Ravipure" 1. Make
big tablets by rubbing the wood of Neem of 300 years old. Give paisā
(copper coin) under and over them. (Put) white copper in the juice of
narrow-leaved Sepistan (cordia Rothii).

(8) Take grains (powder) of copper, with the persian Vorek (borax).
Make a hole into Biya, fill paisā bhar of the juice of Horse radish tree,
There becomes white copper.

(9) Make the pieces of the root of pentapetes phoenicea (Boporiyā) and
boil them in Tāṃdalajā. (Amarantus polygamous) till the vegetable is well
cooked. Next take it out, boil it in cow's milk in a Dolikayantra. Then
crush it, a pill of it measuring a tuver (a kind of pusle) is to be taken with
water. Besides, salty and sour things are not to be taken, but only curmu(lāḡu

of wheat with clarified butter and guḍ is to be taken, bread is to be taken, sweet rice, sugar and cold drink of sarvat, are to be taken; every kind of boḷ goes away, within 7-14-49 days. It is said by Maṅgalaji of Navapura.

(10) Take pupalia lappacea (gāḍari), its another name is kosu, put sulphur into it, cinnabar becomes best. (It is) said by Bhaktivijaya.

(11) Sulphur becomes white by crushing. Melt it and heat (it,) crush it in silver (?) put the medicine. There becomes gold (of) 11 carats.

(12) Grind (or cut into pieces) the leaf of Tecomaundulata (Rohiḍa tree). Mix goat's milk into it. Fix mercury by keeping it in an open crucible udhamusa. Put that mercury 1 māṣa into 1 tola of tin. There becomes silver.

Now the process of dealing with wax :-

(13) Crush (or grind) all these-red lead (Plumbum oxide = Sindur) pai.-1, wax pai. 1, iron dust pai. 3, magnetic stone (camak pāṣān) pai. 4, Kātho (a lime-lime) pai 1, mākhapiṣṭa pai. 1, lime pai. 1, lac-pai. 1 and natron (sarjikhāra) pai. 4 and filter them in (with) a piece of cloth by crushing them all. Rub them with the oil of Anacardium for 3 days. Then (there is) accomplishment, it is true. It is written (by) Hitavijaya.

Process of treatment of wax.

(14) Put together wax pai-2, magnetic stone pai. 1 and mercury pai. 1 into the milk of Aloe vera as much quantity as possible into the milk of Vaṭa (Banyan) and combine them together; again put grains of iron (iron dust), make them fine, combine them together, put that much of the combination into the oil of linseed and grind and grind it. Put approximately. ṭā-3 or 4. Next crush them with iron hammer, and combine them together. (It is) Menamundrā (the process of wax).

(15) (Take) Vateria indica (candrasa) ¼ Sr., Betula Utilis (Bhūrjapatra) ¼ Sr., linseed oil 1 Sr. Make small pieces of Betula utilis by cutting it with a Scissor, boil the whole thing (it) till it becomes hard. Next beat (crush) it by taking a hammer and a spaner (Sarāsi); as it is beaten (crushed), so it becomes soft. Then put it into a Jalayantra. As it is put (given) there, so there it remains the seal (i.e. closed) for 16 praharas. True. Make Yantraṣṭa bījaraḍṛāṁ. There remain two seals over it.

(16) Crush magnetic stone to fine pieces, crush it with human blood and put it into a Jalayantra and give a hard seal so that water does not break. Crush these five thing—searṭh (clay), husk (foṭra), prahīṇā (not identified), chalk, jhiko (not identified), sea-salt (Saimdhava) and make a crucible by mixing them. It will be a hard crucible.

Menamundrā : The Process of wax seal.

(17) Take lead $\frac{1}{2}$ sr., milk of Ficus glomerate— $\frac{1}{2}$ sr., milk of Calotropis gigantea $\frac{1}{2}$ sr., leaf of Butea Utilis 5, Yogini 5, Muyaḷi 5. Boil Betuda utilis 5 and Muyaḷi in 1. Sr. of water; next make them into pieces in a pot of bell-metal, Menamundrā is produced.

(18) Fry kalicūno 30 and Samkhanābhi (naval part of conch shell) 45 with linseed oil 75 and take them out, and seal them up, and go on giving cūyā (drops) to the powder of salt pai. 2 with the (juice of) Anacardium for 3 or 7 days by crushing, Khāra (Salt). Meṇamundrā is accomplished.

(19) Make the essence of sulphur ga. 1., realgar ga. 1 and mercury ga. 1. Make a lead and smear it with the essence; give 3 puṭas (roastings) to the leaf of lead. That lead gets killed and (gets converted into) silver; ga. 4 gold.

(20) Crush all these—copper ga. 5, mercury ga. 3, realgar ga. 2, borax (ga.) 1, and natron ga. 1 in the juice of Vaḍḍudhi (Euphorbia pilulifera) and smear the leaf of lead or copper with the essence and heat it in fire. Silver.

(21) Melt lohanarina (iron ?) ga-2 and mercury ga-2 by putting (them) into an open crucible. There becomes the essence.

(22) Boil the leaf of Kathira (Kalai = tin) ga. 16 in the urine of ass; melt 8 karṣas of salt and $\frac{1}{2}$ tola of lime, combine mercury ga. 8 into tin and boil them. Next melt that leaf by wrapping, put the essence ga. 1 into it. Having brought cyperus rotundus and carmaghāsa (a kind of grass) and press their juice (out of them). Put mercury into it, give, (put) a covering of cloth and clay over it. Next plaster (wrap) cowdung over it and put it into (the fire of) dry wild cowdung cakes and cook it (the whole thing.) Next crush Kaḍāhru, grind (gum of cochlospermum gossypium, put it into he milk of she-goat and cook it. Next melt tin and put mercury into it. Silver.

(23) Take out oil from realger 1, orpiment 1, sulphur 1, mineral calamine 1, borax 1, white mica 1, and Anacardium-māsa 1, (by heating them) in a patālayantra. Mix copper into that oil and melt it, in equal

proportion of copper combined with half sud of calamine into an earthen vessel together with oil Anacardium bhā. 7, milk of calotropi bhā. 7, Echinops Echinata (Jvālā-mukhi-teuṭakaṭo) bhā. 7. Next combine these two-silver ga. 2 and copper ga. 10, melt and heat, crush Mungya barley and make bread (out of it). Thrust pieces of orpiment into it, put that bread into an earthen vessel, heat it in a closed crucible and give lid (to it), make gentle fire, burn (heat) it till there becomes silver. Next make a leaf of tin (Kathir), give orpiment under and over it. Then put $\frac{1}{2}$ rasa (mercury), next give it 21 saturations of calotropis gigantea. Mix ga. 1 of silver with 1 tola of copper. Mix half silver. It becomes Narahaḍi.

(24) Combine together pure, (purified) mercury and purified lead. Rub them with the juice of Udarkanni (Ipomaea remiformis) for 1 day. Next rub (them) in the juice of Amarathus (Tādalaja = Tricolour var Tristis) for 1 day., rub (them) with the juice of Rativoni. (a kind of vanaspati) for 1 day, in the juice of Araḍusa (Ailanthus excelsa Rox) for 1 day. Next make the cake of Aḍad (a kind of pulse). Put mercury and yellow clay into that cake with the juice of datura and make a pill (bill) of both.

Put killed lead and mercury into the pill, place that pill into an earthen vessel; fill the vessel with salt. Next give it fire for two praharas up to 5 days. Then purify sulphur with double the quantity of mercury and lead. Put the pill over it, put the leaf of Tamarindus Indica and give it cover. Burn it for 2 praharas upto 5 days. That is, it is processed.

(24x) Make pieces of copper ga. 32 and sulphur ga. 1 just like (the size) of Zyzyphus jujabe (bora); give them 7 paṭas (roastings) by wrapping them with a piece of paper. Next bring $\frac{1}{2}$ maund cūnoali (lime). Give half of it under and half of it over that thing, put sulphur in between them. Put a cover (lid) over it and give (put) a layer of cloth and clay over it.

Next place it into the furnace (Nibha) of a rotter when the furnace becomes cool, take it out. Take out 2 handfuls of lime. There becomes bright sulphur where the paper gets burnt. Take that. Then combine that sulphur, and sulphur of the market ta. 1, and mercury ta. 3 by crushing them. Make a cake (or paste) by crushing them in a mortar. Mix 4 ratis of pilhi (cake or paste) into 1 tola of silver. There becomes 11 carats of gold.

Melt it by mixing the powder (dust) of copper just equal to silver. There becomes 10 carats-gold.

The process of making 14 carats (Gold) :-

(26) Give 24 saturations of the water of sal-ammoniac (to gold). Next put it into a glass casket, then pour Khaḍapāṇi (grass water ?) into an earthen vessel, put the casket into the body of dhṛakhaḡ, lit fire under it. (Heat) it till there becomes water, then take it. Make the water of mercury double than all things of the casket. Then combine both the waters. That is, Rasa is accomplished. Melt 1 tola of the Nepalese copper and mix with it 1 ratī of the produced rasa. There becomes 14 carat gold.

The process of making pārapāṇi (Water of mercury)

(27) Make a little water of sal-ammoniac 30, put mercury 10 into it and rub it. First keep separate a little water of sal-ammoniac, put that water little and rub (mercury), when all (whole) thing is rubbed, put it into an earthen vessel, put a lid over it and a layer of cloth and clay over it. Place the vessel on the furnace (oven), make dipāgni for 1 prahara. Again take it out. Put the whole thing into a mortar, pour that preserved water of sal-ammoniac little by little and rub it, again by, (according to) the first method, put the whole thing into an earthen vessel, and place it on fire, make dipāgni for 1 prahara. Thus give it fire 23 times. Next put the whole thing into a glass casket, spread out straw into an earthen vessel, put the casket into it and place it, (vessel) on the furnace, give fire below it, till the thing of the casket becomes water.

Thus is the process of making water of mercury.

The process of making the water of sal-ammoniac.

(28) Bring sal-ammoniac, make a hole into a bringal by cutting its stalk (bīṭa), take out the kernel (garbha) of the brijal and fill sal-ammoniac into it, fill the Kernel into it, give the piece of the stalk into the hole, put it into a paddy of 1 prastha and boil it there. Sal-ammoniac becomes water. Cook croton tig., Cassia anqustifolia and Dolichos biflorus in water in a Dolikāyantra for 1 prahara. Next take the whole thing out, combine together 1 tola of Cassia and 1 tola of Hamsapāka cinnabar, and rub them in the juice of Aloe vera; thorn piercing copper leaf with that paste. Put it into a fresh śarab (lid) and give it gajapuṭāgni (by) putting a layer of cloth-clay, give a puṭa (roasting) to it till copper gets killed. Next, mix the dust of copper equal to silver and melt. There becomes 10. carat-gold.

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EIGHTH CHAPTER

(1.) Liquefy lead 1 sr. and give drops (cūyā) of Alatā (a kind of Vanaspati). It is to be stirred up with a wooden piece of Butea frondosa. When the thing gets reduced to ash, take it out. Next melt silver mā. 2 and the essence mā. 2 together, gold.

(2.) Give 7 saturations to mineral calamine t̥ā. 1, mercury t̥ā 1, orpiment t̥ā. 1, realgar (t̥ā) 1, alum (t̥ā) 1, white glass (Śvetakāca) (t̥ā) 1, sea-salt (Saindhava) (t̥ā)-1, natron (t̥ā) 1, and borax (t̥ā) 1, with the milk of calotropis gigantea. Next smear the leaf of copper (with the essence), heat it three times in a covered crucible, pour it into the urine of ass, butter-milk and cowdung. It becomes silver.

(3.) Combine purified mercury ga. 10 and purified lead ga. 10 and put them into an earthen vessel, place it on a furnace (oven), give 14 cūyās of. Hamsapādi (a kind of vanaspati) to the mixture. Stir it up with the wooden piece of Buta frondosa (palāśa) or Ailanthus excelsa Rox 6 (Araḍusā). Smear the essence on the leaf of Copper bhā. 12 and silver vāla 8 and melt them. Gold.

The king of Rucaka¹ and Lacaka² informs thus.

(4) Make pieces of human hair $\frac{1}{2}$ Sr. measuring 2 fingers long, by cutting it. Next put 1 seer of lime and 1 seer of natron together into 2 seers of tiger's urine and boil them. When there remain 5 seers of urine, take out good essence. Then put hair into that urine and hold it on fire till all pieces of hair get melted. Next pound 1 seer of realgar, 1 seer of orpiment and 1 seer of mica and make cake of them. Rub these things with the urine in a mortar. When all urine gets mixed up (absorbed), take out the thing and get it dried up. Next make pīḍī (cake) by rubbing tili (seed of sesamum?). Put it into a glass casket and give a layer of cloth and clay over it (Sadhara). Then place it on the furnace, give clay to the left and right side of it, give much, give fire of Khicaḍī (coal, wood, etc). Take it out, on its getting cooled down. Hair and essence get separated. Mix the essence ga. 1 into copper gadiyāna 16. (There becomes) silver.

(1) Not yet identified.

(2) Ibid.

(5) Combine together kathir (Kalai = tin) 2 srs., sea-salt 3 srs, and milk of *Borassus flabellifer* (palm) 5 srs. and put the combination into an earthen vessel. Give a lid over (its mouth), close up the joint thickly and dry it up. Again, if there becomes a gap, (crack), give clay to the joint. Do as such so that the smoke does not come out. Place it on the furnace, lit fire under it by setting fire with Tamarind wood.

Give it dipāgni till salt and milk attain dryness (or fineness). There becomes silver.

The process of Purification of Kathir (Tin)

(6) Make a leaf of Kathir, next bring many flowers of *Calotropis gigantea* and give (make) a dathar (layer) in a vessel. Put the leaf over it, put flowers of *calotropis*, next place it (vessel) on a furnace, keep it on charcoal fire under it for 2 praharas.

Then take it out. Thus is the purification of Kathir.

(7) Make the leaf of Kathir thin, next take alum and *Saṁkhiu Somala* (a kind of oxide of arsenic.) *Ancro Somala khār* (a kind of *soamikhār*) $\frac{1}{4}$ and 2 respectively. Put $\frac{1}{4}$ sr. of juice of palm (*taḍi*) into a *mātheri*¹. Give 7 paṭas (roastings) to that leaf. Dry it up in the sunrays. Next take 5 srs, of pieces of *Kalīcūnā* (lime of oyster shell) and fill an earthen vessel or jar with it. Bury that vessel into the ground upto its brim. Then put the leaf into the lime of $\frac{1}{4}$ vessel (jar). Fill lime over, it, then pour *taḍi* (juice of palm). Next seal it up immediately with clay. Keep it for 3 days by sealing up its whole mouth. Next take out the essence. It (leaf) becomes silver.

(8) Make equal parts of each *Rāsegha* (a kind of metal) - 1., *Mora-thuthu* (a kind of poison) 1 and mineral *calamine* 1 and combine these three-silver *bhā.* 1, copper *bhā.* 1 and powder of *Rāsegha*, etc. *bhā.* 1. Put them on fire, put *cinnabar vāla* 2 after their melting. (There becomes) gold.

(9) Drench *cinnabar* in the juice of *Bhūirigani*, (*Solanum Xantho carpum*) 21 srs, put 200 tolas of its fruit into that cooked mixture. Make the smearing of the gum of purging *cassia* (or *Cassia Fistula*) on the leaf (or leaves) of copper and silver three times.

Jogvidyā-1 or 2

Put together *rasa* (mineral) of sea salt (*Saindhava*) and lime (*Cūnā*) by combining them and pour Kathir (a kind of tin) 108 times. Crush 1 Sr. of

(1) A kind of earthen vessel.

kathir and 2½ srs of lime Kalicūno = lime of oyster shell) and put the mixture into the leaf of copper and make it cold. Put rasa (mineral) little by little, do not put it at once (at a time). Next on its getting cooled down, take it out. (There will be) good silver.

(10) On the 14th of Divālī at midnight, besmear Jalāphula (a kind of flower) with clarified butter and make its wick. Make carbon (masī) with it. Stick it to the cloth of a woman at quiet time at midnight. (She will be) enchanted (Vasī) and will not leave (your) waist.

(11) Crush or reduce the paste the root of Marahaṭī (a kind of vana-spati) with mercury and also in the juice of Thistle (Echinops echinata) (Uṭakṭa) and crush also datura (thorny apple) mā. 1 and Achyranthus aspera mā. 1 in the juice of Euphorbia pilulifera (dudheli) in the juice of Hyoscyamus Nigera (Kharasānt) in the juice of plumbago Zelylanica (citṛa) and in the juice of aquatic Eclipta alba (Jalabhaṅgrā). The essence is produced in Jalayantra (a kind of apparatus).

(12) Take mercury-tā 5. Crush, Traṇyamūli (a kind of vanaspati) as fine in Jhikakā (a kind of vanaspati) for a day, in the juice of Aloe vera (kumārī) day and in water of liquor for 1 day and rub mercury into it for 7 days. The essence is produced in Jalayantra.

(13) Wash (purify) mercury by (partly) mixing it into the (Juice of) Sweet citrus lemon. Give drops (ṭuyā) of the juice of Vagadāna (a kind of vanaspati) to sal-ammoniac. Give fire to the earthen pot by putting the whole thing into it. It becomes dhanī by swelling.

(14) Purify mercury in sugar till sugar remains white. It becomes black. Next rub it in the juice of Bhitabhedī (a kind of plant) in a mortar for 40 praharas. Next put it into an iron pot and stir it up with an iron rod. Put the juice of yellow Myrobalam (Terminalia chebula = Halola). Give fire of wood under it (iron pot). Put the juice till mercury becomes lime (cūno).

(Take) dose equal to the size of rice, appetite becomes double. Salty, and sour things are to be given up.

Gā. Rabha (sa) āmnā.

(15) Make a hole into a Amorphophallus campanulatus (Suraṇa) and fill cup of Nāgachikanī (Centipeda orbicularis). Put the leaves of Kalhira (a kind of tin) over that.

Put 1 māsa of mercury on the leaf of pai 1 bhāra. If there is kathir pai. 1 bhar, take Chikanī. Pai. 2. Put the leaves layer by layer, close it by giving a gadabacu (piece of sūraṇa). Put a special cup on it. Cover it up with the layer of clay and cloth and burn it in fire. Silver.

(16) Drench Emblic myrobalan (āmlā) pai. 1½ and sulphur (umṭiu) pai 1 with the juice of lemon for 3 days and apply the thing on affected skin. Lūkharasa (Urticaria), eczema, leucoderma and itching (Kharāj) disappear by (the application of this medicine), i.e. get cured.

(17) Dip (drench) mica in the juice of Kaṁṭaseliyā (a kind of vana-spati) and put it into a shieve (cālani) and then put it in the sunshine. Mercury comes out of it.

(18) Take Malaphi (a kind of mineral) to-1, mercury to-1, golden pyrite to-1, bodāra (a kind of mineral prepared out of copper), to. 1, realgar to. 1, rāyasīṅgha¹ tola 1, Keravo² to. 1, candrasa (vateria indica, to 1, hīrāḍakhana (calamus draco) to. 1, jaṁghāla to. 1, thutho (a kind of poison) to-1, gali (indigo) to-1, mastaki-(pistacia hentsiscus) tola-1 and sal-ammoniac to. 1. Rubbing these fourteen in combination with the juice of betel, fill (put) the content into a bottle, fill it loose, give a seal into its mouth after getting the juice heated on increasing and increasing fire for 8 praharas. (Put) mercury of the 1st bottle, measuring a rai (mustard seed), pour the juice of black Eclipta alba into mercury. Silver. If such bottles are seven the seventh becomes Seven-dhātuvadhī (piecing metal).

(19) If Pegāmī sal-ammoniac is available, put to. 2, add mercury to. 10 (to it), and make the previous action. The test of pegāmī is that copper which is given over the cup upside down becomes gold.

(20) Washing Test : if it is drenched (dipped) in the juice of siddhi (Vegetable Ronnatt or Cannabis Saliva and flown, it does not fly. If it is done seven times, there becomes Pegāmī Navasāra.

(21) Rub these two-the juice of bud of campā (jasminum officinale binchamba), ta. 20 and oil ṭā. 20 and heat the mixture and put lead ṭā. 4, into an earthen bowl and make fire under it. Give drops (tūyā) of the bud of campā-the essence. Mix 1 ratī of this essence with 1 tola of silver.

(22) Put mercury 1, Sulphur 1 and alum 1 into a bottle and give fire to it for 4 praharas. It (the essence) is best in taking.

(1) Not identified properly.

(2) Not identified properly.

(23) Pound (or crush) these three-bhāji (vegetable = शक) of Vasaṇa-1 (a kind of vegetable) āgiu 1 (a kind of vegetable), lajaluchāti 1 (a kind of vegetable) in mercury. Next rub them in a mortar for 4 praharas. Give it (combination) fire of wild dry cowdung cakes 4. in a śaravasamputa. Mix 1 tola of mercury (Jāge = Pārā) with 1 ratī of Kalka (essence).

(24) Pound lime of osyster shell-ṭā-5. and mercury ṭā 5, with the juice of Aloe vera up to 1 prahara. Give it (combination) fire in a śaravasamputa. Ash of mercury is thus killed. 84 Vāyus go away. In joints mercury becomes paḍyā.¹ It becomes vedhaka (piercing).

(25) Give paṭas (roasting) to ash of mercury to. 1 and gum of Arājharu² to. 1, with Codhart Haḍasāmkali (cissus quadrangularis) for 7 days. Next give them 3 puṭas (roastings) in the juice of the flower of white sweet-scented oleander (Nerium odorum), get them dried up. Next close the thing into a bottle of glass casket. Give it fire of 50 wild dry cowdung cakes by putting it in a Velukayantra. It is said by Khambhāti kṣatriya. (You) know that.

(26) Rub (triturate) mercury ṭā 4 in the juice of datura (thorny apple) and in the juice of Aloe vera. Copper gets burnt, there becomes ball (pill) with copper. Next rub it in the oil of datura and keep it in oil. There becomes mouth.

(27) Rub mercury in the juice of Raḡhāgali, (a kind of vanaspati), rub it in the juice of datura, next rub the oil of datura in the juice of Raḡhāgali, fix it, fix it into a bottle for 15 days.

(28) Put mercury to. 1 into an egg and close it into the powder of wheat (i.e. close the hole with the paste of powder of wheat). Next put 4 srṣ. of lime into an earthen bowl. Put the egg in the middle and close it by keeping its mouth open. Fill it with water, place it on fire by making fire. Put again water by knowing when water becomes less; give it fire for 21 praharas. Guṭikā (pill) is produced.; get it dried up by putting it into milk. There becomes mouth in it.

(29) Rub (or triturate) mercury ṭā. 5 in the juice of Sesbania gladiiflora (Agastapuṣpa) for 7 days and in the juice of datura for 7 days. It becomes like thick paste. Put it in citrus lemon and close it. Place it into an iron pan in a Velukayantra by filling it under and over with sand; give it fire for 32 praharas. There becomes goṭikā (pill), it becomes hard. Next make a hole into a green Butea frondosa and put it (goṭikā) into it and close the mouth. Give a cup of silver into its mouth; heat and melt it and bind (fix) the tablet or ball (goli), then put a layer of cloth and clay over it and cook it in oil. There becomes mouth in it.

1. Not properly translated. No doubt it means that mercury is helpful in rheumatism.
2. Not identified.

(Take) mercury ga. 2, and a piece of wood of Nieem, a ripe green piece of wood; do not separate the branch from the plant (tree). Make a hole into it and put that mercury into it. First put vermillain (sindura), close its mouth, next put mercury, putting (setting) a piece of seal into it; give the dry dung cake of she-buffalo. If the branch remains green, know that it is accomplished. If it gets dried up, there does become not the mouth, keep it for 6 months.

(30) Combine mercury tã. 1, semen ox tã. 3, and green Vitriol or iron sulphate tã. 6 into tin and rub them in the juice of Alhaji maurorum (javast) for 3 days. Smear two tin cups (trapuvātakī) of $\frac{1}{4}$ sr. Make 3 Kharadas, smear inside of them, get them dried up in the shade. Next give the layer of cowdung and clay over them, heat or cook them separately (asambaddha). There becomes powder. Next give 3 saturations of the powder. Then put 1 bhāra and fix (bind) (mercury). Make worship of Bhairava.

(31) Make pill (or tablet) of Hamsapāka cinnabar tã. 5, Sulphur tã. 5 and godanti orpiment tã. 5, in the juice of Aloe vera and dry it up, put it into a pot. Close it and give a layer of cloth and clay over it, place it in a Veluyantra and make worship, give it fire for 5 praharas—first—dīp-agni, second—madhurāgni, third kālāgni and fourth haṭṭāgni; like this. Give it fire for 5 praharas and purify the content. Give it for 3 days 8 times. Make thorn-piercing leaf of Zinc, give it 21 puṭas in the milk of Vajri (Euphorbia antiquorum) by heating and heating it, and 21 putas in the milk of calotropis. Put it into Bhūkā (husk ?) and crush (pound) it. Next give it 7 puṭas (in the milk) of Aloe vera. Then make a ball (goli) of it, next put it into a crucible and give a layer of cloth and clay over it.

Next place it in a Valukāyantra and make worship and give it fire for 5 praharas—Madhurāgni, third Kālāgni and Haṭṭāgni. Then make offering of grains, etc. Sprinkle honey, next take it out. If it remains raw, again give it fire for 1 prahara. Pour Triyoni ga. 1 into the dung of pārhi buffalo vāla $1\frac{1}{2}$ twelve times. Make the leaf of zinc purified in green ajamo (Trachyspermum ammi Svn arum copticum or ptycholis ajawan). Next bring milk of calotropis gigantea 5 srs, combine five salts into it—Saindhava salt tã 4, sam-cala salt tã-4, Kācalavāṇa tã. 4, natron (sargi) tã 4 and sea-salt tã-4. Pound or crush these as fine and put them into an earthen bowl, put inside it $\frac{1}{2}$ salt under and $\frac{1}{2}$ salt over the leaf. Over that fill milk of Calotropis gigantea 5 srs; over that put salt and close it by giving lid over it. Put the bowl into a pit and keep it there for 3 months by filling it up

and it should be seen by taking it out. If it remains raw again, give milk of *Calotropis gigantea* 2½ srs into it in a bowl; close it and place it into the earth for 3 days. Rub posehāsa (a kind of mineral ?) vāla. 10 and takho (chilli or iron ?) tā. 5 in the juice of *datura* ½ sr. for 4 praharas and rub them in the juice of *Nāhi* (*corallocarpus epigauys*), rub them in the juice of *Marahaṭhi* (*Spilanthus oleracia*) ½ sr. and put them into a crucible and give (put) a layer of cloth and clay over it and heat it in fire for 8 praharas. The essence is accomplished.

(32) Take both mercury 1 and Saṁkhi (Somala) (oxide of iron)-1 in equal portion. Rub them in the milk of *Euphorbia antiquorum*, rub them in the milk of *Calotropis gigantea*; give puṭa (roasting) of *Ricinus communis* to them. Put the whole thing into a bottle and make a strong (tight) seal (into its mouth); give it fire for 4 praharas in a *Vālukāyantra*, give it mandāgni (gentle fire) for 1 prahara, haṭhāgni for 3 praharas.

Pā¹ de. po. 1 nā (or) 1½. Next combine (Khujoḍe) equally. 2 srs of powder of old Jowar and ½ sr. of salt; make 2 breads in the milk of *Calotropis gigantea*, conceal or cover Somala (oxide of arsenic in one bread and put the second bread over it and close them, fry them in the oil of *Ricinus Communis*. On its becoming hard & red, take the thing out.

Put tin tā 2, and pādu (not identified) gadīyānā 2. into Nāla 1 (*Phragmites karka* ?), make a hole into a lemon, put realgar inside by cutting, a piece and closing it. Cook it in the fire of straw of wheat. On its getting cooled down, take it out. Do thus 108 times, 2 or. 1½ of prādekha, thus of brinjal 100 times, of branch of *Euphorbia antiquorum* 100 times. Just as its quality. Take *Vāyukumbha* (a kind of vanaspati) and lead in equal portion. Take green *Vāyukumbha* (careya arbored ?), wash blackness of lead with lemon by pouring it into its juice, next make a thin leaf of it. Put it inside *Vāyukumbha* by taking out its kernel. Put (fill) lead that much into it, put a layer of cloth and clay over it and burn in fire. On its getting cooled down, take it out.

(33) Fix Naga-pila (lead and gold) and takho (iron) with, *Alangium* (*Akalakaro*) 1, and *Amaryllida ccae* (*curculigo orchiodes* Musali 1, make pill just equal to the size of a gram with the juice of betel leaf.

First make lead purified, remove its blackness. Melt that lead ½ sr. and iron ½ sr. and make a hole, crush (or pound) orpiment ½ sr., rub it in the juice of garlic and *Aloe vera*, rub in the Juice of *Aquilaria agallocha*.

1. The meaning is not yet deciphered.

(Hamsapadi) for 3 days, rub it for ghaḍis (72 minutes). Put it into a bottle and place it in Vālukāyantra, give it fire for 12 praharas, change (i.e. repeat) 3 bottles. Rub prā¹ depo (Kho ?) 1 in a mortar, put it 1 or 5 times, again change 2 bottles; the essence becomes red. Rub prādepō 2 fourteen times. Melt trapu (a kind of tin) $\frac{1}{2}$ sr; pour it into the curd made of milk of she-buffalo 7 times and in lime 3 times. Next heat pork $\frac{1}{2}$ sr. in these two bottles in a Vālukāyantra on fire for $1\frac{1}{2}$ praharas. There becomes gold. If there is no bottle, do it (make the process) in a small pot.

(34) Put cinnabar janāvadi (pai) 4 bhār and oil Janāvadi (pai) 3 bhār in an earthen bowl, put pieces of cinnabar, and oil Janāvadi 3 and close it. Put a layer of cloth and clay over it; give it fire of dry wild cowdung cakes 3 srs. Do it thus 42 times. Take ṣūtu² tola 1 and Sūo³ (khuto) (tol.) 1; next melt prāṇu⁴ to. 1, put that ṣūtu 3 by adjusting (pressing). Mix (put) long pipper 10, semen of cow (ox) 10, cinnabar 5, realgar 5, and orpiment 5, in the juice of Kakasi (Sisymbrium irio linn) for 14 praharas. Next put the whole thing into a small box of zinc actually weighing pai. 4 and give (put) 7 layers of cloth and clay over it. Dry it up on fire of 1 prahara. On its getting cooled down, take it out. Crush (pound) it for 1 prahara, then melt prādepō 1 and put hā. 1 (gold ?), grind both of them, mix them together. Quench both of them in the juice of Dhakano (a kind of vanaspati) 1 sr. and Pāṇdu (not identified) to. 1 by heating and heating them till there is (liquid) rasa (juice). Next put rasa $\frac{1}{4}$ sr. into an earthen bowl, give 7 layers of cloth and clay over it and heat it in fire for 4 praharas. Good copper is produced from silver.

Next pound tākho (black pepper) to. 1 and pāṇdu (not identified) to. 1 in the juice of khāpara (Pigweed) = punarnava (Boerhavia Diffusa). Make tablets of it and put them into an earthen bowl, give it gajapuṭāgni for 4 praharas. Rub Hamkha¹ to. 1, Mix Sū(tu) 1, zinc tā. 25, Khaḍa tā. 12 for 4 praharas by making a hole (Khāch (ja) (into the bowl ?).

Next give the whole thing 108 saturations of Aloe vera. Then put realgar to. 1 into them and keep it steeped. Next make 2 open crucibles out of the excreta (earth) of earth-worms, give them fire of dry wild cowdung cakes-2 srs. Thus give them fire 108 times. Rub Po. 1. Pour milk of Eup-

-
- (1) not identifiable.
 - (2) not identifiable.
 - (3) not identifiable.
 - (4) not identifiable.

horbia Antiquorum 4½ srs. Oil 4½ Srs., and the juice of datura ¾ sr. into an iron pan and give the cake of Uḍad (into them), give it fire of wood of Calotropis gigantea for 4 praharas. Take it out in the morning. Keep it up to the evening, allow it (to) settle.

(34x) Rakr. Karaga¹, mineral calamine, cinnabar, varanārī², give tāsū³, (making) jāri ratt. Vatrī⁴ 11. Give randi muṇḍī, bhāu⁵ holds the umbrella-the king of great maṇḍala (kingdom).

(35) Take cinnamon bark (taja) pai. 1, Alangium lamarki (Akalkaro), Rheum emodi pai (Revamcini) pārā (mercury) 1, make a cup of silver to. 1.

Put these things into it and crush it. Next drench (put) the wine of Muḥuḍā (Bassia latifolia)-5 srs. and the juice of lemon 5 srs. into the cup. Next when khicaḍī (hotchpotch) 100 srs. bubbles, then put the whole into it. Then close the mouth and make smearing over it.

Aum Salutation, mā māmauli mānurāni āvyā jāni ulāhamtyāri śakti hām; hīrṇ Aghoramantra svāhā 10200 japah (recitations.)

Amṛta Samijivanvidyā-Siddhiḥ.

1, Not identifild.

2, Not identifild.

3. Meaning is not clear

4. Not deciphered.

5, Not clear

NINTH CHAPTER

(1) The processing of hill-water is written :-

There are four colours of hill-water, viz. (1) white, (2) yellow (3) red and (4) black.

(1) One is kṣaṇavedhī (piercing in an instant), (2) One is praharavedhī (piercing in 1 prahara), (3) One is dinavedhī (piercing in 1 day), (4) One is 8 dinakovedhī (piercing in 8 days), (5) One is 15 dinavedhī (piercing in 15 days), (6) One is 90 dinavedhī (piercing in 90 days), (7) One is ṣaṭmāsa-vedhī (piercing in 6 months) and (8) One is varsadinavedhī (piercing in one year-365 days). Three woods have fallen in that water and their leaves also have fallen : Take that (water). Aum Salutation Salutation to Siddhveśvara.

Purify mercury in that water. Keep it for two months, there it becomes like fire when heated. Next give fire to that mercury (i.e. heat it), it becomes lime-like. Put it into a brinjal and burn it in fire (give it fire).

It becomes Nāga-Vaṅgavedhī (capable of piercing into lead and tin). If it, having the size of half of a rice, is taken one can enjoy 100 women. If it is taken with clarified butter, it makes the human body deathless. And if mercury is kept in the hill-water for 12 or 21 days, it becomes guṭikā (pill). If that mercury (copper?) is kept into the mouth, whatever work is done by reciting the aforesaid incantation becomes successful. It is the process of all arts.

(2) Pound viko¹ or that Khaciko²; if you rub it in cassia angustifolia (Sonamukhi), it becomes Nāga-vaṅgavedhī (capable of piercing into lead and tin). True. If it is taken having half of the size of grain of rice anything can be eaten. It makes the body deathless, true.

(3) Rub mercury in hill-water. If kept in Kharakanda (bhūmikuṣmāṇḍa) (pueraria tuberosa) and next kept in hill-water, mercury gets fixed and makes mouth. It is the process of thousand arts.

1. Not known and identified

2. No known and identified.

(4) Guṭikā (pill of mercury) becomes Uḍamta-gaḍamta and piercing. Take it into a pot of long gourd or *Xanthoxylum alatam*, it does not stay in any other pot. Mix that guṭikā into water. Drink one spoonful of it.

While the sun is rising. One will live for thousand months.

(5) Mix mercury into *Ferula foetida* by making a hole into it, give a lid over it. Wrapping (1) vāla in the tail of a cow, mix it into hill-water. That mercury gets fixed and becomes soft. It is the best Nāga-varṅgavedhī capable of (piercing into lead and tin). If it is kept into the mouth, it strengthens much, (i.e. gives much strength).

(6) Rub gold to. $\frac{1}{4}$ and mercury to. 4 in a mortar. Make a hole into the wood of Śivan (*Gmelina arborea*). Put it (into that hole) and give a lid into it. Next keep it in hill-water; it becomes stone-like. Reduce it to ashes. If that ash equal to $\frac{1}{4}$ the size of a grain of rice is taken, one goes up to 1000 gāus.¹

(7) Rub cinnabar 1, orpiment 1, sulphur 1, realgar 1, and mercury 1 in hill-water. Make holes into the wood of Śivan (*Gmelina arborea*) and *Butea monosperma* (*Khakhari*) and burn mixture by putting it into them respectively. It becomes Sarvadhātuvēdhī capable (piercing into all metals).

(8) Location of Hill-water is written

(1) There hill water at Kalyāṇanagara, (2) at Girnar, (3) at Tārāṅga, (4) a Gahuyāri, (5) at Vegarvala (6) at Gaura parvata (7) at Tumgiyā, (8) at Bhopagiri parvata, (9) at Amadanagar, (10) at Bhaṭamāra, (11) at Pāranerā, (12) at Girimāra, (13) at Burḍimnā (grāma), (14) at Bagalāṇa, (15) at Kaṇyārī, (16) at Dhārānagara (17) at Śulapāṇa (18) at Ratnamālā and (19) at Abu.

There are many other places (where hill-water is located).

(9) Fill (put) all these—lead $1\frac{1}{4}$ srs; black sesamum $1\frac{1}{4}$ srs., gola of *Imgarā* (*Balanites Aegyptiaca*)— $1\frac{1}{4}$ srs., ripe *Aegale folia* $1\frac{1}{4}$ srs, *Anacatrium* $1\frac{1}{4}$ srs, raw oil $1\frac{1}{4}$ srs, old kernal of cocoanut— $1\frac{1}{2}$ srs., mustard seed— $1\frac{1}{4}$ srs and, tarmeric $1\frac{1}{4}$ srs. into an earthen bowl by grinding them all (in a mortar).

Mix *Aconite ferox* (*vacenāga*), give *Vasāṇu* (*masālā*) under and over it; give a seal of chalk and salt into the mouth of the bowl. Dig a pit measuring 1 yard in length, 1 yard in breadth and 1 yard in depth, (*gajapuṭa*) and fill it up with goat's dry dung-cakes, put the saṃpuṭa (lid) into it and give it fire for 11 days. White lead is produced.

1. A length equal to kroṣa.

(10) Rub mercury in Asaṁ avoken (a kind of plant) and Euphorbia pilulifera for 7 days and in the juice of red branch of Achyranthus aspera. There it becomes Ā. Kho. Ā. da¹.

(11) Melt somala (somalakhara) = oxide of arsenic māsa 1, zinc mā. 1, borax mā. 2, and copper mā. 4 in an open crucible. Dalam (particles) gets combined; quench good iron-leaf in the stool of cock vala 14 in an open crucible, in molasses-vālā 14, and in sal-ammoniac vālā 14; iron is produced, put the leaf inside.

(12) (Take) Kasumḍina, (Negro coffee plant = cassia occidentalis) 1-sr., big gaṁdhāyani ¼ sr., leaf of Nāgori (cyperus pertenuis) pā. 1, and seed of Dolichondron falcata (miṭhāsīngi) pā. 1; put two leaves in between layer by layer, place the whole thing in a sarīpuṭa (lid) and put 3 layers of cloth and clay, give it gajapuṭāgni for 4 praharas. Thus do the process two times, silver is produced.

(13) Mix orpiment with clarified butter, rub it in the ash of pippala (Long pepper) 5 srs. and Khākharā 5 srs. (Butea frondosa). Mix orpiment with cassytha filiformis (amarī), mix it into an earthen bowl (earthen potsherd), give ashes of those kinds under and over it. It becomes ash; smoke comes out. Then give ashes, give it fire for 2 praharas. Silver is produced.

(14) Rub mercury with barley, etc., next cook it with milk in a Dolikāyantra. It is to be burnt.

(15) Take mercury ½ sr. & realgar ¼ sr.; melt lead and put powder of realgar into it, i.e. reduce them to paste. This is to be known from guruparamparā. Grind these three together, fill the mixture into a glass casket. Fill (put) that casket into a yantra. Fill that yantra with sand particles. Give it fire for 8 praharas, make dīpakāca (dīpakāgni ?) in a furnace, put the yantra on it. That is, cinnabar is produced True. 108.

(16) Crush cinnabar pai. 1 and lead pai. 2 finely and make 2 musus (crucible) in the juice of datura. Put cinnabar into that crucible and close it. Make the ball of vibhuti (ashes), put the ball of vibhuti into that. Make the ball ashes of goat's dung melted. Close the ball of vibhuti and give it fire for 2 praharas; white cinnabar is produced.

(17) Combine cinnabar pai. 1 C₁, (noṭhī) (bead tree) (Abrus precatorius) pai. 3, tabākhirā (Curcuma angustifolia = Indian arrowroot) pai 3 and Muragī Chaleṭā-(a kind of plant). Cinnabar is produced.

1. Not yet deciphered.

(18) Make fire of bark (Chāla) of śākha (branch) of -5 sr. crush, datura 1, garlic 1, onion 1, ginger 1, Balanites roxburghii (irigoru), lead, Anacardium and oheander (Kaṇera), crush cinnabar in the cūya (drops) of these, next put it on fire, it becomes ready. True.

(19) Burn (heat) mercury $\frac{1}{4}$ sr. in jhikā-(a kind of plant or product of plant) for 1 prahara and in the powder of turmeric for 1 prahara and in Aloe vera for 1 prahara. Next take it out by washing. Then rub it in the juice of Kumli¹-red Vaḍavāi (Ficus Bengalensis) 5 srs. for 7 days by taking out its juice. Next cut it into pieces. (Take) Vaḍavāi-2 or 3 srs. and grind (pound) it, place it into an earthen bowl. Put a piece of cloth over it, cover up Vaḍavāi and close it, give fire to the earthen bowl for 4 praharas. Take it out on its getting cooled down. Next boil the tender leaf (or leaves) of Kākasi (Sisymbrium irio linn) in a little water and crush and take out its juice; grind and rub that mixture in that (rasa) as before; give it fire for 4 praharas. The process is accomplished. It is a great success. It is (the grace) of God. Take Vaḍavāi of 4 fingers in length, it is red.

(20) Put mercury t̄a. 30 into a Chinese pot. Fill it with the urine of donkey-25 srs., close its mouth, keep it into a village dustbin for 6 or 7 months.

Perhaps (if ever) the urine does not get dried up, keep it there for a month again. Prā de. prahara 1, hā. 1. The Manibhadra pill is (used) in (the case of) old fever.

(21) Make a lump of mercury t̄a 5 and trapu (a kind of tin) t̄a. 5, cinnabar 5, Trigada 15, Caryophyllus aromaticus (lavaṅga) 5, Ficus Tsiela (Pipali or Piper longum) and Alangium lamarkii (akalakaro) 5 in the juice of Ocimum Sanctum and in the juice of betel leaf. If a pill measuring a guṇja is taken, all (types of) fever go away.

(22) The mixture of lemon. 1, dried up date (Kharik) 5 and mirikapa (grains black pepper)-4 is administered in the case of a patient suffering from bile and goes, together with caryophyllus aromaticus and Miśri (condensed sugar) and the diet-Khicaḍi of rice and pulse-Tuyar with clarified butter as much as liked by him. all types of fever go away. This pill as Jaḡav-antavāli.

(23) Reduce to paste mercury t̄a. 9 with ocimum sanctum for 1 prahara, grind it with Nohera¹ for 1 prahara. Next combine (mix) pure sulphur t̄a 9, realgar kaṇeriu t̄a. 7, Somala Khara (oxide of arsenic) t̄a. $3\frac{1}{2}$ by crushing them. Pound them to powder. Bring one big earthen bowl of big mouth.

1. Not yet deciphered.

2. a kind of vanaspati.

Make a round piece of white mica by cutting it and put it into that (bowl) and close (cover) it with a new lid or plate (caruḍo = vāsana), put mercury over that mica. Cover it up again with mica, make 2 pieces of cāṇḍā¹. Put the plate over it, close the mouth so that smoke does not come out. After that, fill sand into the jar (above) upto the brim. Give it fire for 3 prahāras (1 Kaparāḍī) by giving (putting) a layer of cloth over it. Best medicine (is produced); (it is to be taken) with honey and pīpar (long pepper). Appetite will be felt, it is sex-exciting. True. It is very much good. Sa(ha) Amīcāṇḍavālo.

(24) Take cinnabar t̄ā 1., mercury t̄ā. 1 and gola (garbha = core) of Ferula (foetida) t̄ā 1. Make pill out of them measuring the size of a gram. It is good in the case of impotency. Take out the bark of the root of Kharasamḍiyā (Euphorbia) Tirucalli linn = Milk Bush t̄ā 2½, Ajamo (Trachyspermum ammi symcarum copticum or Ptychotis, ajawan) t̄ā. 1½. (Take) this much every day. Thus (for) 40 days; (it is good) in (the case of) impotency. True. Round tumour goes away (by its use). It is the best of all opportunities. Dry up the bark of the root of Sarakhaṇḍiyā (Kharasamḍiyā ?) in the shade. Combine together the two—its powder t̄ā. 2½ and ajamo t̄ā. 2½. Make the process with water every day for 4 days. In the case of impotency this Gangavali (medicine) (is good).

(25) Rub mercury ¼ sr. into a jhikā (jhikā ?) (a kind of vanaspati) for 1 prahara, in Aloe kera & in turmeric for 1 prahara each. Rub mercury ¼ sr. in the juice of Ocimum Sanctum ¼ sr. Make it lump and rub it in the juice of Bābactno (Purple Fleabane = Psoralea corylifolia) ¼ sr., rub it in the juice of Marehathi. (Spilanthes oleracea) ¼ Sr. and Nāgalādudhi (Euphorbia pilulifera) ¼ sr.

Śakamḍara which is just like Sarakhaṇḍiyā, the leaf of which is like Jhliharu (Biophytum sensitivum) the flower of which is yellow. Its leaf is like that of Samkhāholi (Ctenolepis cerasiformis). But its juice is very much sticky. If it does not come forth, take it with Ocimum sanctum. Boil that Juice ¼ sr. & the Juice of Śakamḍarā and take it out, put it into a Dolikaynatra. Make 4 balls by making lump of the juice of Amkoli (Alangium lamarkii) ¼ sr. Make 2 crucibles of clay of potter and get them dried up. Put the balls into it, and close it. Put a layer of cloth and clay over it, give a layer of cloth and clay by crushing salt and coal, give a layer of cinnokātho (Lime), salt, chalk on one joint of the earthen pot; give the other 3 as said before. Give (put) 3 layers of cloth and clay. By drying it

up bring kátho 1, put 1 earthen bowl over that, put Sāmpuṭa (lid) over that, give it fire of $\frac{1}{2}$ or 3 maunds of dry wild cowdung cakes. On its getting cooled down, take it out. Make 60 pills by combining mercury to. 1, Kesara (Nāgakesar = Mesua ferea) to. 1, Javanṭṛī (Myristica fragrans) to. 1 and lavimṅa (Caryophyllus) aromaticus to. 1 with the juice of betel leaf. All types of fever, cough and chillines (cold) go away by partaking of this medicine. The pill is called Mahādeva Vyāsavālī. All (types of) fever go away in 7 or 8 days.

(26) Rub cinnabar tā. 3 with lemon (juice of lemon) for 4 ghaḍis. (96 minutes). Rub mercury tā. 3 in the juice of ocimum sanctum, combine together these eight things—Jayaphala (Myristica fragrans) tā. 3, Akelakarī (Alangium lamarkii) tā. 3, dry ginger tā. 3, Piparī (Ficus Tsiela) tā. 3 and black piper tā. 3; crush (pound) them with the juice of lemon and make pills of them, equal to the weight 2 grains. Purify vachanāga (Aconite ferox) and mix it into milk tā. 3 as said before. Having ground (or crushed) lemon piece 1, black piper 4, Miṣṛī (Condensed Sugar) tā. 2 $\frac{1}{2}$, make 4 pieces of pill. Next (make drink) these four things; fever goes away, if used, in four days; in the case of small boy, give pill equal to the size of 1 bhār. gram. Give the pill to a patient of bile by crushing it in grapes, give the pill to a patient of gas by crushing it in Jayaphala (Jatiphala) (Myristica fragrans), give it to a patient in the case of typhoid fever by crushing it with the juice of lemon, as it is marvellous.

(27) Give small leaves of Datura 3, 3/4 by wrapping them with (in) molasses for 3 days. Intermittent fever tryahnik and caturāhnik (tertiary and qustidan) fevers will go away; it is experienced (experimented).

Gopaladāsa Jhāvelivārī.

(28) Make pills of mercury tā. 2, malla (oxide of arsenic) = (Somala-khāra) tā. $\frac{1}{2}$, black piper nigrum tā. 2, dhūsa (pa?) tā. 1, 2 borax tā. 1 by combining them with the juice of lemon, measuring the size of a gram. All fevers go away.

Mahādevavyāsavālī

(29) Grind (or crush) lead tā. 3, cinnabar 3, purified in milk, with the juice of lemon for 4 ghaḍis (4×24 minutes); reduce mercury tā. 3 to paste in the juice of ocimum sanctum, combine these three and grind Trigadu (sunth, maric and pīpaḍ) tā. 9, Myristica fragrans tā. 3 and Alangium lamarkii in the juice of lemon for 4 ghaḍis (4×24 minutes). Mix these 8 things and make pill measuring the weight of 2 grams. Fever goes away.

by its use; if it becomes chronic that pill should be given to the patient with the juice of lemon, Miṣri (condensed sugar) tā. 2½, and 4 black pipers. In regard to the diet he is to take khicaḍī of rice and tuyar dāla (pulse) with ghee (clarified butter). Give gāuli ghee-kita (seed) for 3 or 4 days, all fevers go away. Rheumatic fever also (goes away).

(30) Fry the seed of Kakaca (a kind vanaspati ?) with ghee (clarified butter) and take it with sugar, it is good in the case of impotency; gas of the abdomen gets cured. It becomes sex-exciting.

The second kind : administer this medicine to a patient by combining these four—juice of betel leaf, juice of ginger, juice of onion and juice of śatāvartī (Asparagus raceimosus) together ½ sr; honey tā. 5, clarified butter tā. 5, every day upto one month. Lost sexual power returns to him.

(31) Rub orpiment ¼ Sr. in the juice of 33 lemons for 12 or 21 days, with the juice of onion for 1 day, and in the juice of Aloe Vera for 1 day. Next dig a pit, put the paḷī (big pill) in an earthen bowl, make the paḷī light (thin), dry it up, put it inside and seal it (bowl) up; give lid over it, place it into that pit and lit fire of dry cowdung cakes, for ¼ prahara. Tolaḍī of the above is produced.

(32) Give tūyā to pāne po.¹ in the juice of Nānāhūo (not yet identified) for 12 praharas. Give it tūyā in the juice of Kasendra (Cassia Occidentalis) like that. Give it tūyā in the juice of bhasmasūta phudedi,² give it tūyā (drops) in the juice of Udarakaṇī (Ipomaea reniformis). Give it tūyā in the juice of best Nāgarjunidudhi (Euphorbia pilulifera); give it cūyā (drops) in the juice of Vanakhaḍa (a kind of vanaspati). Mercury is reduced to ashes.

(33) Mix the juice of Nāgarjuni (Euphorbia pilulifera) into the juice of Navagadā (a kind of vanaspati), then give (it) gajapnṛagni. Mercury becomes silver-like (by the application of the juice).

(34) Mercury becomes fixed by charapampōṭī. with its tūyā. Rub mercury in the juice of Charapampōṭī (a kind of vanaspati) for 7 days; it is killed with a little puṭa (roasting).

(35) Fill the juice of Je(m) je(m) vanti (Leptadania reticulata) and the juice of piper beetl—these two, into an earthen bowl; put a tola of mercury into it, (how ?)

1. not yet identified.

2. not yet properly translated

Take a green piece of cloth which is come across on the head of a woman who as has not yet given birth to a child. Wrap mercury with that, put it inside an earthen vessel, seal up its mouth. There becomes mercury. makana gamdhimā paist (vaisi ?) There becomes silver, (or white mercury like butter ?)

(36) Crush together these two-suro(Khāra) (a kind of oxide) to. 1 and borax to. 1. Put the whole thing and 2 tolas of Sesamum oil, into a new earthen bowl, and give fire to it. After the burning of oil, again crush (rub) them for the second time. Next make a good crucible. Then put $\frac{1}{2}$ medicine under and $\frac{1}{2}$ of it over it. Give Pānī¹ to tunine.² Next chew bete leaf and spit (on-it), then close the mouth of the crucible. Then give it fire-dhanyāgni for 4 ghaṭis; it is produced.³ (?)

(37) Rub, Kalicuno (lime of oyster shell) pai. 10 and mercury Pai. 5 for 6 days. Next wash the same. Lunī⁴ will come, take that. Next it remains (exists) in lime, take that by blowing in Dolikāyantra. It goes and (mercury) becomes fixed.

(38) Rub mercury tā. 1, alum 1, sulphur (tā) 1 & borax tā 1 together and heat the whole thing in a crucible and give a puṭa (roasting) of 4 dry wild cowdung cakes. Nage po, sa, Ra.⁵ 12, put the juice of Sāhadevi (Sonchus asper) Sankhaholi (Ctenolepis Grasiformes) and Bhāngro tā. 3 (Eclipta alba) into an earthen pan, fill water (into it) in such a way that there remains water 3 fingers less (from the brim). At night, put it into rāsa (mercury ?), give it fire for 4 ghaṭis (4×24 = 96 minutes) by increasing it gradually, next put water into it, go on rubbing it on the hands (palms), it becomes hard.

(39) (Take) a cup of lead weighing pai. 5, (put) takho (black iron ?) tā. 5 into it, fill four handfuls of sand into it, sprinkle (water) till that cup swells up (is filled up). By making lump, rub Khahipo (not explained) kha. Alpa (javāsi = Alhaj. Maurorun) tā. 10, takho tā 5 in the milk of Euphorbia pilulifera for 2 ghaṭis. Close it up and give (put) a layer of cloth and clay over it, give it fire of 3 pieces of dry wild cowdung cakes, again on its getting cooled down take it out and crush it, thus give it 7 puṭas

1. Not deciphered.

2. Not explainable.

3. Not clear what is produced.

4. Not explained.

5. Not clear.

(roastings) of Dudheli (*Euphorbia pilulifera*); thus give it 7 puṭas of jhila (*Indigofera paucifolia*). Next give it Kurkapuṭa of Baṁdādi (li) (*Dodonaea viscosa*?). Next grind pādepāho¹ tā 1½ and tākho (tā) 5. in the juice of ghoḍāringani (a kind of vanaspati), crush it in the juice of Sonchus aruenois (*Sahadevi*). Make lump and put it into *Euphorbia nivulia* (Thohara) which should be ripe and old, fill the juice of ghoḍā rigani into that (vessel) and close it with the powder of Thohara *Euphorbia nivulia*; put a layer of cloth and clay over it. Burn it in gajopuṭa fire. There becomes silver.

(40) Rub Khahipo² 1 and crush green *Dodonaea viscosa* (*Nilibamdāli*) and make lump. Crush orpiment tā. 2. and Tavakhtra (*Crucums angusti*) ta. 2 into that (tema) and boil the whole thing by giving less water, (or a little hard grains of rice) for 2 ghaḍis. Next that rasa (mineral) gets melted.

(40X) Khahipo³ Khamina Mudra.

Take wax tā. 9, lac tā. 9 and Rāla (a kind of wax) tā. 9, make wax hot (heated) into a loṭā (pot). Next put lac, after that put Rāla, (resin), next mix the powder of Khadir (*Acacia catechu*) into (of) an iron grinder, tā. 9. Next put magnetic stone tā. 9, Mastaki (*pistacia lentiscus*) tā. 5, and Muḍo Pāhāpa (Muḍo stone) tā. 9.

(40Y) Mudra in the medicine of Menamudra :-

Lit fire and put sulphur into an oil bottle into a Jalayantra; crush it into a mortar of iron, having a big mouth for 1 day. Next seal up the bottle and put it into the Jalayantra. Mudra is accomplished. That medicine is to be kept by making a kuṇḍu of clay having the capacity of containing water measuring 5 srs. such a light (kuṇḍu); put kuṇṭya into that. Crush (rub) 3 things into that kuntya (iron mortar), fill 5 (times?), rub tākho (black iron) tā. 3, lonas (salt) tā. 3, āmalasāragamdhaka (a kind of Sulphur) tā. 3 in the juice of Marahaṭhi (*Spilanthus oleracia*) (tā.) 1. next in the juice of Chikani (*centipoda orbicularis*) for a 1 day, if green (wet?) is not available, bring dry one 1 sr. and boil it in 8 srs. of water and keep ½ sr; rub the same into that for 4 praharas. Next make a lump (of them) and put it into a kaṇṭyā vessel and allow an earthen lid (to) be fitted over it, put it into the mouth of kaṇṭyā in such a way that it remains 1 finger (angula) high above the mouth of kaṇṭyā.

1. Not identified.

2. not yet identified.

3. Not explained.

Next give menamundrā (seal of wax); close the border (line) of the seal by the side of the brim of the seal in best possible way, keep a hole in such a way by the side of the brim of the seal that a small mustard seed falls into it. Pour cold water (into it) and take out hot water upto 8 praharas, put cold water and go on taking out hot water, give it fire for 18 praharas. On its getting cold, take it out.

(41) Pound this medicine khahip¹ 1, khapi². Rub all the (undermentioned) medicines in the juice of Aloe vera in a separate mortar—all medicines for 2 praharas; mix the two. The names of those medicines are written; Mastakī (Pistacia lentiseus) to. 1, cinnabar to. 1, borax to. 1, alum to. 1, takho (a kind of iron) to. 1, Sulphur to. 1, Samkhio Somala (a kind oxide of arsenic) to. 1, Bodāra (an essence of lead or oxide of lead. Śilājita), (letumen), godanti haratala (a kind of orpiment). 1, Navasara lunie (sal-ammonica) 1; rub all these eleven medicines such as Mastakī, etc. in the juice of Aloe vera; grind each medicine in the juice of Aloe vera and combine them together. Make prādano Samputa, (a kind of lid), make 11 pills of medicine in combination of (with) Dhalo $\frac{1}{4}$ sr. and Upalyo (long pepper ?)-tā. 9, put into them Samputa, close it by putting a lid over it, and covering it with a layer of cloth, and clay over it. Close its joint grains of clay, put 7 layers of cloth and clay over it, put it (Samputa) into an earthen bowl. Crush $1\frac{1}{4}$ srs. of salt and spread it out under, put Samputa over it. Give a cover of clay over it. Allow the lid (to) be seated into the mouth of the bowl (vessel), seal it up well so that smoke would not be able to come out, make fire (heat it into fire) for 8 praharas. Take the wood of Rayāṇa (Mimuh sops hexandra), make dipāgni. On its getting cooled down, take it out. Next open the samputa, pat the nails (hoofs) of horse māsa 1 into it. (There will be) silver.

(41x) And put into the Samputa as many as pills of medicine like mag (phaseolus mungs) are there and the nail (hoof) of horse māsa. 1, give a seal to it (Samputa) as previously done. Do as such mudrā-lavaṇa is. Heat it on fire for 1 prahara. On its getting cold, take it out, guṭiko (pills) are produced. Po. Khanimālā¹, worship Bhairava, sacrifice = bakulā (Mimusops clengi ?) Vaḍā = vaṭā (Banyan tree), balakā (Colens vattiverioides), mahuḍā (Bassia heatporia) molasses, its dhāna, (grain), make recitation of Svasti, recite the mantra to make the grains of rice fly. Put on light by mekiang the wick of lump of ghee (clarified butter).

(42) Go on putting lead $\frac{1}{4}$ and leaf of Neem; go on stirring them up with the stick of Neem. Lead gets killed in on earthen vessel in a prahara and turns yellow. Next shieve it and rub in the urine of a sne-goat,

1. Not identified.

2. Not explainable.

which has not given birth to any kid, for 12 praharas. Take an earthen bowl which may contain (hotch potch) of 1 sr. Put tablets into that and close it with lid, give it fire for 6 praharas. It becomes of vermillion colour. Next take it out and put mercury pai 1 (into it), chew ripe betel leaf and Kāthocuno (lime) and go on spitting it, go on grinding it for 12 praharas. Next close it up and give it dipāgni for 6 praharas. Close the bowl with a (Kodiu) by covering it. By giving lid into the the mouth of the bowl. Put chalk, Kāthocuno (lime) and molasses as done before, again seal it up with such mudrā (device = seal). By killing lead in the leaf of Neem, next place it again in the juice of cuscuta reflexa (Amṛtavelli).

Nā. Raghunatha giriu.

(43) The process of Calomel Perchloride of mercury.

Cook mecury 1 sr., green vitriol 1 sr. and Sanidhava (sea salt) 1 sr. There become Rasakarpūra (Calomel) by this process.

(43x) Close tin $\frac{1}{4}$ sr. and bhilāmā (marking nut = Semecarpus anacardium) $\frac{1}{4}$ sr. into the horn of a buffalo, put it (the thing) into fire of 2 baskets of dry wild cowdung cakes. Om – 4 kinds. Make 1 rotalo (bread) of soft leaf of sāga (Indian teak tree), make two breads of Bassia latifolia (Mahuḍā). Thus make 3 pieces bread in all. Next bring pure zinc and make bread by melting and purifying it. Next bring an earthen bowl, put the bread of Bassia Latifolia into it, put the bread of leaf of Indian teak tree over it. Next put the leaf of zinc over it, next put bread of Bassia latifolia over it. Next close the mouth of the earthen bowl and put a layer of cloth and clay over it, give it fire of dry wild cowdung (pieces), burn the clay on the fire. Fire is to be given for 8 praharas; put gold 12 into it, give it the second Paṭa (roasting); it becomes gold ?

(44) Give 7, paṭas (roastings) of lemon to mercury 1 Sr. and $\frac{1}{3}$ sr. of sal-ammoniac, $\frac{1}{4}$ sr. of sulphur and realgar 9 and get them dried up. Fill them into a casket (or bottle), give it fire. Cinnabar is produced. It is of 4 paktis (pākas).

(45) Make Kajjali (black sulphide) of mercury or aethop's mineral of mercury 5 by rubbing them with the juice of sonchus aruensis (sahadevi) and rub them in the juice of Vitisakraunte gyularis (Codhara haḍasakālī), put the whole thing into a crucible and seal it up. Give it fire in a Valuk-āyantra for 5 praharas-dipāgni, madhurāgni, kālāgni, and haṭhāgni—thus for 5 praharas 1. Prāne. Khao hasā. 1.

1. Not explainable without commentary.

(46) Take Somalakhāra (oxide of arsenic) and pure sābu (Soap ?). (Take) milk of *Calotropis gigantea* – 1 1/2 srs. and 2 srs. respectively and rub them with it. Next make pills of them and put them into a crucible, and give a layer of cloth and clay over it. Next give it fire in a *Velukāyantra* for 5 praharas methodically. Take out the whole thing and worship it. *Prā. dekh. hāva* ¹ 10.

(47) Make the thick bread of zinc thick, give it *paṭa* (roasting) of lime, give it fire for 4 days. Next chew betel leaf and throw the spit into it. Next burn it in the fire of dry wild cowdung cakes. Thus there becomes *suto* (*rūpo* ?) (Silver ?)

(48) Make a cup of zinc. Next take milk of *Calotropis gigantea*, put salt into it, gets burnt; then put the upside down into an earthen vessel. Next make fire under it; it then grind it and give it *tūyā* upto 3 months. Then give it *sūryapuṭa* (roasting by the sunrays) for a month. That cup becomes powdered-if not, give *paṭa* to it again like that. Close *Pāde*. ² Pour the juice of *Achyranthus* (*aghāḍā*) *tā. 9* into a fresh earthen vessel, put copper tola 3 (into it), put *Somala* (oxide of arsenic) 1 *māsā*, (into it), stir up the whole thing, cover it up, give it gentle fire (*mandāgni*). Take it out on its getting cold. If it is bound by pouring it into a piece of cloth, the *goṭi* (pill) becomes marvellous.

(49) The juice of *Ravaloliya* (a kind of plant) is very strong (*urgalo valoli*), (take) 6 Srs. of its juice and stir it up, with a branch of *Calotropis gigantea*. It is of 2 *Paṃktis* (*Pakas*), give it fire of *Calotropis gigantea*, and stir it up in the juice of *Wedilia Calendulacca* (*Bhāṅgrā*). It gets reduced to ash.

(1) Fill the root of castor, the root of *Vaḍavāgni*, (a kind of plant) and the root of *Datura* with salt into two earthen jars (*Kuṇḍas*) of equal size. They are *valavīryam* (strength-and energy=giving). When reduced to ashes they are equal to the full moon in lustre.

(2) Take the excreta of pigeon, *guṇja* (*Abrus pricatorius*), mercury and borax, *sarjikhārā* (natron), *calotropis gigantea* in *tripuṭa*. Copper becomes (white) like moon.

(50) If copper is smeared with mica, mercury, borax, natron, excreta of pigeon and milk of *Calotropis gigantea*, its blackness is destroyed by one *puṭa* (roasting).

1. Not deciphered.

2. Not clear.

(51) Give conch-shell to mercury by baking it, give it to oxide of arsenic by killing mercury.

(52) Good alum is given puṭa (roasting) in milk, mix 1 māsa of essence into 1 tola of lead. (Silver ?)

(53) Take mercury tā ½, skin of the horn of sheep tā ½, hoof of horse tā. ½; take tips of them and put (them) into gajaveli¹ (a kind of iron and steel,) it melts; take iron pai 2½ & Rasega; iron melts in copper, give mineral calamine pai 1, molasses tā. 9 under and over (it). Give a layer of cloth and clay over it. Thus give it fire 3 times.

(54) Grind cinnabar pai. 1 in the juice of Aloe vera and give Bishops weed (Trachy spermum ammi syn caram copticum) (ajamo) under and over it. Thus give it fire 3 times, reduce mercury to paste in borax, give it dipāgni 3 times. Next, by grinding these three, pound (them) in the juice Mesua ferra (kesuḍi). Make two tablets of them. Put silver and copper plate inside and give the gum (gūṇḍ) of Butea frondosa (Khākha) over and under, heat the whole thing in an open crucible.

(55) Grind māṃṃnata, homapā. and gora-raka² in the juice of tāmbola (betel leaf), put (hold) fresh mica in between, give a chipaṭi (tip) of bark of the roof of Echinops echinata (uṭakaṭā) and umṭiū garṇḍhaka (a kind of sulphur). There remains the fire of thick grass for 12 praharas (i.e. give fire for 12 praharas), quench lead 121 times in the urine of ass, its blackness goes away. Next rub molasses in the urine of ass 21 times. Rub saffron (Kesar) tā. 1 and 2 lemons for 4 ghaḍis (4 × 24 minutes), smear the leaf of copper with it, reduce it (copper leaf) to ashes in a closed crucible, keep it alive, give it tips of surakhara-(a kind of oxide) = Nitrate salt pater pai. 4, natron (Sājī-khāra) māsa 6, Pāpaḍi (Samcoro)³ māsa 6 in an iron cup, mercury is fixed.

(56) Grind killed mercury tā. 1, borax tā 1, white glass tā. 1, while Dhānyabhra (a kind of mica) tā. 1 in the milk of Euphorbia antiquorum (Vajri), rub Hāmḁḁḁt gandhaka (a kind sulphur) Pai. 4, Pāso (pāro ? = mercury) pai. 4 and seed of limbolī (Neem) 1 sr. for 3 days. Put the whole thing into a fire-proof bottle and seal it up, give a cork of Neem into its mouth, put 7 layers of cloth and clay (over it), heat it in a Damaruyantra by lighting fire of 2 maunds of dry dung of she-goat. Further, it is to be known from the guru.

1. Gajaveli = Polada. (Steel)

2. Not identifiable at the present state of knowledge. They may be minerals.

3. A kind of salt

(57) Melt lead with Misari sābu (a kind of soap), it removes (cuts), dirt (blackness) when put into the former, go on putting it. Lead becomes white.

(58) Prune the flower of Aloe vera—Aloe vera flowers which remain and become healthy (luxuriant). Take yourself the juice of its leaf (pāṭhā), crush the tip of the flowers in the juice of Aloe vera and cinnabar in the juice of Āpaṭīpa for 7 days, give fire dipāgni to the whole thing in a Velukāyantra for 12 praharas. Gonorrhoea is cured with the prepared medicine. There takes place an appetite of 5 srs.

(59) Take mālla (Somala Khāra oxide of arsenic) tā. 1½, orpiment tā. 1½, mercury tā. 1½ and copper pai. 1, give the root of Horse drum stick = Horse radish tree, and the root of Calotropis gigantea respectively under and over them, next give them gajapuṭāgni for 4 praharas. All action (becomes) successful. It will be best in taking.

(60) Grind cinnabar in the juice of the flower of Śegāṭhā (a kind of plant) for 12 Praharas, give it dipāgni (fire of lamp) for 12 praharas, all types of gonorrhoea are cured by this medicine.

(61) Make ashes by burning Emoblic myrobalans; smear the body with lime (kalicūno) by putting oil into it. Then sit in the dipta (hot) sunshine for 3 days; coughness (lukh) goes away.

(62) Grind or crush cinnabar to. 1 and kīṭa (dhātumala) in the clarified butter and smear it on the body; any type of eczema goes away.

(63) Fry onion and leaf of Neem in the clarified butter and take clarified butter by melting (them). Put Rāla (yellow resin) tā. 9, wax tā. 9, into it. Wash ointment with water 7 times. All blisters or ulcers, (Chandas) go away.

(64) Make powder by grinding Sabarsing (horn) of sāvara = lodhar (?). Put honey into it, heat ointment combined with Necn and onion together with honey, and grind it, then put it (prepared medicine) into the sceptic ulcer. The sceptic ulcer gets cured within 7 or 21 days.

(65) By the application of sapedo and butter to it, the high surface of the skin will come to the (normal) level. The surface of the skin of the one which does not come to the level will come down to the normal position (by the application of this medicine). If the root of yellow flowered sonchus aruenois (Vernonia cinera = Sahadevi) is held into the light of burning wick, the Hājaratī¹ mantra (incantation) will come. True.

1. Probably a Muslim made some incantation after his name.

(66) Take seeds of Timiriu ra(ta)najyoti (*Lochnera rosea* ?) pai. 4 or 8 and sulphur pai 4, heat them in Damaruyantra. True.

(67) Take the essence of grapes $\frac{1}{4}$ sr. Keep (lead ?) drenched into it. Grind it and next take it out by washing. White lead comes out. It is said by pātrāghaḍa. It is fire-proved.

(68) Give borax under and over Calomel Ruberb (Rāne cini) and Mesua ferrea (Nāgakesara). Take Khurāsānt Hingulo (Cinnabar) 5, Bishop's weed = *Ptychris* (ajamo) 5, Khurāsānt ajamo 5, Kṛimāṇi ajamo 5, Centipeda orbicularis (Chikani) 5, lead 5, Garcinia (R. chini) morella Desrous 5, Curcuma angusti folia (tavakhira) 5, Alangium lamarkii (Akalakaro) 5, Conessei bark (Indrayava) 5, Croton tigung (Napālā) 5; give all these medicines under and over, put (them) by crushing, i.e. crushing these in Aloe Vera, (kūmāri). Lamprachoenium microcephalum (Brahmadāṇḍi), ginger (ādraka), Datura, garlic, onion, brinjal, citrullus Colocynthis (Indravārūṇi), flower of horse radish tree (Saraghunpuṣpa), flower of white oleander (Śveta kanera), Nerium odorum (Sonahali), pitahalola (Yellow terminalia chebula), Popaṭi (a kind of vanaspati), Kūtari (Setaria glenca) and Bandali (Luffa echinata = Kukaḍaveli); give (put) the above-mentioned medicines under and over. Hamsapāka (a process of medicinal cooking) is to be performed (made) for taking the medicine. According to own imagination it is written.

(69) Put dorps of Camphor and the juice of Pāḍarūpā (a kind of vanaspati) into the nose. The worms come out.

(70) Put lime (Kalicuno). 3 srs., pure natron (sājī) 1 sr. and water $\frac{1}{4}$ maund into a big earthen vessel. Keep water 10 Srs. Next put sulphur into a fresh cup or bottle and cover it wholly with a layer of cloth and clay and give drops (tūyā) by putting sulphur into it. Sulphur melts. Oil is produced. Rheumatism goes away.

TENTH CHAPTER

(1) Two worms of the nose fall out.

Remedy : Take 1 sr. of Centipeda orbicularis (Chikani) and 8 Srs. of water. After boiling it, when water comes down to $\frac{1}{4}$ sr; take it out, put borax (ṭamkaṇa or tamkaṇakhāra) into it. Give (it) into haṁkhe¹ (nostrils?).

Again give the juice of Amorphophallus companulatus. Blume = (Surāṇa) $\frac{1}{2}$ and water of Centipeda orbicularis $\frac{1}{2}$ sr. into it; (1) give puṭa (roasting) of Echinops Echinata (uṭakaṭā) to white copper, (2) with the milk of Euphorbia dudheli (Dandelion = Taraxcum), (3) With ūdholi-(identified) and (4) with white drona (Leucas cephalotus), give fire to the four for four praharas, Śaśaka (blue vitriol) melts in bone dust; copper metal melts in hair of man; iron melts in salt.

(1x) Take surokhāra (Potash Nitrus = Nitrate of salt peter) Pai. 3, mercury pai. 1 and hair of sheep pai. 4; give them Dipakāgni and Bhaḍakāgni. Give Dipāgni to clarified butter (ghee = ājye) 9 Srs., and calomel pai. $1\frac{1}{2}$ in a Dolikāyantra for 12 praharas with 12 srs. of firewood. Give a small pot into the mouth of an earthen vessel and close it. (Take) oil of Anacardium 2 srs., Calamine $\frac{1}{2}$ sr., and copper $\frac{1}{4}$ sr; smearing calamine in oil, heat it in fire and quench it in oil of Anacardium six times. Take hair of sheep-4 srs. and mercury pai 2, give Dipāgni to them, (first) rub them in the juice of Euphorbia pilulifera, in that of Vaḍabai (adventitious branch of Banyan tree), in that of Sambhali (Ferula sumbul), in that of Elephantopus scaber (galajibhi) and put the whole thing on fire.

Sā. Gokalavalividya

(2) (Take) black curculigo orchioides (kalī Muṣālī) ṭā. 3, white curculigo orchioides (Dholī Muṣālī) ṭā. 3, Bombay Ceiba linn (Mocarasa) (Salmalia malabarica) ṭā. 3, essence of Tinospora cordifolia (galostva) ṭā. 3, C. antichorus (Bahuphalī) (ṭā) 3, Astercantha longifolia (Ekharo) 3, Tribulus Ter (Gokharu) 3, Cow-hedge plant (pucuna pruriens). (Kaucām) 3, Mālavāni-Bavaci ṭā. 3, (purple Fleabane), Balavṛja 3, cubeba officinalis (canak-baba) 3, Blepharis edulis pers (Uṭegaṇa) 3, Conessei bark = Holarrhena anti-

1. Not comprehensible.

dysenterica (Indrajava) 3, Anaayclus Pyrethrum (Akkalākharo) 3, gum of vaṭa (Vaṭa gundā) 3, Narrow haved Sepiston = Cardia Angastifolia (Callā) Aconitum Palmaturm (prati) tā. 9; mix sugar tā. 9 and bhūko tā. 13 into these medicines. Medicine prepared with these articles is useful in the case of lost sexual power.

(3) Take the roof of Kharasāṇiyā, (Huoscyamus Niger), its bark-tā. 2½, ajamo (Bishops weed) tā. 2½. If, thus, much is taken every day, it is useful in the case of lost sexual capacity, and tumour goes away.

(4) Put the leaf of Fudeḍi (a kind of plant) ¼ Sr; and gohalipatra (leaf of gohali = a kind of plant)-½ sr. into an earthen vessel and close it. Give it fire for 1 prahara. The medicine increases appetite, it is very efficacious.

(5) Take Achyranthus aspera (Aghādā) ¼ sr., Ribia cordifolia (Vikhaso) 9, heat them on fire of 100 days dry wild cowdung cakes.

Mudrā :- (the process) :

Take Kātho (lime) tā. 5, Chalk 5, Jhiko 5, salt 5, Clay earth 7.

Him(galo), Mudrā :- Make a hole into the wood of Khārijālī, put the juice of Pilavaṇī, tā. 9, into it by giving a gavaḍu (piece of wood), cover it with 7 layers of cloth. White copper becomes silver of 12 carats 8.

(6) Pour Alhaji Maurorum (Alpa) 1 sr. by melting and melting 108 times. Keep pai. 2 bhār, go on putting (pouring) fresh urine. Take the urine of an ass, grind these 7 medicines-Khahipo pai 1, Alpa-pai. 8, alum pai. 7, anacardium 7, thuthu (green vitriol = an emetic) 7, Kācalavaṇa (a kind salt) 7, salt 7, sal-ammoniac 7, and sea-salt 7, and make them powdered. Next make 7 leaves of alpa, take an earthen vessel or pot, give 7 layers of cloth and clay over it. Next put one layer of Thara, put leaves over it. Again give usādha, again leaves layer by layer. Close it and give 7 layers of cloth and clay, voer it. Make fire two times; on its getting cold, take it out. Next melt alpa-māsā 4 and Sutu-māsā 4.

The process of purifying Copper

(7) Boil 5 srs. of leaf of five-leaved chast tree. Vitex trifolia (Nigo-dipāna), turmeric 1 sr. and water 3 srs. Keep 1 sr. (by boiling). Next heat leaves of copper and purify them by quenching them into that water (essence) seven times. Then combine together, Nāla (phragmites karka ?)

20, prā dū. Nāla¹ 28, Khufu² as aforesaid & alpa Nāla 8. Khā (sā) sine³ pakh bhā⁴ (vati ?) It is advised by Bākara Khān.

(8) Rub pādāmokhetha $\frac{1}{4}$ sr. and Patrī tāla $\frac{1}{4}$ sr. in horse-urine for a day. Next put 5 srs. of surokhāra (Nitrate of salt peter) into an earthen vessel; give (put) copper and orpiment under and over. Close the mouth of the earthen vessel by giving a good seal to it. Then give it fire for 3 days, there becomes gold.

(9) Lit fire of dry wild cowdung cakes. (Take) sal-ammoniac tā 10, and lime (Kalicuno) tā 50, make lime finely powdered and put half of it under, and half of it over in the vessel, put sal-ammoniac in between them. Close it and give it fire of dry wild cowdung cakes of 1 basket. There becomes joṭaka combination (pill.)

(10) Take po, nālo⁵ 1. It is white like harakoi⁶, docae⁷ and chalk. Smear sal-ammoniac and mercury on the leaf (of brass) and dry it up in fire. Thus do it seven times. The process removes the blackness of brass.

(11) Grind Somala (oxide of arsenic) $\frac{1}{4}$ sr. with cow's milk 1 sr. Mix it by drops and bind it. Next grind it (Somala) in $\frac{1}{2}$ sr. of milk and remove its dirt. Take it out by washing. There remains the butter of sal-ammoniac at the bottom (under) like silver; grind it with Aloe vera and cook it in a Veluyantra by putting it into a bottle on fire for 12 $\frac{1}{2}$ praharas.

(12) Rub mercury in thorny (kāṭāli) standing Tribulus Ter of Kālā-phul (Evolvulus alsinoides); it becomes butter-like in 3 days. Next make a crucible of Lippia nodiflora (jalapīpar), give alum under and over and close its mouth. Sū, give it fire of 1 prahara. Thus grind mercury in Tribulus and make crucible of standing Jalasī, give alum Po. 1 and Pā. kha 1 $\frac{1}{2}$ under and over. Having ground it in this way, make a crucible of Hasti paga; give Samcora loṇa (sodiai chloradum) under and give it gajaputāgni for 4 praharas. Put po. Kh⁸. 1 $\frac{1}{2}$ into a red earthen vessel, next mercury to 1, go on putting powder (dust) of Challeṭā (not identified) upl prahara; go on stirring it up with the root of green Nāga (mesua ferrea ?). Under it burn the woods of Acacia Catechu (Khadira) and Mimusops hexandra (Rāyan) (rāyana). There will be an appetite of 8 Srs, it is sex-exciting.

1. Not yet identified.

2. Ibid.

3. Ibid.

4. Ibid.

5. Ibid.

6. Ibid.

7. Ibid.

8. Not deciphered.

(13) Reduce to paste mercury in jhikā (a kind of plant gum ?), rub it in the juice of green purging cassia (giri-mallikā = Kuṭaja). Next rub it in the milk of Thohar (Euphorbia nivulia) for 1 prahara. Close it up in a samputa (lid) and give it fire of pasali (handful) of goat's dung; again rub it in milk, give it fire of a Pasali 2 of goat's dung. This increasing and increasing Pasali, give goat's dung for 21 days. Dha(gu)lma (tumour ?) disappears if this medicine is taken.

(14) Reduce to paste mercury pai. 1, sulphur pai. 1., Somala Saṅkhiu (oxide of arsenic) ta. 3 and rā ta. 13, and give gajapuṭāgni to the whole thing for 4 praharas. (Give) 1 dose vala $\frac{1}{4}$. Diet-molasses and butter-milk are to be taken, salty & sour things are prohibited. The medicine controls gas.

(15) Put orpiment to. 2, seed of croton tiglium (Nepalā) castor to. 2. sābu (Horse purslane or something else) to. 2 into an earthen pot; put an iron cup over it. Give a strong seal to the cup. Take oil which comes up, put that into the juice of Neem for 7 days. Next it will come into action (use).

(16) Grind pure iron $\frac{1}{4}$ sr. and mercury pai. 1, juice of Muṅjāla $\frac{1}{4}$ sr. and put the whole thing into an earthen vessel and close it. Give it fire for 1 prahara. The essence prepared thus increases appetite. It is very beneficial.

(17) Put together copper, zinc, silver, steel of equal weight, borax pai. $1\frac{1}{4}$ bhār, otherwise double and melt them. The essence (jotakam) is produced in own dream (according to own conception.)

(18) (Reduce to paste) mercury in the juice of pṇāḍṭā (not yet identified, a kind of plant), put linseed oil into it and give it fire. (It becomes) medicine for taking, (it is) discovered in own dream.

(19) Give castor dātavehara (a kind of plant ?), sulphur, khaḍāḍiu (not identified) gaṁdho (Paedaria foetida ?), berajo (zizyphus saliva or Rice; orza Saliva) and mastakī (pistacia-Lientiscus) to Varṁkhe Divapāda.

(20) Grind cinnabar in the juice or Mukā (a kind of vanaspati) for two days, in the juice of Saresara (a kind of vanaspati) for two days, & in the juice of Aloe vera for 2 days. Make tablets of it, dry them up in the shade, close them up by giving Indrajāva (Kurchi, Conessei bark) under and over, pai 2 bhār. (in a vessel.) and give it fire of 1 basket dung of a goat for 2 praharas.

(21) Rub green vitriol $\frac{1}{4}$ sr. and alpa (a kind of mineral) $\frac{1}{4}$ sr. in the juice of the ripe leaf of Calotropis gigantea. Take out the juice by making it hot. Fill it into an earthen vessel. Make a lump of the leaf of green vitriol by drenching it in this juice and put it into a śarāvasaṁputa. (lid).

Put (give) a layer of cloth and clay over it (Śarāvasampuṇa), give it fire of dry wild cowdung cakes 3 srs. thus 21 times. Alpa astryā is produced.

Crush together prā. dubhāga (parts) 3; Su. bhā caurik (part)-4, astryā bhā, 1, realgur ṭā. 1, sulphur (Angelica glauca ?) and mercury 1 (ṭā) and put the whole thing into an earthen vessel, mix up the juice of Aegale Marmelos with it as it is mixed up, sprinkle the juice of Aegale folia. Next rub it, and taking it out from the fire, again rub Prade. lohade. Rub borax over(it); give heat to the whole thing in fire. Success.

(22) Rub sulphur to. 9, Sal-ammoniac ṭā. 1, mercury ṭā. 2, realgar ṭā. 2. and golden pyrite ṭā 2 all and fix them for 3 days. Rub them with Nagar (piper betel), in the juice of Aloe vera. Give them 4 or 5 saturations every day; holding and holding the whole thing in the sunshine, saturation is to be given to it. Thus it should be given for 3 days. On the fourth day take out this powder from the mortar and put it into Jalayantra according to the process of putting it into a Jalayantra.

Processing of making of Jalayantra

(23) Make a round vessel by a potter, having 14 aṅgulas (fingers) in height and 10 aṅgulas (fingers) in circumference. It is called Jalayantra. Then cast this medicinal powder into that vessel of that Jalayantra. Then cover it up (with) an upside down cup of the Nepalese copper ṭā 7½ till it covers the powder over it, cover it up with an upside down śarāva (lid). Over it, cover it up with an earthen vessel. After that make a seal on all sides of the vessel, i. e. smearing is to be given. Then on all sides of Jalayantra water is to be filled in up to all the brims. Hold it thus.

Again water is to be poured little by little. Then Jalayantra is to be placed on the Kumalikā furnace. Fire of Kicaṭṭi is to be lit upto 32 praharas. Later, the the pot of Jalayantra is to be taken out and held (placed) on the ground. When Jalayantra becomes cooled down, then it is to be opened up. The cup also becomes Astryo¹. Sulphur etc. get combined with the cup. Then the cup is to be powdered (pounded) by crushing it. Thus Astrya-siddhi (Success of Astrya) (is accomplished).

(24) Take arśa (in aśesu²) tyapo³ 1, tūrgerjaṇapī⁴ 1 is to be cast into it. It becomes Dhātuvedhi (metal-piercing); many diseases go away on the taking of this medicine. The remaining is to be known from the guru.

1. Not explainable.

2. Not definable without commentary.

3. Ibid.

4. Ibid.

(25) Combine all these together : milk of Banyan tree-Pai. 2, milk of *Calotropis gigantea* Pai. 2, wax pa. 2, Kapurī guḍa (a kind of molasses)-Pai. 2., Bhaira gugula (Indian *Belellium*)-Pai. 2, white Katho (a kind of lime made of khadir) Pai. 2, kalicāno (a kind of lime of oyster shell)-Pai Mākhapista¹ pai. 2, Mastakī (*Pistacia Lientiscus*.) pai. 2, hair of a small calf 2, of she-sheep pai. 2, Multānī soil-pai. 2 and magnetic stone pai. 2, and crush them into small pieces and bind them into the milk of Bhaḍala (sheep), grind them for 10 days. As it becomes hard, so go on giving milk of she-sheep. Miṇamudrā (the process of wax seal) is accomplished.

(26) Rub mercury tā. 2½, Tabakī orpiment tā. 2½ and opium tā. 2½ with the juice of *Solanum nigrum* (Kācamācī) for one day. Next make their tablets. Smear an earthen vessel (bowl) from its middle (part) up to its bottom. Next put the tablets into that earthen vessel and close it with a new lid and seal it up. As said above, after that, fill up the vessel with sand, give it fire for 2½ praharas. Feed a Brāhmaṇa when yantra is placed (on fire); feed a Brāhmaṇa when the yantra is taken out in the name of Hanumanta. Next on its getting cooled down, take out the essence.

(27) Grind pro. prā. sa². rāto (red) 1 and Thuṭhu (a kind of poison) tā. 3 and put the whole thing into an iron pot (Pan). lit strong fire in the furnace. Thuṭhu begins to burn. Mercury begins to tremble, then press out the juice of the leaves of Aditi (a kind of plant) by taking them into the hands, put Pai 1 bhāra of the juice; after burning, again give juice pai. 1 bhār. And while taking it out of the juice of Aditi, rub it in between two leaves of Nagarveli (*Piper betel*). After the juice is heated (burnt), next mercury begins to make circle (round), it begins to jump. After its jumping two times, it settles at the bottom. Take it out of the iron pot into an earthen pot. Its tablets get bound; take (eat) ¼ rati of it by grinding it.

Give ujeṇiboa³ by measuring 3 times. The name of Aditi is called gamāra gamdāno. Its leaf is like that of *Cannabis Sativa* (Bhāngī). Melt Khākha (Pārā-bhasina) or varṅga (tin) and put 2 ratis of orpiment. Over it, put 2 ratis of Pegamī Navasāra (Sal-ammoniac). Next quench that tin into the oil of *Centipeda orbicularis* (Nāgachikant).

Next Tallavidhih (the process of making oil)

(28) Bring Indigo (Nīlī = galī) and dry it up in the shade. Next take its oil in pāṭalayantra. Rub mercury in the juice of *Centipeda orbicularis* (Cihkanti), it becomes fixed. Put it into an earthen vessel and give it gentle

1. A kind of mineral.

2. Not decipherable without Commentary.

3. Not identified.

fire. Give it drops (tūyā) of the juice of porlu lacaea oleracea, (Luṇṭ). Take 1 rati out of $\frac{1}{4}$ sr. Killed mercury to take with piper betel or nine minerals (navarasa). Fever goes away, disease goes away.

(29) The dried up juice of Cannabis sativa and that of wedelia calendulacea absorb water. Take it out on its getting cold. If that water is given as drop (tūyā) in earthen vessel, on the leaf of kasisa (green vitriol) -gold smeared with lemon, it becomes pure, its carat increases.

(30) Rub the bile of goat tola 1 and mercury tā. 2 for 1 day, reduce them to paste (rub them) in the juice of Abūā¹ (Shim?) for 21 days, rub them in the juice of lemon and put copper tola 1 into sweet Tanner Cassia (Cassia auriculata) (āṭulī), mercury gets fixed. Mix the juice of wedelia Calendulacea (Bhāṅgrā) into the oil of Anacardium (Bhīlāmā) and pour it into it (mercury) three times. Turn up hīṅgala (cinnabar) into Indrānā² 120 (times and into ripe Aegale Marmelos 120, (times). Rub Śū. po. ṣa. rā (ja) (mercury) mā (sā) 6 and sulphur 6 mā. in the juice of Aloe Vera for 2 praharas. Smear the leaf of brass to. 1 with it, give it śarāvasam (puṭa) fire or 2, 3. & 4 srs. (of cowgund cakes), give paṭas. (roastings). Next give it Maulo 3 (essence?) gold, by hālf gotakam (Combination).

(31) Evolvulus alsinoides of yellow flower (Viṣṇukrānta)³ is like the leaf of ciṇā (Bengal gram) (Chick pea), rub that with mercury... It gets fixed in seven days. Melt haṁkha⁴ (saṁkha?) and give it the ash of gram water (or ash) Kṣāra. After the burning of that rasa (mercury?), give it the juice of Buṭi⁵ on the side, put pure Masṇi⁶ by rubbing it in the juice of citrus medica (Bijorā); its quality is just like (that of) Jalajabun (Jalajambu).⁷

(32) Put equal portions of the juice of Viṣakha-para paṁcāṅga (five parts of Visakhāpara)⁸ and white scented oleander (Dholi Kaṇera) Pai. 1. and mercury pai. 5 into a jar (gāḍua), give a seal to its mouth. Bury the jar into the earth, keep its rim 2 fingers above (open) the ground (earth), fill up ash up to 4 angulas over it. Give it fire of dry wild cowdung cake 1 up to 3 days; mercury gets fixed, if you do it for 7 days, it gets much fixed.

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1. Not identifiable.
 2. Not identified.
 3. Not clear; it may be essence
 4. Not identifiable at the present state of knowledge
 5. Not identifiable
 6. Not identifiable.
 7. Not identifiable.
 8. Not identifiable.

(33) Burn the bone of the neck of a camel and mix its ash, 1 māsa into copper 1 sr.; it melts quickly; true.

(34) Put the bone of Kola (boar) (into copper), it melts quickly, put the tail of a rat (into copper), it melts quickly. With (in the case of) Naka chikani (Centipeda orbicularis) it is just like that, with Kamṭā¹-selii (it is) like that, it (copper) melts.

(35) Quench the leaf of iron into the juice of the root of Lohukhaṇḍi = (Ixora parviflora = Samadera) 107 times, it gets reduced to ashes and quench it in the juice of raw, Riber ebony (Dispyros peregrina) (Timbara) like that.

(36) Put leaf of iron into pueraria tuberosa (Bhuikohalu) by splitting it up; close it up and put 3 three layers of cloth and clay (over it), give it gajapuṭāgni for 4 praharas.

(37) Put Cāsaṁṣṭā (stool or excreta of cāsa) = (a kind of bird). to. 3 and mercury to. 1, into an earthen pot and close it up. Next put mercury into the earthen pot, spit on it (mercury) by chewing betel leaf (piper beetle); go on putting the excreta of cāsa little by little, mercury is fixed. Next apply (smear) white ash (of mercury) on the veins of piper betel; it becomes red. This is the test.

(38) Put the leaf of iron into the juice of Pomegranate (Daḍama), having white flower, for a day; it gets reduced to ashes, it becomes white. If 1 rati of it is mixed into copper and Kathir (one kind of tin), there becomes silver.

(39) Take milk of swine (she-pig) pai. 8; grind sal-ammoniac pai. 1, and red alum pai. ½. Put milk into a copper pot and cook them, they become powder. Rub 1 māsa of it; mercury to. 1, sulphur to. 1, orpiment to. 1 (godanti), hamsapāk cinnabar to. 1, realgar to. 1, water (or Khāra) of gram to. 4 into the juice of 100 lemons (Kāgadi); heat the leaf of zinc pai. 4 bhār and quench it into the essence of these things. Thus do it 21 times. Next crush Hira duṣana (Calamus draco) pai. 2 into the urine of cow. Next by heating and heating the leaf of copper, quench it into the thick liquid (essence) of these things, thus 21 times. Next melt 1 tola of copper, put 1 tola of zinc into it. Ba. ma.² Next give tips of gum of gadhia palāsa (Butea frondosa); gold will be of yellow colour.

1. not yet identified.

2. not yet identified

—(40) Grind (or rub), silver varga to. 1 and mercury to. 1 in the milk of *Calotropis gigantea*; make a ball (pill) of their paste. Put it into the bulb of onion, close it up, wrap thread around it, wrap a small piece of cloth over it, wrap the bread made of powder of wheat over it, make the ball (round). Next make powder of *Rānā* (ta) *upalā* (red *upalā* = a kind of *vanaspāti*) $2\frac{1}{2}$ sr; put the ball (Pill) into that; on its getting cold, take it out aside. Again make (repeat) the previous process, put it into the bulb of onion, take $2\frac{1}{2}$ srs. of dry wild cowdung (cakes); increase it by $\frac{1}{4}$ sr. upto 5 srs; not after that. Thus give 21 *puṣas*, to it; if this is mixed into 20 to. of tin, there becomes silver.

(41) Mix *hemavarga* (gold) into mercury, rub it in the juice of *Aloe vera* for 3 *praharas*, put its paste into the bulb of onion. Repeat the previous action (process). (There becomes) gold.

(42) Make a hole into an *Amorphophallus Companulatus* (*Sūraṇa*) and a *pālo* (cup or piece) of *Centipeda orbicularis* (*Chikanī*). Put tin (*Kalahī*) *Pai* 1 *bhār*, and *Centipeda orbicularis* (*Chikanī*) *paisā* 2 *bhār*. Give powder under and over the leaf of tin, give over it particularly, give wax and cloth over it, and give it *gajapuṭāgni*, (there becomes) Silver.

(43) Again take the juice of red lotus or flower into the standing leaves of *Harīṇakhuri* (a kind of plant); put its juice into a hard pot of cocoanut (*Kācālī*) and rub it with the wood of green *Neem* for 4 *praharas*. Make a ball of it and close it up in a pot, give it fire for two *praharas*, grind it and give (mix) tin into it.

(43x) Again by cutting into pieces *Phyllanthus nururi* (*Bhūī āmbālī*) and *Spilanthus oleracia* (*Maraheṭhī*) of red flower (having red flower) in equal proportion; take the juice and make (repeat) the process like *Harīṇakhuri*.

(44) Take mercury to. 1, and Borneo Camphor (*Varāsa Kapūra*) = *Sumatra camphor* (*Bhīmasenī Barāsa*) to. 1. Make a hole into a green cocoanut existing on the tree and put first $\frac{1}{2}$ tola of camphor. (Next) put mercury to. 1, and put again $\frac{1}{2}$ tola of camphor on it and keep these things into it for six months. Keep it up and seal up the cocoanut. There becomes a pill (*guṭī*), rub it in the juice of *Murraya exotica* (*Kāmanī*) and *Ocimum Sanctum* (*Rāma Tulsi*) for 12 *praharas*. Rub it & in the *kācālī* with the butt of neem. Mercury is fixed.

The process of dealing with Sal-ammoniac (Navasāravīdhi)

(45) Take sal-ammoniac pai. 10 and lime-2 srs; grind sal-ammoniac; lay out Kali (grains) of lime under and over in an earthen pot, put sal-ammoniac over it, (Cūnā). Lay out (spread out) Koli of lime over it (Sal-ammoniac). Next put water into an earthen pot, give water fully so that it overflows it. Put that water into the second earthen jar. After taking water of lime 3, place two earthen vessels on the oven (furnace); go on putting that water (of lime) little by little. Make fire under the earthen vessel. After heating (burning) of the whole water, Rasa (Juice = fluid) bubbles inside, take it out. That sal-ammoniac is fixed; it becomes liquid on fire. The process of Sphaṭika (alum) also is like this.

(46) Take the hard substance (gāṃgaḍo) which is in saṃkhiā somala (oxide of arsenic), put it into a bottle, go on pouring the juice of lemon, go on stirring it up with a rod, but do like that so that the smell of boiling does not come up. Place it on a Valukāyantra, give it fire for 12 prahasas. On its getting cold, take the essence out. Mix 1 rati of the essence into 1 tola of copper and tin respectively.

(47) By grinding pālo (pieces ?) of Kākasi (Sisymbrium irio ?) make big tablets. Put one tablet into an earthen crucible. Put the leaf of copper to. 5 over it, put somala (oxide of iron) leaf, put the second tablet of Kākasi, heat the whole thing in an undara mūṣā (upside down crucible). There will be silver.

(48) Melt tin and pour it into the milk of Tridhārā Thohar (a kind of Euphorbia nivulia), next if Malla (Somala) (oxide of arsenic) is put into it, there is success.

(49) By heating Malla as described, in the aforesaid Kākido sampuṭa, apply it with clarified butter. The sceptic ulcer goes away, if applied.

(50) Grind phūḍaḍī¹ and apply it on the ulcer, the sceptic ulcer goes away, (if applied).

(51) There is boil on the head. it is bandaged by making bread of Phūḍaḍī, it is cured in seven days; all types of headache go away by the application of this process.

(52) Rub mercury with the oil of Nut (Badām). If it is applied on the face, its blackness goes away.

1. not identifiable.

(53) If purple tephrosia (Sarapaṁkhānu) is taken with honey, the burning sensation goes away. True.

(54) Put (pour) zinc 1 Sr. into the urine of man three times, into the urine of ass three times, into the urine of cow three times, and into the urine of goat three times, and purify it; combine mercury with zinc by taking the quantity equal to the 1/3 (part) of it, give drop much over it with the milk of Euphorbia nivulia (thohara) in a new pot for 12 praharas. Mix 1 māśa of the essence with 1 tola of copper. (There will be) silver.

(55) There is a creeper with 3 leaves, its leaf is at a distance of four fingers. Rub (mercury) into it. There will be goṭaka (pill or ball of mercury). Rub it like that in the juice of white colocynth (Indrāyaṇī) for 14 days. Mercury becomes butter-like.

(56) Rub mercury in Kāmoni (a kind of vanaspati) having black branch, for 14 days. After getting it dried up, wash it like butter or like sand. Take an earthen pot, drench Kalicīno (lime) into 5 srs. of urine of a small boy.

(Then) take the water of upper portion of it. Drench natron 1 Sr. into that water and take the water of upper portion of it. Drench the bark of the root of pomegranate 1 sr. and the leaf of Henna (Mehadi) (Lawsonia alb), drench the root of Sambhālu (quash) into it. By making the essence (liquid substance) of these three, drench sulphur 2 sr. into that essence. Place it on fire, oil comes over it as cream; take that, give it to the leaf of silver (i.e. smear it). (There becomes) gold.

(57) Make (break) Somala (Khāra) (oxide of arsenic) into pieces. Put them into an iron cup, give it fire for 16 praharas. Give drops (ṭayā) of the juice of brīnjāl to it. It melts like oil in gentle fire. Take Malla (oxide of arsenic) and cinnabar and sulphur six times more than these two. While making the pieces of cinnabar, as equal of the size of red jujube, put it into an iron cup; combine all these—clarified butter of cow's milk pai. 2, Sulphur pai 2, honey pai. 2 and gam (not identified), and place them together on the oven; give it fire of coal for 4 praharas. After its melting, put Khāra (ashes) of Achyranthus aspera (Aghāḍa) into it. In this way give 30 puṭas (roastings) to it. Next grind that cinnabar and give grains of rice māśa 1 into it. There takes place sexual excitement, if it is taken.

Melt copper mā. 9 & silver mā. 3 and put 1 rati of the essence into them.

(58) Make a leaf of zinc $\frac{1}{2}$ sr., rub sulphur in mustard oil and smear it on the leaf of zinc. Give it puṭas six times thus. Give it 408 such puṭas as the leaf does not get melted. Later melt zinc and mix mercury with it as measuring equal (quantity) to. $\frac{1}{2}$ of it and make tablets. Put lime $2\frac{1}{2}$ srs. under and over it and blow it with water, (give) 100 such puṭas. Mix silver tola 1 and $\frac{1}{2}$ rati of the essence. Drench sal-ammoniac into the juice of sidhi (Rāsnā) (Vegetable Rennet). If (you) blow it up, it becomes fixed. If again (you) drench it and blow it up, it does not blow up (fly). If it is done 7 times, it becomes Pegami Navasāra (Sal-ammoniac).

(59) Drench tin into the milk of trunk (stem) of Mimusops hexandra (Rayan) seven times, into bitter Leptadanianarati culatā (Doḍi) are time, into butter Elephantopsus, Scaber (gaḷajibhih) one time and into part of white radish.

(60) Grind (reduce to paste) mercury pai. 1, sulphur pai 1 and borax pai. $\frac{1}{2}$ in the juice of Aloe Vera and fill it into a Bilva phala and close it up. Give it Gajaputaṅni. Mercury becomes good in taking.

(61) Grind lime of Oyster shell in the leaf of centipeda orbicularis and grind tin 1 rati with it. Make a seal (by putting the whole thing into an earthen) pot; give it gajaputaṅni. (There will be) silver.

(62) Melt brass vāla-4 by putting it into tin vāla 16 (?). Put into it aghaṭita vāla 8 by making it finely powdered so that metal gets mixed into metal (i.e. they become one). There becomes śvetasiddhi (accomplishment of silver) in the case. Silver undoubtedly.

(63) Make a lump of lead 1 and mercury by grinding them in Cissus Triangularis (Tridhārī Haḍasākala) and make the essence. Put together tin ṭā. 9 and the essence ṭā 1 or there will be Euphorbia nivīa or E. nerifolia.

(64) Incurable haemorrhage (bleeding) and jaundice go away by the use of excreta (stool) of rat. Give it to the patient afflicted with the said disease (together) with butter milk (Chāsī) ṭā $\frac{1}{2}$. True.

(65) Cook mercury in garuḍa=pamkhiu (not yet identified). If it is done 3 times, it is reduced to ashes.

(66) Rub mercury 1 Sr. in $\frac{1}{2}$ sr. of the juice of Achyranthus aspera (aghaḍā) for 1 prahara. Keep the essence in the sun for 3 praharas. Thus do it for 2 months. Mercury gets killed and incinerated.

(67) Grind black peper in the juice of Damana (Sweet marjora) for 4 praharas. Make tablet and put it into an earthen vessel; fill half of it with the juice and make fire. When the juice gets burnt, then put dry wild cowdung cakes over it, it is best in taking.

(68) Take orpiment pai. 1 and powder of black pepper pai, 1. go on mixing 1-1 paisā bhar of pepper for 20 days, (take) only 1 rati of that orpiment, Appetite (will be there, if it is taken), nourishment of all elements. All diseases will go away,

(69) Rub mercury pai. $\frac{1}{2}$, Cinnabar pai. $1\frac{1}{2}$, and green vitriol (Kasīsa) pai. 1 in the āsava (essence) of grapes (Sarko) pai. 6 bhar. Rubbing them in the essence of grapes, dry up the whole thing, rub it in the ripe leaf of *Calotropis gigantea*. Next (put the whole thing into an earthen bowl) and put 3 layers of cloth and clay over it. Dry it up and give it *gajaputaṅni*. Next give 7 puṣas to the essence with the milk of *Calotropis gigantea*. The prepared thing if taken, creates sexual appetite. There takes place the nourishment of strength.

(70) Rub mercury tā 5 in the juice of sweet bottle gourd (*Ladgenaria vulgaris*). Make lump of it, grind fresh lime and make gālo¹ with jarādī² of an earthen vessel (Kuladānī). Make Khato³ into that. Put the lump of mercury into that, next give juice of sweet bottle gourd from above and close it up. Put it into an earthen vessel. Give it fire below it. Lump gets burnt and becomes ash. On its getting cold, take it out, that mercury gets incinerated. It makes many benefits.

(71) Rub mercury tā. 5 and cinnabar tā. 5 with the kernal (garbha) of a ripe (*Aegale Marmelos*), rub them with the milk of cow pai. 1 bhar. In this way do it for 7 days. Next taking out the kernal of the second wood apple, put it into that, seal it up, put 7 layers of wax and cloth over it, and give it *gajaputaṅni* by filling the pit with dry dung of goat, up to 21 days. On its getting cold, take it out. $\frac{1}{4}$ rati of the essence (thus prepared) is the rule in its taking;

(72) Rub mercury to. 1 and the essence of mica to. $\frac{1}{2}$ in two juices—the juice of *Marahatī* and *Wedelia calendulacea* (*Bhāngra*) and give the drop (tūya) to them for 1 prahara. The lump of mercury and mica becomes fire-proved. (fire-bearing),

(73) Give tūya (drops) of the juice of the inner bark of *Salahī* to mercury for 1 prahara, rub it for 1 prahara; it becomes butter-like.

(74) Quench copper into the juice of the inner bark of the root of Horse Radish tree (*Saraghuana*). Next give it *gajaputaṅni* for 4 praharas by putting it into an earthen vessel. There will be best copper.

1. Not clear.

2. Not clear.

3. Not clear.

ELEVENTH CHAPTER

First Section-Prathama Pariccheda

(1) Rub mercury pai. 5 in the juice of Daimdi, ¹ pai. 5 in a mortar, it becomes lump-like; put it into a bottle and give a seal into its mouth. Tie up old silver and Kātho (by crushing them ?) and clay : give (put) a layer of cloth and clay over it. Next dry it up, dig a pit according to the size of the bottle. Bury it (bottle) into it, fill sand into the pit up to its rim (Koṭa). Next fill dry dung of goat $1\frac{1}{2}$ srs. into it and lit fire. In this way 3 bottles are to be turned up; give the third bottle fire of 3 srs. of wild dung of goat. Melt tin and put 1 tā. of the essence into it; fill the water-pot and cover it up.

Know it is Thaṭhāyanī Vidyā.

(2) Make a ball of these five - the excreta (stool) of Makarī (She-crocodile) 1 (part), gorocana 1 (part), excreta (stool) of bat (Vāgoli), śṛvanirmālya (scared leaves and flowers used in the worship of the god-Śiva) śīlārāsa (Liquid storax or Altingia excelsa) 1 (part) and ash of Terminalia bellerica Roxb. Smear it into the vagina of a woman. Male will be enchanted. He will not desire (like) another woman.

(3) Combine together (cat's vāsānā (fat) vāla 1. rat's hair (V) 1, feather of Uḷūka (a kind of bird) and feather of crow (V) 1. Put them into wax and smear (touch) the head of a man (Siyyāi śarāṇe) by taking (remembering or reciting) his name. Both the female (woman) and the (man) fight as a consequence. Love is lost (between them).

(4) Take Jasmine's root in the solar eclipse of eastern side, being naked. while the eclipse is taking place, rub. Śāthī rice with water and sprinkle it on an woman she, becomes vaśī (enchanted). Take the root of jasmine at the time of the end of the eclipse. She is released (by the power of) that root.

Such is the type of Vaidya.

(5) Having written thus "Vaśī 7/7/47 (2) (74) (62) 908, keep it with you. The one (she) does not come (or like to come), she also will come.

1. Not yet identified.

(6) Make powder of *Nākachikaṇṭ* (*Centipeda orbicularis*) by crushing it. Mix a little mercury in it. Mix a little mercury into tin as equal to the lime of oyster shell, and close it up in an iron *saṃpuṭa* (lid). Silver. Devāji has experimented (applied) the process.

(7) Give drops of the juice of five parts of Radish (*Mūla paṃcāṅga*)¹ to tin for 25 praharās till it melts. Again if you give drops for 25 praharas to zinc, it melts. Again if you give drops for 25 praharas to copper, it melts. For so many times it melts on fire, and 1 rati of mercury pierces into copper. 64%.

(8) Rub black datura in the juice of *greusia populifolia* (*Nagabali*) for 7 days, it (mercury) becomes butter-like.

(9) Rub that (mercury ?) which comes first of own accord in (*Būṭi*) (*Trachyspermum roxburghianace* ? = *Boḍi Ajamda*) and give it 7 puṭas (roastings), put it into an iron cup; over it give puṭa to these three—*Dādimiu* *Somala* ṭā. 6, China camphor (*Chiniu Kapūra*) or China *smilex* and realgar just with the juice of lemon. First give them *dīpāgni*, next *haṭhāgni* for 64 praharas; go on putting the juice of that plant into an iron cup, if desire comes up. Mercury gets fixed well. The essence (is ready). There will be an appetite, if taken.

(10) Combine these three—the powder of *Nagareta* (particles of lead) *pai. 3*, *Cinnabar* *pai. 1* and the dust of dead earth worm. *pai. 2*, rub them together in the juice of lemon. Give 21 puṭas to the whole thing, 21 puṭas of the juice of the leaf of Indian teak tree (wood). Next make a layer of cloth and clay over a *saṃpuṭa* by putting the whole thing into it, and keep it in the *culhā āgamaṇi* (āgamaṇi of oven) for 21 days. At some point heat touches (it), at some point it does not. Next take it out, the essence (is ready), combine copper-leaf and dung of buffalo into salt by *ṭaḍabaḍai*, (mixnig ?) them, thus 7 times. Next keep it in the juice of *āmaṭhi* (*Ipomoea* ?) for two days. Next melt that leaf *tola 1*, put 1 *māsa* of the essence into it, put the juice of lemon *Jasak* into it. The sacrifice of *Anārudhir*² is to be given into it. There becomes gold from the chemical action (*Karmabhavāt*.)

(11) Rub mercury in the juice of *Kallāra* (red lotus ?) (*Celsia coromandeliana*) for two days; next rub it in the juice of *Ubhi riṅaṇi* = (*Bṛhati* = *Solanum indicum*) for 1 day, next rub it in the milk of *Kaṇṭālī* *Thohara* (*Euphorbia nivulia*). Next put it into the *pāṭha* (leaf) of green lumpy.

1. Flower, fruits stem, leaves and roots—5 parts.

2. Not identified.

Aloe Vera, put over it a layer of wax and cloth and make puṭapāka of it in a Bhṛṅghar Yantra. On gobalaine (stirring), there becomes goṭaka (ball), rub it into the fruit of Ubhi-rigani (Solanum indicum) and give a little fire to it, till the juice gets dried up. Thus Puṭa. (8 ?) 108.

Take rasa (mercury fluid ?) by making it wet with the lemon with two rasas of Nāgachikāni (Centipeda orbicularis), grind it into it and give it fire little, by little; goṭikā (pills) gets bound (fixed). By taking out the juice of Centipeda orbicularis, rub mercury, alum, malla (Somala) = oxide of arsenic and cinnabar in equal quantity and cast the whole thing into a crucible.

Put first mercury, next leaf, next cinnabar, next alum, next put the juice of centipeda orbicularis. At first black smoke will come out. Next at the second time when rasa (mercury) is mixed up, then blue smoke comes out. At the third time when in mixing rasa (mercury), white smoke comes out. Next take out the whole thing, pill (ball) is produced. Next melt it by making tin (trapu), next, if it is (becomes) very hard, give borax into it for the second time and melt it, ball sucks water on turning. Having put charcoal by the side of crucible make phāk Vāja, grind the essence, mix it up, there becomes (gold ?). No doubt here.

(11x) Take mercury to. 1, clove to. 4, Chaleta to. 4, lakādi 4, (Rheum emodi), centipeda orbicularis, euphorbia nivvia and betal leaf, and combine and heat them for 4 praharas.

(12) The process of making Mudra

Drench fenu greek (Trigonella foenum graecum) (Methi) into water and drench (make wet) Multāni māṭi (Multāni soil) into the water of Methi, Make mudra of it first. Next dry it up on the burnnig charcoal; grind first the drenched Methi and the powder of aḍad (phaseolus radialis), in equal portion. Next make a seal. On the seal made first, spread out the powder of stone over it. Next dry it up.

(13) Grind sulphur tā. 5 sal-ammoniac. tā. 5, and honey tā. 10 with the urine of a child for seven day in an earthen pot with the butt (piston) of wood of Sahatut (a kind vanaspati).¹ Next put silver into the essence by melting it; gold.

(14) Rub tin 1, mercury 1, Kayam Navasara (sal-ammoniac) 1, and carbonate of potash = potassium carbonus (Javakhara) in the juice of the leaf of Aloe Vera. Close the mixture up (put) into a crucible of the shape

1. not yet identified.

of gostana (cow's udder), give it fire of coal, boil candrārka (probably a vanaspati) and brinjal, seed of *Balanites Aegyptia*, syn B., *Roxburghii*, sulphur and cuu.¹ Put the whole thing into a bottle. The process makes mercury fixed. It is done by Soni Devaji.

(15) Reduce to paste mercury in *Momordica Charantia* (Kārli) for three days with the butt of green Neem wood (*Melia Azadirachta*). Close it up by giving Haravasi (a kind of plant ?) and Naravasi (a kind of plant ?) under and over it. Give it fire for 2 praharas. (There will be) black silver.

(16) Make pills of orpiment 1, sulphur 1, realgar 1, thuthu (a kind of poison), golden pyrite 1, cinnabar 1 and light green vitriol with honey. The essence will assimilate silver of equal portions. It becomes equal to gold. Its carat increases.

(17) Take sal-ammoniac 3, alum 3, thuthu 3, red chalk 3, Khaḍi (white chalk ?) 3, Multāni māṭi 3 and pohara² of brick 3, all in equal portion. Make a thorn-piercing leaf of gold of 8 carats, smear or dip it with or in rasin (mercury ?), spread out the powder of these things. Next give a layer of wax and cloth over śaravasampuṭa (by putting the whole thing into śaravasampuṭa) in a Valukayantra and heat it for 1 prahara, there increases the carat.

(18) Boil and keep $\frac{1}{4}$ part of the whole thing—five parts (root, stem, branch (or flowers), leaf and fruit) of *Peristrophe bicaliculata* (Kākajamhā). Rub the seed of *Alangium lamakrii* (Amkoli); smear it in a new plate. Put that plate high up in the sunshine of Vaisākh-Jyēṣṭha. Oil (will come out of it), apply that, it acts.

(19) Rub the powder of seeds of datura in the essence (decoction) of uttarayana (a kind of vanaspati *pergularia extensa*); keep it into two plates. Put it in the sunshine, oil comes out of it. Like this oil of cotton-seeds, oil of the seeds of *Achyranthus aspera*, and oil of Horse radish, if taken out, come out. If you dip the aforesaid thing in the essence of *Achyranthus aspera* and rub and smear into the plate and put it in the sunshine, oil comes out. By this method make juice of the five parts of Aloe Vera, dip the powder of seeds of *Jamalagota* (a kind of plant) into it by making its powder and rub it, oil comes out. Putting (laying out) the leaf of guṭa into a bottle, place sulphur over it, place it layer by layer. Take the essence like cnyā, take artha (the thing). That artha will come into use, it fixes mercury, while iron gets killed by its use.

1. Not yet identified.

2. Not clear.

(20) Rub mercury to. 1 in the juice of *uttarayana* (*Daemia extensa* ?) to. 1, for 7 days. Rub it in the juice of *Celastrus paniculata* (*Mālakāmgnt*) to. 7 and in the juice of black *datura* to. 7 for 7 days, every day to. 1. Next put a cup of long gourd under a *śarava* (lid); give pieces of *Datura* over it, close the *śarava*, give it fire for 4 praharas. If red colour is generated, it (mercury) dies.

(21) Rub all these—mercury pai. 1, *Centipeda orbicularis* pai. 1 by drenching (dipping) it (or them) in the lemon (juice), and (putting) sulphur damḍi (pai) bhar and borax pai bhar into them. Next rub them all in the juice of *colalocarpus epigaeus* (*Naht*), close the whole thing in a *sampuṣa* (lid) and give it fire for 1 prahara. Put a pill of sal-ammoniac pai. 10 into an earthen vessel, put tin or lid over it, put a pot of *siddhi* (leads ?) over it by filling it up; make a hole at the bottom of the (under) the pot. First go on giving a little *rasa* (juice) like *ṭṭya* (drops), next slowly make thick stream upto 3 days, water is sucked. Both make noise and continue to make noise, then it is accomplished. Its test—that which becomes red sucks the water of tin, that is to be known as—*pegāmi Navasāra*. First give *dipāgni* (light of lamp), next increase and increase (it.)

(22) Combine sulphur, $\frac{1}{2}$ sr. and green vitriol ṭa. 10; give their essence 108 puṣas of *Aloe vera* on fire, next mix 1 tola of copper and 1 rati of the essence. Gold ?

(23) Reduce mercury to. 1 to paste in *Kerarasa* (juice of *capparis decidua* Edgew) and *Aconite Ferox*, put it into lemon (juice), (next) put it into ash; give it fire for 4 ghaṭikās ($4 \times 24 = 96$ minutes). It becomes silver, true. 3.

(24) Grind sulphur ṭā. 3, orpiment ṭā. 3, cinnabar ṭā. 3, vermillion ṭā. 3, mercury ṭā. 3, golden pyrite ṭā. 6, *Dāḍimarasa* (essence of pomegranate = *punica granatum*) ṭā. 1, zinc ṭā. 3, borax ṭā. 3 and glass ṭā. 9; spread out glass powder under and put the powder of medicine over, put the leaf of zinc over it. Again put medicine, again cover it with glass (powder ?), cover it up with seal. Give it fire for $1\frac{1}{2}$ praharas. There becomes gold.

(24x) Cook *Rāla* (resin) and borax in the juice of lemon for 2 praharas. Put the essence into copper, cook *rāla* alone and give it water, it becomes gold.

(25) Give 3 puṭas of *Datura* to mineral calamine tā. 4, 3 puṭas of *Kamoti* (a kind of plant), 3 puṭas of *Achyranthus aspera* (aghāḍā) and, 3 puṭas of turmeric (halud) to it. Make a copper leaf tā. 4, grind (pound) the medicine in the oil of *Anacardium* tā. 4 and smear the leaf in a closed crucible for 6 ghaḍis ($6 \times 24 = 144$ minutes) by melting it. There becomes gold.

(26) Put sulphur into a ripe Bel (*Aegle marmelos*) and place it into an earthen vessel; close it up and put it into a dust heap for a month. Take it out and mix 1 rati of the essence with 1 tola of silver. There becomes faint (light)-coloured gold; it should be dipped into the water (urine ?) of vilāḍī (cat or a kind of plant). There takes place an increase of its carat.

(27) Mix tin with sulphur. Silver.

(28) Rub sulphur $\frac{1}{4}$ sr. and honey $\frac{1}{4}$ sr., then rub mercury $\frac{1}{4}$ sr. in the juice of *ocimum sanctum*; combine both of them and fill them into a bottle and put three layers of cloth and clay over it. Dig a pit with a depth upto the waist and fill it up with horse dung, and keep that bottle into it for 6 months. (There becomes) oil, it is to be given (smeared) to silver. Gold ?

(29) Rub tā. 5 of each of *Achyranthus aspera*, (aghāḍā), *wedelia calendulacea* (bhāṅgaro), black *datura* (kālo dhūrta), *halulau* (*Myrobalans* ?), *Dhaholi*¹ and mercury to. 3, mercury is fixed.

(30) Cook cinnabar to. 1, in the clarified butter to. 21, curd to. 21, honey to. 21, and sulphur to. 21, thus cook it in 84 tolas of these things true. Silver (becomes) gold.

(30x) Cook mercury in the juice of leaf of *Hastikand* (*Colceasia Indica* ?), it gets fixed.

(31) Take a cup of copper of tā. 1, make rubbing (cārit)² of mercury tā. 10, fill the cup with the juice of *cymnema sylvestre*, give it fire of 5 praharas. Next the cup breaks up; tin or lead gets dried up.

(32) Fill sulphur into a bulb of onion and cook it by giving it fire for 2 praharas; sulphur gets fixed.

1. Not identified.

2. Not clear, it may be rubbing.

(33) Give Anacardium under and over the leaf of zinc by grinding it (Anacardium); give it gajapuṭāgni for 4 praharas.

When there remains half of it, combine it with silver, give it fire of dry wild cowdung cakes.

Rub mercury in green tobacco in a Kācala (pot?). Mercury gets fixed.

(34) Cook together sulphur pai. 1, sal-ammoniac, pai. 1, and honey pai. 1; mix 1 rati of the essence with silver to. 1. Gold?

(35) Rub an egg of a hen in the rasa (mineral) of sulphur pai. 1 and sal-ammoniac pai. 1. Fill the whole into the case of the egg and give it fire (dīpāgni)-dīpa-Jyoti or cook it in the oil of linseed in a Doliḱāyantra. Mix the essence 1 rati with silver to. 1. gold?

(36) Grind saṅgharaph (a kind of cinnabar) mā. 6, seed of Termination chebula (Haritaki), mineral calamine, seed of croton tig. mā. 6, borax mā. 6 and copper mā. 6 separately and combine them together, put $\frac{1}{2}$ of the whole thing under, $\frac{1}{2}$ of it over the leaf of copper in between (them), heat it in a closed crucible for 6 ghaṭis (6×24=96 minutes). There becomes gold.

(37) Make a lump of mercury and zinc and rub them in the juice of white oleander (Nerium odorum) for one prahara. Close the copper (plate) by smearing it with the essence. (Gold). ?

(38) Rub mercury, lead, cinnabar and sulphur in equal proportion in the juice of Aloe vera and heat the essence in a copper sampuṭa (Śarava = lid) on fire of coal. (There become gold).

(39) Rub mercury and lump of zinc in the juice of Elephasosus (gobhi scaber). Close sulphur 1, realgar 1, cinnabar 1, green vitriol and red ochre 1 in a copper sampuṭa. Give it fire of coal. (Gold?)

(40) Rub cinnabar 1, suro (Khāra) (nitrate of potash) 1, with the juice of lemon and give it 21 paṭas. (roastings) and fire of 4 ghaṭis (4×24 minutes). (There becomes) gold.

(41) Quench the leaf of brass in the oil of Butea frondosa or dry it up by smearing it with oil of Butea frondosa. (There becomes) gold.

(42) Give 21 paṭas (roasting) to orpiment and Rāla (resin) in the juice of Aloe vera. Put it into a bottle and take its oil (by boiling it).

SECOND SECTION

(Dvītiya Pariccheda)

Vajramuṣā (Hard or strong crucible).

(1) Make a crucible by grinding all these together—ash of fine coating of rice 2 (parts), chalk 1 (Part), kātho (lime mixed with khadir), ash of dry wild cowdung cake 1, salt 1, Kaṭaḍṭ¹ 1 (not identified) 1, jhiko² 1 and clay of potter or make a crucible by grinding together salt part 1, and ash 3 or 7 (parts).

(2) Rub all these five—Helioteris isora (muradāraṣṭṅga) māśā 5, cinna-bar mā. 5, yellow somala (oxide of arsenic) mā. 5, mercury mā. 5, and borax mā. 5 for 1 prahara. Next cover the whole thing for 8 days; do thus by rubbing them everyday. Next bring a piece (dadovo) of black Bhoḍala (mica) and make a good crucible by boring a hole into it. Make smearing on these two crucibles with good chalk. Next fill medicines (into them). Next give cūyā (drops) of the juice of lemon and shoe flower = Hibiscus rosa-sinensis = jāvā (Jāsūda) (into them) by drops for 4 praharas. Apply 1½ srs. of it in this case. Mix 1 rati of the essence into 1 tola of copper and heat them into an open crucible. There becomes gold.

(3) Make a lump of copper mā. 1 and zinc mā. 1 (together); pour the mixture into the milk of Euphorbia nivulia seven times. Next pour it into the juice of Aloe vera and turmeric seven times. Next grind borax ṭā. 1 and thutho (a kind of poison) ṭā. 1 and give half of it under (that mixture) and half of it over, heat it on the fire of dry wild cowdung cakes; give (put) it into a small earthen sarāvala (lid.) There becomes gold.

(4) Purify (copper) leaf pai. 1 bhār with the essence of mineral calamine pai. 1, borax pai. ½, mercury pai. ½ wedelia calendulacea pai. 1, golden turmeric pai. 1½ and oil of Anacardium pai. 1½ by finely grinding all of them separately. Next rub mercury in the oil of Anacardium; when they become one, then put mineral calamine, next put borax, next mix all and grind in a Mohaka (Datura ?). Next give, 1 tablet of the combination and 1 tablet over (the leaf); thus give (put them) layer by layer. Then heat it in a closed crucible up to ghaḍṭis (6×24 = minutes); gold.

1. Not identified.

2. Not identified.

(5) Rub somala (oxide of arsenic) in the juice of Horse-radish. Rub these two together—the inner bark of Horse radish tree and cow's milk pai 1 bhār, and take out the juice, rub somala, (oxide of iron); next make pill of it, put it into an earthen crucible, make a closed crucible, give it gajapūṛṇi of goat-dung-5 srs. every day; give it fire for 21 days. This process dries up the water of mercury and tin; mix, paisa 2 bhār (of copper) and 2 ratis of the essence. (Gold ?)

(6) Purify the leaf of zinc in the juice of Anacardium, next quench it in Goyalā (a kind of plant), in white oleander (Nerium odorum), in the urine of ass, in Elephantopus scaber (gobhi), in Āliphul¹ 5 in the milk of Euphorbia antiquorum (vajrt), in Aloe vera (?) and Niṣā.² Next make leaf of it pai. 1, grind (pound) cinnabar mā. 1, realgar mā. 2, kaṇeri-somala (a kind of oxide of iron) mā. 2, orpiment mā. 2, juice of tamarind 1, juice of Aloe vera 1 and juice of Elephantopus Scaber 2 and close them into a copper saṃpuṭa. (Heat it) on fire of dry wild cow-dung cake-10 srs. and coal 3½ sr. Rub realgar ¼ sr. in the essence of grapes and saimdhava salt.

The seven processes of taking out the essence

(i) Take out the essence of (metals and minerals) by blowing dirt in a Damaruyantra.

(ii) Rub sulphur ½ sr. in the āsava (essence) of grapes and take it out by blowing dirt.

(iii) Rub somala (oxide of arsenic) ¼ sr. and arāṃgoli = eraṇḍī (Ricinus communis) 2 sr. in the white portion of an egg of hen and take out the essence by blowing dirt.

(iv) Take Saṃgharapha (somala) ¼ sr., keep āmlā (Phyllanthus emblica) by dipping (drenching) it in the juice of lemon and rub saṃgharapha in that water. Take out the essence by blowing dirt.

(v) Rub golden pyrite ¼ sr. and borax ¼ sr. in honey and clarified butter, next there does (should) not remain Jeharau³ of Bharata. Make construction of the whole thing and rub (it); give coal into the mouth (other oven). By doing thus, take out the thing of the bottom portion.

(vi) Rub sal-ammoniac ¼ sr. and lime of oyster-shell ¼ sr. in the milk of calotropis gigantea ½ sr. and cow's milk ½ sr. and take out the essence by blowing dirt.

1. Not identified.

2. Not identified

3. Not identified.

(vii) Take out the essence of mica by blowing out dirt on the day of Mūlanakṣatra.

These are the seven processes of taking out the essence

(7) Mix these three—kaginda 1 sr. (panicum milia ceum?), mercury 1 sr. and sulphur $1\frac{1}{2}$ srs. and put them into a Chinese cup. Cook them into an earthen vessel for cooking rice. Mercury becomes ash (i.e. killed).

(8) Rub mercury $\frac{1}{4}$ sr. in the juice of bitter long gourd 1 sr., the juice of the leaf of calotropis gigantea 1 sr. and the juice of the leaf of euphorbia nivulia 1 sr. for 5 praharas. Next give it fire for 15 praharas. (If taken), one's appetite becomes double.

(9) Put mercury $\frac{1}{4}$ sr. into lead-saṃpuṭa (lid) of 1 sr., place the saṃpuṭa into an earthen pot (or bowl). Next pour horse's urine 5 srs. into it by mixing with saṃcalaluṇa (kind of salt) 1 sr; give (put) seven layers of cloth and clay over it and give it fire for 16 praharas. Mix 1 rati of the essence into 1 sr. of tin. Silver is produced.

Action of Cup

(10) Keep orpiment 8 srs. and red Abrus precatorious $\frac{1}{2}$ sr. dipped in the milk of she-goat and take out oil in Patalayantra. Next put mercury 1 sr. into a zinc cup of 2 srs; make that cup drink (i.e. dip) into the juice of Lamprachoenium microcephalum (Brahmadandi)—2 srs. Fill oil into it, put lead (Nada ga?) in between saṃbhara luṇa 3 srs. (Saṃbhara salt) by crushing it. Put the cup over it, fill the cup with that oil, place the earthen bowl over that cup. Fill 15 srs. of saṃbharaluṇa over that, give fire under it for 12 praharas, give (mix) 1 māsa of the essence into 1 tola of cooper.

(11) Put the juice of Bugo (a kind of plant) 1 sr. and mercury 1 sr. into an iron pot, give it fire for 5 praharas, give cnyā (drops) to the whole thing. Stir up the whole thing with the root of Buge. If $11\frac{1}{2}$ tola of tin are mixed (given) into lead, there becomes gold.

(12) Rub mercury in the juice of Ipomaea reniformis and the juice of Aloe vera and quench it into kakaṣi (sisymbrium irio). There becomes silver.

(13) Rub mercury in the juice of Ipomaea, Close it into a copper saṃpuṭa (lid), and fill rasa (juice of mercury) in, it and close it firmly. The essence makes (creates) sexual appetite.

(14) Put mercury pai. 1 and zinc pai. $\frac{1}{2}$ into a copper-Saṃpuṭa and fill it up with the juice of *Ipomaea reniformis* and close the Saṃpuṭa and give it fire. (Gold ?)

(15) Rub orpiment pai $\frac{1}{2}$, mercury pai $\frac{1}{2}$ and cinnabar (Saṃgharaph) pai. 1 in the juice of *Centipeda orbicularis* and juice of lemon. Make a hole into a brick and cook them into it. Give cūyā (drops) of lemon juice to the whole thing. Mix 1 rati of the essence with 1 tola (of copper). There becomes gold.

(16) Put mercury pai. $2\frac{1}{2}$ into a zinc cup of pai 1. Next fill saṃbharaluṇa (Saṃbhar salt) 3 srs. into an earthen bowl. Put the cup over that (it), fill it up with the juice of lemon, make (lit) haṭhagni under it. Give juice till mercury gets reduced to ash, (put), (the essence) into 1 tola (of copper ?), (gold ?),

(17) Put mercury pai. $2\frac{1}{2}$ into a zinc cup of pai 5 bhār. Fill salt into an earthen bowl, next mix cinnabar 1, realgar 1, orpiment 1 & somala (oxide of arsenic) 1 under and give the cup over, (from above). Give cūyā of lemon, black Aloe vera and urine of ass till the whole thing becomes lime-like. Mix 1 māsa of the essence into 1 tola of copper. Particularly give it cūyā of lemon and Aloe vera. gold ?

(18) Put orpiment pai. 6 into glass cup, next fill up a big pan with the juice of Kasudī (Round podea cassia = cassia Sophora or Cassia occidentalis), keep it for 3 days and dry it up. Do thus 3 times. Next put the juice of Kolikandā (Indian Squill): It gets dried up in one day. Do it thus for 3 days.

Next filter Bassia Latifolia (Talio moharo) paisa 4 bhār with a piece of cloth, put it into orpiment and rub it with the juice of Cassia accidentalis and fill it into a bottle. Put hair into the mouth of the bottle. Next place (hold) the glass pot (cup) under that tube. Next give it fire of pieces of goat's dung 7 srs. in an earthen bowl.

Take the essence which comes out from that (bottle). The essence which remains in it, becomes white. Break the bottle and take out the essence. That essence makes copper white. Oil comes out. That makes silver bright.

(19) Hold Indian Squill (Kolikanda) on fire, when it becomes slightly warm, then take out its juice by pressing it with hand, put it (juice) into orpiment and grind it (orpiment). Thus is the process of orpiment.

(20) (Take) a thick piece of cloth measuring the length of 1 cubit square, give it 6 saturations with the milk of *calotropis gigantea*. Apply $\frac{1}{2}$ sr. of it (to it). Thus on the seventh day there becomes wet cloth (*nilāja vastra*). Take $\frac{1}{4}$ sr. of sulphur and these five seeds :- pai 1 bhār of seeds, mustard seed, pai. 1 bhār of linseed, pai. 1 bhār of *mesua ferrea* (*Nāgakeśar*), pai. 1 bhār of *Momordica Dioica* (*Kaṇṭālī bija*) and pai. 1 bhār. of *Calotropis gigantea* (*arkabija*).

spread them out over the cloth and pour Kaṭhont (not identified). Make it (cloth) wet with the mustard oil, Khoine Trākalo¹ (not identified), keep the piece in one place, it gets melted by the contact of fire. Next melt silver to. $\frac{1}{2}$, and copper to. $\frac{1}{2}$, one drop (of essence) is to be cast into that. When all copper gets decayed (assimilated), then silver becomes gold.

(21) Put molasses 2 (parts), sulphur 2, lime 4, gorocanā (a scented thing) 2 & a leaf of zinc into an open crucible Next give (put) that zinc into copper. Gold.

(22) Put Dathiū sulphur tā. 3 into a small copper-box by grinding it, mix rice like pieces of zinc tā. 3 into it, spread out Sambhara salt-3 ratis over it by pounding it, give (put) a cover (lid) over the small box and a layer of clay and (cloth). After drynig up the two, give, it heat into the fire of dry wild cow-dung cakes-7 srs. On its getting cold, take it out. The grains of zinc like pearls become gold, take it.

(23) Take mercury tola $3\frac{1}{4}$, zinc tā. 4, āmalasāra sulphur tā. $4\frac{1}{2}$, Teliū borax tā. $4\frac{1}{2}$, the juice of Aloe vera $\frac{1}{4}$ (tā) and the juice of black cirupoti ($\frac{1}{2}$ tā). Purify mercury in Jhikā (not identified) in the juice of lemon for 3 days, next melt lead and zinc together, next make lump with mercury. Purify āmalasāra sulphur in mustard oil and quench it (into it). Closing all things into a copper sampuṭa, fill the juice of cirapoti and the juice of Aloe vera into a copper-box and close it. Wrap it up with iron wire; make a smearing over it by combining brick, sweet flag root, old boha² and molasses and crushing them; give (put) 3 layers of cloth and clay over it. Dry it up for 3 days, give it gajaputaṅni for 4 praharas. On its getting cold, take it out. (There becomes) gold.

(24) Rub the king of Sulphur (or sulphur and mercury) in the juice of variegated coloured Kākarudā (not identified³), put zinc mixed with sambhara salt into a small copper box and wrap it up with iron wire and close it up, give it fire for four praharas. It is said by Mahādeva Majyo.

1. Not clear.

2. Not identified.

3. It may be a kind of vanaspati,

(25) Give 21 puṭas to Saṁkhiu somala (oxide of arsenic) in the juice of lemon, dry it up in the sun 21 times. Thus give 21 puṭas in the juice of kaṇṭathohara (*Euphorbia nivulia*?) and 21 ātapas (21 heats) in the sun, 21 puṭas in the milk of *Calotropis gigantea*, 21 ātapas (heats or drying up in the sun), 21 puṭas in the milk of *Khrasāni ajamo* (*Hyoscyamus Niger*) 21 and ātapas (heats in the sun). Next give it 21 puṭas (with the juice of) a big lemon, 21 puṭas, the *Amorphophallus companulatus* (Śūraṇa), 21 puṭas in gourd and 21 puṭas in Indian squill (*Kelikand*). Smear the joint. Medicine (is ready).

(26) Grind these seven articles :

- (i) Kātho (lime) mixed with Khayer (khader)
- (ii) Lime
- (iii) Molasses
- (iv) Glass
- (v) Myrobalans (*Terminalia Chebula*) (Haraḍa)
- (vi) Husk of rice and
- (vii) Sumdarmu (red coating of rice); Close them into a vaḍa (a kind of vessel) and put 7 layers of cloth and clay over it, i. e. close it. There becomes joṭaka combination or piece.

(27) Rub somala (Khar oxide of iron) 1, mercury 1, borax 1, and tin in the milk of Vajri (*Euphorbia antiquorum*). Cook them in human urine in a Dolikāyantra; mix that essence 3 māsas into purified copper to. 1; there becomes silver joṭakam (pieces).

(28) Take śaṁkhiu somala (oxide of arsenic) and mercury in equal portions. Rub them in the milk of Tridhāra and Caudhāra Thoḥar *Euphorbia nivulia* for 1 day and in the milk of *Calotropis gigantea* for 1 day. Making pills of them, put them into a saṁpuṭa (lid), give salt under and over them. Close the joint (gap) of saṁpuṭa (lids) and put over it 3 layers of cloth (and clay), next put coal for (upto) 44 ghaḍis (44 × 24 minutes), when red flames come up, i. e. pour (into fire). Mix pure copper tola 1 and masā³ of the (essence). (There becomes) joṭaka of (gold) of 16 carats.

(29) Rub Somala to. 3, and mercury $\frac{1}{2}$ in the milk of cocoanut, next put the whole thing into a green cocoanut, give dāto(to) (cover) of five-leaved chaste tree (Nagaḍi), make smearing of the joint (of the cocoanut),

1. Not identified.

2. It may be a kind of vanaspati.

put 7 layers of cloth and clay (over it); mix the goat-dung and cow-dung and give it *gajapuṭāgni* with their mixture, for 4 praharas. Mix 1 rati of the essence with pure copper tola 1, combine *bija mā(sā)* 3, *Śrī*, (wealth) (will come).

(30) Rub *samkhiu somala* (oxide of arsenic) to 1 and mercury *ṭa* 1 in (the juice of) lemon for 3 days; put borax *māsa* 1 into them, make a ball (pill) of them, make a hole into a brinjal, put the whole thing into it and close it and do it 3 times. Mix 1 *māsa* of the essence with 1 tola of copper, combine *bija māsa* 3. *Jotakam* of (gold ?)

(31) Make a hole into a gourd, rub *somala* (oxide of arsenic) tola 3, put it into that ground and give a cover (into the hole), put 7 layers of cloth and clay over it. Give it *gajapuṭāgni* (fire) of 5 maunds of dry wild cow-dung cakes. Mix 1 *māsa* of the essence into 1 tola of copper. Clear silver comes out. Its name is *Santaguṭikā*.

(32) Rub mercury to. 1 in the juice of *Tāḍī Dudheli* (*euphorbia pilulifera*) for 1 day, rub *orpiment* in the juice (*Tiḍuri*)¹ for 1 day, make pills of them and put them into the water of lime and cook them in *Doli-kāyantra* for 3 praharas. Mix 1 *māsa* of the essence into 1 tola of copper, combine 3 *māsas* of *bija*, (essence ?), keep 5 (it) inside the house for 1 month.

There become pure silver.

(33) Make a hole into a *Kṣīrakanda* = *Bhūmikusmāṇḍa* (*pueraria tuberosa*) and put mercury *ṭā*. 2 into it, close the hole, keep it in cold water for 21 days. By taking it out, make worship. Keep that *guṭikā* into the mouth. If you think of the desire born in your mind to go to some place, you will go there.

(34) Rub mercury into a coconut for 1 day and give it sunshine for 3 days. Next rub it in the juice of *Bāvī* (a kind of *Vanaspati*). Make pill, keep it into the mouth; semen is fixed (i. e. penis gets erected.)

(35) Make a crucible out of ash of *mukhavastra* (mouth cover) 1, *ujāl māṭī* (bright soil) 1, and glass 1 in the milk of *Nivadāga* (a kind of *Vanaspati*). Take *gāra* (clay and cow-dung) 1, lime 1, carbon of cloth (*vastra-masī*) 1, *varulamāṭī* 1 and make a crucible in milk.

(36) Take *Śvetamāṭī* (white soil) *bhā*. 1, lime *bhā*. 1, flux *bhā* $\frac{1}{2}$, make *vajramuṣā* (hard or strong crucible). Take lime 1, clay 1, black *kātho* 1, ash of rice (*Vrahīrakṣa*) 1, rust of iron (*lohakaṭa*) 1 & *haritaki* 1 and make a *vajramuṣā* (strong crucible).

1. A kind of *vanaspati*.

1. Not identified.

(37) Rub wet mica to. 12, and mercury to. 12 together. Rub sweetless honey (molo madh) and borax in clarified butter. Put the whole thing in a vajramūṣā and close it and put it into an earthen jar, give it bhaṭhāgni for 2 praharas. Next worship it by taking out. it Pill becomes Viryathambhī (i. e. it makes semen fixed).

(38) Dry up water in tin. Next put it into 1 maund of milk—it comes out (vomits). Its name is Saṁtaguṭikā.

(39) Rub mercury tā. 12 and leaf of silver tā. 12 with lemon for 2 days. Next put the whole thing into a cocoanut. Close its mouth, give (put) 3 layers of cloth and clay over it. Fill an earthen jar with sand, put the cocoanut into that, close the mouth of the jar. Dig a pit measuring 2 cubits, give it fire by putting goat's dung—4 maunds, $\frac{1}{2}$ under, $\frac{1}{2}$ over it in between the jar for 10 and 12 days. Next take it out. There becomes goṭaka. If it drinks (assimilates) milk, it is successful (accomplished), if it does not drink, it is trivedhī (piercing threefold). Mix 1 tola of copper and 1 rati of the essence. By drinking milk lead becomes gold.

(40) Rub mercury to. 1 in the juice of Datura for 2 days. Next combine together Saṁkhiu somala (a kind of oxide of arsenic) to 2, with them and rub it in honey. Next put the whole thing into a small copper box of $\frac{1}{4} + 1/8$ srs. and close it by putting the thing into it. By digging a pit of $\frac{1}{2}$ yard, put 3 layers of cloth and clay over it. Give it fire of dry wild cowdung cakes. Take white thing which comes up, mix 1 māśā of that essence into 1 tola of copper.

If śveta (silver) does not come up there is ash (ghagarai) lying under; take that. White mercury lying at the bottom of the box becomes all-piercing, melt it, that melted water is the essence. (Dip) brass into oil 7 times, then cast 4 māśās of silver into half of the essence. Pumaṁvacanānī (words of Puma).

TWELFTH CHAPTER

The process of purification of Copper

(1) Put Tamarind in the milk of she-buffalo and make it loose (ḡhīlusu), pour copper vāla 7 into it or by making copper leaf-heated, quench it into it. There takes place the purification of copper (or copper gets purified).

(2) Rub the lime of Oyster-shell $\frac{1}{2}$ sr. and tin $\frac{1}{2}$ sr. in the milk of Euphorbia nerifolia, or in the milk of Calotropis gigantea $\frac{1}{2}$ sr. for (upto) $1\frac{1}{4}$ praharas. Next smear the middle part (peti) of an earthen vessel, give (put) a strong seal into the mouth of the bowl and give it fire for 4 praharas. In the morning, on its getting cooled down, take out the whole essence. Tin, getting melted from its belly (Peti), comes in the middle (inside); grind cinnabar tā. 1, borax (tāṃkaṇakhāra) tā. $\frac{1}{2}$ and Morthuthu and mix them, and stir them up inside into that bowl. Again close the earthen bowl, give it fire for $\frac{1}{2}$ praharas by putting 7 layers of cloth and clay into the mouth of the bowl. Silver.

The process of Pegāmī Navasāra (Sal-ammoniac)

(3) Take sal-ammoniac tā. 10, and powder of Nṛtubalī¹ double (of the former) tā. 20; give sal-ammoniac under and over the latter. Give 7 puṭas to the whole thing in a Kabacryantra; go on putting double-double powder in every puṭa. (As a result) there becomes paṃcaramṅi (five-coloured) pure pegāmī navasāra. Pure Sal-ammoniac comes from the ship; put that kabacryantra into that earthen bowl. Cover (it) under and over with double powder, give a lid (Śarāvalu) (over it) upside down, put (give) a layer of cloth and clay over it. Fill sand over it, give it fire under it for 1 prahara and give it 7 puṭas.

Again the process of Chemical action

(4) Grind these things-sal-ammoniac pai. 5, Kalamī cūno (a kind of lime) pai. 5, samudrapheṇa pai. 5; put them into a big pot (carudo)- $\frac{1}{2}$ under and $\frac{1}{2}$ over, cover it and seal it up. Put seven layers of cloth and clay over it (carudo), dry it up and give it fire into a bhāṭi of a furnace. Next put sal-ammoniac into a pan of Kāntiloha (a kind of iron) and make it wet with water; put it there where is air, at night it gets melted and becomes (rasa) (fluid or liquid.) Put it on the furnace in the morning. Give it fire with the wood of cotton till the liquid gets dried up; put it again in the air, again give it fire. It remains in the juice in doing thus. It is produced.

1. Not yet identified.

Mix 1 rati of the essence into 1 tola of tin, 1 rati of the essence into 1 tola of copper. The essence pierces eight kinds of metal. If Navasārī Pegami is found, there the piece (it) becomes a little fixed.

(5) Rub malla (Somala = Oxide of arsenic) 1 sr. in the juice of five limbs of Khārijālī (Mustard tree of Scripture = *Salvadora persica* ?), Viz. fruit, flower, leaf, bark and root, put it into a bowl made of glass (Kācaḍhālita ?), give it fire in a Damaruyantra for 4 praharas. Thus give 40 puṭas of Khicaḍī (hotch potch ?). If the bowl breaks, make a new one. On doing thus the whole thing settles down like silver at the bottom. Mix $\frac{1}{4}$ sr. of tin into 1 tola of copper and $1\frac{1}{2}$ rati of the essence.

(6) Melt saji (Khār = natron) 1, rock salt 1, somala (oxide of arsenic) 1, borax 1, Bagdadī orpiment 1 and vajrakhara (a kind of sodium) in the juice of *Achyranthus aspera*.

By melting copper to. 1, put the essence 1 māsa into it, silver of 19 viṣvas (carats) is produced.

(7) Melt (or heat) realgar 8 and Kāganal¹ $8\frac{3}{4}$ for 24 praharas (3 days). Mix 1 rati of the essence into silver-vāla 1. There becomes gold of 13 carats.

(8) Cook (or heat) realgar $3\frac{1}{2}$, orpiment $2\frac{3}{4}$ and cinnabar $2\frac{3}{4}$ in Doli-kāyantra for 24 praharas; mix, (the whole thing) with Kāganala $6\frac{1}{2}$ sra. After performing 3 Bhairava pūjās (worship of Bhairava), it is completed. By melting silver vāla 1, put 1 rati of the essence into it. There becomes gold of 13 carat. Test is experienced—Tāguḍa gḥi-thiṃgā merā. Tāguḍa² ghee (clarified butter) and thiṃgā³ merā (not identified) are of mire). Pāca aṃgulane merā paḍavā To put (rings) on the five fingers of mine). That is, gold is produced.

(9) Grind together *Herpestes monniera* vāla $\frac{1}{2}$ and *Centipeda orbicularis* (chikani) vāla $1\frac{1}{2}$ or *Herpestes* $1\frac{1}{2}$ (Brāhmī), centipeda vāla $3\frac{1}{2}$, Mahiā varāha mṛttikā 30 srs., realgar 6, and Kananuji golden pyrite 6, mercury tā. 6, cinnabar tā. 6, gau orpiment tā. 6, Daḍamiu Malla (Somalakhara) (oxide of arsenic) tā. 6, sulphur, tā. 6 = thus tā. 12, and cast the whole thing into a vessel by rubbing them together. Oil or essence is to be taken out in a Pātālayantra. Smear the leaf of silver with that essence. (There becomes) gold. Give 65 puṭas of citrus medica to cinnabar. Mix the essence-ga. 1 into copper vāla 1. (gold).

1. Not identified.

2. Not identified.

3. Not identified.

(10) Rub together cinnabar tā. 1 , Phitakī Malla (a kind of oxide of arsenic) 1, sulphur 1, Mastakī 1 (pistacia Leniscus) seed of Iuffa echinata (Kukaḍavela) 1 in the juice of Aloe vera $\frac{1}{2}$ tā .

(11) Rub cinnabar 1, Haramaḍī 1, (Peganum Harama) and Arkakoila 1 (Calotropis gigantea ?) in a white brinjal and get the whole thing dried up in the shade; put a layer of cloth and clay over it, and give it fire for 12 praharas. Mix the essence vāla $1\frac{1}{2}$ into copper ga. 1. Gold ?

(12) Close red Somala (oxide of arsenic) 1, borax 1, Kaṇeriu orpiment 1, mercury 1, sulphur-double of it into a pot and put it into a dust-bin, keep it there for a month.
Yogavidya is true.

(13) Grind cinnabar tā. 9 , Ferula Asafotida (Hing) and gum of Butea frondosa in the juice of citrus medica (Bijora); smear the essence on the leaf of copper, give it 65 kurmapuṭas, grind cinnabar with the juice of Bijora (citrus medica), grind also 2 medicines, smear the essence on the copper leaf. Pure silver is produced. It is experimented by Rṣi Saṁghaji.

(14) Take the seed of Fenugreek (Methi) having Kalāphula (black flower or Evolutus alsinoides), 1 or 2 Sāmo (Panicum iolonum ?) and seed of pigera arvensis (Kanajhari) 1; take kṣtra (milk) of these three by cooking them in the milk of she-sheep. One sees underground (hidden) treasure. If he vomits, he does not see (it).

(15) Rub the root of pātala Tumbārī (Ceropegia Scuminala) root of white sātoḍī (Horse purslane), Pātalamadhu (a kind of vanaspati), or white Kaṇera (sweet-scented oleander and make collyrium). Bind 49 leaves of pīpālā (Ficus Religiosa) on the eyes. One sees (underground) wealth. If he is born in Mūlanakṣatra, he sees it, or one who has drunk, sees it.

(16) Bind Paṭa (bandage). over the eyes by putting 7 puṭas (pieces) of Mahtvastra.¹ Take 14 roots of white Butea frondosa of the northern direction. Apply the collyrium over the eyes of some one; he sees underground (hidden) treasure.

(17) Rub Pegāmi sal-ammoniac mā. 2 and Juice of Jalasi mā. 1 (a kind plant) with equal quantity of milk of Nagarjunt (Euphorbia pilulifera) and smear the-copperleaf. Silver.

1. A kind of Cloth.

(18) Rub tin $\frac{1}{2}$ sr. and mercury tā. 6, (rum) Kam.¹ with the juice of Euphorbia pilulifera and the juice of lemon in equal portion. Smear the essence on the copper-leaf 21 (times) and dry it up in the shade and, give 16 paṭas in the sun. Next melt it; gold.

(19) Grind vaṭalapanni Suvanphāli 1 phali, so, mūla men (Bergenia ligulata) with mūla (root) and branch. Its rasa is produced from only one Mayagalle) vāri 1; (elephant remains at the gate), i.e., gold will be produced.

(20) Rub all these mercury-pala 5, sulphur-pala 10, Kaganela pala 25; put the whole thing into an old pot and close it up, place it inside a furnace for 6 months. So like that so that the heat of fire affects it; give that oil into silver de, $\frac{1}{2}$. (There may be gold?).

(21) Sāji varaji cūṇaḍaṇi vihulimano hariyāla 1 sulalita hove uḷalu kaḥu kare dūkāla 11. (Take) natron, varaji² cūṇaḍaṇivihu,³ double orpiment. It will be beautiful and bright, what the famine will do?

By combining all these together in equal portion, give the essence to the leaf of tin layer by layer. Fill it into a horn of she-buffalo and close it up. Put 7 layers of cloth and clay over it and give it fire bhāṭ-agni for 3 days. Silver is accomplished.

(22) Drink the essence of Sebala (Ferula Sumbul? or Vitex trifolia) bhā, 4, Devadāra (cedrus deodāra). bhā. 4, and Bijoru (Citrus medica) bhāra 8, with cow's milk after three days of menstruation; salt and sour (things) are to be given up. (There will be) male child.

(23) Grind Malla samkhiu (a kind of oxide of arsenic) tā. 1, mercury tā. 1, mineral calamine (khāpariu) tā. 1, and godanti orpiment tā. 1; make clarified butter by heating the fat of she-goat $1\frac{1}{2}$ sr, give tūyā (drops) to the fine powder (of abovementioned things) with clarified butter in an earthen pot. Make dipāgni in fire, dry up all clarified butter, dry it up in 10 or 20 days. Mix tin to. 1 with 2 rati of the essence. Use the fat of sheep in case of alternative,

(24) Grind lime of oyster shell in the milk of Euphorbia nivulia. Keep that powder dipped (immersed) in the milk for 8 praharas. Next fill it into a horn of she-buffalo and close it up; give (put) 3 layers of cloth and clay over it. Dig a pit measuring upto the knee. Put the horn into it, give it fire of 2 baskets of dry wild cowdung cakes. The thing is produced.

1. Not deciphered.

2. Not deciphered.

3. Not deciphered.

(25) Take the juice of *Āsarvata*¹ 1 sr. and the juice of *Haḍasākala* (*cissus quadrangularis*)— 13 srs.; give *tūyā* (drops) of mercury to silver; (give) *tūyā* of the two juices to it in an iron cup; make *mandāgni*, put 1 *māsa* of the essence into 1 *tola* of tin. (There will be) silver.

(26) Cook *tridhārī*, *Haḍasamkalī* (*Cissus Triangularis*) on fire for 21 days; next by grinding *Kaṇṇīu realgar*, smear the leaf of zinc with it; give it layer by layer on the leaf; put it into an earthen bowl and close it up, put 7 layers of cloth (and clay) (over it), put it into *Valukayantra*. Close it up; make *mandāgni* (slow fire) for 8 *praharas*. Mix 1 *māsa* of the essence into 1 *tola* of silver. (There becomes gold) of 8 carats.

(26x) Take a piece of *phaṭaktu Malla* (a kind of oxide of arsenic) *tā*. 6, put it into the hole of *Amorphophallus campanulatus* by making it into this thing, give a lid (cover) into its mouth by putting the juice of *Abrus precatorius* (*ciṇoḥṭi*) into it. By covering it and filling sand into an earthen bowl, put *Amorphophallus* inside it (bowl) and place it on the furnace; give it fire till the juice inside *Amorphophallus* gets dried up. Thus next close (it) into Indian squill = *Urginea Indica* (*Kolikanda*) and wrap it up with cowdung and heat it next. Put it into lemon, wrap it up in cowdung, 7 put it into *Bhara*² Thus do seven times. Take out the lemon, melt copper *tā*. 10, put powder—*gadiāno* 1. Next give it 7 *puṭas* of *Babī*³ silver.

(27) Take *Phīṭakiu malla* (a kind of oxide of arsenic) 1, mercury *ga*. 2, *thutho* (a kind of poison) *ga*. 2, lime of conch-shell (*sāṃkhi cūno*) *ga* 2 and 2 cups of tin, weighing *tā*. 66. By making powder of the medicine, put it into one cup; next close its mouth by giving (putting) the second cup over it. Next rub green vitriol in the milk of *Vajrī* (*Euphorbia anti-quorum*), smear it on the cup, next give (put) 3 layers of cloth and clay over it. Next fill the jar with sand, put the cup inside it, fill sand over it, measuring 2 fingers. Next seal up the mouth of the jar with a lid, close it with clay and give it fire for 2 *praharas*. The essence is produced. Mix the essence *vāla* 1 into copper *gadi*. 1. There becomes 18 carats (*Viśva*) (of gold?).

(28) Rub mercury *tā*. 4 and sulphur *tā* 4 in the juice of *Clenolepis cerasiformis* (*Saṃkhāholi*) for 1 day; grind them in the juice of Horse purslane (*Saṇḍi*) for 1 day, & grind them in the juice of *Aloe vera* for 1 day in a mortar in good manner. Next put the whole thing into a glass kettle (casket)

1. A kind of fruit.
2. A kind of vessel
3. Not deciphered.

and give (put) a layer of clay over the bottle and get it dried up, in the shade; again smear it, dig a little deep pit, put half goat's dung under (it) and half over it, place a cover over it, Burn it with fire for 3 days. When it becomes red, take out the essence. Next melt copper tā. 3, put the essence vāla 2 into it. There becomes silver. Melt that which is not produced in an open crucible. It becomes of 12 carats. True.

(29) Make a cup of silver, put mercury ga. 1 into it, bring the milk of Euphorbia Nerifolia $\frac{1}{2}$ sr., sprinkle it on mercury by drops; (next) give it fire in an earthen bowl for 28 praharas, give it bhaṭāgni. Make fire (i. e. give it fire) upto that time (till) it becomes soft; when pressed by nails it gets powdered, put the cup into the earthen bowl. Mix sand with the grind of old fine grain of rice, put that sand into the bowl, put the cup on that sand. Put the essence vāla 2 into 9 tolas of tin. There becomes good silver.

(30) Take mineral calamine tā 9 and the juice of leaves of good zizyphus saliva (āchanabori), grind the mineral calamine with that and make together a lump. Next put the hair of a man into the lid (Saravāla), put the lump of medicine into it and close the lid, give it fire for three days by placing bhārī (bundle of fire-stick) into dry wild cowdung cakes. That is, the essence is produced. Mix vāla 2 of the essence into copper gadīyānā 1. There becomes silver of 14 carats.

(31) If cinnabar $\frac{1}{2}$ tā. is taken with water of sour curd at day time; poison comes out from the belly (stomach).

(32) Make collyrium rubbing the root of Istar., the root of Herpestes monniera (Brahmī) and the root of Corallocarpus epigaeus) (Nāhi) upto $3\frac{1}{2}$ ghaḍis ($3\frac{1}{2} \times 24$ minutes = 84 minutes). This is the process of making invisible, if (it is applied.)

1. Not deciphered.

THIRTEENTH CHAPTER

First Section.

(1) Aum Salutation to Khāp[kha]ari(yā)¹ Vetāla. He whose name I give is affected by this incantation. If it does not affect (him), it is the order of Brahmajāla² (god). If any one who fears by seeing me dies. On khāp(kha)ariyā Vetāla; your strength manifests, my will gets fulfilled. "Aum phūṭa svāha 1." By reciting this incantation, feed one 5 caryophyllus aromaticus, he or she will be over-powered or enchanted.

(2) Mix mercury ṭā 4 and sulphur ṭā 4 with the milk of she-sheep (ewe) for 1 day, next mix them with the juice of lemon for 1 day, next the essence is accomplished. Next melt tin ṭā. 9 and mix it with the essence vāla 2, (There be comes) silver.

(3) Put one handful of rice in a cocoanut having water, grind it, mercury is produced.

(4) Take white Tinospora cordifolia (galo) and its five limbs-fruit, flower, bark, leaf and root, make them dry in the shade. Mix 1 sr. of them with tin ta. 4. (There becomes) silver.

(5) Rub white glass (Śvetakāci)¹ and mercury for 3 days. Next smear the copper-leaf with their essence (rasa) and melt it. There becomes silver.

(6) Put phaṭakiu Malla (a kiud of oxide of arsenic) mā 6 in vajri (Euphorbia antiquorum). Next mix the medicine into copper 64 (mā or tola); it pierces.

(7) Keep Cadaba farinosa Forsk (Teliukanda) in oil for 5 days; do it in such a way as four fingers get sunk. Next grind Cadaba farinosa with oil $\frac{1}{4}$ sr.; melt 1 sr. of lead and put it into that mixture of oil and Teliokanda. (There becomes) gold.

1. It may be a kind of plant.

(8) Grind khāra (a kind of alkaline salt) to. 3, turmeric to. 3, lemon juice to. 3; melt zinc to. 1; go on putting the powder and go on putting the juice of leaves of 7 black daturas; go on blowing ashes, thus go on putting juice up to 3 tolas. Mix 1 tola of copper with $1\frac{1}{2}$ māśas of the essence. Gold ?

(9) Melt sulphur into a tapeli (pot), pour it into the juice of Bandali (Loranthus longifolia) 14 times; melt together copper and silver. Mix their combination—gadr. 1 with the essence vāla 1. Gold ?

(10) Mix phe¹ camphor and borax, tā 7, each. Fill them into Kṣirāṇna (sweet rice cooked with milk ?) and keep them there for 22 praharas. There will be camphor.

(11) Scraping the nālī (wood tube) of bamboe, fill it into the womb or bulb (Cepa) of the banana plant, fill barāsa camphor² under and over it and spreading it, keep it in the sunshine for 2 ghaḍis (2 × 24 minutes); barāsa camphor is produced.

(12) Boil the juice of the leaf of lemon, the juice of the leaf of tamarind and the juice of the banana leaf in equal proportions and smear the penis, enjoy the wife. The penis gets fixed like that of a dog. The erection or fixation of the penis (takes place). True.

(13) Rub together both the roots—the root of black ciraṁī (a kind of plant = black pepper), and that of (× plant it is missing) and smear the penis as said before.

(14) Grind together natron tā. 1, hamsapāka (cinnabar ?) tā 1, realgar tā. 1 and orpiment tā. 1, put $\frac{1}{2}$ sr. of milk of one-coloured cow in an earthen vessel, give a cover over it. Make dipagni (and heat it). Take out all milk from it (esase). Next purify tin and make a leaf of it. Melt it into an open crucible by giving the powder of the essence layer by layer. Silver is accomplished.

(15) Grind grains of tin— $\frac{1}{4}$ sr., lime of sīpa-cūno (oyster shell) $\frac{1}{4}$ sr. and Kalicūno (a kind of lime)— $\frac{1}{4}$ sr., with the milk of Euphorbia antiquorum (Vajri) and Calotropis gigantea, put the whole thing into the horn of a buffalo and close it; give it fire of goat's dung for 4 praharas by putting 7 layers of cloth and clay over it. The essence becomes ready when half of it is burnt.

1. Not clear.

2. Borne Java's or camphor.

(16) Dip the fruit of yellow *Loranthus longifolia* (Bandali) with seed-2 srs. into the urine of ass for 8 praharas. Next take out the fruits and press them into the urine and throw out the dirt. Next take Haramiu + mercury 1 sr. Take out its dirt 21 times. Next put the whole thing into an earthen bowl and give it fire under it; give ṭṭyā (drops) of Khichaḍi (hotch potch?) slowly to mercury.

Do not allow rasa (fluid or juice) to get dried up; give ṭṭyā (drops) continuously up to 8 praharas. When mercury becomes of yellow colour, the essence is accomplished,

By melting Rūtha (pa)naraḍi (a kind of silver?) - gadryānā 64, put mercury ga. 1 into it, there will be truth.

(17) Rub all these-lead ga. 5, mercury ga. 5, realgar ga. 5 and orpiment ga. 5, with the juice of Bandali (*Loranthus longifolia*) for 3 days. Next fill all (these things) into the horn of a cow, next give a seal into the mouth of the horn with a piece of earthen potsherd. Then put a seal on all sides by grinding molasses and salt; next put 7 layers of cloth and clay over the horn and dry it up. Then give it fire of goat's dung upto 20 days. Next on its getting cooled down, give (mix) the essence ga. 1 into tin gadiyānā 64, pour tin into water of *Eugenia* = Jumbolana) 108 times. There becomes silver.

That is, according to own view, combined with Nāgarjuni (*Euphorbia pilulifera*) lying inside a pond of Viramgaon or with *Wedelia calendulacea*-Success.

(18) Take out dirt from mercury $\frac{1}{4}$ sr; next filter it with a hard piece of cloth, next rub it with the juice of *ocimum sanctum* for 14 days, do not allow it to get dried up. Next put cinu camphor ṭa. 5 into it and mix with it. Next fill it into a glass bottle, again fill 1 sr. of the juice of *ocimum sanctum* into it, then put 7 layers of cloth and clay over it.

Next the process of demonstrating puṭa (roasting)

(19) Make the liquid (rasa) of earth (clay) and soak (dip) a piece of cloth into it, wrap a bottle with it, wrap thread over it, like that give seven puṭas to it. Next get it dried up; next close the mouth of the bottle (kupi) with clay by making (putting) a piece of brick (into its mouth). Next dig a pit measuring 1 gaja = 3 cubits depth and 2 gajas 6 cubits on all sides. Fill it up with goat's dung, put the bottle into it, fill goat's dung

1. A kind of mercury.

over it, (give it) fire (i.e. burn it) for 3 days; go on taking out ashes and go on putting goat's dung. On its getting cooled down, take out the medicine from the bottle; again like that rub the medicine in the juice of ocimum sanctum up to 3 days, again put camphor त्र. 5 and combine together all by grinding, again fill up the bottle (Kūpi = casket), as previously done; pour the thing into the juice of ocimum sanctum 1 sr. and close the mouth of the bottle (kūpi), and put 7 layers of cloth and clay over it. As before (instructed), close its mouth and get it dried up, next give it fire of goat's dung up to (for) 108 praharas by lighting fire. Next on its getting cooled down, that essence is produced. Take it out from the kūpi (casket), put it into a bottle, give rice (cokhā) $\frac{1}{2}$ or 1 bhār of cokhā (rice) into the leaf, it will destroy all diseases.

(20) Grind together tin (Kalahi) 1 sr., $1\frac{1}{2}$ rati of patri,¹ pure orpiment त्र. 3, Euphorbia pilulifera त्र. 3, and green leaf of lawsonia alb. (Mahedi), and make pill. Next wrap up the pill with thread, then make a hole into a big ripe brinjal, put the pill into it and close the hole by giving (putting) a piece of it (into its mouth), put (give) 7 layers of cloth and clay over it; get it dried up in the shade, next cook it in the fire of 5 and 7 dry cowdung cakes. Thus give 108 paṭas, (roastings) to it. This is the essence. Mix 1 rati of the essence into 1 ga(dryānā) of copper. Gold.

(21) Purify copper $\frac{1}{2}$ sr., next grind all these—Samkhio somala (a kind of oxide of arsenic) to. 1, Aconitum borax (Vachanāga) to. 1, borax to. 1 and sal-ammoniac to. 1. in the juice of Achyranthus aspera for 4 days, apply 3 srs. of the juice of Achyranthus aspera. Next make thick tablets. Dry them up in the shade. Next make two earthen crucibles and an earthen bowl, put them into it, give (put) 4 layers of cloth and clay over it by closing it. Get it dried up, next dig 2 pits side by side into the earth, fill them with dry cowdung cakes and lit (make) fire. Next, when fire becomes smokeless, then put the balls (golās) into it (one), cover the fire, next make the fire of the second pit ready, before the first one does not get cooled down. Make it smokeless. Next by taking out the golās (balls or pills) from the first pit, put the same into the second. In this way make fire for 14 praharas. On its getting cooled down, take out the golās, the medicine becomes white, it is accomplished, give a dose, measuring a grain of rice into a leaf. It is efficacious, it is generator of appetite and strength.

(22) Burn big oyster shell of peral = 1 sr. and grind it, pound it by rubbing. Next get it drenched (wet) into the milk of Euphorbia antiquorum and make tablets of it, put them into an earthen bowl. Make 5 holes at

1, Some metal leaf.

the bottom of the bowl. Later on dig a pit measuring $1\frac{1}{2}$ yards deep, dig a small pit into it, do as such that a lota (a small pot) of copper or a pan is fitted there. And put a cup of copper into that, put the earthen bowl over it. Close the joint of the bowl and the cup. Next again close the middle part of the bowl with clay up to the mouth of the bowl. Put (give) 7 layers of cloth and clay over it from the mouth to the middle portion of the vessel. Next give it fire of goat's dung for 12 praharas. Mercury comes out. Fill up water below (under) into the cup & under into the copper vessel. Mercury will come out into it. True.

(23) Quench (mix) the juice of black ocimum grantissimum (Bābarī) into the juice of Aristolochia indica (Iṣvarligī), it will be like a small piece of bread. Next put sambharluṇa (Salt of Sambar) 1 sr. into an earthen pot, make it like a plain platform (cotaro), put candakī (bread like thing) over it. Put it on the furnace, give sufficient juice to it up to 6 praharas. Again burn it over and give it the juice of lemon for 6 praharas, give it onya (drops), thus do it 4 times. That is, give it fire for 24 praharas.

The powder will be as such that it will fill the tip of two fingers, that is, it is accomplished. Mix the essence Vala- $1\frac{1}{2}$ into 1 tola of copper. Gold?

(24) Put Somalakhara (oxide of arsenic) 1 tola into these three kinds of juice—the juice of prickly pear = Slipper Thorn (= Nagaphaṇī) 1 sr. the juice of bitter Lagenaria vulgaris (kaḍui Tumbī) 1 sr. and the juice of Red lotus (Kālāra) 1 sr. into an earthen bowl and cook it in a Dolikayantra. Do as such that Somala remains 3 fingers high from the juice.

Make dipāgni under it (Dolikayantra). Take out the essence and make a hole into an Amorphophallus companatus. Put it (somala etc.) into it and close it (Kanda). Smear it with paddy (husk) and cowdung, put (give) a layer of cloth and clay over it (Kanda), give it gajapūṭāgni for 4 praharas. Tin sucks (dries up) the water.

(25) Grind mercury to. 1, sulphur to. 1, orpiment to. 1, golden pyrite to. 1 and zinc $\frac{1}{2}$ sr. and make two cups (of zinc), Make smearing on them, next make a smearing on the samputa- (lid) - inside and outside by grinding the salt, put a cover of cloth and clay over it. Next fill sand into one and put salt over it, put the cup over that, fill the pit with goat's dung, leave the cup over the bowl, fill goat's dung over it and give it fire for 3 days. Mix 1 māsa of essence into 1 tola of copper, gold?

(26) Take mercury tā. 1 and sulphur tāṃka 1 and next rub them with luffa Echinata (Kutarabalahi) for 4 praharas. Mix 1 māsā of the essence into 1 tola of tin, next spread out cowdung over it by pressing it on palms. Silver.

(27) Get luffa Echinata into Centipeda orbicularis for 8 praharas, give tūyā to mercury tā-5 , with the juice of Parpoti (Oldenlandia corymbosa)– 1 sr. in an iron pot; go on giving the juice tā. 22 over it. In this way give all the juice. Hold on that mercury with the earthen pot (or iron pot) into water, if (mercury) becomes like Somala (oxide of arsenic). In the taking of 1 rati (of if), it cures all diseases.

SECOND SECTION

The process of making sulphur oil :

(1) Rub together these two—sulphur 1 sr. and realgar $\frac{1}{4}$ sr. Put the juice of mango 1 sr. into the mixture. If there is the sunshine, put juice otherwise not. Thus do it for a month. If the sunshine is strong, do it, if there is cloud, do not do it. The process pierces seven leaves under and 7 leaves over. True.

The process of making the essence of mineral calamine :-

(2) Rub mineral calamine 1 sr. in (the juice of) Aloe vera for 7 days, rub it with all these—(the juice of) Vitex trifolia (Nagoḍi) next rub it with honey 1, clarified butter, borax 1, sal-ammoniac 1, molasses 1 and guṇja 1. Next take it out and take out the essence in the yantra. This is the in process of (the making of) the essence of mineral calamine.

(3) Put the urine of goat 5 srs., the milk of Calotropis gigantea-1 sr. and the milk of Euphorbia nivia (Thohar) 1 sr. into the horse-dung for 21 days. Next take the whole thing out and place it on the fire and give fire of castor plant (Ricinus communis) under it. It gets dried up.

(4) Rub mercury ṭā. 4, lead ṭā. 1, sulphur(ṭā) 1, and sal-ammoniac (ṭā) 1, in the juice of Doispyros-peregrina (Timbaru) for 7 days. Put the whole thing into a bottle and give it fire. Mix 1 rati of the essence into 1 tola of copper; gold?

(5) The process of wax (Menamundrā) :-

Grind all these—Vermillion pai. 1, wax pai. 1, grains of iron pai. 3, magnetic stone pai. 3, Katho - (lime mixed with khadir) pai. 1, mākhā-piṣṭa (powder of mākhā). pai. 1, lime pai. 1, lac pai. 1, natron pai. 1 and filter them with a piece of cloth, rub them with the juice of Anacardium. Then there becomes an accomplishment.

Again melting and melting wax 1 sr., pour it into Samudravāri, Thus do it 125 times.

(6) Madanamudrā : pour it into the oil of Anacardium. Again, Mudrā (the process) :

1. A kind of mineral,

Pour pure wax into linseed oil 108 times, pour it into the oil of Anacardium 21-(108) times, pour it into beḍa of Kukaḍā (hen) 21 times and into samudravāri 108 times. By giving smearing to the leaf of tin with the oil of Anacardium 108 times, make it into pieces for 8 praharas. It is a vajra mūdrā (hard seal).

(7) Take the powder of gajaveli (iron) which gets attracted to magnetic stone. Take clarified butter, honey and borax in equal portions to that (gajaveli), put it into them by drenching (wetting) it up to 21 days. Next put it into a crucible and cover it with coal and heat it till it becomes red, when it becomes red, put (pour) Dāchimu Somala (a kind of oxide of arsenic) 1 into it, little by little. On putting (it) 16 (times ?) there becomes the liquid, take it out. Next melt copper $1\frac{1}{2}$ bhār. and mix the essence vāla 4. (Gold of) 13 carats is produced.

(8) Fill sonehalirasa (a kind of plant) pai. 3 into a cocoanut shell having water by boring it. Put mercury pai. 1 bhār. into it and seal it up.

When (it is) put into the fire of dry wild cowdung cakes-basket-1, if it burns quickly, put cowdung-2 (baskets), next again put 5. Thus increase and increase the quantity of cowdung, but do not put cowdung at a time. If put at a time, the cocoanut bursts. Give it fire for 8 praharas; put 7 layers of cloth and clay over the cocoanut; the essence is ready, mix 1 rati of it into 1 tola (of copper). There becomes gold ?

(9) Make bread with the powder of wheat in the milk of Euphorbia nivulia (Thohar). i.e. by mixing it with the milk of Thohar, put the pieces of Samkhiu somala (oxide of arsenic) into it (inside it), cook it and take it out. Next grind killed zinc and Malla (oxide of arsenic) together with the juice of lemon; next give it fire in iron-copper Samputa (Śarab = lids). Mix 1 rati of the essence into 1 tola of copper. (There becomes gold ?)

(10) Quench an iron-leaf into Centipeda orbicularis (Chikānti) 108 times. Ash of silver (i.e. calcinated ash of silver.)

Take the leaf of (silver) which falls out and grind it in the juice of Centipeda orbicularis and give it gajaputagni; give tin into it. If there becomes red ash (rakta bhasma), mix one rati of the essence into 1 tola of copper; gold. If it becomes white, tin gets dried up.

Chikānti is two kinds of things.

(11) Take somala (oxide of arsenic) $\frac{1}{4}$ sr. and the juice of radish-1 maund, fill a jar with them and make holes under it. Put it on a three

pegged stand. Do as such that the current of the juice falls on somala (oxide of arsenic), give it fire (heat) for 24 praharas. Know that tin also is (to be treated) like this in the juice of *Ricinus communis* and in the urine of ass.

(12) Rub mercury 1 in the juice of cowdung (Chāṇa) for 1 day, in Curd-water for 1 day, in curd for 1 day, in the juice of *Agathia* (*Agastya glandiflora*) for 1 day and with the seed of *Minusops Lexandra* (*Rāyaṇa*) for 1 day. Next grind *Luffa Echinata* 7, (*Kukaḍa chaleṭā*) 7 (ta) and make it fine; combine together the root of *sonchus aruenois* (*Sahadevi*) 1 and put it into a crucible, fill half with husk and the root of *Sonchus aruenois* (*Sahadevi*) and half over (it). Take (eat) sweet (curamp), lost sexual desire comes up.

(13) Combine together borax 1 (tā), mercury 5 (tā), tin 3 (tā.) dried ginger 4 (tā) & *Elettaria Cardamomum* (*Elaci*), give them (the whole thing) 7 ginger puṭas (roasting) & 7 puṭas of beetle leaf (*pāna*) and mix the whole thing with Borneo camphor ga. 1.

If a pill of these combinations measuring the size of gram is taken, Khayan vikāra-disease goes away.

(14) Rub mercury 2½, somala saṁkhu (oxide of iron) 2½, borax 5, and sal-ammomiac 5, with honey 5 sr.; close the whole thing into a small box; give it fire for four praharas. Mercury is produced.

(15) Take an equal portion of juice of *Sonchus aruenois* (*Sahadevi*) and *Ipomaea reniformis* (*Uṇdarkanti*) in equal portions, ½ sr. Next, let that juice settle down. Next put mercury pai. 2 bhar over (on) it; give cnyā (drops) of that juice to it, when mercury becomes incinerated in 4 praharas, then make an image of Hanuman (out) of the dung of a calf. Put the juice by the side of the image, sprinkle the blood with anamika finger (on it) and sprinkle wine. Then it is accomplished. Make it in a lonely place. Take a dose measuring a gram of rice, it benefits much. Rub it in the juice of black datura and white *Leucas cephalotus* (*droṇapuspā*) for 7 days; congratulations.

(16) Cook kamini (*Nagachikani*) Kaṇḍa, Jambira rasa (juice of citrus medica), and orpiment in a Valukayantra; what the famine will do?

Meaning :-

Take orpiment ½ sr. and mercury ½ sr. Purify mercury and make Collyrium of both, next rub it in the juice of *Kamini Nagachikani* (*Centipeda orbicularis*). If green *Nagachikani* is not found, take the dry

one. Take 1/8 the of that, rub it in that; next kanda is kali (bud), bud of garlic; rub it in the juice of garlic for 10 days, next, rub it in the juice of Jambira for 10 days, next dry it up and fill it up into a bottle with open mouth, make it covered with a layer of wax and cloth and put it into a Valukayantra, cook it with fire for 12 praharas. Thus 3 and 7 bottles are to be turned over. That becomes successful; give only 1 dose of medicine, measuring 1 māsa of rice. It makes a great benefit. Mix the essence-1 rati into 1 tola of silver, tin and copper, it pierces them; Gold ?

FOURTEENTH CHAPTER

FIRST SECTION

Khecari Guṭikā - Prathama (Khecari Guṭikā-First)

1. Rub pure mercury ¹ tā 3 ($\frac{1}{4}$ tola) in a mortar in oil 2 palas (8 tolas) produced from the seed of black datura, for seven days till there becomes the best form of it (mercury) like Peech.
2. First mix it with the powder of phaseolus radiatus (māṣa), then wrap it up with the strong thread.
3. Dry it up with the sun (-rays) (to make it) hard like the small finger and cook it in the mustard oil measuring ten prastha².
4. There takes place the decay (drying up) of oil till guṭikā gets formed. Place it in a cool shade, then slowly take out the accomplished guṭikā (tām).
5. Put the guṭikā (ball or pill) into a strong jar filled with milk, all gets dried up.
6. Then the guṭikā is to be held into the mouth of a he-goat and next make it enter into its stomach. The guṭikā entering into the end of its mouth is seen as burning.
7. It excites sexual desire but does not affect the balance of health of *its body; when it enters into its stomach it certainly gives a sense* of love.
8. An intelligent man must make a test thus and a healthy man should put white guṭikā into his own mouth to verify the test.
9. A sādhaṅka (experimenter or practiser) goes (to a distance of) one hundred yojanas without an exertion (or effort) and enjoys one hundred women with its power, it is accepted as making semen fixed (thick).

1. A weight of silver equal to 4 māṣas.

2. A paraticulr measure of capacity equal to thirty two palas

10. If it (guṭikā) is kept into the mouth, the striking (from others) (on his body) is not felt. It (guṭikā), kept into the mouth kills (cures) many other kinds of diseases without doubt.
11. This guṭikā destroys (cures) all of those diseases which are (found) in between tongue and palate (tālu), such as, Kaṇṭhaśālūkā (a kind of mouth-disease in throat), etc. in uvula, long tongue, etc., two tongues, (which are) too serious.
12. This Khecari guṭikā by name cures (destroys) all of them i.e., seventy six kinds of diseases—heart diseases, nasal diseases, etc.,
13. Khecari guṭikā-second :

The guṭikā named Khecari prepared by the process of dhūmāvalokitarasa (mercury pierced by smoke), of jārita (jāraṇa)¹ and sārīta (sāraṇa),² in the essence of mica with mercury (viṇa) combined with the pyrite and iron (kāntā) :

14. Falls (patati = becomes effective) just by its throwing into the mouth, (One) becomes greatly worshipped by the gods, demons, the perfect beings and Indra, etc.³

1. Jāraṇa drut hue svarṇādi padārtha ka pāre ke sath jo pak kiya jata hai, use jāraṇa kahate hai(n).

Prācin Bharat men Rasāyana ka Vikāsa, Dr. Satyaprakāśa P. 442.

2. Tel se bhari hui andhamūsa men pāra ḍalakar usmeñ sona, Cāndī adi dhātuan ko ḍalakar jo Vedha kiya jata hain, arthāt Viśesa guṇon Ka udbhavan kiya jata hai, use sāraṇa kahate hain. Ibid. p. 444.

3. SRSS, 14.15.

Second Pariccheda (Section)

1. Mercury, two medicines, quantum of fire, two earthen lids (śaravai) (are necessary). How is the science of chemistry and metallurgy covering the remaining show (demonstration). ¹ Suo = Mercury, ² Osahayuyalam ³ = aghaṭakarasa. = Achyranthus aspera, and livūyā (lemon).
2. The Jina who is like the full moon-faced, seated on the throne with the family (of Saṃgha), bright and white with the (ray of) omniscience should be meditated upon. ⁴
3. Two Jinas are white, two are black, two are red and lotus-coloured, two are emerald (green) coloured and sixteen are of golden colour. ⁵ It means' mercury 1 (white), mineral calamine (black) 2, realgar 3 (red), sulphur 4 (Lotus-coloured = yellow, and orpiment 5 (green coloured.)
4. Copper with tumbini (tumba = gourd) is to be mixed with the root of Tīḍu (Cocceinia Indica). When the mixture is heated, (it) becomes gold. That is said by Jinendra. ⁶
5. The wise grinds garlic-100 tolas finely and casts it into a small copper box on all sides.
6. There is one piece of camphor which weighs fourteen tolas. By putting it into the box and making copper-leaf.
7. Wrap over it a layer of cloth soaked (or smeared) of (with) wild cowdung.
8. Now, seeing it (the fire) smokeless, put the box into the fire, cover it up on all sides, not less nor more.

1. This gāthā is mentioned in the 1st chapter, V. 5.

2. This gāthā mentioned in the 1st chapter, V. 2. has been explained in the 2nd chapter.

3. This gāthā mentioned in the 1st chapter V. 5. has also been explained in the 2nd chapter.

4. It is also mentioned in 1st chapter. V. 3.

5. The gāthā mentioned in the 1st chapter, V. 4 has been explained in the 2nd chapter,

6. This gāthā mentioned in the 1st chapter has been explained in the 2nd chapter SRSS.

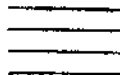
9. On the cooling down of fire, take out the thing by order (one by one) and put the same as previously into the second box.
10. As only garlic burns without camphor, so give fire to it with carefulness, O Intelligent.
11. Take out the unburnt garlic and use it (again) as before. If it is burnt, another garlic is to be taken here, no doubt.
12. Garlic is to be placed first below, it, being placed into the box, becomes (gets) cooked by forty puṭas (roastings).
13. Getting itself melted, it becomes hard like diamond. If it is held on fire, it extinguishes it (fire) instantly.
14. Even camphor does not fly, thus is its test. The things whose oil is desired to be taken out are as follows :-
15. Sulphur or orpiment or Somala (oxide of arsenic) and others. That is also only 1 tola (of each). Camphor was thought (considered) before (previosuly).
16. Only 1 māṣā is to be taken and Sal-ammoniac of the same quantity. Next the wise casts them into a glass casket by combining them together.
17. He should heat it on fire with his own hand. It becomes oil quickly- the best means of making gold.
18. Smear the copper-leaf with sulphur and heat it on fire and crush it completely.
19. It becomes of yellow colour instantly, no doubt, smear the silver-leaf with the oil of orpiment.
20. The learned should do like that, there becomes gold immediately, this is experimented by me; here no thought (consideration or hesitation) should be made.
21. Cast orpiment measuring ten tolas into an auspicious (good) copper-pot of three hundred tolas by grinding the thing (orpiment).
22. Fill in there the juice of garlic having one granthi, measuring 250 tolas.

23. And an intelligent man, having covered its mouth with a copper-leaf, should select, a testing ground not attacked (encroached) by the shade of trees.
24. One's own shadow (shade) or of others is to be avoided, and by digging a pit into the earth, measuring four cubits on all sides.
25. Or by five cubits, fill it with the dung discharged by buffaloes, then place the pot there into it (the pit).
26. Having filled it with earth, protect it upto (for) four months by making a circular compound with thorny plants.
27. Then the wise should see it (after that period) by taking it out. If the pot does not becomes yellow (gold), again he should cast it there.
28. O Man' wait (bear) for four months by closing the eyes. Then see it by taking it out, it is a golden pot.
29. Take out orpiment existing inside it (pot) by taking it out with care. Then oil is to be pressed by the path (way) of Patalayantra.
30. The very fine copper-leaf smeared with that oil and heated in fire becomes gold; there is no doubt.
31. By taking $\frac{1}{2}$ pala of orpiment pieces by pieces, wrap them up with thirteen layers of Cloth.
32. (Take) 160 palas of the powder of lime, put $\frac{1}{2}$ the powder into an earthen pot by placing it below with care.
33. And put orpiment into it by placing it as said before. Give the powder of lime over also by covering with the remaining powder of lime.
34. There everyday water is to be cast into (the things) with care. Here the shadow of one's sown or of any other man, should not fall on it.
35. And obeisance should be paid by one desiring his own welfare. After two month, having taken out that with welcome (regard).
36. And rubbed with the juice of Aloe vera in a mortar for three days, it should be rubbed like that with the juice of black wedelia calendulacea.
37. Again rub it with the milk of white calatropis gigantea for three days and again (rub) it with the milk of Euphorbia nerifolia, do that process.
38. Thus by making this process for twelve days, next cast that (thing) in the shape of guṭīkā (pill) into the ash (Bhasma) produced from (the burning of) the wood of Aśvattha (Ficus religiosa).

39. And thus covering it by casting that ash on it and giving (wrapping) a layer of clay and cloth over it, the whole thing is to be kept (in a place) devoid of one's own shadow.
40. The wise should lit fire and heat it (put it on fire) for thirty two praharas. That guṭikā becomes like ice (himāni) after that.
41. (There becomes gold) as a result of melting of that (essence) measuring $\frac{1}{4}$ rati into 13 palas of pure Napalese copper by strong (intense) fire.
42. On worshipping the goddess - Padmāvati and saluting the guru also there that gold is produced immediately, gratifying desire.
43. When here gold is produced, half of it should be used in the religious activity, then only there is success, otherwise one gets destroyed.
44. Bhasma (ash of medicine) measuring 1 grain of rice, mixed with butter, should be given to an impotent man - Napuṃsaka upto three days.
45. The patient (medicine - taker) should give up acid (amla), curd (dadhi, molasses (guḍa), oil (taila), salt (lavaṇa) and chilli (marica) with care by all means.
45. The man (that person) should drink milk measuring twenty four prasthas and enjoy rice measuring seven seers and again ghee (clarified butter).
47. Measuring five seers is to be drunk (by him). A Tattvavida (one who knows this science) himself enjoys twenty one women without labour even.
- 48 When (if) the semen does not fall (get discharged), then sugar measuring three palas is to be taken, consequently (then) happiness is born.
49. This (medicine) is not to be given to him at whose house there is no wife. If it is given to him, blood would come out of his penis, (medhṛa); there is no doubt (about it).
50. Even an impotent becomes very much sex-passionate by partaking of this bhasma (medicinal ash) just measuring one grain of rice. 'I say, it is true, true.
51. Medicinal ash is to be used by a patient afflicted with leprosy (Kuṣṭha) also by the process (method) as said before. But he should take (only) roṭi (Indian bread) made of gram powder.
52. It is to be used by the patient afflicted (or affected) with leucoderma

- (svitriṇi) also by the same (way) as said before, but it is to be known that the diet of boiled water of phascolus munga with ghee (clarified butter) should be given according to the process (way) as said before.
53. Even the disease of Jaundice goes away by the use of the medicinal ash for three days and the taking of Sāṭhi rice by the way as said before.
 54. Dropsy (Mahodari) also thus (goes away) as said before. The man (patient) should take (eat) godhūmathūlikā (grains of wheat), cooked with sugar.
 55. Medicinal ash measuring one grain of rice (if) taken for four days destroys (cures) quickly the disease called Śītāṅgajholā (comatose).
 56. But an intelligent patient should take the diet of phaseolus radiatus and rice (which is) called hotch-potch (Kṣipracatikā = Khicaḍi) for the disease quickly.
 57. That (medicinal ash) drunk with the combination of piper betel, as said before, together with the taking of godhūmalāpaṭa (a kind of wheat preparation) destroys (cures) apasmāra (epilepsy)—a kind of vāyuroga.
 58. That medicinal ash measuring $\frac{1}{2}$ rati, taken for four days with the diet of Indian bread; made of gram, without clarified butter, destroys (cures) the dyspnoea (breathing trouble or asthma).
 59. The same medicine used according to the Śāstra (medical science) destroys (cures) also instantly or (immediately) the disease-psoriasis (Kṛīkanagarabhikhyamapi) of different (pṛthagvidham) types.
 60. Here what is the use by saying too much, (there is no case) without death, no doubt (about it.) This great nourishing (medicine) destroys all diseases.
 61. The medical recipe given by Jagadambā (the mother of the universe) with her own desire as mercy to those saluting her and revealed by her and known from the tradition of the Gurus has become greatly undecaying like the golden man.
 62. One makes this uncomparable thing pure and accomplished like a shape of pill (guṭīkā) by meditating on Hrīmkāraṁ, etc., and taking pure mercury, measuring pala, ¹ every day only its one māśā by saturating it with the juice of date tree and rubbing it with gold-leaf measuring one pala in a mortar.

63. By grinding together sky-coloured sulphur, Somala (oxide of arsenic), then white borax, also in equal portion, each measuring two māṣās, as very fine (powder) and rubbing them with orpiment, in a mortar, take it with the liquid of the juice of Aloe Vera which is washing (changing) the beauty of the body and smear the guṭika with that which is sticky.
64. By placing it in a Śarāba (earthen lid) and putting another Śarāba over it, wrap the whole thing (Śarāba) with a piece of cloth smeared with clay. Then cast it into the burning fire of dry wild cowdung cakes, the heat of which becomes bearable to fingers and take out (the Śarāba from the fire) and make it cool, then take the medicine out (of the Śarāba) by removing the covering of clay-cloth wrapped up over it.
65. A wise man makes saṁskṛti (culture of it or treatment of it) with one hundred and twenty puṭas (roastings) by the aforesaid smearing and again heating it by fire like that (method). The medicine becomes worthy by fifty puṭas (roastings) and then it is taken (accepted) within a pala (moment). The smearing of this medicine cures all diseases just as the great (strong) air (wind) removes a piece of cloud within a pala (moment).
66. The remaining thing becomes pure like the moon by the application of one hundred and twenty puṭas (roastings). It gets certainly powdered instantly by the pressing of the hands without any difficulty. Give (mix) only one rati of this essence into only 1 karṣa of the heated well-known Nepalese copper. Immediately it (copper) becomes certainly calcinated (bhasmatah).
67. This aṣh (bhasma) can be applied to another copper (leaf), that also again to another successively. This ash (bhasma) can thus be used seven times and eight times also. Gold gets certainly produced in that copper (i.e. copper is converted into gold.) Here it is told by Jinadattasūri meditating on the two lotus feet of Śrīmadarhat for the benefit of the world.
- 68-69 This Suvarṇa-Raupya-Siddhi-Śāstra is written by me, Jinadattasūri with an experience, belonging to the pure celebrated Kharatara gaccha in the world in Vs. 1210 on the day of Akṣaya tṛtīyā for destroying the misery of the people.



SUVARNA-RAUPYA-SIDDHI-ŚĀSTRA-A STUDY

INTRODUCTION

A General Survey

A study of the Jaina alchemical thoughts and practices fostered from the time of the Jainācārya-Nāgarjuna¹ and Pādaliptasūri² upto the eighteenth century A. D. throws a welcome light upon an aspect of the material culture of the Jainas with scientific ideas combined with their interpretation in the light of other Indian literary evidences on Rasāyana-vidyā (Chemistry) and Dhātuvāda (metallurgy), and Āyurveda (medical science) of the Middle Ages. Alchemy dealt with by the Jainācāryas has not yet been evaluated in relation to the Indian History of Alchemy. It seems that Western India (Rajasthan and Gujarat),³ by virtue of its geographical position as a strong centre of Jainism from the beginning, was a receptacle for many alchemical ideas, specially from other culture-areas of India and outside.

It may be, as pointed out by Dr. B. V. Subbarayappa, that "India, by virtue of its geographical position, was a receptacle for many alchemical ideas from the Chinese and Arabic Culture-areas"⁴ in the later period.

A study of the extant Jaina manuscripts-Suvarṇa-raupyasiddhiśāstra⁵ of Jinadattasūri (VS. 1210), written in Sanskrit, Prakrit, Apabhraṃśa and Old Gujarati, Western Rajasthani, etc., copied with additional materials in the 18th Century A. D., Nāgarjuna Yogamālā Vṛtti of Guṇākara⁶ (VS. 1296) in Sanskrit, Rasaratnasamuccaya⁷ of Māṇikyadevasūri (16th Century A. D.) in Sanskrit, Yogaratnākara copai⁸ of Nayanaśekhara, a pupil of

1. Suvarṇaraupyasiddhiśāstra, Jinadattasūri. Ch. 1, 60.

2. Ibid., Ch. II. 4.

3. All the available Jaina MSS. on alchemy have been found in this region and they are written in Sanskrit, Prakrit, Apabhraṃśa, Old Gujarati and sometimes in Old Rajasthani.

4. Some trends in Alchemy in India, Dr. B. V. Subbarayappa, Abstracts of Scientific Section papers. XV International Science Congress, Edinburg, August, 1977, p. 48.

5. It is the work of Jinadattasūri (VS. 1210) belonging to the Kharatara Gaccha.

6. It is also kept in the Library of L. D. Institute of Indology.

7. Ibid.

8. Ibid.

Jñānaśekhara (VS. 1736 = 1779) in Old Gujarati, Nāgarjunrvidyā (16th-18th A. D.)¹, Vaidyakaśāra Saṁgraha² of Harṣakīrti³ (VS. 1660-1703) in Sanskrit, Paradaavidhi⁴ of an unknown Jaina author (circa VS. 1700) in Old Gujarati, Vaidyakasaṁgraha of Mahimaraṅga Gaṇin (1617) A. D. No. 30992, Vaidyakasaṁgraha, MS. 30994 of an unnamed author of the eighteenth century A. D. on venereal diseases, Vaidyavallabha⁵ of Hastiruci (VS. 1710 = 1763 A. D.) in Sanskrit and Gujarati Tīkā, Anupānamāṇjarī⁶ of Pīṭāmbara (VS. 1873) in Sanskrit and now all kept in the library of L. D. Institute of Indology at Ahmedabad-9., reveal scientific ideas and practices of the Jains with two distinct trends in Alchemy, viz. (i) Chemistry and metallurgy, and (ii) medical science, together with some information regarding occultism.

ALCHEMY :

It appears that during the period of the authors of the above-mentioned Jain MSS. with its system of philosophy of mercury, a vast mass of chemical information was accumulated in these treatises on Rasayana-vidyā and Dhātuvidyā, which was pressed into signal service in the Iatro-chemical period of India (1300-1550 A.D.)⁷

A comparative study of the Suvarṇa-Raupya-Siddhi-Sāstra with other Jaina MSS. and the Indian works on Rasayana-vidyā and Dhātuvidyā shows that since the second century A. D. the Indian alchemists were endeavouring to make gold.⁸ The research to make gold was continued by them throughout the Middle Ages together with studies dealing with industrial processes, especially metallurgical processes,⁹ and with the manufacture of drugs.¹⁰ In the course of the researches of the Indian alchemists many important chemical discoveries were made by them.¹¹

1. Ibid.

2. Ibid.

3. Ibid.

4. Ibid.

5. Ibid.

6. Ibid.

7. It is evidenced that most of the Jaina MSS. of this period were written with golden ink.

8. Suvarṇaraupyasiddhiśāstra, ch. II. 1, 2, 3, 6, 8, 14;

III. 1, 4, 6, 7, 9, 52, 53, 10, 5, 103, 109;

IV. 4, 5, 12, 15, 17, 18, 19, 25, 29, 40.

9. Ibid., p Chs. 1-14.

10. Ibid., 9, 10, 14.

11. Preparation of gold, silver, iron, copper, mercury, etc.

During the Middle Ages an extensive system, in part secret, of code names¹ or symbolic letters² or names³ for chemical substance was developed by the Jainācaryas. Toward the end of the eighteenth Century A. D. the Jaina alchemists began to make use of initial letters of the names of elements and compounds instead of the older symbolic names, e. g. hā = hatakam (gold)⁴, 'ro' iti = pāro = rasa (mercury), 'kha' iti = Kharpara (mineral calamine), 'ma' iti = manasala = manasila (realgar), 'a' iti = eti = tamkara (borax), 'ha' iti = haratāla (orpiment).⁵ A parallel development of alchemy was going on in the western world (Greek-Arab countries) during the Middle Ages. It is stated that "In a manuscript written in the tenth or eleventh century and now kept in St. Mark's library in Venice, the work of an Egyptian alchemist (the early chemists were called alchemists), perhaps of the second century, A. D. is described. In this manuscript seven metals are identified with seven celestial bodies—gold with the Sun, silver with the Moon, lead with Saturn, iron with Mars, copper with Venus, tin with Mercury, and electron (an alloy of gold and silver) with Jupiter. These signs conventionally used for the bodies were used for the corresponding metals. Other symbols were also used, thus the symbol for iron was a complex symbol containing the symbol for iron.

The second century-alchemist whose work is described in St. Mark's manuscript was endeavouring to make gold. The endeavour to make gold was continued by alchemists throughout the Middle Ages together with studies dealing with industrial processes, especially metallurgical processes and with the manufacture of drugs. In the course of the early work of alchemists, many chemical discoveries were made.

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1. "Dhammo maṅgalamukhiṭṭhaṃsa saṃjamo tavo/Devā vi taṃ namanasanti, jassa dhamme sādā maṇo // SRSS, ch. I gāthā 1.
 Dhammo – parādah (mercury), ch. II (comm).
 Maṅgalaṃ – Hemah (gold), Ibid.
 Ukkiṭṭhaṃ – Nepāladesodbhavaṃ tāmraṃ (Nepalese copper), Ibid.
 Ahirisa – Kantiheri, (A species of opuntia), Ibid.
 Saṃjamo – Rāto Agathia (red Agasti glandiflora), Ibid.
 Tavo – Kṛṣṇakauka (black datura – thorny apple), Ibid.
 Devā – pili Devāli [yellow Andropogon serratus – pumpkin], Ibid., SRSS., ch. II [vyakhya]
 2. Ibid., ch. II 7; ch. III. 1.
 3. Pitaṃ [gold], Ibid., ch. II. 1, 2. etc.
 Tāraṃ [silver], Ibid., ch. I. 10. etc.
 Svetāṃ [Silver] Ibid., ch. I. 37. etc.
 4. Ibid., ch. II. 7; bh. III. 1.
 5. Ibid.

During the Middle Ages an extensive system, in part secret, of symbols for chemical substances was developed. Toward the end of the eighteenth century chemists began to make use of initial letters of the names of elements and compounds, instead of the older symbols. Berzelius then systematized this procedure.¹

In the aforesaid Jaina MSS.-Suvārṇa-Raupya-Siddhi-Sāstra and others Alchemy is described in detail and some metals and plants are identified with some code names,² e. g. mercury, with 'dhamma' (Virtue), gold with³ 'maṅgalaṃ' (auspiciousness), the Nepalese copper with ukkitham⁴ (best), Kantheri (a piece of opuntia) with 'ahimsā'⁵, red Agastī glandiflora (or Sesbania glandiflora) with 'saṃjamo' (self-control), black kanaka (dhatura = thorny apple) with 'tavo'⁶, yellow Andropogon serratus (pīḷi devadālī) with devā⁷ = gods).

Besides, there are found other symbolic names for metals, e.g. pīṭam⁸ (gold), tāram⁹ (silver), Śvetam¹⁰ (silver), etc. on the basis of the their colour.

The prominent feature of the Suvārṇa-Raupya-Siddhi-Sāstra and other Jaina works on Alchemy lay in the search after the elixir vitae and the powder of projection as their contents testify.¹¹ Whereas fantastic and extravagant ideas in them, such as capacity of becoming invisible¹², etc. impossible of realization, has subsided into something more practical and tangible.¹³

1. General Chemistry, Pauling, p. 82.

2. Suvārṇaraupyasiddhisāstra, ch. I, gāthā I. See its Vyākhyā, ch. II. 1.

3. Ibid.

4. Ibid.

5. Ibid.

6. Ibid.

7. Ibid.

8. Ibid.

9. Ibid.

10. Ibid., ch. II. 1, 2, 4, 6, 8, 14; III. 1, 4, 6, 7, 9, 52, 58, 105, 107, 109; IV. 4, 3, 11, 14, 18, 25, V. 4, 5, 12, 17, 18, 19, 25, 29, 40.

11. Ibid., ch. I. 10, 17, 21, 23, 47, 50, 52, 53x; II. 7, 10; III. 6, 9, 10, 12, 18, 19, 44, 54, 56, 69, 71, 85, 104; IV. 2, 4, 13, 16, 19; V. 5; IX. 33, 39; X. 5, 42; XI. 1, 3, 15, 34, 35, etc.

12. Ibid., ch. I. 27, 35; II. 15, III. 8, 11, 23, 24, 26, 29, 30, 31, 15, 67, IV. 5, 9, 16, 17, V. 21, 34, VI. 11, 36, VII. 7, 11, 23, VIII. 5, 7, IX. 1, 12, 13, 16, 35, 42, 56, 57, X. 1, 5, 37, 38, XI. 19, 37, XII. 11, 13, 15, 16, 27, 28, XIII. 5, 14, etc.

13. SRSS., IX. 1. e. g. pache te parane agni dije...ghāsyu khāi to kayā amāra kare/ "SRSS, ch. IX. 1.

"Paṇṣa bhār śuddha gorakh mardī... Saviroga jāi, dvigunī khudhā hove ī", Ibid. ch. V. 41.

"Bhīko athava te khaciho cūrṇakīja

The numerous methods for preparation of mercury¹, iron,² copper,³ gold⁴, silver,⁵ and other things,⁶ although they could not secure immortality or revive the dead, were meant to be helpful accessories in medicines. At first they came to be used cautiously and tentatively, mixed up with the medical recipes which were drawn chiefly from the vegetable kingdom but they soon began to assert a supremacy of their own so as even to supplant the old Indian Āyurvedic treatment by herbs and simples.⁷ Nay even absurd pretensions were set up on behalf of these metallic preparations.⁸ Thus we come across some remarkable passages in the Jaina Ms. the *Suvarṇa-Raupya-Siddhi Sāstra*—“*Amara Kāya Kare*”⁹ etc.

The one characteristic feature of the extant Jaina Ms. *Suvarṇa Raupya-Siddhi-sāstra* and others of the Intro chemical period is that opium (aphīṇa).¹⁰ is recognised as official drug in their materia medica portion. This usefulness of opium may be found from the 12 th century A. D.¹¹ up to the middle of the eighteenth century A. D., even up to the present day, as it is also mentioned as such in other Indian works¹² on *Rasāyana*.

1. ‘Saramo Kalo...hema 8 adṛṣyo bhavati, nātra sandehah, Ibid., VI, 13

2. See *Paradavidhi*

“Pāro hingoru korine mahe meḥḥie upari dhākanu dige... te paro bāṇdhaye puviko thae. uttama nāgavaṅga che I. mukhamadhye rākhie to bala ghano kare”, Ibid. ch. IX. 5 Ibid. Ch. I. 56, II. 1, III. 12, 13. 18x 22, 44.

3. Mala-mā. 1, jasta-mā 1, taṁkana-mā 2, trāmbu-mā 4, Udhamuṣai gale dalaṁ jodhe / sāra, Lohapatra Kurkaṭavīṭa madhye vā-14 u (dhamuṣa) bujhāve golamadhye 14 vāla-14, Navasāra madhye loha nīpaje, patra madhye dije. Ibid. ch. IX. 11.

Kharu loha sr. $\frac{1}{4}$ rā. pai. I munjalarasa sr. $\frac{1}{4}$, vati and Kulādimar ghā (ti) bīdi agni prā. I nī. I bhukhala I mahāgūṇkarī chī II. Ibid. ch. x. 16

4. Ibid. II. 1. III. 66x

5. Ibid. ch. II. 2, 4, 5, 8, 14, III. 2, 3, 4, 7, 9, 19, 20, 33, 36, 37,

6. Ibid., ch. III. 14, 17, 18, 23, 30, 31, 32, 34, 35, 39, 42, 46, 47, 106, etc.

7. Ibid., ch. IV. 4, 6; v. 20, etc; v. 44; IX. 15, 16; IX. 26

8. Ibid., ch. v. 32, 37, 38 IX. 5, 6, x. 14

9. Arsa aseu tya (ta) po 1 madhye turserjasapi Ksepanīyam I mahottamam deḥāpusiḥ Ibid. ch. x. 24.

10. Ibid., ch. IX. 2.

11. Ibid., ch. III. 30-31 (aphīṇa), ch. VI. 7 (aphīṇa), V. 26, (aphīṇa).

12. See *Rasaratnasamuccaya* of Nityanātha, etc.

Whatever has been revealed by an analysis of the materials in the Jaina Ms. *Suvarṇa - Raupya - Siddhi - Śāstra*, etc. under the preparations of mercury, all that has been said by Nāgarjuna,¹ Pādaliptasūri,² Carpaṭa,³ Nātha,⁴ and other alchemists⁵ for the benefit of the people afflicted with diseases. A similar account of the preparations of mercury for the benefit of people afflicted with diseases is given in other Indian works⁶ on *Rasāyanavidyā* with reference to Nāgarjuna and Siddha Carpaṭa. There is a problem for the scholars to identify the Buddhist and Jaina Nāgarjuna and to determine his date in the history of Indian Alchemy.

The Jaina works the *Suvarṇa - Raupya - Siddhi - Śāstra* etc. on Alchemy as mentioned in the beginning are important treatises of the Iatrochemical period of India like other Indian works⁷ on the same problem. They are comprehensive and purely chemical works dealing with many operations of mercury⁸ and various chemical processes⁹ are incidentally described, a good deal of which, however overlaps each other as they are found in other Indian works¹⁰ on alchemy in the Middle Ages.

The authors of the Jaina Ms. *Suvarṇa - Raupya - Siddhi - Śāstra* etc. as devout Jaina monks begin their works with an adoration of Gautama, Gaṇeśa,¹¹ and the Tirthaṅkara Mahāvīra¹² and even symbolize Mahāvīra with mercury as Śiva is symbolized with mercury¹³ in the Hindu Alchemy.

1. SRSS., ch. I. 60.
2. Ibid., ch. II. 4 (Pālittaya = pādalipta).
3. Ibid., ch. I. 24, I. 14, 15, 17, 26, 60.
4. Ibid., ch. I. 18, 24.
5. Ibid., ch. II. Sekham Ali (Ch. I. 60) MS B.
6. *Rasārṇava*, *Rasaratnākara* by Nityānātha, *Rasaratnasamuccaya* of Vagbhata etc.
Vide Hindu Chemistry, Dr. P. C. Ray, P. 159 and *Prācīna Bhārat Meṃ Rasāyan kā Vikāsa*, Dr. Satyaprakāśa, Fourth Khaṇḍa. See also *Rasaratnākara* by Nāgarjuna.
7. *Rasaratnasamuccaya* by Vagbhata, *Rasarajalakṣmī* of Viśhnudeva, *Rasak-satramallikā* by Matharasiṅha, *Rasaratnākara*; by Siddha Nityānātha, *Rasendrasārasa-mṅgraha* of Gopālakrishna, *Rasendra Kalpadruma*, *Dhāturatnamālā*, *Rasakaumudī*, *Bhāvaprakāśa* of Bhāva Misra, *Dhātukriyā*, *Arkaprakāśa* of Ravana, etc.
8. SRSS., Ch. I. 56, II. 7., III. 12. 13, 18, 22. 44, IX 5, 21, etc
Rasaratnasamuccaya of Manikyandevāsuri, *Parādevīdhī*
9. The chemical processes of making gold, Silver iron, mercury, copper killing of mercury, tin, etc. of making medicines, Ibid.
10. See *Rasārṇava*, *Rasaratnasamuccaya*, etc., Vide Hindu chemistry and *Prācīna Bhārat meṃ Rasāyanak* ikVāsa Forth, part, Iatro Chemical period.
11. SRSS., Ch. I 1 Sri Gautamāya namah.
12. Ibid., Ch. I 1 (MS-B) (Sri Gaṇeśāya namah.)
13. Ibid.) Ch. 2, 3, 4 6 (Dhyānājñeśa, etc.)
14. "Pancabhūtatamakāḥ Sūtasīṣṭhatyeva Sadaśivah" II. *Rasārṇava*. XIII. 78.

It appears that the the entire series of the Jaina treatises on alchemy is a composition and epitome based upon some standard works on the subjects - chemistry, metallurgy, medicine and occultism and the contribution of the adepts.¹ It is interesting to note that some Jaina alchemists declared their indebtedness to the previous Ācāryas like Nāgarjuna,² Pādaliptasūri,³ Carpaṭa,⁴ Nātha.⁵ Sekham Ali⁶ and others⁷ for a knowledge of certain processes of alchemy as is found in the case of other Indian works⁸ on alchemy. This seems to indicate that the cultivation of alchemy and chemical knowledge among the Jainācāryas became neglected at a certain period of Indian history of alchemy and almost forgotten and the earnest research into the lore of alchemy has to be made during the time of the Jaina alchemists of the Iatro chemical period as was the case with the authors of other Indian works on Rasayanavidya on this problem.

The peculiarity of the Jaina works of the Introchemical period on alchemy is this that they are based upon the Indian Ayurveda texts¹⁰ on the one hand and the Indian Tantric chemical treatises¹¹ on the other. It appears from a study of the contents of the Jaina works Suvarṇa-Raupya-Siddhi Śāstra and others on alchemy in comparison with those of other Indian works on alchemy that the Jaina works are more or less a compi-

1. There are some references to the inclusion of some additional materials of the later period in Suvarṇa-Raupya siddhi-śāstra and other Jaina work on alchemy, e. g. Phiringiroga, phiringivaya etc., besides the mention of chemical formulae of Nāgarjuna, Carpaṭa Pādaliptasūri, Sekham Ali etc. in the 1st and 2nd chapters of Suvarṇa-Raupya-Siddhi-Śāstra. See, Rasaratnasamuccaya. Māṇikyadevasūri. Contd.,
2. Nāgarjuna kehe dhamdhā thoḍā / "SRS S., Ch. 60.
3. "Palittaya-mai mai mahil"/"Ibid. ch. II 4.
4. "Carapata kare tamāsa I. Ibid., ch. I 8, 14, 17, 36, 39.
5. "Natha bole..." Ibid. ch. I 19.
6. "Sekham Ali, "Ibid. ch. I, 60, MS.
7. "Gaṇḍu bole", Ibid., ch. 1, 11. See Rasaratnasamuccaya, Māṇikyadevasūri.
8. See Rasaratnākara, Rasārṇava, Rasaratna-Samuccaya, etc.
9. Suvarṇaraupyasiddhiśāstra of Jinadattasūri, Rasaratnasamuccaya, of Māṇikyadevasūri, Nāgarjunīvidya, Paradevidhi. etc.,
10. See Carakasamhitā, Suśrutasmhitā, Kalyāṇakāraka in regard to rasaprakaraṇa, etc.,
11. See Rasaratnākara, etc.,

In almost every country the progress of Chemistry can be traced back to medicine and a belief in the making of artificial gold by a chemical process of the transformation of base metals into gold,

lation based upon many other Indian works,¹ of the Tantric period on the same problem or there might have been a common Indian source on alchemy from which all the Indian schools of alchemy might have drawn their respective alchemmical information.

Alchemy as found in the extant Jaina MSS, *Suvarṇa-Raupya-Siddhi Śāstra* and others has dealt with the mineral kingdom—*rasas*² (superior minerals), *uparāsa*³ (inferior minerals), *ratnas*⁴ (gems) und *lohas*⁵ (metals), etc.,

Rasas (or *Mahārāsa*—superior minerals) are as follows : *abhraka* (mica), *vaikranta* (Tourmaline), *mākṣika* (pyrites), *vimala* (a variety of pyrite), *śilajuta-adrija* (bitumen), *sasyaka* (blue vitriol), *capala* (Sulphide mineral), and *rasaka* (calamine), with *uparāsa* (inferior minerals) are stated to be *garudhaka* (sulphur), *gairika* (red ochre), *Kasīsa* (sulphate of iron), *tuvarī* (alum), *tāla* (orpiment), *manassila* (realger), and *aṇjana* (Collyrium). Besides there are mentioned some other common *rasas*, such as, *navasāra* (Śal-ammoniac), *hīṅgula* (cinnabar) (*syn darada.*), etc.⁶

Ratnas (gems) are *vajra* (diamond), *mauktika* (pearl), etc.,⁷ six *lohas* (metals)⁸ are recognized at the outset. They are as follows :—

Gold (*Kāñcana*, *suvarṇa*, *pita* or *hema*), silver (*tāra* of *Raupya*), copper (*tāmra*), lead (*Śisā* or *nāga*), tin (*varṅga*) and iron (*loha*). It is interesting to note that there is mention of zinc (*jasta*)⁹ in the Jaina MSS. on Alchemy.

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1. *Rasaratnākara*, *Carpaṣasiddhānta*, *Rasārṇava*, *Rasaratnasamuccaya*, etc.,
 2. *Suvarṇaraupyasiddhiśāstra* of Jinadattasuri. *Rasaratnasamuccaya*, of Māṇikyadevasuri etc); See 1st adhikāra of *Rasaratnasamuccaya*, (beginnings),
 3. *Ibid.*
 4. *Ibid.*
 5. *Ibid.*
 6. *Ibid.*
 7. *Ibid.*
 8. *Suvarṇaraupyasiddhiśāstra* ch. I; *Rasaratnasamuccaya* ch. 1.
 9. *SRSS*, ch. III. 1. (*jasta*) III. 2, 16, etc.

Later on eight metals¹ are named including two alloys—brass (pīṭal) and bell-metal (Kāṁsa). Jaina works on alchemy deal with mineral preparation in detail.² They are also devoted to the short processes of killing metals³ and minerals⁴ as they are treated in other Indian works⁵ on Rasāyanavidyā.

The Suvarṇa - Raupya - Siddhi - Śāstra gives an account of the process for dissolving mercury and oxide of arsenic with conch - shell powder, which Jinadatta Sūri, the Jaina alchemist names Bhum Bhum⁶ and mentions ash of bone of the neck of camel⁷ and bone - ash of boar⁸ as solvent for metal. They are described as substances endowed with the property of dissolving metals.⁹

Besides, some distilling apparatus (Yantra) have been mentioned in the Jaina alchemical works as they find mention in other Indian alchemical works, e.g. Dolikāyantra,¹⁰ Vālukāyantra,¹¹ etc. In short they have treated of mercury, minerals and metals, the construction of apparatus, the mystic formulae for the purification of metals, the extraction of essence (Kalka), liquefaction and incineration of metals, etc. The virtues of mercury are commended in the Jaina alchemical works - the Suvarṇa - Raupya - Siddhi - Śāstra and others that men are freed from a multitude of diseases by partaking of medicines, prepared with mercury. There is an important reference

1. Lohanāmāni-loha 1, nāga 2, vaṁga 3, trābo 4, kāṁso, 5, pīṭala, 6, tāra, 7, hema 8, Ibid., ch. VI. 13,
2. See Rasaratnasamuccaya of Māṇikadevaśūrt and compare it with SRSS; Ch. I. 7, (Dhātuvāda), I. 51 V. 60. III. 41 (Hīṅgulavidhi), III. 8 (Golakam vidhi) III. 84 (Khāpariya sattvavidhi; IV. 23 (Talasattvavidhi); VII. 27. (Abharakavidhi); VII 27 (Navasārpaṇi prakaraṇavidhi.); VIII. 6 (Kathiraśodhanavidhi);
3. e.g. Rasaratna Samuccaya Parādaavidhi
4. Ibid.; Compare SRSS., ch. VII. 27, II. 16, III. 27 (abhraka), I. 49, III. 84, 103, IV. 24, V. 1, 2, 3, 4, (maṇṣīla), I. 19, 20, 25, 41, 42 (gaṁdhaka).
5. Rasārṇava, Rasaratnasamuccaya of Vagbhāṭa.
6. SRSS., IV. 39; IX.51 (bhum bhum-śamkhoha is solvent for killing mercury and oxide of arsenic)
7. Ibid., ch. X. 33
8. Ibid., ch. X. 34
9. Ibid., ch. X. 33, 34.; See Hindu Chemistry, p. 162, for Samkhadravaka.
10. SRSS., ch. VII. 9, IX. 14, X. 35, etc.
11. Ibid., ch. VI. 9, IX. 45, III. 36 (Patalayantra), VI. 10 (Kavacyantra), etc.

to abortion¹ and harmless birth control,² brought, about if old ghee (clarified butter) is taken by a woman during her menstrual period. The final phase of alchemy as found in the Jaina MSS. 'Suvarṇa - Raupya - Siddhi-Sāstra, Raṣarantasamuccaya, etc. is characterized by the fact that over and above opium some other foreign drugs are found incorporated into its pharmacology as is evidenced in other Indian alchemical works. It is a well known historical fact that the Portuguese had fairly established themselves at Goa and some parts of India by the beginning of the sixteenth century A.D.³ "As a result of intercourse of India with them that dreadful scourge - the venereal disease - Syphilis made its appearance⁴ in India.

Syphilis (phiringi - or phirangiropa)⁵ as mentioned in the Jaina and other Indian alchemical works of the period "had now to be reckoned with and a new name had to be coined for it."⁶

The Jaina MSS-Suvarṇa-Raupya-Siddhi-Sāstra and Vaidyaka-Saṁgraha prescribe calomel (rasakarpura)⁷ (or revamcini)⁸ and (Chobchini)⁹ =

1. "Dhaturāka mūla Kṛṣṇa 14 Caturdaśi tathā ravivāre līje/dhupine kaṭiku barmdhana strika garbha gir pare garbha nahi dhare// Nāgarjunividyā, ch. I, 23
2. "Ritukāle puṣṭāna gogḥṭa khāi pive to strigarbha nivāre, sahi/, "Nāgarjunividyā, ch. I. gāthā 24.
3. Hindu Chemistry, Dr. P. C. Ray, p. 162.
4. Ibid.
5. A Jaina MS. of an unknown author of the 18th Century A. D. in the Collection of Kalyāṇa Vijayaji No. 2695, Vaidyaka Saṁgraha in Old Gujarati in the same collection No. 2693, They throw light on this phiringivāta, and syphilitic chancre, etc. and their remedies. e.g. Atha phirangavātapratikāra, Bodarasiṁgi, hirākasīsa, kātho. vaulachālī dādīmachālī samabhagacūrṇa līṅga cāpti līṅgaroga jai/. MS. No. 2095 (30994)

Phirangavātasamādhīh.

- "Rasakapura tā. 1, ilacidanā tā. 1. Kātho tā. 1, Citraka tā. 1, cinīyākapura tā. 1, akolākaro tā. 1, Jāphala tā. 1, jāvamṛtī tā. 1, sarva ausadha pīsī nimbursasasu goli 14, kṛjāi, prabhātī sarndhāi dīn 7, logala jāi dudh, bhāt pathya, phirang-avāyasamādhī/, MS. No. (2093) 30992.
- "Remedy for syphilitic chancre (2095) 30994.
- Naghugha tā. 1, kādho tā. 2, cunokali tā. 4, ekātra karī pīsme ghēe gayano tā. 18, ghātī
- Kasrabhajanamāhe mardī, pra, 8 lagai, phiranga cāmdī jai, MS. No. 2095 (30994).
6. See Hindu Chemistry, p. 162; Arkaṇṛkāṣa, etc.
 7. Ibid.
 8. SRSS., ch. X. 1 Vaidyaka Saṁgraha, Phirangavātasamādhīh.
 9. Ibid., ch. VIII, 35, IX, 68.

Cababchini = china root, smilax china, Ciniakapūra) for what is termed for the first time as Phirangi-roga or the diseases of the Portuguese. "The use of this drug as a remedy for Syphilis, it is believed, was made known to the Portuguese at Goa by the Chinese traders about A. D. 1535."¹

Both opium² and mineral acids³ are prescribed for many diseases. The Āyurvedic method of treatment has been described in the Jaina alchemical MS. Suvarṇa-Raupya-Siddhi-Śāstra, etc. in detail as is evidenced in ample citations⁴ as given from the Indian Āyurvedic works.⁵ Some portions of the Jaina alchemical works have particularly been devoted to mineral preparation⁶ but it seems that they have been borrowed chiefly from some Indian works. The Jaina alchemical treatises have dealt with the preparations of medicinal tinctures⁷ and prescribed mercury treated with some other minerals as the remedy for many diseases⁸ as is found in Arkaprakāśa⁹, Bhāvaprakāśa, etc.

As regards occultism it has been claimed by the Jaina alchemists in the Suvarṇa-Raupya-Siddhi-Śāstra that a flowing river with full flood-current can be crossed by walking on it with the power of some guṭika specially prepared by them.¹⁰

One can alone conquer 1000 soldiers¹¹ by keeping with him a guṭika prepared with mercury, put into the head of a dead brave soldier who got killed fighting on the battle field, etc., one can overpower a woman or man by Vastikaraṇavidyā.¹² etc. The main objective of Alchemy as pointed by the Jainacāryas was to show the way for the destruction of all sins (or evils) - poverty, diseases and old age.¹³

1. Hindu Chemistry, p. 162.
2. SRSS., ch. II. 30-31, VI. X 26, etc.
3. Ibid.
4. Ibid. chs. IX, X, XIV.
5. Caraka, Suśruta, Kalyāṇakaraka.
6. SRSS., chs. I, X, XIV, etc.
7. Ibid., chs. I, X, XIV. Particularly,
8. Ibid., Chs. v. (paro mardir savitroga jai),
Ibid., ch. IX. 24 (Raja tā. 5, ... sarvajvara jai)
Ibid., ch. IX. 24 (Himgalo tā 1 ... paro tā...gatabale...)
Ibid., ch. IX. 25, (Himgalo sr. 1/4...saghala jvara jai).
Ibid., IX. 20, 28, 29, etc.
9. Arkaprakāśa, vide Hindu Chemistry, p. 163.
10. SRSS., ch. VII. 2.
11. ekalo hajarane jite, śatru hare",
SRSS. ch. II. 5
12. SRSS.
13. SRSS; ch. II. (comm.).

FIRST CHAPTER

First Section

Minerals, gems, Metals and Apparatus

Rasas (Minerals)

INTRODUCTION

In Jaina Alchemy as revealed in the *Suvarṇa-Raupya-Śāstra* of Jinadasūri, *Rasaratna Samuccaya* of Māṇikyadevasūri. etc, the mineral kingdom has broadly been divided into *Mahārasas*¹ (Superior minerals), *Uparasa*² or *Alparasa* (inferior minerals), *Ratnas*³ (gems. etc.) and *lohas*,⁴ (metals) as is found in the works⁵ of Hindu and Buddhist Alchemy.

1. The *Suvarṇa-Raupya-Siddhi-Śāstra* deals with *Mahārasa*, but it does not mention the term. The *Rasaratna Samuccaya* uses this term to indicate different kinds of *Mahārasa*.
“*Vaikrāntakāmnāmala-Sasyagādayoḥ māṅṣikabhedāhibhido mahārasāḥ*”, *Rasaratna Samuccaya*, Adhikāra. 1. V. 5.
2. The *Suvarṇa-Raupya-Siddhi-Śāstra* does not refer to this term ‘*Uparasa*’, although it treats of various kinds of *Uparasa*. The *Rasaratna Samuccaya* of Māṇikyadeva uses this term to connote *Uparasas* as inferior minerals.
“*Kaṁkuṣṭhagamdhāṁjanagairikāṁḍah; Śilālakāścoparasāḥ ime matāḥ* 1”, *Rasaratnasamuccaya*, A. I. V. 5.
3. The *Suvarṇa-Raupya-Siddhi-Śāstra* deals with various kinds of gems in a scattered manner without using the term (*Ratna*), while the *Rasaratnasamuccaya* mentions this term (*Ratnas*) to signify gems, etc. “*Vajra, Vidruma, muktā, maṇi, Padmarāga, etc.*” *Rasaratna Samuccaya*, 1.46, 47.
4. “*Lohanāmāṇai-Loha 1, Vamga 3, taio 4, Kāso 5, pital 6, tāra 7, hema 81.*”, *Suvarṇa-Raupya-Siddhi-Śāstra*, Ch. 6. 13.; *Tamraṁ taram Pittalā nāga hemni/vamgaṁ Tikṣṇanam;/Kāmsyakam/Vaṭṭaloham Suryādīnām nāmabhiḥ khecarānam/Vijñātavyā dhātavo anukrameṇa/Rasaratna Samuccaya* A. I. V. 6.
5. *Mahārasa* :
Māṅṣiko vimalaḥ śailaḥ capalaḥ rasakastathā./Sasyako daradaścaiva śrotoṇjana mahāṣṭakam//
Aṣṭau mahārasāścaivametān prathamataḥ śrṇu //

5. (Contd).,

Rasārṇava 7.2.

“Abbravaikrāntamākṣikavimalādrjasasyakam/Capalalarasakaśceti jñātva
āṣṭau Saṁgrahedrasān //

Rasaratnasamuccaya, Vagbhaṭa 2. 1.

Upasayas :-

Gandhakastalakāḥ śilā saurāṣṭrikhagagairikam,

Rajavaritṭaścakamkuṣṭhaamṣṭāve parasāḥ, Smṛtāḥ 11,

Rasārṇava, 7.56.

‘Alho’ prasāḥ sādharāṇa rasāśca - Rasaratnasamuccaya, 3 rd ch.

Upasayas are as follows :-

Gandhaka (3, 12-25), Gairika (3. 46, 49),

Kāśisam (3, 51. 51, tuvari,

(3-59-62, 63, 64, 65,), talaka (3. 66. 69, 74-75-80-81),

Munāḥśilā (3. 109); añjana (3. 98-99, 105-107);

Karkuṣṭha (3. 109, 111, 112,)

Sādharāṇarasa : (Common minerals)

Kampillāśca paro gauripāṣāṇo navasārakāḥ /

Kapardo vahnijarāśca girisindūra hingulau //

Mṛddarasāṅgamityaṣṭa sādharāṇa rasāḥ, smṛtāḥ /

Rasasiddhikārāḥ prokṭā Nāgārjnapurāḥsarāḥ //

Rasaratnasamuccaya, Vagbhaṭ, 3. 126-7.

Ratnas (gems) are as follows :

Maṇayo api vijñeyāḥ sūtabandhanakarakāḥ /

Vaikrāntāḥ Suryakāntāśca hīrakāṁ mauktikāṁ maṇiḥ //

Candrakāntastathā caiva rajavdṛtāśca Saptamāḥ /

Garuḍodgarakāścaiva jñātavyā maṇayastvami //

Puṣparāgo gomedāśca padmarāgaḥ, pravālam. /

Vaidūrya ca tathā nīla etc.’ api maṇayo matāḥ //

Yatnataḥ saṁgrahitavyā rasabandhasya kārāṇāt //

Padmarāgendranilakhyam tathā marakatottamāḥ /

Puṣparāgaḥ Savajrākhyāḥ paṁcaratnavavarāḥ smṛtāḥ /

Māṇikyamuktaphala vidrumāṇe takṣyam ca puṣpambhiduram /

Gomedakāṁ cātha vidurakāṁ ca krameṇa ratnāni navagrahāṇām //

Rasaratnasamuccaya 4, 1-6.

Lohas (metals) :-

Suvarṇam rajatam tāmrām tikṣṇam Varṅgam bhujaṅgamam //

Lohantu ṣaḍvidham tācca yathā purvaṁ Tadakṣayam /

Rasārṇava. 7/97.

Suddham loham Kanakarajatam, bhānulohāśmasārām,

Pāttiloham dvitayamuditam nāgavamgābhidhanam /

Miśram loham trilayamuditam pittalam Kāṁsyavattam

Dhātulohe luha iti mataḥ so, apyanekarthavacī /

Rasaratnasamuccaya, Vagbhaṭa, Ch. 5/1,

The term 'rasa' is in general reserved for mercury in the *Suvarṇa-Raūpya-Siddhi-Śāstra*¹ and other Jaina², Buddhist³ and Hindu⁴ alchemical works, though it is equally applicable to a mineral⁵ or metallic salt⁶ or prepared medicine.⁷ In the oldest Indian medical works like the *Carakasamhita* and the⁹ *Suśrutasamhita* the liberal meaning of rasa is juice of fluid (or chyle) of to-day.

The Jaina medical text-the *Kalyāṇa Kāraka*, also maintains the same view, regarding its meaning 'fluid of the body' by which blood, serum, etc., are engendered according to the metabolic processes.¹⁰ The *Sūtrute* uses the term, 'Rasakriya'¹¹ meaning fluid extract or concentrated decoction. It is found in the Jaina,¹² Bauddha¹³ and Hindu¹⁴ a chemical and medical

1. *Suvarṇa-Raūpya-Siddhi-Śāstra* Ch. I.11, etc.
2. *Rasaratna Samuccaya*,
Māṇikyadevasūri, Ch. II, 30 *Rasa=Paradaḥ* (mercury)
3. *Adhunā rasarājasya saṁskāraṁ sampracaṇḍaḥ*/ *Rasaratnasamuccaya*, *Vagbhāṭ* etc, ch. 11.
4. *Yavanna harabijantu bhakṣayet paradam rasam*, etc.
Rasārṇava.
5. *Rasaratna Samuccaya* *Māṇikyadevasūri* ch. 1. V. 5. (*Maharasas & uparasas*)
6. *Suvarṇa-Raūpya-Siddhi-Śāstra*.
See : "Atha Rasalohanaṁ mārṇam" *Rasaratnasamuccaya*, *Māṇikyadeva*, Ch. 1. 32 ff.
7. "Atha Kanakavajranāma rasah", *Rasaratnasamuccaya*, *Māṇikyadevasūri*, Ch. II. 35
8. See *Carakasamhita*.
9. See *Suśrutasamhita*.
10. "Rasadrakṭam tato māṁsam māṁsānmodah pravartate. Modaso'sthi tato majja tasyaśūkrām tataḥ prajāḥ." *Hitahitadhyaya*, *Kalyāṇakāraka* *Ugradityacarya* P. 734.
11. *Sūtruta*,
12. *SRSS.* *Jinadattasūri*, ch. 9. 1. *Rasaratnasamuccaya*, *Māṇikayandeva sūri*, ch. III. 42
13. "Rasam hemasamam mardya pīṭhika giriJamdhakam/Dvipadīrajani rambbhām mardayet tamkaṇānvitam//...Divyadehamavāpnuyāt//" *Rasaratnakara*, *Nāgarūṇa*.
14. *Yavanna Harabijantu bhakṣayet paradam rasam/ Tāvattasya kuto muktiḥ, piṇḍasya dharaṇam*" *Rasārṇava*; 28.

works that mercurial and metallic preparations gradually supplanted the vegetable drugs and the term *Rasa*¹ was substituted for quick silver because of its semi fluid character and its miraculous therapeutical action on the humours of the human body.²

The *Suvarṇa-Raupya-Siddhi-Śāstra*, uses the term '*Rasa*'³ or '*Rasayana*'⁴ (derived from *arsa* juice and *ayana*, way) in the sense of medicine 'preventing old age and prolonging life the *elixir Vitae*.⁵ Later on *rasayana* was almost exclusively applied to the employment of mercury and other metals in medicine.⁶

Like the author of the *Rasaratna Samuccaya*, *Vagbhat*, the author of the *Suvarṇa-Raupya-Siddhi Śāstra*, *Jinadatta Sūri* and the author of the *Rasaratna Samuccaya*, *Maṇikyadeva Sūri*, advocated the philosophy of mercury with its accomplishment for the removal of disease, old age and poverty and the *elixir vitae* and longevity of life.

Mercury is named by the term *rasa*⁸ *rasendra*,⁹ *Suta*,¹⁰ *Pāra*¹¹ *pārada*¹² in the *Survarṇa Raupya Siddhi Śāstra* of *Jinadatta Sūri*, the *Rasaratna Samuccaya* of *Maṇikyadeva Sūri*,¹³ *Rasārṇava*¹⁴ and *Rasaratnasamuccaya*¹⁵ of *Vagbhat*.

1. SRSS. Ch. 14.1 "Rasātmanātrayam suddham Kṛṇadhātūraabje" etc.
2. SRSS. Ch. 14. 1-14.
3. SRSS. Ch. 1. 11, 14 etc.
4. Ibid. ch. 3, 82, Rs. 3-35, 36.
5. Ibid. ch. IX. 1, 2, (Amarakāyāṅkare).
6. *Rasaratnasamuccaya* 2, 21 etc.
7. "Disayu khayam Sarvaduriyānam" Ch. II., gā. 4, SRSS. *Savvaduriyām* = *Daridraroṅgarādīnām* (śayam) *Tikā*, Ibid.,
8. SRSS. Ch. I, II, etc.
9. Ibid., ch. 2. 14. 2. 62.
10. Ibid, Ch. 1, 9, 1-16, 1-41, 1-44, etc.
11. Ibid, ch. 29, 1 38, 1.56, etc.;
12. Ibid., Ch. 5. 42.
13. *Rasaratna Samuccaya*, *Maṇikyadeva. Rasa*, (A. 1.14) *Rasendra* (A. II, 14), *Suta* (A. 11. 39) *Pārada* (A. 1, 23).
14. *Tvam mātā Sarvabhūtanām pītā cāham Saṅgatanah/Dvayośa yo raso devī mahā maithunasambhavaḥ/Svairataḥ sambhavad devī Pāradaḥ kirtito mahah/Parada gadito yaśca Parartham sadhakottamah//suto' ayam matsamo devī mama pratyangasambhavaḥ/ Mama deharasao yasmāt rasastenāyamucyate// Rasārṇava, 1.34-36.*
15. *Raso rasendrah sutaśca pārado mīrakastathā/ Iti evamvidho jātaḥ kṣetra-Vedhena sambhujah // Rasaratnasamuccaya, 1/67. Vagbhat.*

Mahārāsa¹ (Superior mineral) as mentioned in the Jaina alchemical works—the Suvarṇa-Raupya-Siddhi-Śāstra and Rasaratna Samuccaya, viz. abhṛak² (mica), Vaikrānta³ (tourmaline), mākiṣka⁴ (Pyrites), amala⁵ (Vimala) a kind of silvery pyrite, silagṛta⁶ (or adrija)⁷ (bitumen), sasyaka⁸ (blue vitriol=Thutho)⁹, Capala¹⁰ (Possibly bismuth) and Rasaka¹¹ (mineral Calamine-Kharpara¹²) are to be identified and collected with the corroborative evidences of other Indian alchemical works.

Maharāsa (Superior minerals) Abhṛaka¹² (Mica)

Abhṛaka (mica) is one of the Mahā-Rasas (Superior minerals) which was used in Jaina Alchemy in both chemical processes¹³ and Indian medical science as an element of medicine.¹⁴ IN the Rasārṇava and Rasaratnasamuccaya of Vagbhat there is mention of four kinds of mica, viz. Pināka, Dardukra, (Maṇḍuka), Naga and Vajra.¹⁵ There can be four divisions of each of them.¹⁶

1. Rasaratnasamuccaya, Maṇikyadevasūri
A. I. 5. Suvarṇa-Raupya-Siddhi-Śāstra does not mention Mahārāsa by name.
2. Suvarṇa-Raupya-Siddhi Śāstra, Ch. II. 16; III, 26, etc.
3. The SRSS does not mention the them 'Vaikrānta' but the RS (mention it in A. I. 5).
4. SRSS, Ch. I. 49, RS., A. I. 5.
5. RS. A. I. 5.
6. S.R.S.S., Ch. 9-41
7. R.S. A. I. 5.
8. Sasyaka is called Thutho in S.R.S.S.
9. S.R.S.S., Ch. V. 16; 8-18; 10.6; 10.27, 11-16; 12.2; 12, 27,
10. It is not clearly mentioned in the Suvarṇa-Raupya-Siddhi-Śāstra and Rasaratna Samuccaya., See RS. Ch. 1. 5.
11. SRSS., Ch. 1. 44, 45, RS. 1. 5. (7) SRSS. 8.
12. Suvarṇa-Raupya-Siddhi-Śāstra, Ch. 2, 16, 3. 26, etc.
Rasaratna Samuccaya, Maṇikyadeva Sūri, A. 1-5.
13. Suvarṇa-Raupya-Siddhi-Śāstra,
Ch. 2-16; 3-27; 5-37; 7. 3; 8. 17; 9. 50.,
14. Ibid., Ch. 7-1; 2-23; 10-72; 11-14.
15. "Pinākam darduram nāgam vajram cābhram
Caturvidham/, Raṣārṇava-6. 4."
16. "Pinākānāgamaṇḍūkām vajramutyabṛakam matam /
Śvetādivarṇābhedaṇa pratyekam taccaturvidham //
Rasaratna Samuccaya, Vagbhat, Ch. 2. 4.

- (a) Pināka abhraka :- Its leaves get separated on its heating on fire. It kills man by stopping stool.
- (b) Nāga abhraka :- It makes hissing sound like snake on its heating on fire.
- (c) Maṇḍuka abhraka :- It falls like frog on its heating on fire. It creates incurable disease-aśmari.
- (d) Vajra abhraka :-

No modification takes place in it on its heating. It makes the body hard like diamond and cures all diseases.¹

In the Rasārṇava it is stated that these four kinds of mica can be recognized by their chemical nature. If pinak abhraka is kept on fire, it makes sound 'ciṭ-ciṭ,' if dardūra abhraka is put on fire, it makes sound like cock, nāga-abhraka hisses like fire and vajra abhraka remains really in the fire like vajra.²

Svedana of these kinds of abhrak (mica) with many kinds of plants and medicines has been discussed in detail. There is mention of attaining abhrakasattva on intense fire (heat) with bhastra in a Koṣṭhaka yantra.³

The processes of dravana of abhraka (mica) are also given. In these chemical processes the application of plant is of great importance, e. g. make mica wet with the urine of goat together with kapi (Kevaca) and tindula and make āvāpana, then mica will be obtained like water.⁴

1. Pinakam pavakottaptam vimuncati daloccayam / Tatsevitam malam baddhva marayatyeva mānavam // Nāgabhram nagavat kuryad-dhvanim pavakasamsthitam /
Tadbhuktam kurute kuṣṭham maṇḍalakhyam na saṁśayaḥ //
Uplatyotplutya maṇḍukam dhmatam patati Cābhram / Tatkuryada-śmarīrogamasāhyam śastroto, anyathā //
Vajrabhram vahnisaṁtaptam nirmukta aśeṣavaikṛtam / Dehalohakaram tacca sarvarogaharam param //
Rasaratnasamuccaya, Vagbhata, 2/4-8.
2. "Pinaka agnim praviṣṭe sabdaściṭciṭarbhavet // Dardūra agnim praviṣṭe tu śabdaḥ kukkuṭavadbhavet / Agnim praviṣṭam nāgantū phatkarām devi muṁcati // Agnim praviṣṭam vajram tu vajravattiṣṭhati priye //" Rasārṇava 6/4-6,
3. Tilacurṇapalam guṇja tripalam pādalanīkanam / Godhūmabaddha tatpiṇḍo pañcagavyena bhavita // Dhamanā Koṣṭhikayantra bhastrābhyam trva Vahninā / Patatyabhrasathvam Sattvani nikhilani ca," Ibid. 6/15-16.
4. Chāgamūtreṇa saṁśikta kapitindukareṇunā / Abhrakam vāpitam devi jayate Jalasannibham // Ibid., 6/23.

The process of producing good mica.

The Suvarṇa-Raupya-Siddhi-Sāstra describes a process of making good mica in this manner.

1. Make powder of black mica - 1 sr. by grinding it in human urine for 21 days. Next grind it in the juice of pīta holola (Yellow Myrobalans), make paste of it with the combination of rasa (juice or mercury ?). Give it fire in a gajapuṭa again, grind the medicine in such juice, give it gajapuṭaṅni. Thus give it fire 21 times. That good mica is produced.¹
2. Turn round Bhoḡala (raw mica) pai 1 bhar seven times and make tasa (a little modi leaf) seven times by extinguishing it in water, seven times. Burn (or heat), Kavaḍi (sheets ?) again. 9 (times), crush them together and make tablet (out of them); put it into fire. Again crush them and make tablet, and get it dried up in fire. Thus heat it by turning it round 3 times. Next it will come into use.²

Parāḍadruti of Abhrak (mica)

Drench mica into water for four praharas, next take it out and make its layers, separated. Make them fine (podwer) by grinding them. Then bind the whole thing in a wet cloth for an hour and keep it in the sun. Mix mercury into it, then put black tolaḍi golo (a kind of substance not identified), make a fine hole under the jar, put a small pot underneath, place it on the furnace, lit fire on the pot fire then there comes out five-coloured flame. Then mercury falls (out of) mercury - coloured mica. Thus it is called pārada druti of mica.³

The chemical process of mica for the medicinal use :

Give 1 paṭa (roasting) Eclipta alb = wedelia calendulacca (Bhaṅgrā) to black mica, 2 paṭas of datura meta, 1 paṭa of Calotropis gigantea, 1 paṭa of Euphorbia pilulifera (Nagadudhi), 1 paṭa of purple tephrosia (Sara-pankha),⁴ 1 pata of adventitious branch of Banian tree (Vaḍavai), 1 paṭa of cow's urine to it 3, each paṭa is followed by the heat of fire for 1 ghaḍi (24 minutes).

1. SRSS. Ch. 7. 3.
2. SRSS. Ch. III. 38.
3. SRSS. Ch. 3, 27.
4. A kind of plant.

Viṣamajvara (typhoid fever) goes away (if the medicine thus prepared is taken); it is to be taken with butter made of she-buffalo milk, all gonorrhea (diseases) go away, if it is taken.¹

Vaikrānta (Tourmaline)²

According to the Rasaratna Samuccaya of Vāgbhaṭa, Vaikrānta (tourmaline) has eight faces and six angles, it is slippery, heavy and of pure or mixed tint. There are stated to be eight kinds of vaikrānta from the point of view of colour, viz., white, red, yellow, blue, with shades met with in the down of the pigeon, grass-green, black and variegated.³

There is mine of Vaikrānta in the northern and southern parts of the Vindhyas. It is capable of cutting the metals like iron etc., because of its being hard.⁴

Vaikrānta can be purified by mixing kṣāra and salt in kāñji, etc., amlavargas (acids), mūtravargas (human urine, etc.), decoction of kulaitha (Dolichos uniflorus lamk) juice of banana (plaintain) or the decoction of kodo (Kodrava = *paspalum scrobiculatum*).⁵

If its ash is to be made, sulphur is to be rubbed in the juice of lemon and reduced to paste. Next by keeping Vaikrānta into paste, it is to be gajapuṭāgni eight times.⁶

1. SRSS., Ch. 7-1.
2. Vaikrānta (tourmaline) is not mentioned in the Suvarṇa-Rāupya-Siddhi Śāstra as such, but it is referred to in the Rasaratna Samuccaya 1. 5. as one of the superior minerals.
3. 'Aṣṭāśraśāṣṭaphalakaḥ ṣaṭkoṇo maṣṇo guruḥ / Śuddhamiṣṭitavarṇaiśca yukto vaikrānta uccyate // Śveto raktaśca pītaśca nīlaḥ pāravata-cchaviḥ / Śyāmalāḥ kṛṣṇavarṇaśca karburaścaśṭadha hi sah // Rasaratna Samuccaya., Vāgbhaṭ, 2/52-53.
4. Vindhyasya dakṣiṇe bhāge hyuttare vā'asti sarvataḥ / Vikṛantayati lohāni tena vaikrāntakaḥ smṛtaḥ" Ibid., 2/58
5. Vaikrāntakaḥ syustridināṁ viśuddhaḥ saṁśveditaḥ kṣārapuṭāgni dattva / Amleṣu mūtreṣu kulathharambhānure 'athavā Kodravavaripakvāḥ / Kulathhakvāthasaṁvinno vaikrāntaḥ pariśuddhyati // Ibid. 2/63-64.
6. Mriyate' aṣṭapuṭāirgandhanimbukadrava saṁyutaḥ / Vaikrānteṣu ca tapteṣu hayamūtram vinikṣipte // Paunahpunyena vā Kuryād dravaṁ dattva puṭam Tvanu / Bhasmibhūtam ca vaikrāntam Vajrasthane niyojayet / Ibid., 2/64-65.

If the essence of Vaikrānta is to be taken out, give saturation to it by grinding Mokhā, Moratala tā and Dhaka in cow's urine. Again, mix the ash of Vaikrānta into the essence of Vajrakanda and haldi (turmeric), the powder of Triphalā (āmalaḥ haritaka and vahaḍā), borax and powder of lac and nausādar (nisāda = Sal ammoniac) and rub it in the juice of Meṣaśrṅgi (Amaranthus Polygamus) and pill of it, again put it in a closed crucible and give it intense fire. There takes place the falling out of the essence of Vaikrānta by this process.¹

Mākṣika² (Pyrites)

Mākṣika (pyrites as mentioned in the Suvarṇa-Raupya-Siddhi-Śāstra) is used in various chemical processes. This work refers to only one kind of Mākṣika, viz. Sonāmākhi (golden pyrite).³ But according to the Rasaratna Samuccaya of Vagbhāta there are two kinds of Mākṣika, viz. golden pyrite (hemamākṣika) and silvery pyrite (tāramākṣika)⁴. Mākṣika is born of the Sumeru mountain and is produced in the river-Tāpī and in the land of the Kirātas, the Chinese and the Yavanas.⁵

It is further stated that golden pyrite is found in Kanauj (Kanpur, U.P.) and it is golden yellow coloured and that which is produced in Tāpī is of five colours. Silvery pyrite is associated with stone and is of inferior quality.⁶

The purification of golden and silvery pyrites can be made by frying them in the castor oil or by cooking in the juice of Bijaura-Nibū (a kind of lemon) or in the juice of stem of the plantain plant. If it is put into

1. Mōcamoraṭapālasakṣāragomūtrabhavitam / Vajrakandaniśakalkaphala-cūrṇasamanvitam // Tatkalakam tamkanam lakṣacūrṇam Vaikrāntaśambhavam // Navasarasamayuktam meṣaśrṅgidravanavitam / Piṇḍitam mukamṇastham dhmāpitam ca hathāgninā // Ibid., Ch. 2/66-68
2. SRSS. Ch. I. 49, II 14, XIV. 13. Rasaratna Samuccaya, A. 1. 5.
3. SRSS., Ch. 5. 30, 7. 28; 9. 2.
4. Mākṣika dīvidho hemamākṣikastaramākṣikāḥ // Rasaratnasamuccaya, Vagbhāta, 2. 75.
5. Suvarṇaśailaprabhvo...
Tāpyam Kirātaśreṣṭha yavaneṣu ca nirmitaḥ // Ibid. 2/73
Tatra' dayam mākṣikam kanyakubjottham svarṇasannibham //
Tapaṭitrasambhūtam pañcavarṇasuvarṇavat /
Pāṣāṇabhahulaḥ proktastārākhyo' alpa guṇmakāḥ // Ibid., 2/76.
6. Eranḍatailamātulungāmbusiddham śuddhyati mākṣikam / Siddham va Kadalikandatoyena ghaṭikādvayam // Taptam kṣiptam varākvāthe śuddhimayati mākṣikam / Ibid., 2/78.

If it is put into the decoction of Triphalā by making it red hot in fire, it gets purified.¹

If the ash of golden pyrite is to be made, mix equal part of sulphur into its powder, make pill of it by rubbing it in the juice of citus medica and varāhapuṭa (roasting in Dioscorea) is given to it five times by putting it into a crucible.²

Mix 30 (th) part of lead into the powder of golden pyrite and rub it with kṣāravarga (alkalines) and amlavarga (acids), and make pill of it. Then heat it in the flame of coal by putting it into a crucible. The essence of golden pyrite is obtained by this process.³

Drāvaṇa of golden pyrite takes place by the process of rubbing the castor oil, powder of guṇjā (Abrus precatorius), honey and borax together and melting the essence of it on fire and putting the mixture into it.⁴

Amala⁵ or Vimala⁶ (A kind of silvery pyrite)

Some Ācāryas say that Vimala is a kind of Silvery pyrite. It is of three kinds—white, yellow and red or⁷ hemavimala (golden), taravimala, (silvery), and kāmasyavimala (bell-metal like) according as it has the lustre of gold, silver and bell-metal respectively.

It is round and is also endowed with angles and faces.⁸

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1. Mātulūṅgāmbuḡandhabhyāṃ piṣṭāṃ mūso-dare sthitam / Pamcakroḍapuṭa dagdham mriyate khalu", Ibid. 2-79.
 2. Mātulūṅgāmbuḡandhabhyāṃ piṣṭāṃ mūsodard sthitam / Pamcakroḍapuṭa dagdham mriyate khalu." Ibid. 2-79.
 3. Trīmśāṃśanāgasamyukataṃ Kṣārairamlaśca marditam / Dhātāṃ prakāṣamūṣāyāṃ sattvaṃ muñcati māksikam // Ibid., 2/81.
 4. Eraṇḍoththena tailena guṇjā kṣaudraṃ ca ṭaṅkaṇāṃ / Marditam tasya vāpena sattvaṃ māksikajam dravet // Ibid., 2/88.
 5. Amala or Vimala is not clearly mentioned in the Suvarṇa-Raupya-Siddhi-Śāstra, but it finds mention as amala in the Rasaratna Samuccaya of Māṇikyadevasūri (1. 5')
 6. It is referred to in the Rasārṇava (7/151) & the Rasaratnasamuccaya of Vāgbhaṭ (2. 90) as vimala—one of Mahārāsa.
 7. Vimalastrivīdhā devī ! Śuklāḥ pīṭaśca lohitaḥ" Rasārṇava 7/15 Rasaratna Samuccaya. 2/89 Vāgbhaṭ.
 8. Vartulaḥ koṇasamyuktaḥ spīḡdhaśca phalakāṇvitah / Ibid., 2/90

If vimalā is given saturation with the juice of Sahoja (a kind of plant = Horse radish), alum, green vitriol, borax, vajrakanda (vanasūran) and the juice of oxide of mokṣaka¹ plantain, and is heated with mokṣakakṣāra in a closed crucible, then the essence shining like gold comes out of it. This essence is really copper.²

Svarṇa-Vimala has been considered best in Svarṇa-Karma, tāravimalā in rajata-karma, and Kāṁsyavimalā in auśadhakarma respectively³. Vimala becomes purified, if it is cooked in the juice of Adūse, Jambīri nṛba or that of Meṣaṣṅgi (Ailanthus excelsa, or Adhatoda vasica, Citrus medica or Cymnema Sylvestre = Dolichondron falcata) for two ghṛtīs.⁴

Mix sulphur into the powder of vimalā as equal to its part and rub the whole thing in the juice of the fruit of Baḡahala of lemon and make pill or ball, and heat it in gajapuṭa fire 10 times, its ash will be ready.

Take the ash of Vimalā, borax as equal to the portion of Vimalā and the ash of Meṣaṣṅga (Dolichondron falcata) and rub them together; again smear the inside of the crucible for Sathvapātan with the thing obtained thus. When the smearing gets dried up, close the crucible, heat it with dhauknanī by putting it into coal or 6 prasthas, then the essence of Vimala will be obtained as shining like the Moon.⁵

1. Not properly identified. It may be Schrebera swietenoides.
2. Vimalaṁ sigrutoyeṇa kaṁkṣikāsisataṅkaṇaiḥ / Vajrakandasamāyuktam bhavitaṁ kadālīrasaiḥ // Mōkṣakasārasamāyuktam dhāmitam mukam-usayā // Sattvaṁ candārkasaṅkāśam prayacchati na saṁśayaḥ / Rasārṇava, 7/16-17.
See Rasaratna Samuccaya 2/103-104.
3. Pūrvo hemakriyāsukto dviliyo rupyakṛṇmalāḥ / Tṛtiyo bheṣaje teṣu pūrvapūrvo guṇottaraḥ / Rasaratna Samuccaya. 2/91.
4. Ātaraṣajale svinno vimalo vimalo bhavet / Jambīrasvarase svinno meṣaṣṅgirase, athavā // Āyati śuddhim vimalo dhātavaśca yāthā 'apare, Rasaratna Samuccaya' Vāgbhaṭ, 2/92.
5. Gandhāśmalakucamlaśca mriyate daśabhiḥ puṭaiḥ / Saṭamkalakucadra-vairmeṣaṣṅgyaśca bhasmanā // Piṣṭo mṛśodare liptaḥ saṁśoṣya ca nirudhya ca // Saṁprasthakokikilairdhmāto vimalaḥ Sīsaśamṇibhaḥ / Sattvaṁ muṇcati tadyukto rasaḥ syātsa rasāyanaḥ / Rasaratnasamuccaya Vāgbhaṭ 2/93-95

Śilājita¹ or Śilājatu or Adrij² (Bitumen)

Śilājita or Śilājatu (bitumen) is mentioned in the Suvarṇa-Raupya-Siddhi-Śāstra of Jinadattasūri and Rasaratnasamuccaya of Māṇikyadevasūri as superior mineral used in the chemical process and medicinal preparation.

The Rasārṇava mentions two kinds of Śilājita, viz. Patit and apatit, while the Rasaratna Samuccaya refers to two kinds of Śilājita, viz. (1) One having the smell of cow's urine, (2) the other resembling camphor. The first one is considered also of two kinds, viz. Sasatva and Niḥsatva.⁴

Śilājita oozes out in the heat of the sun in Summer⁵ at the foot of the Himalayas from the bowls of gold, silver and copper⁶ respectively. It is also called śilavaddhātuka, Śailaja, girisānuja, jatu, adrija, giri, Śaila, etc. as the hills heated in the sun in Summer vomit it like wax (grīṣme arkatapta-girayo jatu tulyam Vamanti yat-Caraka).⁷

It is stated that Śilājita which oozes out from the bowel of gold mine is red like the Jasmine flower, and heavy; that which oozes out from the bowel of silver mine is somewhat yellow and heavy; that which oozes out from the bowel of copper mine is of blue colour, thick and heavy.⁸

1. SRSS., IV. 41
2. RS., Māṇikyadeva Sūri, Ch. I., V. 5.
3. Patito' apatitaśceti dividhaḥ śaila Iṣvari / Granthantare' api Kirttyo' asau Kirttito bahubhiḥ suraiḥ // Rasārṇava 8/18.
4. Śilādhāturdvidhā prokto gomūtrādyo rasāyanaḥ / Karpurapūrvakaścānyastatrādyo dvididhaḥ punaḥ // Sasattvācāiva niḥsattvastayoh purvo guṇādhikāḥ / RS., Vagbhat, 2/102-3
5. Nidaghe gharṃasantapta dhātusāram dharadharāḥ / Niryāsam ca vimuñcanti taccnilajātu kirtitaṃ, Rasārṇava 7/19.
Grīṣme tivrkataptebhyāḥ Padebhyo humabhṛbhutaḥ /
6. Svarṇarūpyaka garbhyebhaḥ śilādhatur Viniḥsaret 1., RS. 2/104. Vagbhat.
7. Śilavat dhātukaṃ dhātāṃ śailajāṃ girisānujaṃ / Jatvadrijaṃ giriḥ Śailaḥ Prokta stvayanukirtitaḥ // Rasārṇava 7/20.
8. Svarṇagarbhagīrjāta japāpuṣpanibho guruḥ // Sa svalpatiktaṃ susvāduḥ Daramaṃ Tadrasāyanaṃ / Rūpyagrbhagīrjātaṃ madhuraṃ Pāṇḍuraṃ guru // Śilajāṃ pittarogagnaṃ Viśeṣāt Pāṇḍurogahṛt / Tāmragarbhagīrjātaṃ nilavarṇaṃ ghaṇaṃ guru // RS. 2/104-6. Vagbhat.

Śilājīta can be purified by washing it in Kṣāra (or oxide), amla (Acid-Kāñji) and cow's urine. There is another process of purifying Śilājīta. Take one of these liquid substances—milk, the decoction of triphalā and arka (calotropis gantia) and fill it in an iron pot; then put Śilājīta into it and place it in the sun. The best part of Śilājīta gets together on the surface, while the dirty part of it settles down at the bottom of the pot by this process. It can be purified also by the process of Svedana with the juice of Kṣāra, amla or guggula (Commiphora mukul : Indian Bdellium) for one ghāṭī¹ (24 minutes).

Pātanakarma of Śilājīta can be done by grinding it and rubbing it with dhānyāmla, poison and sub-poison. This pātan is done like that of capala (bismuth)².

Rub Śilājīta together with realgar, sulphur and orpiment in the juice of citrus medica and make pills (or balls) of it. Then give puṭas (roasting) of 8 kaṇḍo, it will get reduced into ash.³

Rub Śilājīta with medicines of drāvāṇavarga and amlavarga and put it into a crucible. Next heat it on the intense fire of coal, the essence will come out like iron.⁴

Thutho⁵ or Sasyaka⁶ (Blue vitriol)

Thutho (or Sasyaka) is mentioned in the Śuvarṇa-Rāṇḍya-Siddhi-Śāstra) Rasaratna Samuccaya as mineral used in various chemical processes.

1. Kṣāraṃlagojalaidhmātām śuddhyate ca śilājītau / Athavā goghṛtenāpi triphalā dvyardrakadravaiḥ / Lohapatre vinikṣipyā śodhayet tattū yantnataḥ / Rasārṇava 7/21.
Kṣāraṃlagojalairdhmātām śuddhyatyeva śilājātu / Śilādhātum ca dugdhenā triphalāmarkavadravaiḥ / Lohapatre vinikṣipyā śodhayedatīyatnataḥ // Kṣāraṃlagugulopetaiḥ, Svedantīyamtramadhyagaiḥ, Sveditā ghaṭikāmanacchiladhāturviśuddhyati // RS. 2/110-112.
2. Śailam vicurnayitvā tu dhānyāmlapavṣair Viṣaiḥ / Piṇḍam baddhā tu vidhivat pāyayeccapalam yathā / Rasārṇava 7/22.
3. Śilayā gandhatalābhyam mātulūṅgarasena ca / Puṭito hi śilādhāturmriyate' aṣṭa giriṇḍakaiḥ // RS. 2/113.
4. Piṣṭam drāvāṇavargeṇa sāmlena girisambhavam / Kṣiptvā mūṣodara ruddhvā, gāḍhairdhmātām hi kokilaiḥ / Sattvam muñceccchiladhātustatḥśānallohasannibham / RS. 2/116.
5. SRSS, 5.16, 8.18, 10-6, 10.27, 11.16, 12.2, 12.27.
6. RS., Maṇikyadeva Śrī. 1.5,
Rasaratna Samuccaya 2/119, Vāgbhat, 2/123-2 4-

Capala can be killed by puṭapāka by combining with sorā (girimastaka = borax)¹. Its powder can be purified by saturation with the juice of lemon, Vandyākakarkoṭakt and ginger. If its essence is to be taken out, rub it in the decoction of Kāñji, Vatsanābha and Upaviṣas and make pill (or ball), next heat it in a closed crucible.

Rub capala in these medicines, make pill of it medicines, make pill of it and put it in Śarāva saṁputa, cover it up with cloth and clay and heat it in gajaputaṅni, then it will turn into best ash.

Khapara³ of Rasaka⁴ (Calamina)

Khapara is mentioned in the Suvarṇa-Raupya-Siddhi-Śāstra and Samuccaya of Māṇikyadevasūri as one of the superior minerals used for various chemical processes. According to the Rasārṇava, there are three kinds of Rasaka.—mṛttikārāsaka, guḍarasaka pāṣāṇarasaka. Calamine which is like yellow earth is the best of all, that which is of the colour of molasses is medium and that which is like stone is of the lowest type.⁵

The Rasaratnasamuccaya of Vāgbhaṭa refers to two kinds of calamine, viz., Dardura and Kāravellaka dardura. The first one is laminated structure and the second is non-laminated. Dardura is good for sattapātana and Kāravellaka is best in auśadhakarma.⁶

1. Mārayet puṭapākena capalaṁ girimastake, Rasārṇava 7/126.
2. Jambīrakarkoṭakasṅgaverairvibhāvanābhiṣcapalasya śuddhiḥ /
Śailaṁ tu cūṇayitvā tu dhānyāmlopaviṣaiviṣaiḥ / Piṇḍaṁ baddhvā
tu vidhivatpātayet ccapalaṁ tathā // Rs. 2/140-141.
3. SRSS., 1. 7, 11., 24, 44, 45; 2-1; 3, 14, 20, 57, 77, 84, 85. 104; 105,
4, 9, 28; 6.36; 7.23; 8.27, 8, 34, 9.53; 10.1, 11.25, 36; 11, 2, 4; 12.22,
30; 13.2. 2.
4. Rs., Vāgbhaṭa, 2: 40-41.
5. Mṛttikāguḍapāṇabhedato rasakastridhā, Pitastu mṛttikakaro mṛttikā-
rasako varāḥ// Guḍābho madhyamo jñeyah pāṣāṇābhaḥ kaṇiṣṭhakaḥ //,
Rasārṇava 7. 28-29.
6. Rasako dvididhaḥ prokto darduraḥ, Kāravellakaḥ /
Sadalah darduraḥ prokto niruḍhaḥ kāravellakḥ
Sattvapāte śubhaḥ pūrvo dvitrya ścausadhādiṣu /
Rs., 2/140-142

According to Nāgārjuna, both mercury and calamine are best and siddharasa, both can be applied in Śāstrakarma and lohakarma. The cleverness of the Rasācārya in this matter is that he makes both mercury and calamine agnisaha (fire bearing), i.e. they do not fly up when heated on fire.¹

If you want to purify calamine, cook it in the juice of bitter long gourd; when it gets well cooked and the juice gets dried up by cooking, it should be understood that it is purified. Its colour turns yellow.²

When calamine is quenched into human urine, horse urine, maṭṭhā or Kāñji by heating it, it becomes pure.³

One process of obtaining Sattvapātana of calamine is as follows :-

On taking each of turmeric, triphala, (amalaki), haritaki and Vahedā, rāla (resin), saṁdhav salt, dhūma, borax, and aruṣka (bhilavā), each having, the quantity of 1/4 part of calamine, rub them into Kāñji and the juice of lemon.

Next make the smearine of this mixture in Vṛtākamuṣā and dry it up. Again put an earthen lid over its mouth and heat it in the fire of coal. When calamine gets thin (liquid) by melting and lampate (flame) of blue, black and white colour begins to come out into the crucible, by holding it with a Sāḍāsi and get the essence, separated by turning it over. This is to be remembered that the tube (nāla) does not break. On doing this, the essence which comes out is equal to tin. The essence does not come out by one time. For this reason the process is to be repeated three or four times.⁴

1. Nāgārjunena saṁdiṣṭam rasaśca rasakāvubhau /
Śreṣṭhau siddharasau khyātau, dehalohakaran paraṁ /
Rasaśca rasakaścobhau yenāgṁ sahnau kṛtau /
Dehalohaniyāi siddhirdāsi tasya na saṁśayaḥ //
RS. 2/144-45.
2. Kaṭukālābumiryāse āloḍya rasakam pacet / Śuddham doṣavinirmuktaṁ
pitavarṇam ca jāyate RS. 2/146.
3. Nṛmutre vā āsvamuṭre vā takre vā kāmjike, athavā /
Pratāpy majjitam samyak kharpareparisuddhyati // RS., 2/148.
4. Haridrātriphalarāla-sindhu-dhūmaiḥ saṭamkaṇaiḥ / Śāstrakaraiśca
pādaṁśaiḥ sāmadiḥ Sammardya kharparam / Lipiāṁ vṛtākamāṣāyāṁ
śoṣayitvā nirudhya ca / Muṣāṁ muṣopari nyasya kharparam Pradha-
mettataḥ / Kharpare pradrute jvālābhaventī śitā yadi / Tada
saṁdāṁśato muṣāṁ dhṛtvā tvadhomukhiṁ / Śanairāspeṇāyayed
bhūmau yathā nālam na bhajyate // Vamgābham patitam sathvam
Samādāya niyojayet / Svam tri-caturairvārāḥ sarvam sathvam
Vinissaret // RS. 2/150-153.

The process of making the essence of mineral calamine (Khapariyā Sattvavidhi)

Take mineral calamine 1 sr., natron tā. 20, borax tā. 5 and molasses tā 12; make cāsant of molasses. Put $\frac{1}{2}$ pā of cow-dung, combine all these medicines and make vati (milk). Next put them into a tube (nāli) and heat them by putting them into Jhājhyoantra. Take out the essence. Thus is the process of making the essence of mineral calamine.

Rub mineral calamine 1 Sr. in (the juice of) Aloe vera for 7 days, rub it with all these-(the juice of) Vitex trifolia (Nagedi), next, rub it with honey 1, clarified butter, borax,¹ Sal-ammoniac 1, molasses 1, and guñjā 1. Next take it out and take the essence from the yantra. This is the process of making the essence of mineral calamine.²

Uparasas³ (Inferior Minerals)

The following kinds of uparasa (inferior mineral) are mentioned in the Suvarna-Raupya-Siddhi-Śāstra in connection with various kinds of chemical processes, viz, gaṁdhaka (Sulphur⁴, gairika (geru)⁵ (red ochre), Katsa⁶ (iron sulphate), phitakaḍi.⁷ or tuvart⁸ (alum), haritāla⁹ (orpiment), manahśila¹⁰ (realgar), añjana¹¹ (collyrium) and kaṁkuṣṭha¹² (a substance

1. SRSS., Ch. III. 84
2. SRSS., Ch. XIII. 2.2,
3. The Suvarṇa-Siddhi-Śāstra does not mention 'Uparasa' as such, but it refers to different kinds of Uparasa as they are found in the Rasaratna Samuccaya of Māṇikyadeva sūri, Rasārṇava, and Rasaratna Samuccaya of Vāgbhaṭ. "Kaṁkuṣṭhegaṁdhakam janagairikamṛdaḥ silāscoparasāḥ" RS., Māṇikyadeva sūri, Ch. 1, V. 5.
4. (Gaṁdhaka) SRSS., Ch. I. 14, 20, 25, 29, 41, 42, 43, 59, etc.,
5. Ibid. Ch. 1-41, 3-76, 11-20, 11-39
6. Ibid. Ch. 8, 30, 9:43, 10.21, 29, 60, 11, 16, 22, 39,
7. Ibid. Ch. 1.8, (3) 39, 3.1, 5, 30-31, 71, 76, etc.
8. Tuvart Phitakaḍi,
9. Ibid. Ch. 1, 60, 2, 1, 4, 11, 12, etc.
10. Ibid. Ch. 1.49, 2.4, 2-13, etc.
11. Ibid., Ch. 6, 11, 12, 7-2, 12-15, -16, 13, 32,
12. The Suvarṇa-Raupya-Siddhi-Śāstra mentions Hemakuṣṭha, not kaṁkuṣṭha as the dung of a newly born elephant, SRSS. 5.10 in place of kaṁkuṣṭha But the Rasaratna Samuccaya of Māṇikyadeva sūri refers to Kaṁkuṣṭha, RS. 1. V. Kaṁkuṣṭha is produced at the foot of the Himelayas RS. 3/109-110, Vāgbhaṭ.

produced at the foot of the Himalayas). All of them find mention also in the Rasaratna Samuccaya of Vāgbhaṭa.¹

Gandhaka (Sulphur)²

Gandhaka (Sulphur) has been mentioned in the Suvarṇa-Raupya-Siddhi Śāstra in connection with various chemical processes and medicines. This work refers to ordinary gaṇḍhaka, āmalasāra gaṇḍhaka³ and into gaṇḍhaka.⁴

According to the Rasārṇava and Rasaratna Samuccaya, gandhaka is of three kinds : The first one resembles the beak of parrot (best), the second is yellow (medium) and the third variety is white (worst)⁵.

Another authority says :

There are four kinds of sulphur, viz., white, yellow, red and black respectively. The black variety is rarely found.⁶ Sulphur can be purified

1. Rasaratna Samuccaya, Vāgbhaṭa.
3/ 3-11, 13.16, 21-22; 3. 49-51, 3. 52-54; 3. 55-5; 3. 62, 63-65; 3. 67-68-69; 3. 70-72; 3. 74; 3. 79; 3. 80-83, 3. 91-93, 96; 3. 98, 3. 101-106; 3. 107-108, 3. 109-110; 3. 113-116; 3. 121-22.
2. SRSS; 1.14, 20, 25, 39, 41, 42, 43, 59; 2. 14; 3. 41, 49, 50, 85, 4, 18, 23, 30; 5. 23, 17, 25, 35; 6. 15, 17, 19, 23, 26, 27, 38, 41, 42; 7. 10, 11, 19, 23, 24, 25; 8. 16, 22; 9. 7, 23, 38, 40, 41, 44, 45, 55, 66, 70; 10. 14, 19, 21, 22, 23, 30, 39, 56, 57, 58, 60; 11. 13, 14, 17, 19, 21, 22, 24, 25, 27, 28, 30, 32, 34, 35, 38, 39; 11. 1/6; 11/2/17, 11. 1/2/20; 11/2/21; 11/2/22, 11/2/22, 11/2/23, 11/2/24, 12.9, 10, 12, 20, 28, 13. 1, 9, 25, 26; 13/2/1; 13/2/4; 14/2/15, 14/2/18; 14/2/63.
3. SRSS., 1.43; 3. 103, 105; 6, 17,
4. Ibid., 8, 16.
5. Sa cāpi trividho devi; Śukacañcu nibhavarah /
Madhyamaḥ pitavarṇaḥ syāchhuklavārṇo adhamāḥ priye //
Rasārṇava 7/67; Rasaratna Samuccaya. 3/13; Vāgbhaṭa.
6. Caturdhā gaṇḍhako jñeyo varṇaiḥ śvetādibhiḥ khalu /
Śveto atra khaṭikā prokto lepane lohamāraṇe //
Tathā cāmalasāra syādyo bhavet pitavarṇavān
Śukapicchaḥ sa eva syācchreṣṭho rasarasāyane //
Raktaśca śukatūṇḍakhyo dhātuvāḍavidhau varah /
Durhabha kṛṣṇavarṇaśca san jarāmṛtyunāśanareh //
Rasaratna samuccaya, 3/13-16, Vāgbhaṭa.

by saturation with different things and last of all it should be washed with water.¹

According to the Rasaratna Samuccaya, the process of purifying sulphur is as follows :

Cook sulphur in milk for one ghaṭ and then wash it in water. Next put butter milk into an iron pan and cast sulphur into it, then cook it. When sulphur gets melted, filter it with a piece of cloth.

The part of stone and other parts go out of the purified sulphur. The poison of sulphur gets combined as a point automatically.²

In the Suvarṇa-Raupya-Siddhi-Śāstra many medicinal values of sulphur, for the remedy of diseases have been stated. Besides, there is given some description of the process of making oil from sulphur.³

The process of making Sulphur oil

- (1) Rub together these two-sulphur-1 sr. and $\frac{1}{4}$ sr. Put the juice of mango 1 sr. into their mixture. If there is the sunshine, put the juice (in it), otherwise not. Thus do it for a month. If the sunshine is strong, do it, if there is cloud do not do it. The process pierces seven leaves under and seven leaves over. True.⁴
- (2) Give 21 paṭas (roastings) of ripe leaves of Calotropis to sulphur 2½ srs; oil comes out in the sunshine in a pātālayantra. True.

Fixation of Sulphur

Fill sulphur into a bulb of onion and cook it by giving it fire for 2 praharas. Sulphur gets⁵ fixed.⁶

-
1. Karañjairandatailena drāvayitvā ca dughake /
Sincēdunmattaniryāse tīṇ vārāṁstām pṛthak pṛthak //
Jvālīnibijacūrṇena matsyapittaiśca bhāvayet //
Bhṛṅgāmbhasā vā saptāhaṁ bhāvitaḥ kṣālitō ambhasā //
Rasārṇava 7/68-69.
 2. Payahsvinno ghaṭmātraṁ varidhauto hi gamdhalah / gavājyavidruta
vastād-gatilah suddhimrccati// evaṁ samśodhitaḥ so' ayam pāṣāṇan-
āmbare tyajet/ ghr̥te viṣaṁ tuṣākāraṁ diṇḍatvameva ca//
Rs. 3. 21-22. vāgbhat.
 3. SRSS., 14, 15,
 4. SRSS. Ch. XIII, 2, 1
 5. Ibid., Ch. V. 35
 6. Ibid., Ch. XI. 32

Gairika or geru¹ (Red ochre)²

Gairika or geru (red ochre) is mentioned in the *Suvarṇa-Raupya-Siddhi-Śāstra*, *Rasaratna Samuccaya* of Māṇikyadeva sūri in connection with various chemical processes and medicines. It also finds mention in the *Rasārṇava*³ and *Rasaratna Samuccaya*⁴ of Vāgbhaṭa as one of the uparasas (inferior minerals).

According to the *Rasārṇava* there are three kinds of gairika, viz, red, golden and another variety,⁵ white. The *Rasaratna Samuccaya* refers to two varieties of gairika, viz, pāṣāṇa gairika and svarṇa gairika. The first one is hard and copper coloured and the second one is red, smooth and soft.⁶

In the *Rasārṇava* there is mention of giving saturation to gairika with the juice of medicine of raktavarga, its decoction and bils.⁷ The *Rasaratna Samuccaya* states that both varieties of gairika get purified by the saturation into cow's milk.⁸ The white and red essence are gradually obtained from gairika.⁹

The opinion of one Rasācārya named Nandi is that gairika itself is essence-like, so its essence cannot come out. But some Ācāryas make mention of taking out its essence by cooking it in kāñji and kṣāra. This essence can be mixed up with mercury and the combination is more efficacious than gairika.¹⁰

1. SRSS., Ch. 1.41, Rs., Māṇikyadeva Sūri, Ch. 1.5,
2. SRSS., Ch. 3.76, 11.20, 39,
3. *Rasārṇava*, 7/83-84.
4. *Rasaratna Samuccaya*, Vāgbhaṭa 3/46-47
5. Gairikaṁ trividhaṁ prokṭaraktahemakevalabhedataḥ /
Rasārṇava 7/83,
6. Pāṣāṇagairikaṁ caikaṁ dvityaṁ svarṇagairikaṁ /
Pāṣāṇagairikaṁ kaṭhinaṁ tāmraṇakam /
Aṭyantaṣṇitaṁ snigdhaṁ maṣṇaṁ svarṇagairikaṁ /
Svādu snigdhaṁ himaṁ netryaṁ netryaṁ Raktapittanūt" RS. 3/46247
7. Raktavargargarasakvāthapit aistadbhāwayet prthak Anena kramayogena
gairikaṁ vimalaṁ bhavet, *Rasārṇava* 7/83-84.
8. Gairikaṁ tu gavāṁ dughdhairbhāvitaṁ śuddhimreccati.
9. Kramāṭṣṭāṇca raktaṇca sattavaṁ patati śobhaham-*Rasārṇava* 7/84.
10. Gairikaṁ sattamaṁ in Nandinaṁ parikṛtiṭaṁ //
Kairapyuktaṁ patatsatvaṁ Kṣārāmlasvdtinagairikāt /
Upatiṣṭhati sūtendramekatvaṁ guṇavattaram //
RS. 3/49-5

Kāsisa¹ (Iron Sulphate) or green vitriol.

Kāśa is one of the inferior minerals used in various chemical processes. It finds mention also in the Rasārṇava, and the Rasaratna Samuccaya of Vāgbhaṭ. There are stated to be three kinds of Kāsisa viz. white, black and yellow.²

The Rasaratna Samuccaya of Vāgbhaṭa refers to only two kinds of Kāsisa, viz. Bālukāsisa and Puṣpakāsisa. Bālukāsisa is like the dust (or grain) of sand, of the colour of Kāñṇi, agar and smoke, uṣṇavīrya and antidote to poison. It cures leucoderma (white leprosy) and blackens hair. Ruspakāsisa is bitter in quality and it also blackens hair.³

There is reference to giving saturation to Kāsisa with the juice of Kāsaundi and yellow taro by crushing it.⁴ Kāsisa gets purified by drying up after drenching it into the juice of Bhāṅgrā (wedeliol calendulacea). The essence of Kāsisa comes out like that of alum.⁵

Phitakaḍṭi⁶ (Alum) or Tuvā⁷

Phitakaḍṭi (Saurāṣṭri or Tuvāri) (alum) is useful inferior mineral in the chemical and medical preparations. It finds mention in other Indian

1. SRSS. Ch. 8. 3; 9, 43; 10. 21; 10, 29; 10.69; 11. 16, 22, 27, 39.
Hirākāsisa Ibid. 3. 103; 10, 21,
Rs. Māṇikyadeva Śūri, Ch. 1.5.
2. Kāsisaṁ trivīdhaṁ śuklaṁ Kṛṣṇaṁ pītāmīti priye, Rasārṇava, 7/81
3. Kāsisaṁ bālukādyekaṁ puṣpapūrvamathāparaṁ /
Kṣāramlāgurudhūmābhaṁ soṣṇavīryaṁ Viṣāpahaṁ //
Puṣpādikāsisaṁatiprasastaṁ.....Kacaraṇjanaṇca //,
RS., Vāgbhaṭ. 2/52-54.
4. Kāsisaṁ curṇayitvā tu kāsamarḍḍarasena ca /
Rāśikosātakosātakītoyaiḥ pittaścāparibhāvayet //
Rasārṇava 7/81-82.
5. Sakṛdbhṛṅgāmbunā vilannaṁ nirmalaṁ bhavet /
Tuvārisattvavat sātīvametaśyāpi samāharet, RS. 3/55-56.
6. SRSS., Ch. 1, 8, 13, 39; 3.2, 5, 30-31, 71, 76, 102; 4.8, 12, 28; 5.2, 20, 32, 39; 6.7, 8, 19; 8.2, 7, 22; 9, 38, 41, 52; 10.6, 12, 3.9; 11.11; 12, 17, 12.10, 27; 13.6,
Rs. Māṇikyadeva Śūri. Ch. 1.5,
7. Ibid., Ch. 1.61,

alchemical work like Rasārṇava¹ and the Rasaratna Samuccaya,² etc.

According to the Rasārṇava, there are three kinds of alum, viz, white, black and Khaṇḍātmikā³. The fragrant earth (i.e. interior mineral) is produced in the mountains of Saurāṣṭra, hence its name is Saurāṣṭri or tuvarā⁴. It dyes, cloth and fixes the colour of Indian madder⁵ (i.e. morpant.)

Ordinary phitakarī is light yellow, heavy and smooth. There is one variety of tuvarī or phitakarī called phullikā. This pullikā is light in weight and of white colour, smooth.

Copper gets incinerated quickly by its smearing with alum. It cures acute rosca and leprosy.⁶

Alum gets purified by its drenching into sour rice water. If its essence is to be taken out, it is to be rubbed with kṣāra and amla in a mortar.⁷ The process of taking out its essence by giving 100 saturations toil with the bill of cow and heating it in the fire of coal is stated to be secret.⁸

Fixation of Alum

Alum is fixed in the juice of Aśvakanda (whose stem is like the penis of a horse). Give it 7 puṭas (roastings) of cloth and clay. The essence is produced.⁹

1. Rasārṇava 7/79, 80,
2. RS., Vāgbhaṭ, 3/63-65.
3. Sītā kṣṇā ca Saurāṣṭri cūrṇa-khaṇḍātmikā ca sā., Rasārṇava, 7/79.
4. Saurāṣṭrāśmani sambhūtā mṛtsnai sā, tuvar matā /, RS., Vāgbhaṭ, 3/62
5. Vastreṣu lipyate yāsau mamjiṣṭhā-rāgabamdhām //, Ibid., 3/62.
6. Sphāṭakī phullikā ceti dvitrititā parikirtitā /
Iṣatpitā guruḥ snighdhā pitikā viśanāsini /
Vraṇakuṣṭhabarā sarvakuṣṭhaghni ca viśeṣataḥ //
Nirbhārā śubhravarṇā ca snighdhā Sāmlās aparā matā.
Sā phullātuvarī proktā lepāttām caredayaḥ"
7. Tuvarī kāmjike kṣiptā tridiniacchuddhimṛcchati //
Kṣārāmlairmarditā., Rs. 3/67-68,
8. Gopittena śatam vārān Saurāṣṭrīm bhāvayettatā /
Dhamitvā pātayetsattavam kṛāmanam cātiguhyakam //
Rs. 3/69.
9. SRSS. Ch. V. 2.,

Haritāla¹ (orpiment)

Haritāla is mentioned in the Suvarṇa-Raupya-Siddhi-Śāstra as mineral utilized in various chemical processes and medicinal preparations. This mineral finds mention in the Hindu² and Buddhist³ alchemical works for the same purpose in large measure. It is also called tālaka.

According to the Rasārṇava there are stated to be two kinds of orpiment, viz., Paṭula (tālaka) and piṇḍa (guvarika)⁴

The first one is of leafy structure, the second one is found in balls or cakes. Svarṇapatrī (tāakī) haritāla is yellow like gold, heavy, smooth and light (thin) leafy and bright, while piṇḍa haritāla is like without leaf or having a few leaves and heavy.⁵

Orpiment is to be purified by cooking it in the juice of cucumber (or gourd), and alkaline water of ashes of sesamum or in lime water in a Dolikāyantra.⁶

To make ash, orpiment is to be rubbed with buffalo's urine and thrice macerated in the decoction of Butea, monosperma of the consistency of honey, and to be roasted in a Sāṃputa covered with a layer of cloth and clay and powdered by repeating the process twelve times.

1. SRSS., Ch. 1.13, 29, 60; 2.1 4, 11, 12, 16, 23, 26, 27; 3.33, 71, 72, 85, 103; 4.6, 7, 23; 5.1, 2, 3, 6, 7.23; 8.2, 8.18; 9, 7, 12; 11.12, 18; 11/12/19; 12.8, 9; 12/20/1; 12/23, 13.17; 13/2/16; 14/2/19; 14/2/19; 14/2/31; 14/2/2/33., Rs. ch. 1. V.

2. Rasārṇava, etc.

3. Rasaratna Samuccaya, etc., Vāgbhat

4. Tālakaḥ pātalaḥ piṇḍo dvidhā tatradya uttamaḥ /

Rasārṇava, 7/74.

Haratālam dvidhā proktaṃ patrādyaṃ piṇḍasamjnakam. Rs., Vāgbhat 3, 70.

5. Svarṇavarṇam guru snigdham tanupatram bhāsuram //

Tatpatratālakaṃ bahupatram rasāyanam /

Niṣpatram piṇḍasatṛsam svalpasativan an tathā guru //

Rs. Vāgbhat 3/70-72.

6. Svinnam Kūsmāṇḍatoye vātita-

Kṣārajalepi vā /

Toye vā cūrṇam saṃyuktam dolāyamtreṇa śuddhyati., RS., 3, 74,

Then this ash of it is fit for use in medicine.¹

The process of taking out the essence of orpiment is as follows :

Take equal portion of orpiment and borax, and rub them with Kalatthi, clarified butter made of buffalo milk and honey; Make balls of them. Put them in an earthen jar (or vessel.) Put a lid having holes over its mouth. Close the joint between the lid and vessel, place it on the furnace and give slow and intense fire to it. When the white smoke begins to come out first blue and yellow smoke comes out and at last white smoke. Then close the holes of the lid nicely with cowdung. On its getting cooled down, take it out and break the joint of the jar and take out the essence deposited in the jar.²

The process of making the essence of orpiment

Combine together equal quantity of godanti orpiment $\frac{1}{4}$ sr., $\frac{1}{4}$ of Cinothi-(Beadtru=Abrus precatarius) seed of Palāsa pāpaḍ-(Butra monosperma ?) $\frac{1}{4}$ sr. and dip them into the urine of she-goat, give them 3 paṭas. (roastings). Put a strong seal by pouring them into an earthen vessel. Make a hole into the inner jar (Jar between two jars); put the paḍo (quantity=does) of medicine into that jar. Give a strong seal with the earthen jar. Fill the dung of she-goat into the upper jar, give fire to it,

The essence of orpiment comes up.³

1. Madhutulye ghanibhūte kaṣāye Brhāmāmlaje /
Trivārām tālakam bhāvyaṁ piṣṭvā mūtre atha māhiṣ*
Upalairdaśabhīdeyaṁ putam ruddhātha peṣayet /
Evaṁ dvādaśadhā pācyam śuddham योगेषु योजayet." Rs., 3/79., Vāgbhat.
2. Kulitthakvāthasaubhāgyamahīṣyajyamadhuplutaṁ /
Sthālyam kṣiptvā vidadhyacca malleṇacchidrayoginā
Samyaṅgnirudhya śikhināṁ jvālayetkramavardhitam /
Ekapraharamātramdhramādāya gomayaiḥ //
Yamānte chidramudghātya drṣṭe dhūme ca pāṇḍure /
Śitam sthālim sattvamut-ṛṣya- cāharet //
Sarvapānasattvānam prakārah santi koṭīṣah /
Granthauistarabhitā, atra likhitā na mayā khalu //, Rs., 3.80-83.
3. SRSS., ch. IV. 6

Purification of orpiment

Give 21 putas (roastings) to orpiment with the juice of suneali (Euphorbia nerifolia ?) without fire. The becomes white orpiment. True.¹ Hold Indian Squill (Kolikanda) on fire, when it becomes slightly warm, then take out its juice by pressing it with hand, put it (juice) into orpiment and grind it (orpiment). Thus is the process of orpiment,²

The process of extracting oil of orpiment

Give 21 putas (roastings) to orpiment and rasa (resin or kind of wax) in the juice of Aloe vera. Put the whole thing into a bottle and take out its oil (by boiling it).³

Manahšilā⁴ (Realgar)

Manahšilā (realgar) is mentioned in the Suvarṇa-Raupya-Siddhi-Śāstra of Jinadattasūri, Rasaratna Samuccaya of Māṇikyadevasūri, and other Indian alchemical works⁵ as one of the inferior minerals.

According to the Rasaratna Samuccaya of Vāgbhat there are stated to be three kinds of Manahšilā (realgar) viz., śyāmāṅgi, (2) Kaṇaviraka and khaṇḍākhyā.⁶ Amongst them śyāmāṅgi manahšita is of black, red and little yellow and mixed colour and it is heavy in weight. Kanakaavirkhya manahšila is bright like copper and nirgaurā (not yellow). Khaṇḍākhyā manahšila gets reduced to powder quickly; it is very red and heavy in weight. Śyāmāṅgi manahšila is most inferior (lowest) and Khaṇḍākhyā is the best of all from the point of view of essence.⁷

1. SRSS., Ch. III. 8
2. Ibid., Ch. XI. 2-11.
3. SRSS., Ch. XI. 42
4. SRSS., Ch. 1.48; 2.11, 12; 3, 10, 41, 84; 4.24; 5.1, 2, 24; 6.19, 38; 7.19, 20, 23; 8.2, 4, 18, 24; 9, 7, 15, 23, 44, 46; 10.21, 22, 39; 11.9, 16, 39; 11/2. 6; 11/2/17, 11/2/31; 11/2/38; 11/2/39, 12.7, 8, 9, 12, 20; 13, 14, 17; 13/2/1.
Rasaratna Samuccaya, Māṇikyadeva sūri. 1.5
5. Rasāṇḍava, 3/78; Rasaratna Samuccaya, Vāgbhat., 3/99-13; 3/96, 3/98.
6. Manahšilā tridhā proktā śyāmāṅgi kaṇavirakā / Khaṇḍākhyā ceti tadrūpaṁ vivicya parikathyate // RS., 3/91. Vāgbhat
7. Śyāmā raktā sagaurā ca bhārādhyā śyāmikā matā / Tejasvint ca nirgaurā tāmrābhā Kaṇavirakā // Cūrṇabhūta' atiraktāṅgi sabhārā khaṇḍa-pūrvikā/ Uttarottatataḥ śreṣṭhā bhūrisattvā prakṛititā; // RS. 3/91-93.

Manahsilā gets purified if it is given saturation in the juice of leaf of Agasta (*Sesbania grandiflora*) for 7 days or if it is rubbed in the juice of ginger for 7 days. In order to extract its essence, combine 1/8 th part of maṇḍurā (faṅg), gud (molasses), guggala (*bofellium*) and make pill. Heat it by putting it into a saṭtvātana mūṣā (Crucible).²

Anjana (Collyrium)³

Añjana (Collyrium) is one of the inferior minerals, it is mentioned in the Suvarṇa-Raupya-Siddhi-Śāstra and other Indian alchemical works⁴ as useful for the Chemical process.

According to the Rasaratna Samuccaya of Vāgbhat, there are stated to be five kinds, of collyrium, viz., Sauvirāñjana (white collyrium), rasāñjana, (Rasant), sroto añjana (black collyrium), puṣpāñjana (white Collyrium) and nīlāñjana (blue collyrium)⁵

Sauvirāñjana is of smoky colour, it purifies vṛaṇo (pene roséd) Rasāñjana is somewhat yellow, srotoñjana, (Srotaḥ tamjana srotañjana) is cold, smooth, pungent, beneficial in writing, etc. Puṣpāñjana is of white colour, smooth, cold and remedy for all eye troubles. Nīlāñjana is heavy,

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1. Agastyapatratoyena bhāvitāḥ saptaṭvārakam/ Śrīṅgaverarasairvā api Viśuddhyati mahāṣilā”
Rs. 3/9/6.
 2. Aṣṭa māmsena kiṭṭena guḍaguggulsarpiṣā/
Koṣṭhyāṁ ruddhvā dṛṇhamātā
Sattvaṁ muñcenmanahsilā”, RS., 3/98
 3. SRSS., Ch., 6. 11; 12; 7. 2; 12; 15, 16, 32,
RS., Māṇikyadeva Sūri 1.5,
 4. RS., Vāgbhat.,
3/10/-106
3/107-108
3/109/-110
 5. Sauvirāmañjanam rasāñjanamataḥ pram/
Sroto añjanam tadanyacca puṣpāñjanaka meva cal//
Nīlāñjanam ca Tesāṁ hi svarūpamiha varnyate/
RS., 3/101-2, Vāgbhat.

smooth, efficacious to eyes, good in things, good and useful in rasakarma, (Chemical action)¹

All kinds of añjana get purified by the process of rubbing it with the juice of Bhṛṅgarāja. Like realgar the essence of collyrium can be extracted.²

Śrotoñjana is like the apex of valmika (ant's hill). On its breaking it looks like blue lotus from inside. On its rubbing it gives out red (colour), like the red orchre. It is rubbed with the juice of cowdung, cow's urine, clarified butter, honey and fat; it can fix mercury.³

Hema Kuṣṭha⁴ or Kaṁkuṣṭha⁵

The Suvarṇa Raupya Siddhi Śāstra mentions Hemakuṣṭha while the Rasaeatna Samaccaya of Manikyadeva sūri refers to Kaṁkuṣṭha as one of the inferior minerals.

1. Sauvīramañjanaṁ dhūmraṁ raklapittaharaṁ himam//
Viśahidhmākṣirogaghnaṁ Traṇasodhaharopaṇaṁ /
Rasāñjanaṁ ca pītābhaṁ viśavak rāgadāpahaṁ //
Svāsahidhmāpahaṁ varṇyaṁ vātipittastraṇāsanaṁ /
Sroteañjanaṁ hinaṁ snighdhaṁ kaṣāyaṁ svādu lekhaṇam //
Netryaṁ hidhmaṁviśaccardḍkaphapittāsaroganut //
Puṣpāñjanaṁ snigdhaṁ himaṁ Śarvākṣiroganut /
Atidhurdharahidhmaṁghnaṁ viśajvaragadāpahaṁ //
Nīlāñjanaṁ guru snigahaṁ guru snigahaṁ netryaṁ doṣatrayāpahaṁ /
Rasāyanaṁ suvarṇaghaṇaṁ lohamārdakakāraṇam //
RS. 3/101-106.
2. Añjanāni viśudhyanti bhṛṅgarājannādraviḥ //
Manohvāsattvatṣattamaṇi jānāṁ paṁā Paxut //
RS. 3/107-108.
3. Vamīkṣaikoāraṁ bhaṅge nīlotpaldayuti /
ghṛṣṭaṁ tu gairikacchāyaṁ lakṣayedn dhruvam //
Gośakṛdracamūtreṣu ghṛtakṣaudrvasaāsu ca/ bhāvitaṁ Dalm Śataṁ ca
Śīghroṁ badhnāti sutakam //
RS. 3/109-110
4. SRSS. 5.56, 57, Jātamātrasya hastinaḥ prathamāni viṣṭā, te. hemakuṣṭhaṁ ucyate 15.57.
5. RS. Māṇikyadevasūri., Ch. 1-5.

According to the Rasaratna Samuccaya of Vāgbhat, Kamkuṣṭha is produced at the foot of the Himalayas. Other Indian alchemists, and the author of the Suvarṇa-Siddhi-Śāstra are of opinion that it is the excreta of new born elephant.¹

It is of white and yellow colour and is a strong purgative.²

It is of two kinds : Viz. Nālikhya and Reṇuka Nālikākhyā kamkuṣṭha is of yellow colour, heavy in weight, bright and best. Reṇuka kam kuṣṭha is of mixed black-yellow colour and light in weight, it is regarded as inferior because of living essence. Some Ācārya calls the nāla (dung) of a newly born horse, as Kamkuṣṭha. Its colour is mixed white-yellow.³

Kamkuṣṭha gets purified by the process of saturation three times in decoction of Soṇṭha. It is itself essence like. for this reason essence can not be extracted.⁴

Sādhārṇa-rasa-Common minerals

The Suvarṇa-Raupya-Siddhi-Śāstra makes mention of some common minerals besides the superior and inferior minerals, such as, Navasāra⁵ or

1. RSSS., 5.57,
2. Keciḍ vadanti kaṁ kuṣṭhaṁ sadyojātasya dantīnaḥ /
Varcaśca śyāmapitābhaṁ recanaṁ parikathyate. RS.3/115.
3. Himavatpadaśikhare kamkuṣṭhamupajāyate /
Tatraikaṁ nālikākhyoṁ hi tadanyadreṇukaṁ matam //
Pitaprabhaṁ gurū snigdhaṁ Kankuṣṭhamādimam /
Syāmapitaṁ laghutyaḥkatasatvaṁ neṣṭaṁ hi renukam //
Katicittejivāhānām nālaṁ kamkuṣṭha-samjñakam /
Vadanti śvetapitābhaṁ tadatīva virecanam //
RS., 3/113-116.
4. Kamkuṣṭhaṁ śuddhimāyati tridhā Śunthyambubhāvitaṁ /
Śattvākaro asya na prokto Yasmātsattvamayoṁ hi tat.
RS., 3/121-122.
5. SRSS., Ch. 1. 31; 3-5, 40, 50, 70, 73, 74, 76, 104; 4-14, 23, 5-1, 2, 6, 9, 10, 22, 25, 32, 43, 6. 17; 7. 26, 27, 28; 8-13, 18, 19, 20; 2-11, 23, 41, 44, 46; 10. 6, 9, 10, 22, 27, 28, 39, 45, 58; 11. 13, 14, 17, 21, 34, 33; 11/2/6; 12. 3, 4, 17; 13. 20; 13/2/2; 13/24, 13/12/14, 14/12/116,

Navasādhara (Sal ammoniac), Somala¹ (oxide of arsenic) or Samkhiu somala or qauripāsāṇa, Hingula² (cinnabar) or Darada or Simṅgaraph, śamudraphean³ (or vahniyārā, aginiyārā or Śamudraphala), sindūra or girisindūra Kaparcaka⁴ (or Varāṭikā), etc.

Navasāra or Navasādhara

(Sal-ammoniac)

This mineral is used in various chemical processes as stated in the Suvarṇa-Raupya-Siddhi-Śāstra and other Indian alchemical works.⁵ Navasāra is produced by the decomposition of the shoots of bamboos and of the wood of careya arborea.⁶

Burn the woods of Karila Pilu (bamboo and careya arborea) in the fire and mix well as into water, when the ash settles down at the bottom of the water-pot, filter the water of the upper part of it and cook it. On the burning (or drying up) of water only Kṣāra (ash) remains. It is called Navasāra (Sal-ammoniac). Its another name is cullikā salt also.

The light yellow powder which is found deposited in the bhattha (heart) as a result of burning of the bricks is also called Navasār or cullikalāvaṇa.

The process of treating of Sal-ammoniac (Navasāravidhi)

Take Sal-ammoniac pai 10 and lime 2 srs., grind sal-ammoniac, lay out grains of lime under and over (it), in an earthen pot, put sal-ammoniac over it (Cūnā). Spread out Kalicūnā over it (Sal-ammoniac). Next put water into the earthen bowl, give water fully so that it overflows it; put that water into the second earthen pot or bowl (or vessel).

1. SRSS., Ch. 1, 35; 2. 11; 3. 6x, 8, 13, 14, 21, 25, 48, 62, 71, 102; 4. 4; 4. 13, 17, 23; 5. 3, 32, 38, 39; 6. 6, 7, 8, 19; 8. 7; 9. 23; 10, 4, 47, 57, 11. 9; 11/3/6; 11. 36; 13. 27; 13/27, 14/2/115, 14/2/63.
2. Ibid., Ch. 2, 36, 5. 32, 11/8/6, 11/2/15,
3. Ibid., 12. 4,
4. Ibid. 1, 21; 2. 6; 3. 14; 7. 13; 8. 30; 9. 42, 11. 14; 11/2/5.
5. RS., Vāgbhat, 3/134-136.
6. Korirapilukāṣṭheṣu pacyamāneṣu codbhavaḥ /
Kṣāro' asau navasāraḥ syācculikāvaṇābhidhaḥ /
Rs., 3/134.

After taking water of lime 3, place two earthen bowls on the oven (furnace), go on putting that water (of lime) little by little. Make (lit) fire under the earthen bowl. After heating of the whole water, rasa (juice or mineral) bubbles inside, take it out. That sal-ammoniac is fixed, it becomes liquid on fire.¹

The process of Sphatika (Ivory) is like that.

The process of fixation of Sal-ammoniac and making its essence : Sal-ammoniac is fixed in the juice of Umbara (fig tree). Crush Mor-thuthu (a kind of poison) in the juice of croton tiglion (Danti) and give it 7 paṭas (roastings.) The essence is produced.²

The process of making water of sal-ammoniac.

Bring Sal-ammoniac, make a hole into a brinjal by cutting its stalk (biṭa), take out the kernal (garbha) of the brinjal and fill sal-ammoniac into it; give a piece of stalk into the hole, put it into paddy of 1 prastha and boil it there. Sal-ammoniac becomes water. Close corton tig, cassia angustifolia and Dolichos biflorus in water in a Dolikayantra for 1 prahara. Next take the whole thing out. Rub them (Cassia and cinnabar) in the juice of Aloe vera by combining together 1 tola of cassia and 1 tola of Haṃsapāka Hingula (cinnabar), besmear thorn piercing. Copper leaf with that paste put it into a fresh lid (Śarāv) and give it gajapuṭāgni by putting a layer of cloth and clay, give a puṭa to it, (roasting) till copper gets killed. Next mix the dust of copper equal to the quantity of silver and melt them. There becomes 10 carat gold.³

1. The process of making pegāmi Navasāra.

Make a leaf of zinc $\frac{1}{4}$ sr., rub sulphur in mustard oil and smear it on the leaf of zinc, give it puṭas (roastings) six times. Thus, give it 108 such puṭas as the leaf does not get melted.

Melt zinc and mix mercury with it as measuring equal to $\frac{1}{2}$ of it and make tablets.

Put lime $2\frac{1}{2}$ srs. under and over it and blow it with water; such 108 puṭas (are to) be given.

Mix silver tola 1 and $\frac{1}{2}$ rati of the essence. Drench sal-ammoniac into the juice of Siddhi (Rasnā) (Vegetable Rennet), if it is blown up, it becomes fixed. If again, it is drenched and blown up, it does not fly (blow up). If this process (is) done 7 times, it become Pegāmi Navasār (Sal-ammoniac)⁴

1. SRSS., X. 45.

2. Ibid., V. 2.

3. SRSS., Ch. VII. 28.

4. SRSS., Ch. X. 58.

2. The process of making Pegāmi Navasāra

Rub all these—mercury Pai. 1, centipeda orbicularis pai 1 by drenching the whole thing in the lemon (juice) and (putting) sulphur demaḍi (pai 1) bhar. and borax pai 1 bhar into them. Next rub them all in the juice of corallocarpus epigaeus (Nathi), close the whole thing in a saṃpuṭa (lid) and give it fire for 1 prahara. Put a pill of sal-ammoniac pai 10 into an earthen vessel, put lid (on tin) over it. Put a pot of siddhi (Sisā) over it by filling it up., make a hole at the bottom of the pot. First go on giving a lite rasa (juice or fluid) like ṭuyā (drops); next slowly make thick stream for 3 days; water is sucked. Both make noise and continue to make noise, then it is accomplished. Its test; that which becomes red sucks the water of tin. That is to be known as Pegāmi Navasāra. First give dipagni (light of lamp), next increase and increase it.¹

Take sal-ammoniac tā 10, and powder of Nṛtubali²; (double) (of the former) tā. 20, put (give) sal-ammoniac under and over the latter. Give seven puṭas to the whole thing in a kabacyantra, go on putting double powder in every puṭa.

As a result there becomes pañcarāṅgi (five-coloured) pure Pegāmi Navasāra.

Pure sal-ammoniac comes from the ship. Put that Kabacyantra into that earthen bowl. Cover (it) under and over with double powder, put a lid (Sarāvalu) over it upside down. Put a layer of cloth and clay over it, fill sand over it, give it fire under it for 1 prahara. and give it 7 puṭas.³

Some chemical Processes in combination with sal-ammoniac : grind these things—Sal-ammoniac pai 5, Kalami cuno (a kind of lime) pai. 5, and Samudraphena. Vahnijāra (dried up i. e. womb of aquatic Agmnakra a kind of sea product.) Use in the jāraṇa of murcury pai. 5. Put them into a big pot (carudo)— $\frac{1}{2}$ under and $\frac{1}{2}$ over, cover it up and seal it up. Put seven layers of cloth and clay over it dry it up and give it fire into a bhaṭi of a furnace. Next put sal-ammoniac into a pan of Kantiloha and make it wet with water, put it there where is air, at night it gets melted and become (rasa), Put it on the furnace in the morning, give it fire with the wood of Cottontill the liquid gets dried up. Put it again in the air, again give it fire. It in the juice remains and doingthus it is produced.⁴

1. SRSS., Ch. II-21.

2. Not identified.

3. SRSS., Ch. 12.3.

4. SRSS., Ch. 12.4.

Some other Chemical process.

Put sal-ammoniac pai 1 and mercury. pai into an agiu of the inside of brinjal for 4 days and give it fire for 4 praharas. Again crush them and put then into it and give fire to it for 4 praharas.¹

Somala

Rub Malla (Somala=oxide of arsenic) 1 sr. in the juice of five limbs. of (Mustard tree of Scripture=Salvadora persica ?) viz. fruit flower, leaf, bark and root. Put it into a bowl made of glass (Kācaḥālita ?) give it fire in a Damaruyantra for 4 praharas. Thus give it 40 puṭas of khicadī, (**hotchpotch** ?). If the bowl breaks make a new one. On doing thus, the whole thing settles down like Silver at the bottom. Mix $\frac{1}{2}$ rati of the essence.²

It kills mercury, liquefies iron and it is a stomachic and an absorbent of the spleen and aids digestion after much eating. Cullikālāvaṇa is useful in the jārāṇa (killing) of mercury and in the melting of metals.³

Somal of is used in many chemical processes according the Indian alchemical works. It is of three kinds, viz. (1) yellow like turmeric (2) bright and hard like ivory and white and bright like conchshell. If it is to be purified take one big karela (Momordica charantia) and take out, the pulpa (gudā) of (from) the inside of it and put the small pieces of oxidised arsenic inside it. Then cook it into a Dolāyantra for 1 prahara. Its essence become white bright like the colour of gold or Kesara (Mesua forrea). If it is blown by putting it into a Tiryakyantra, mercury is obtained from it, which can be collected (Combined) in Jalāsaya (Water⁴).

Among the three kinds of Somala yellow Somala is the best.⁵

1. SRSS., Ch. 5. 43

2. SRSS., Ch. 12.5.

3. RS., 3.1 29 vide findu Chemistry P. 176

4. Gauripāṣaṇakah pito vikaṣo hatacūrṇkaḥ Śphaṭikābhasca saṁkhābho haridrābhastrayaḥ smṛta // Pūrvah pūrvō guṇaiḥ śreṣṭhaḥ Kāravallīphale kṣipet / Svedayed-damḍikāmadhmye, śuddho bhavati mūṣakah // Talavad grāhayetsattavam Śuddham śubhram prayojayet/Rasabamdha karaḥ snigdho doṣaghno Rasaviryakṛt // Rs. 3/130-133. vaigbhat.

5. Ibid.

Hingula¹ (Cinnabar) : Hingula is used in various chemical processes and medicines. like other common minerals. According to the Rasaratna Samuccaya.² Hingula is of two kinds (1) śukatūṇḍa and (2) Nāmśapāda. Śukatūṇḍa is also called carmāra. It is of inferior quality and Hamsapāda is of best quality. Quick silver extracted from it is as efficacious as killed by sulphur. Hingula can be purified by giving 7 saturations with the juice of ginger or Baḍahala. If given saturation with the milk of she sheep (ewe) oramlavarge after heating it, its colour becomes golden colour or of the colour of best Kesar.

The process of producing Cinnabar.

- (1) Take mercury $\frac{1}{4}$ sr. and realgar $\frac{1}{4}$ sr., melt lead and put powder of realgar into it, i.e. reduce them to paste. This is to be known from guruparamparā; grind these three together and fill the mixture into glass casket, put that casket into a yantra. Fill that yantra with sand particles, give it fire for 8 praharas. Make dipakāca (dipakāgni), put the yantra on it. That is, cinnabar is produced.³
- (2) Take sulphur-5 srs., realgar 2 srs., mercury-12 srs. Vā. (vā) śāhṛ tolo, all these are to be given heat for 16 praharas. There will be hamsapākahiṃgalo (cinnabar)⁴.
- (3) Take finely pounded cinnabar pai. 1 and pai. 2. Make 2 crucibles by grinding lead finely; put cinnabar into that crucible and close it. Make the ball of these (Vibhṛti); put it into that. Make the ball of ashes of goat's dung melted, close the ball of vibhṛti and give it fire for 2 praharas. White cinnabar is produced.⁵
- (4) Combine cinnabar pai. 1-cīṇoṭṭi pai. 3, tabakhira (powder) cooked in water and milk or Indian arrowroot (curcum angustifolia) pai. 3 and Muragi chaleta. Cinnabar is produced.⁶
- (5) Give 7 paṭas (roastings) of lemon to mercury-1 sr. $\frac{1}{4}$ sr., of sulphur and realgar pā 9 and get them dried up. Fill them into a casket (or bottle), give it fire. Cinnabar is produced. It is of 4 paktis (Pakas-cookings).⁷

1. SRSS., 9.15; III. 41; IX. 16; IX. 17; IX. 44.

2. RS., 3/147-154.

3. SRSS., Ch. 9.15.

4. SRSS., Ch. III. 41

5. SRSS., Ch. IX. 16

Sx. Notidentified

6. Ibid., Ch. IX. 17

7. SRSS., IX. 44

- (6) Take pupalia lappacea (gāḍarī), its another name is kosīu, put sulphur into it. Cinnabar becomes best when the essence is put into it. It is said by Bhaktivijaya¹.

Samudraphena²

Samudraphena is used in medicine. It is a substance discharged from the womb of a kind of sea-crocodile called Agnijāra and dried up; in the sun. It is stated in the Rasaratna Samuccaya that the womb of a kind of sea-crocodile comes to the shore, being carried by the waves of the sea and gets dried up. Its name is Agnijāra or vahni-jāra. It is useful in killing (jāraṇa) of mercury. It gets purified itself by the salt (Kṣāra) of the sea. For this reason the necessity of the process of its purification has not been considered.³

Sindūra (Vermillion)

Sindūra is mentioned in various chemical processes as stated in the Suvarṇa Raupya Siddhi Śāstra.

According to the Rasaratna Samuccaya of Vāgbhaṭ, it is found like dry powder in small stores of the Himalayas, Vindhya, etc; for this reason it is called girisindūra. It is also useful in binding (fixing) mercury.⁴

Ratnas (gems)

The Suvarṇa-Raupya-Siddhi-śāstra mentions a few gems, such as, mauktika⁵ (pearl) (or moti)⁶ garuḍa⁷, vajra (diamond) and Palevo Pāṣāṇa a (a kind of stone) and camak paṣaṇa⁸ (magnetic stone), etc. in connection with the chemical process to make gold, etc. But no systematic list of the gems as presented in other Indian alchemical works is found in this work. The Rasaratna Samuccaya⁹ of Māṇikyadeva sūri rather touches

1. Ibid., VII, 10.
2. SRSS., Ch. 12.
3. Mahāgiriṣu cālpīyaḥ pāṣāṇāntaḥsthitō rasah/Sūṣkaṣaṇaḥ sa nirdiṣṭo girisindūrasaṁjnayā / Tridoṣaśamanam bbedi rasabandhanama-grimam Rs. 3/145-146.
4. SRSS., Ch. 52
5. Ibid., Ch. 11/2/22.
6. Ibid., Ch. 1, 9, 39.
7. Ibid., Ch. 15/2/13
8. Ibid., Ch. 3, 10.
9. E.g. Vajra (Rs. 1. 37)
Vidruma (Coral) Rs. 1.47; garuḍa (Emerald) Rs. 1.47; Puṣparāja
pukharāja (Topaz) Nilam (Sapphire), Rs. 1.37.

upon many of the gems in connection with the preparation of some medicines and the chemical process. According to the Rasaratna Samuccaya,¹ the gems also are regarded as agencies which help the fixation of mercury.

Mauktika (Pearl)

Mauktika is attractive, white, light, smooth ray-like, pure, large, toya-prabha, (having the ray of water) and round. This pearl of nine qualities has been regarded as auspicious and best. The pearl which is dry (rough), nirjala (waterless), blackish copperish, grey white like salt, half-white, curved or zigzag (vikaṣ), knotty-associated with all these faults is the lowest type.²

Garuḍa³ or Pannā (Emerald)

The best emerald is that which is of green colour, heavy, smooth, of bright ray, glossy, shining and well round, having these 7 qualities. The emerald contrary to this is the lowest type which is of Kapil (red) blue, yellow, black, etc.-colours and rough, light, sticky, curved or of zigzag shape and rough.⁴

Vajra⁵ (Diamond)

According to the Rasaratna Samuccaya of Vāgbhat, Vajra is of three kinds-Nara hīrā (male diamond). nāri hīrā (female diamond) and napuṃsaka hīrā (neuter diamond). Amongst them male diamond is the

1. Rasaratna Samuccaya.
2. Hlādi śvetaṃ laghusnighham raśmivannirāmalaṃ mahat / Khyātaṃ toyaprabhaṃ vṛttaṃ mauktikaṃ navadhāsubhaṃ // Rukṣaṅgaṃ nirjalaṃ śyāvaṃ tāmraḥlavāṇopamam / Ardha-subhram ca vikaṣaṃ granthilam mauktikaṃ tyajet” Rs. 4/14, 16.
3. RSS. 1.9; 1.39.
4. Haridvarṇa - guru-sniḥdham sphuradrasmicayaṃ śubham / Maṣṭraṃ bhasuraṃ tārksyaṃ gātraṃ saptaṅgaṃ matam // Kapilaṃ karkaṣaṃ nilaṃ paṇḍu Kṛṣṇaṃ malāṇvitaṃ / Cipiṣaṃ vikaṣaṃ rūkṣaṃ laghu tārksyaṃ no śamyate, Rs. 4/21-22.
5. SRSS 3.10, 3.40 (Vajra; this ulter is found, in SRSS, but its meaning appears to hard (like diamond).

best of all and the neuter diamond is the lowest type. There are asras (angles) or 8 phalakas (faces) and 6 corners (Koṇa) in the male diamond. It is very powerful; it is like Indradhanuṣa (rainbow) or lotus and floats on water. It is sticky (cipaṭa), round or oblong. The female diamond is round, having contracted angle, the heavy diamond-round, obtuse-angled is called the neuter one¹.

The ash of diamond is useful in fixing or killing and in stimulating the qualities of mercury by combing it with mercury².

Diamond is purified by digesting it in the decoction of kulattha (Dolicos biforus) or of kodrava (paspalum scrobiculatum) for three hours, in a Dolikayantra.³

“Diamond is to be macerated four times in the blood of the bug and enclosed in a ball made of the flesh of the musk rat, and then to be roasted in a covered crucible thirty times, or to be heated, hundred times and; lunged in the decoction of kulattha.”⁴

“Diamond is to be placed in a covered crucible the inside of which has been coated with realgar, rubbed with the decoction of Kulattha and the juice of Artocarpus lakoocha and roasted eight times in succession in the fire of dry cowdung, cakes. It is then heated hundred times and thrown into pure mercury—the diamond is thus killed and reduced to fine ashes.”⁵

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1. Vajraṃ ca trividhaṃ proktaṃ nara nārī napuṃsakam/Pūrvam pūrvamiha śreṣṭhaṃ rasavīryavipākataḥ/Aṣṭāśraṃvā' ṣaṭkoṇam matibhāsurm/ Ām̐budendradhanurvāritaraṃ puṃvajramucyate// Tadeva cipitākaraṃ strivajraṃ vartulāyatam/Vartulaṃ kuṇṭhakōṇāgraṃ Kīrcidaguru napuṃsakam//Rs. 4/27-29.

2. RS 4/33

3. RS 4/35

4. RS 4/36-37.

4. Ibid, 4/38-39

Lohani¹ (Metals)¹

In the Suvarna Raupya Siddhi-Sastra six metals.² are recognised at the outset, viz. (1) gold (Kāncana³, suvarṇa⁴, pṛta⁵, haṇaka⁶ and hema)⁷, silver tāra⁸, raupyam⁹, śveta¹⁰, rajata¹¹, copper (Tāmra,)¹² Tambu¹³, Śulva¹³ ×, Lead (śiśā¹⁴ or nāga¹⁵), Tin (Vanga¹⁶) and iron¹⁷ (loha).

1. SRSS., Ch., VI. 13
2. Ibid., See Ch., I. II. III, etc. and the foot note Nos. 3-17.
3. Ibid., Chs. 1, 4, 17, 21, 29, 32, 36, 41, 42, 43, 59, 4/2/42.
4. Ibid., Chs. 1.6, 33, 50, 58, 2.2, 3.3, 16, 5.2, 13, 30, 9.6, 14/2/4.
5. Ibid. chs. 1.44, 2.1, 2, 4, 6, 8, 9, 10, 14, 3.1, 2, 3, 4, 6, 7, 9, 37, 52, 53, 63, 75, 83, 86, 103, 105, 107, 109; 4.3, 7, 9, 11, 14, 18, 23, 25, 28, 5.3, 4, etc.
6. Ibid. Chs. 3, 1, 5, 26, 9.43, 10, 56, 11.13, 11/2/11, 12, 18, 19, 13.7.
7. Ibid., Chs. 1.43, 52; 2.193, 3, 19, 20, 29, 33, 47, 60, 76, 4.12; 5.10, 13, 21, 22, 24, 30, 32, 6.9, 10, 14, 19, 21, 22, 26, 28, 7.11 etc.
8. Ibid., Chs. 1.10, 11, 21, 23, 27, 34, 43, 47, 49, 50, 42, 53X, 27, 10, 16, etc.
9. Ibid., Chs., (rūpyam) 1.56; 2.4, 14, 3/1/14; 3.17, 23, 32; (raupyam) 3.34, 34; (Rūpo) 3.39; (rūpyam) 3.39.
10. Ibid; Chs. 2.16; 7.7.
11. Ibid., Chs. 2.12; 3.24, 69; 11/2/20; 14/2/19.
12. Ibid., Chs., 1.47; 2.1, 2, 7, 9, 10; 3.3, 6X (Tāme) 3.20, 67, 68 73, etc.
13. Ibid., Trāmbu (Ch. 2.60), tāmbu Chs. 2.8; 3.1, 2. tāmbā (Ch. 3.6), etc.
- 13 × Ibid., Śulvam (Ch. 1.20, 46; 2.1, 15; 3.25, 35, 107, 5, 21; 6, 34; 7.7.
14. Ibid., Śiśakam (Ch. 2.6), śiśo (Ch. 2.6), 3.3, 14, Śiśā. (Ch. 2, 14, 15.), etc.
15. Nāga. (Ch. 1.12, 21, 33, 36; Ch. 9.42, etc.
16. Vamga (Ch. 1.11, 19, 22, 48, 53, 55; 2.13, 15; 5.21, 27; 6.2; 6.9, 33, 37, etc.
17. Loha (Chs. 1.16, 65, 3.37, 64, 69, 71; 5.10, etc.

If is interesting to note that there is mention of zinc (jasta or jasad)¹. Later on, eight kinds of metal² are named by including two alloys brass (Pital)³ and bell metal (Kamśa)⁴, viz. iron, lead, tin, copper, bell metal, brass, silver, and gold⁵.

Both the words (Loha)⁶ and 'Dhātu' have been used in the Jaina MSS. to denote metals.

Metals have been used in various chemical processes and medicinal preparations. According to the Rasaratna Samuccaya, there are stated to be three kinds of metal, viz. (1) pure metal, which includes—gold, silver, copper and common iron. (2) pūtiloha—these are lead and tin (3) Mīśralauha (mixed metal) brass, bell-metal and varṭa (bharat). The word, (loha) is derived from the conjugation luh, the meaning of which is to draw (attract), i.e. to throw out the defects (impurities) by drawing them out.⁸

Although the Suvarṇa-Raupya-Siddhi śāstra has not classified metal into the aforesaid three groups, nevertheless, it includes all of them as eight kinds of metal as pointed out.

METALS

Suvarṇa⁹ (gold)

In the SRSS there are stated to be two kinds of gold (1) natural and (2) artificial gold obtained by the transmutation of the baser metals¹⁰ in conjunction with mercury.

1. Ibid, Jasta (Chs. 3.1, 2, 3, 16; 3,24, 37, 39, 40, 70, 73; jāsada (3.104, 1,07).
2. SRSS., Ch. VI. 13, "Lohanāmāni loha 1, nāga 2, varṅga 3, trato 4. kamso 5, pitala 6, tara 7, hema 8.
3. Ibid.
4. Ibid.
5. Ibid.
6. Ibid.
7. Ibid., Ch. 1.2; 2.1; 4.16; 5.1.
8. Śuddham loham kanakarajataṁ bhānuloḥaśmasāraṁ. / Pūtiloham dvitayamuditam nāgavambhidhanam / Mīśram loham tritayamuditam pittalam, Kamśavartam //
- Dhāturoḥe luha iti mahāḥ, so' apyanekarthavāci //
- RS., Vagbhaṭ. 5.1.
9. SRSS., Ch. II. 2, 4, 6, 8, 14; III, 2, 3, 4, 7, 9, 19, 20, 32, 36, 37, etc.
10. Ibid., Ch. 1.1; Ch. II. (Comm.) etc. See the section on the process of gold-making.

According to the Rasaratna Samuccaya of Vagbhat, there are stated to be five kinds of gold, viz.

- (1) Prakrit,
- (2) Sahaja
- (3) Agnisambhava
- (4) Khanija (gold produced in mine.)
- (5) Pāradavedhajanya (gold obtained by the chemical process in conjunction with mercury)¹. That is, the first three are attributed to mythical and celestial origin, and the fourth is begotten of mines and the fifth is obtained by the transmutation of the baser metals in conjunction with mercury.²

The last two kinds of metal are mentioned in the Suvarṇa-Raupya-Siddhi-Śāstra.

Various chemical processes of making gold by the transmutation of the baser metals in conjunction mercury³ and medicinal preparations⁴ with it have been given in the Suvarṇa-Raupya-Siddhi-Śāstra.

Gold is killed with the juice of red Sesbania glandiflora⁵.

According to the Rasārṇava, gold can be purified by saturation with the juice of citrus medica (bijore nibu), kṣāra (oxide) and salt for five days and by the application of puṭapāka.⁶

1. Prakṛtaṁ saha-jam vahnisambhūtaṁ khaṇisambhavam /
Rasendravedhasamjātaṁ svarṇaṁ pañcavidhaṁ smṛtaṁ //
Tatra tatragirīnāṁ hi jātaṁ khaṇiṣu yād bhavet /
Rasendravedhasambhūtaṁ tadvedhamudāhṛtaṁ // ,
RS., Vāgbhat (512-8). The Rasārṇava refers to three kinds of gold,
viz, "rasajam, kṣetrajam, lohasamkarajam Tathā /
Trividham jāyate hemaṁ caturthaṁ no—palabhyati // ,
Rasārṇava 7/99.

2. Ibid.

3. See the section on the gold-making process.

4. See the Section on medicines.

5. SRSS., Ch. I.1, Ch. II. 1 (Common)

6. Mṛtika matulungāmlaiḥ pañcavāsarabhavita / Sabhasmalavaṇa
hema śodhayet puṭapākataḥ // ,
Rasārṇava (7/102)

The Rasaratna Samuccaya of Vāgbhaṭ states that a gold leaf of the weight of one karshā is to be smeared with Saimndhava salt and placed between two earthen saucers and heated on a charcoal fire for an hour and a half, when its true colour will come out.¹

Gold can be reduced to ashes with the aid of the ashes of mercury, through the agency of the roots of plant, and with Sulphur. The first process is the best, the second medium and the third lowest or least.²

Gold leaves, pierced with holes and coated with a paste of lemon juice and the ashes of mercury and roasted ten times are thereby killed.³

Raupyaṁ (Silver)

Rupyaṁ or Raupyaṁ (Silver) has been used in various chemical and medicinal processes as described in the Suvarṇa-Raupya-Siddhi-Śāstra. Besides artificial Silver-making processes have been dealt with in this work.⁴

The Rasārṇava mentions two kinds of silver, viz. white and black. The one which is heavy, smooth, soft, and white is best.⁵ The Rasaratna Samuccaya refers to three kinds of silver, viz. Sahaja, Khanija and kṛtrima, Sahaja is the best one, while kṛtrima is the lowest type.⁶

According to the Rasārṇava, silver can be purified by melting it with lead and borax and quench it with the oil of jaṭāmāsi three times.⁷

The Rasaratna Samuccaya of Vāgbhaṭ describes the following processes for the purification of Silver.

2. SRSS., Ch. 7.8

1. Karṣapramāṇaṁ tu śarāvaruddhaṁ śaddhātuyuktaṁ /
Aṅgārasaṁsthāṁ praharārdhamāṇaṁ dhātvena tatsyānnau
pūrṇavarāṇaṁ / , RS. 5/12.
2. Lohāṇaṁ māraṇaṁ śreṣṭhaṁ sarveṣāṁ rasabhasmanā /
Mūlibhirmadhyamaṁ prāhuḥ kaṇiṣṭhaṁ gaṁdhakādibhiḥ // ,
RS., 5.1/13.
3. Kṛtvā Kaṇṭakavedhyāni svarṇapatrāṇi lepayet /
Lumgāmbabhasmasūtena mriyate dāśabhiḥ puṭaiḥ // ,
RS. 5/14.
4. See the section on the silver making process, 3rd. Ch.
5. Śuklaṅca tārakṣṇaṅca dvividhaṁ rajataṁ priye / guru snigdhaṁ
mṛdu śvetaṁ tāramuttamamiṣyate //
Rasārṇava 7/103.
6. Sahajaṁ khaṇisaṇjataṁ ca kṛtrimaṁ trividhaṁ matam / Rajataṁ
pūrvapūrvam hi Svaguṇairuttarottaram //
Rs. 5/21.
7. Nāgena kṣāiraṇjena drāvitaṁ śuddhimicchati Tāraṁ trivartaṁ
nikṣiptaṁ piśāci tailamadhyataḥ. Rasārṇava 7/104.

- (1) Heat thin leaves of silver and quench them into oil butter-milk, cow's urine, kāñji (sour rice water) and decoction of kutatthi (Dolichos), it will get purified.¹
- (2) Melt silver and put equal portion of lead and borax, and rub it, again heat it and quench it into the oil of Jyotiṣmati (Mālakāṁgani) three times. Silver will get purified by this process.²

Arrange on an earthen dish a mixture of lime and ashes in a circular row and place in it silver with-its equal weight of lead. Now roast it over fire until the lead is consumed. Silver thus purified is to be used for medicinal purposes.³

Silver can be reduced to ashes by the following processes :

- (i) Rub mercury-ashes in the juice of Artocarpus lakoocha and smear silver leaf with it, make the leaf embedded in sulphur in a covered crucible and heat it over a sand bath by closing the joint of the crucible with cloth and clay, give intense fire to the crucible in a Valukāyantra for eight praharas.

On its getting cooled down, crush the leaves of silver to fine powder and put equal portion of pure orpiment, and rub it in the juice of lemon and then roast it in a gajapuṭa twelve times. By this process, Silver is reduced to ashes.⁴

- (ii) Prepare silver ashes with golden pyrite. Rub the powder with the powder of golden pyrite in the juice of lemon and roast it in a gajapuṭāgni thirty times. Silver will be reduced to ashes.⁵

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1. Taila takre gavāṁ mūtre hyāranāle kulatthaje /
Kramanniseccayettaptam drave tu saptadha //
Svarṇādilohapatrāṇāṁ śuddhireṣā praśasyate // RS. 5/29.
 2. Nāgena ṭamkaṇenaive vāpitam śuddhimṛcchati Tāram trivāram
nikṣiptam taila jyotiṣmatibhavet // , RS. 5/31.
 3. Kharpare bhasma curṇābhyam paritaḥ pālikam Caret. / Tatra
rūpyam vinikṣipya Samastassamanvitam / Jātasaksayam yāvad
dhamet tāvatpunaḥ punaḥ / Ittham saṁśodhitam rūpyam Yojaniyam
rasādiṣu // , RS. 5/32-33.
 4. RS. 5/34-35.
 1. Makṣikacurṇalūṅgālma marditam puṭitam śanaiḥ / Trimśadvareṇa
ṭattaram bhasma sājjayatetarām // , RS. 5/36.

- (iii) Rub the powder of golden pyrite in the milk of thāhar (Euphorbia nivuila) and smear it (mixture) on the leaves of silver. Next roast them in gajapuṭāgni by closing them in a saṁpuṭa. Silver gets reduced to ashes.¹
- (iv) Take four parts of silver leaf and one part of pure orpiment, rub them with the juice of lemon and roast the mixture in a garbha-yantra in fire of 30 pieces of cowdung cake fourteen times by repeating the process. Thus silver is completely incincted.²

Tāmra (Copper)³

The Suvraṇa Raupya Siddhi Śāstra mentions two kinds of copper, viz. Nepaltāmra⁴ (the Nepalese copper) and ordinary Indian copper⁵ besides, artificially or rather chemically made copper. The Nepalese copper is the best one (Ukkittham)⁶

According to the Rasārṇava, there are two kinds of copper—red and black. The one which can bear the stroke of the hammer is smooth, soft and having red leaf is the best one.⁷ In the Rasaratna Samuccaya also two kinds of copper are mentioned, viz. (1) Mleccha and Nepālaka, i.e. the one dug out of mines of other foreign countries other than Nepal and the Nepalese copper brought from Nepal. Between them the Nepalese copper is of superior quality.⁸ Mleccha copper is that in which there are found

1. Bhāvyaṁ tāpyaṁ sunhi kṣīraṣṭārapatrāṇi lepayet /
Marayetpuṭayogena niruthaṁ jāyate dhruvam // , RS. 5/37.
2. Tārapatraṁ caturbhāgaṁ bhāgaikam śuddha tatakam / Mardya
jambīrajadrāvaistārapatrāṇi lepayet / /
Rs. 5/38-39.
3. RSSS. Ch I. 25, 47, 61, 11.11, III. 1, 2, 4, 66 X, V. 30; IX. 4, 26,
XIV. 2, 67, etc.,
4. Ukkitthm=Nepaladeśodbhavaṁ tāmraṁ, SRSS., Ch. II. (Comm.)
5. See the foot note no. I.
6. SRSS., Ch. IV. 26.
7. Ibid., Ch- 1. 1, (Ukkittham). Ch. II. (Comm. 1.1)
8. Tāmraṁ ca dividhaṁ proktaṁ raktaṁ kṣṇaṁ sureśvari /
ghanaghāṭasahaṁ snigdhaṁ raktapatraṁ mṛdūttamam / /
Rasārṇava 7/105.
9. Mlecchaṁ Nepālakaṁ ceti tayor nepālakaṁ varaṁ /
Nepālāṇyakhamaṃyutthaṁ mlecchamityabhidhiyate / /
RS. 5/42.

white, black and red tinges, which is hard and becomes blackish even on washing it well. The Nepalese copper is glossy, soft, red and does not break by the hit of a hammer. It is heavy in weight and its colour does not turn black.¹

The process of copper—making

The process of copper making is described in the *Suvarṇa Raupya Siddhi Śāstra* in the following manner.

- (1) Take a wing of peacock 10 srs., put it into an earthen pot, next put telu borax 3 into it, cast the powder of the wing of the peacock 5 srs, again inside over it. Heat the pot by lighting fire. There comes up copper 3 out of the powder of the wing of the peacock in the pot. If it does not become silver-like, take out copper by washing with borax.²
- (2) Wash the earth of earth worm and take out the stones. Next make powder of the wing of peacock by cutting it into pieces with a scissor. Then put this powder into cowdung and get it dried up in the shade. Next put it into an earthen pot and seal it up, make fire, i.e. put it on fire. When the burning stops, take it out. On washing ashes the stones come out. Mix up the stones of the previous earth, then heat them by putting them in a crucible. Next melt them. Copper comes up.³
- (3) Put cinnabar ganavadi (pai)-4 bhar and oil janavadi 3 bhar into an earthen bowl. Put pieces of cinnabar and oil janavadi 3 into it and close it. Put a layer of cloth and clay over it, give it fire of dry wild cowdung cakes-3 srs. Do it thus 42 times.

Take sūtu⁴ tola-1 and sūto (sūto)=pāra ? (tola)-1 and next prānu to⁵. 1, put that sūtu 3 by adjusting (Pressing). Mix longer pippa 10, semen of ox 10, cinnabar 5, realgar 5 and orpiment 5, into the juice of kakasi (Sisymbrium irio linn) for 14 praharas. Next put the whole thing into a small box of zinc actually weighting pai. 4 and put 7 layers of cloth and put 7 layers of cloth and clay over it. Dry it up on fire for 1 prahara.

1. Sitakṛṣṇācchāyamtivāmi Kaṭhorakam /
Kṣālitam ca punaḥ kṛṣṇametanmlicchakatāmraṇam / /
Susnigdham mṛdulam śoṇam ghaṇāghātakṣaṇam guru /
Nirvikaram guṇa śreṣṭham tāmraṇam Nepālamucyate / /,
RS. 4/43-44
2. SRSS, Ch. III. 61,
3. Ibid. Ch. 4. 1, 25,
4. Not identified.
5. Not identified.

On its getting cooled down, take it out. Crush it for 1 prahara, then melt prādupo × (pradepo) and put hā (ṭaka ?) (gold ?) or hā (ritāla=orpiment), grind both of them, mix them together, quench both of them in the juice of Dhākano-1 Sr. and pāṇḍu to. (tā) 1 by heating and heating them till there is rasa (juice or liquid). Next put rasa : 1/2 Sr. into an earthen bowl, put 1 layer of cloth and clay over it and heat it in fire for 4 praharas; good copper is produced from silver.¹

The process of purification of copper

- (1) Take grains (powder) of copper with the Persian vorēk (borax). Make a hell into Biyā, fill a paisa bhar of the juice of Horse Radish tree. There becomes white copper.²
- (2) Quench copper in the juice of the inner bark of the root of Horse Radish tree. (Saraghuānā). Next give it gajapuṭāgni for four praharas by putting it into an earthen vessel. There will be best copper.³
- (3) Make copper leaf heated and quench it into the horse's urine by making it redden (in fire) for 21 times. Next put it into chāchī luṇa (a kind of salt) for 1 prahara and wash it. Thus put new and new chāchī luṇa (i.e. repeat the process) for 21 days. Next rub it for seven days. Keep it by dipping it into the juice of ginger. Quench that copper by making it hot red in fire for 7 or 14 or 21 times. Thus know the process of making copper purified.⁴
- (4) If copper is smeared with mica, mercury borax, natron, the excreta of pigeon and the milk of calotropis gigantea, its blackness is destroyed (removed) by one puṭa (roasting)⁵.
- (5) Boil 5 Srs. of leaf of the five leaved chaste tree-vitex trifolia (Nigodī-pāna), turmeric-1 Sr. and water-8 srs. together-keep 1 sr. of the mixture. Keep by boiling them. Next heat the leaves of copper and purify them by quenching them into that water (essence) seven times.⁶
- (6) Put tamarind into the milk of she-buffalo and make it loose (dhilusu), pour coppe-vāla 7 into it or quench a copper leaf into it by making it heated in fire. There takes place the purification of copper.⁷

× Not identified.

1. SRSS., Ch. 8, 34,
3. Ibid., Ch. 10. 74
4. SRSS., Ch. III. 66X
5. Ibid., Ch. IX. 50.
6. Ibid., Ch. 10.7.
7. SRSS., Ch. 12.1

The process of killing copper

- (1) The Nepalese copper is killed with the juice of capparid sepaiaria.¹
- (2) Copper is to be killed with sulphur. Make it equal to cinnabar. The leaf of copper is to be smeared with the juice of citrus medica by rubbing it.²

The Rasārṇava describes the process of the purification of copper in this way that it can be purified; it is put into the juice of Nirguṇḍī by smearing it with the milk of Sehūḍa, salt, Kṣāra and amla³ (acid).

- (1) According the Rasaratna Samuccaya of Vāgbhaṭ the powder of copper, yavakṣāra (a kind of oxide) and geru (red ochre) are to be rubbed together in the juice of lemon and melted on fire. Next it should be quenched into the butter water and the cowdung water seven times. In this way copper will be purified.⁴
- (2) Make a copper-leaf and rub it in the juice of lemon and smear Saindhav salt on it. Next heat it in fire and quench it in kāñji (a kind of old sour water). Repeat the process eight times, copper will be purified.⁵
- (3) Heat the copper-leaf and quench it into the juice of Nirguṇḍī eight times. It will get purified.⁶

Incineration of Copper

- (1) Rub pure mercury and pure sulphur in the juice of lemon by taking equal portion of each. Next smear the mixture on the leaf of copper

1. Ibid., Ch. I.1, II. 1

2. Ibid., Dh. 1. 19.

3. Snūhyarkakṣāralavaṇa kṣārāmalaparilepitam / Tāmrapatram ca nirguṇḍī-rasamadhye tu dhālayet //, Rasārṇava 7/106.

4. Tāmram kṣārāmlasamīyuktam drāvitam dattagairikam / Pañcadoṣavinirmuktam bhasmayogyam hi jāyate //, RS. 5/49.

5. Tāmranirmalapatrāṇi liptvā nimbbambusimḍunā / Dhatvā Sauvirakṣepādviśudhyatyastavarataḥ // Ibid. 5/50.

6. Niambbambupatuliptāni tāpitānaṣṭarakam / Viśudhyamīyarkaparram nirguṇḍyārasamajjianat // Ibid. 5/51.

and place it into a Sarāvasamputa and give it roasting in gajaputāgni three times. Copper will get incinerate by this process.¹

- (2) Cook the thin copper-leaf in the cow's urine for praharas. Next rub (grind) double quality of sulphur in the juice of Amlaparṇi and make pills of it. Then put the copper and make pills of it. Then put copper-leaf into those pills in an earthen pot and close its mouth with a lid. Put a covering of cloth and clay over it and place it on the furnace. Heat it in fire for 1 prahara. By this process copper gets incinerated.²

Somanāthi tāmraḥhasma

- (3) It is prepared with mercury, sulphur, orpiment, realagar and copper leaf. Make collyrium by crushing mercury sulphur, orpiment and realagar and put the copper leaf into this collyrium, heat it in a garbhayantra for one prahara, it will get incinerated.³

The process of melting Copper.

• Burn the bone of the neck of a camel and mix its ash 1 māśā into copper 1 sr., it melts quickly.⁴

Put the bone of kola (boar) (into copper), it melts quickly.⁵

Put the tail of rat (into copper), it melts quickly; with Nakachikani (Centipeda orbicularis) like that and with kamṭasei like that it melts.⁶

1. Jambīrarasasampiṣṭarasaragamdhakalepitam / Śulbapatraṁ sarāvasthaṁ tripuṭairyatipricatam //, RS. 5/53.
2. Tamrapatrāṇi sūkṣmāṇi gomūtre pañcayamakam / Kṣiptvā rasena bhāṇḍe tad-dviguṇam dehi gamdhakam // Amlaparṇi prapiṣyatha hyabhito dehi tamrakam / Samyagnirudhya bhāṇḍe tamagniṁ vālaya yamakam / Bhasmī bhavati tamraṁ tadyatheṣṭam viniyojayet", RS. 5/56-57.
3. Śulbatulyena sūtena balinā tatsamena ca / Tadardhamāṣṇa takena śūlaya ca tadardhaya" Vidhaya kajjalam ślakṣṇam bhinnakajjalasanm-bhavam / Yantrādhāyavinirdiṣṭagarbha / antroda. antare / Kajjalam tamrapatrāṇiparyāyena vinikṣipet // prapacedyamaparyantaṁ svāṁgaṣṭam vicurayaet" // Duṣṭam ca grahaṇam hared dhruvamidaṁ // Somanāthabhidham. RS. 5/58-61.
4. SRSS., Ch. X. 33.
5. Ibid., X. 34.
6. Ibid., X. 54.

Loha¹ (iron)

In the Suvarṇa-Raupya-Siddhi Śāstra there is mention of [Kāntaloha² Cumbaka (loha ?)³, Kharu loha⁴ and tikho (loha ?)⁵ or Takho.

The Rasārṇava mentions three kinds of iron, viz, Rohaṇa, vajara, and capalālaya.⁶ The Rasaratna Sammuccaya also refers to three kinds of iron viz. Muṇḍaloha Tikṣṇaloha and Kāntaloha.⁷ Muṇḍa is of three kinds, viz. mṛdu (Soft), Kuṇṭham and Kaḍāram. The one which gets easily melted by heat on fire does not break by the hitting (stroke) of a hammer and is glossy is called soft iron. The iron which expands with difficulty when struck with a hammer is called hard iron. That iron which breaks up when struck with a hammer and has a black fracture is called Kanda-raka, kaṇḍaraka or kaṇḍakaraka loha (brittle iron).⁸

Kānta Iron

If the drop of oil does not spread out in the water of a vessel of kānta iron, the smell of Ferula asfotida is generated in its water, the juice of citrom (nimba) generates bitterness in itself, if put in that vessel. (If) milk is boiled in it, it becomes high like the shape of an umbrella, it does not go down (fall) to the ground. Kānta Iron is that which possesses these aforesaid Characteristics (marks), not any other kinds.⁹

Tikṣṇa loha (Cast iron and Steel) is stated to be of six kinds, viz.,

- (1) Kharatikṣṇa loha, (2) Sāratikṣṇa loha, (3) Hṛnnāla tikṣṇaloha, (4) tarāvatta tikṣṇaloha, (5) Vajiratikṣṇa lohā and (6) Kālaloha.

1. SRSS., Ch. I. 16, 1. 55, III. 4; 37, 64, IV. 31, V. 10, VI. 13, VI. 37, 40, IX. 11, 53, X. 16, 57, XI. 67, 19, XIII./2/9.
2. SRSS., Ch. 1. 1.56, (Kāntaloham).
3. Ibid., Ch. 1.55 (Cuntvaka).
4. Ibid., Ch. IX. 11.
5. Ibid., Ch. VIII. 31, 34.
6. Ibid., Ch. IX. 39, 40, 41,
7. Rohaṇam vajaram caiva tritṛyam capalālayam/
Iti tikṣṇam tridhā taccha kāntaloha miti smṛtam // Rasārṇava 7.107.
8. Muṇḍam tikṣṇam ca kaṇṭam ca
triprakāramyaḥ smṛtam, Rs. 5/67.
9. Mṛdu kuṇṭham kaḍāram ca trividham muṇḍameyate/
Drutadravamavisphoṭam cikṇam mṛdu tacchubham/
Hataṁ yatprasared duḥkhattatkuṇṭham madhyam smṛtam/
Yaddhataṁ bhuḥjate bhaṁge kṣṇam syattatkaḍāram", Rs. 5/68-J1.
10. SRSS. Ch. I. 56.
Kharam saram ca hṛnnātam ca tarāvattam ca vajiram/
Kālalohābhi dhānam ca śaḍvidham iikṣṇamucyate // Rs. 5/94.

Amongst them kharaloha is rough and free from hair-like lines and has a quick silver-like fracture and breaks when bent.¹ Sārāloha is that which presents a sharp edge and does not break when bent. It is produced in the mine of yellow soil. There is found curved lines in it.²

Hṛnnāloha is that which is of mixed colour-black and yellow, in which there are marked curved lines like those of caṇḍubija and which is hard to break. There are three categories of the lines (pogara) mentioned here-aṃga, shadow, and vaṃga. This pogara is shiny and breakable.³

Iron, whose pogara (lines of structure) is hard like diamond, glossy, associated with fine lines thick (condensed) and heavy whose colour is black is called vajira.⁴

Iron which is of blue and black tinge, heavy, glossy and associated with ray and whose edge does not break when struck with iron is called kalayasam.⁵ Kānta loha (magnetic iron) is of five kinds, viz, bhṛāmaka, cumbaka, karṣaka, dravaka and romakānta.⁶ Each of them has six divisions-ekamukha (possessed of one face), dvimukha (two-faced), trikha (three-faced), catur-mukha (four faced), pañcamukha (five-faced) and sarvato-mukha (many-faced to attract iron). Further, there are three divisions of each of them according to the colour of each, viz., yellow, black and red.

1. Paruṣaṃ Pogaronnuktaṃ bhaṃge Parāḍavacchavi/
Namane bhaṃguraṃ yattatkharaḥmudāhṛtaṃ//
Ibid. 5-75.
2. Vegabhaṃguradhāraṃ yatsārālohaṃ tadṛitaṃ/
Pogaraḥbhasakaṃ paṇḍubhumijaṃ saramucyate//
Ibid. 5/36.
3. Kṛṣṇapāṇḍuvpuṣṇcubṛjatyorupogaram/
Chedane caliparusam hṛnnālamiti kathyate//
Aṃgacchaya ca vaṃgaṃ ca pogarasya bhidhātrayam//
Cikuraṃ bhaṃguraṃ lohātpogaṃ tatparaṃ mataraṃ/
Ibid. 5/77-78.
4. Pogaraivairasaṃkāśaiḥ sūkṣma rekhaiḥca sāndrakaiḥ/
Nicitam syāmalāṃgaṃ ca vajiraṃ tat prakṛtitam//
Rs. 5/79
5. Nilakṛṣṇaprabhaṃ sāndraṃ masmaṃ guru bhasuraṃ/
Lohāghāte, apyabhaḥbhaṃgatmadhāraṃ Kālayasaṃ matam/
Ibid. 5/80.
6. Bhṛāmakaṃ oumbhakaṃ caiva karṣakaṃ dravakaṃ tathā/
Evaṃ caturvidhaṃ kantaṃ romakāntaṃ ca Pañcamam//
Ibid. 5/83.

Amongst them yellow kantaloha makes other base metals converted into gold by its mere touch, black kantaloha is useful in rasakarma (Chemical action) and red kantaloha is best in fixing mercury.

Bhrāmaka Kantaloha makes all kinds of iron move about. Cumbaka Kantaloha kisses iron, Karṣaka kantaloha attracts iron, Drāvaka kantaloha makes iron melt at once and Romakānta loha shoots forth harlike filaments when broken. Bhārmaka kantaloha is inferior in quality, Cumbaka Kantaloha is medium in quality and Karṣake is best, and Drāvaka kantaloha is stated to be best of all.

From the point of view of faces, one-faced iron is inferior and gradually increasing and increasing; many-faced iron is the best of all. In the case of treatment Bhrāmaka and Cumbaka are useful, while karṣaka loha and Drāvaka loha are useful in the case of rasa (mercury or mineral) and rasāyana (Chemical action).

Kānta loha is beneficial in killing mercury, as aṅkuṣa (spike) useful in controlling an intoxicated elephant.¹

The Suvarṇa-Raupya-Siddhi-Śāstra mentions the use of iron in various chemical processes. It is stated that iron can be produced artificially in the following manner. Melt Somal (Oxide of arsenic) māśā 1, zinc-māśā-1, borax-māśā-2 and copper-māśā 4 in an open crucible.

1. Ekadvitricatuṣpaṁcasarvatomukhameva tat/
 Pītaṁ kṛṣṇaṁ tathā raktam trivarnaṁ syatpṛthkprthak/
 Krameṇa devatāstatatatra brahmāviṣṇu maheśvarāḥ//
 Sparsavedhi bhavetpītaṁ kṛṣṇaṁ śreṣṭhaṁ rasāyane/
 Rakṭavamaṇaṁ tatha cāpi rasabandhi praśasyate//
 Bhrāmakaṁ tu kaṇiṣṭhaṁ syaccumbakaṁ madhyamaṁ tathā/
 Uttamaṁ karṣakaṁ caiva drāvakaṁ cottam-ottamaṁ/
 Bhramayellohajātaṁ yattatkaṁtaṁ bhrāmakaṁ matam/
 Cumbayeccumbakaṁ kāntaṁ karṣayet Karṣakaṁ tathā/
 Śakṣād yad-drāvayellohaṁ tatkaṁtaṁ drāvakaṁ bhavet/
 Tād-romakāntaṁ sphutitādyato romod-gamo bhavet//
 Kaṇiṣṭhaṁ syādekamukhaṁ madhyaṁ dvitrimukhaṁ bhavet/
 Catuṣpaṁcamukhaṁ śreṣṭhamuttamaṁ sarvatomukhaṁ/
 Bhrāmakaṁ cumbakaṁ caiva vyādhinaśe praśasyate/
 Rase rasāyane caiva karṣakaṁ drāvakaṁ hitaṁ//
 Madonmattagajāḥ sūtaḥ kāntamaṁkuṣamucyate//
 Ibid. 5/83-93.

Kharu (loha) dalam gets combined (with) them; (there becomes) sara-loha, quench iron leaf in the excreta of a cock-vāla 14 in a crucible in molasses-vāla 14, and in Sal-ammoniac vāla 14, Iron is produced if the leaf is put inside the mixture.¹

Steel (polād) is fixed in the juice of Āmathī (Ipomoea sepiaria), the essence is produced.²

According to the Rasārṇava, iron can be purified with the juice of guḍaca, haṁsapāṭi, karanjā, triphalā, gopālakī, gorasaṇā, tumburu and (Nepālī dhaniyā)³. The Rasaratna Samuccaya describes differnt processes for the purification of iron.

(1) Heat iron-leaf by smearing it with the blood of mangoose (Kharḡosa).

(2) Quench heated iron-leaf in the juice of Triphalā.

(3) and in the vilayana (bath) of salt,

(4) Quench heated iron-leaf in the decoction of triphalā boiled with the juice of leaves of tamarind or cow's urine.⁴

This work refers to about 14 process of incineration of iron:

(1) Heat the filings of iron with clarified butter. Thus varitara bhasma (floating on water) of iron will be obtained.

(2) Heat iron-leaf in fire, and quench it in the juice of ambala of triphalā.

(3) Heat iron with the collyrium of mercury and sulphur or cinnabar and quench it in the juice of kṁji or lemon. The ashes obtained thus become of much red colour or of some what blackish-colour.⁵

1. SRSS., Ch. 9.11.

2. Ibid., Ch. 5.2.

3. Guḍaci haṁsapāḍau ca navatmālaḥ phalatrayam//
gopālakī gorasaṇā tumbururtohanighnakah/
Eṣāṁ rase dhālayettat giridoṣanivṛttaye // Rasārṇava, 7/108-9.

4. Cīṁcapatralakavāthādayo doṣamudasyati/
yadvā phalatrayayopetaṁ gomūtre Kvathitaṁ kṣaṇam /, Rs. 5/105-6.

5. (a) Retitaṁ gṛhṭasaniyuktaṁ kṣiptvā'ayaḥ kharpare pacet/
Cālayellohadāṇḍena yavat kṣiptaṁ tmaṁ dahet//
Piṣṭvā piṣṭvā pacedevaṁ pañcavaramataḥ param/
Dhātṛtriphalaḥairiyadvā triphalākavāthkṛtvāthitodakaiḥ/
Puṭellouhaṁ catuṣvāraṁ bhaved-varitaraṁ khalu // Rs. 5/106-108.

(b) Tikṣṇāluhasya patrāṇi nirdalāni dṛḍhe anale/
Dhmātvā kṣipejjale sadyaḥ pāṣāṇolūkhalodare//
Kaṇḍayed dṛḍhanirghāḥ śihṇaya Jhapāraya/
Tanmadhyāstthulakhaṇḍāni ruddhvā malladvāmtare//
Dhmātvā kṣiptvā jalle samyak pūrvavat Kaṇḍayet khalu/
Taccūrṇaṁ sutagandhābhyāṁ puṭēdvimśativāraṁ//
Puṭe puṭe vidhātavyaṁ peṣaṇaṁ dṛḍhavattaram/
Evaṁ bhasmikṛtaṁ lauham tattadrogēsu Yojayet // Rs. 5/110-113.

The process of Drāvaṇa (melting of iron).

There are four to five processes of Drāvaṇa.

1. Give saturation to the ashes of bitter torai in cow's urine twenty one times and dry them up. Next melt iron in iron crucible and put that powder into it, there will take place drāvaṇa of iron.

Another process is like this. Take equal portion of sulphur and kānta-loha and grind them, next put the mixture over the heated iron, there will be loha-druti.¹

Vaṁga² (Tin) or Trapu or Kalali

Vaṁga (tin) is useful for metallurgy³ and medicine⁴

According to Rasaratna Samuccaya, there are two kinds of tin, viz, Khuraka and miśraka. Between them khuraka has been regarded as best. Khuraka vaṁga (tin) is white, soft, cool (to the touch), readily fusible and bright; it does not clink when struck, and heavy. In miśraka vaṁga there is a mixed colour of black and white (i. e. grey tin)⁵

The Killing process of Tin

Apply killed tin by taking equal portion of mercury and orpiment. This is Rājavatīvidya—which is not to be told by the father to the son.⁶

That is to say, it is said by the dispassionate; first in the process of killing tin, take mercury tā 5, orpiment tā. 5, borax ta. 3, well purified

1. (a) Ttiḥsaptakṣtvo gomūtre Jālinibhasmbhāvitam/
Soṣayettasya vātēna Tikṣṇam mūṣāgataṁ dravet//
Rs. 5/142.
- (b) Gaṁdhakam kāntapāṣāṇam cūrnayitvā samam samam/
Drute lohe pratīvāpo deyo lohāṣṭakam dravet;
Ibid. 5/145.
2. SRSS. 1.10, 12, 19, 22, 48, 53, II. 8, 12, 13, 15, 16, V. 21, 27, VI. 2, 9, 13, 33, 37, 37, VII. 12, 22, VIII. 30, 32, 27, IX. 40, 48 IX. 40, 48, XI. 2.27, XIII. 2.13,
3. Jdid. Ch. 1.12, 12, 19, 22, 48, 53, 54, II. 8, 15,
4. Ibid. XIII. 13, etc.
5. Khurakam miśrakam ceti divividham Vaṁgamucyate/
Khurakam tatra guṇaiḥ śreṣṭham miśrakam na hitam matam//
Dhavalam mṛdulasnigdham drutadravam sagauravam/
Niḥṣabdam khuravamgam syānmiśrakaśyāmasubhrakam//
Rs. 5/153-154.
6. SRSS., Ch. 1.10.

realgar 3, (make) their finest powder, Take tin weighing 1/4 part of these medicines, make the leaves of tin, make them dry twice or thrice, place them into a Śarāva-Saṃpuṭa-one above another, put 3 layers of clay and cloth over it. Next it is to be heated (roasted) in gajapuṭa fire for two praharas. When it becomes cold it is to be taken out. Tin gets killed.¹

The Chemical process of making tin fixed.

Make realgar fine, and rub it in a mortar with the juice of *Sesbania glandiflora* (Agastapuṣpā). Give puṭas (roastings) to tin infused with the juice of citrus medica and with the powder of purified realgar three times. It becomes gold-like or silver-like (Kaladhauti)²

That is 21 saturations (bhāvanās) are to be given to the finely powdered and rubbed realgar by grinding with the juice of *sesbania glandiflora*. It is purified, next purifying tin with the juice of citrus medica twice, thrice, four times, and (treatment of heat) melting good tin it is to be given pratīvāya with the powder of realgar three times. On the third time it is to be poured into oil, it fixes tin.³

Sisā or Sisaka or Nāga (Lead)⁴

According to the Rasārṇava, lead is of one kind.⁵ It is readily fusible and very heavy and soft.⁶

"It presents a black and bright appearance on fracture. It is of foetid odour, and black exterior."⁷

The process of purification of lead.

The Suvarṇa-Raupya-Siddhiśāstra refers to some processes of purification of lead in the following manner.

(1) Melt lead with Misarī Sābu (a kind of soap), it removes dirt (blackness) of lead when put into the soap, go on putting it, lead becomes white.⁸

1. Ibid., Ch. 2. 1.10, (Comm.)

2. SRSS., Ch. 1, 48.

3. Ibid., Ch. II. 1.48 (Comm.)

4. SRSS., Ch. II. 6, III. 3, 4, 105, IV. 4, 25, 30, V. 12, 24, 31, VI. 9, 13, (Naga), 14, 22, 38, VII. 17, 19, 24, VIII. 1, 27, 32, 33, IX. 8, 15, 42, 57, X. 63, XI. 38, XI. 2, 23, 39, XIII. 4, 12, 17,

5. Nāgastveka vidho devī śighradravī mṛdurguruḥ // Rasārṇava. 7.10.

6. Ibid.

7. "Drutadravaṃ mahābhāraṃ chede kṣṇasamujjvalam/
Putigāmdham bahiḥ kṣṇaṃ śuddham sisamato' anyathā",
Rasaratna Samuccaya, 5/170.

8. SRSS., Ch. 9.57.

(2) Fill all these articles—lead-1½ srs., black sesamum-1½ srs., gola of *Imgāra* (*Balanites Aegyptiaca*)-1½ srs., ripe *Aegale folia*-1½ srs., raw oil-1½ srs., old kernal of cocoanut-1½ srs., turmeric-1½ srs., into an earthen bowl by grinding them all in a mortar.

Mix *Aconite ferox* (*Vacenāga*) into the mixture of those articles, give *vasānu* (*masāla*) under and over it, put a seal of chalk and salt into the mouth of the bowl. Dig and pit, measuring 1 yard in length, 1 yard in breadth and 1 yard in depth (*gajapita*) and fill it up with goat's dry dung cakes, put the *samputa* (covered bowl or lid) into it and give it [fire for 11 days, white lead is produced.]

Blackness of lead is extracted (removed) by pouring it into the juice of *Ramalākṣaṇa Vanaspati* (a species of plant) seven times.²

According to the *Rasārṇava*, lead can be purified by saturation with the bone and urine of elephant.³ The *Rasaratna Samuccaya* of *Vāgbhat* describes the process of purifying lead in this way; put the powder of *vitex-negundo*, *vitex agnus-castus* and tumeric into the molten lead. till the powder gets burnt up. Next quench it (lead) thrice into the juice of the leaf of *vitex negundo*. By this process it will get purified.⁴

Incineration of lead.

“Take twenty palas of lead and apply heat to it, in a *Bhrāṣṭrayantra* (*bhād*) and drop into the molten metal one karsha of mercury and throw into it one after another the ashes of *Terminalia arjuna*, *terminalia belerica*, pomegranate and *Achyranthes arpera* weighting one pala each. The mass being vigorously stirred with an iron spoon for twenty nights in succession, the metal is calcinated yielding a bright red ash.”⁵

1. Ibid., 9. 9.

2. Ibid., 3.13.

3. *Nāga nāgasthimutratah.*, *Rasārṇava*. 7/112,

4. *Sinduvārajatākauntīharidrācūrṇakam kṣipet/*

Drute nāge atha nigrhyastrivāram nikṣipedrase/

Nāgaḥ śuddho bhavedevam mūrcehāshphotādinacaret///, *Rs.* 5/172.

5. *Tiryagakaraculyam tu tiryagvaktram ghaṣam nyaset. Tam ca vaktram vinā sarvaṁ gopayedatnato mṛdāa. Bhāṣṭrayamtrabhidhe tasmin pātre Sisaṁ vinikṣipet / Palaviṁśatikam śuddham adhstivranalam kṣipet / Drute nāge kṣipet sūtam śuddham karṣamitam śubham // Gharṣayitva kṣipetksaramekaikam hi palam palam / Arjunasyakṣavṛkṣasya maharājagirerapi // Fādinasya mayurasya kṣiptva Kṣaram prthak prthak // Evaṁ viṁśatirātrāṇi pacettivrena vahnina / Vighaṭṭayan dṛtam dorbhyaṁ lohadarvya prayatnataḥ // Raktaṁ tajjayate bhasma kapotacchāyameva vā / Nāgam doṣavinirmuktaṁ jayate' atirasāyanam //* *RS.* 5 173-178.

“Leaves of lead are to be smeared with a paste of orpiment and the milky juice of *calotropis gigantea* and roasted in a covered crucible till the metal is entirely killed¹.

Pital² (Brass)

Pital (brass) is one of the eight kinds of metal used in metallurgy.

According to the *Rasaratna Samuccaya* there are two kinds of pital (brass), viz. *ritikā* and *kākatumḍi*. Brass which becomes red like copper by quenching it into *Kāñji* (sour rice water), after heating it in fire is called *ritikā*. Brass whose colour becomes black by the application of this process is called *Kākatumḍi*³.

Purification of Brass

Smear⁴ p o. nālo 1 (part), sal-ammoniac-1 part and merdury-4 parts on the brass leaf and dry it up in fire. Thus do it (repeat the process) seven times. It removes the blackness of brass⁵.

Calcination of Pital (Brass)

The *Rasaratna Samuccaya* describes the process of reducing brass to ashes in the following manner.

Smear the thin leaf of brass with the mixture of sulphur and realgar by making it in the juice of lemon, and close it in a *śarāvapūṣa* (lid). Next heat it in a *gajapūṣa* fire. Brass will get reduced to ashes⁶.

Melting of Brass (Druti)

Feed the powder (grains) of *Ritikā pital* of golden colour to a young and healthy goat with its food-stuff. Next rub its dung with the medicines

1. Ibid. 5/184.

2. SRSS., Ch. III. 16, 52, 65, 86; IV. 4; V. 12, 22; VI. 10; VI. 13; X. 10, 30.

3. *Ritikā kākalumḍi ca dvidvidham pttalaṁ bhavet / Saṁtāpya kāmjike kṣiptā tāmraḥḥā ritikā matā //*

Evam ya jāyate kṛṣṇā kākatumḍi sā matā, RS. 5/190-192.

4. not identified.

5. Po nālo 1-śveṭa hoi, harakoi, docae, Khaḍi navasāra, / rā (jā) 4, patre kharāḍii agnau sekiiṁ 1 imavāra 7 kiṭe Pital kālīka kapen 1., SRSS Ch. 10, 10 Po Nalo is like harakoi while docae and calk.

6. *Nimburasāṣilāgamaḥḥaveṣṭitā puṣṭā' aṣṭadhā / Rtirāyati bhasmatvaṁ tato yojyā yathāyatham //*
Tāmraṇmāraṇaṁ tasyāḥ kṛtvā sarvatra yojayet //
RS. 5/198-199

of Dravana varga and smear the inside of mineral calamine with it. On heating this calamine the best druti (melting stuff) of brass is found.¹

Kāṁsya² (Bronze or Bell-metal)

Kāṁsa is one of the eight kinds of metal mentioned in the Suvarṇa-Raupya-Siddhi-Śāstra. It is an alloy made by melting together eight parts of copper and two parts of tin. Bell-metal of Saurāstra is regarded as best. Good bell metal is that which clinks sharp when struck, and is soft, cool, of mixed colour, of blackness and whiteness, pure and becomes red on giving heat. That bell-metal which is yellow becomes copper-coloured when heated, (which is) rough, breakable and whose ray shoots forth on rubbing.³

Purification of Kāṁsya (Bell-metal)

If it is quenched into the cow's urine by heating it well in fire, it becomes purified.⁴

The process of calcination of Bell metal

The Rasaratna Samuccaya of Vāgbhaṭa gives the two processes of calcination of bell metal.

- (a) Bell-metal can be killed with the help of sulphur and orpiment. Rub sulphur and orpiment in the juice of lemon and smear the leaf of bell-metal with the paste made in this way. Close the leaf in a śarāvasaṁpuṭa and heat it in a gajapuṭa; give it five puṭas (roastings) in this way, there will be the ashes of bell-metal by this process.⁵

1. Suvarṇa ritikācūrṇam bhakṣitam veṣṭitam punaḥ /
Chāgena kṛṣṇavarṇena mattenā taruṇena ca //
Talliptam kharpare dagdham drutiṁ muṇcati śobhanam //
RS. 5/202-203.
2. SRSS. VI. 13.
3. Aṣṭabhāgena tāmreṇa dvibhāgakhurakeṇa ca / Vidrutena bhavet
kāṁsyaṁ Tatsaurāṣṭrabhavaṁ śubham //
Tikṣṇaśabdāṁ mṛdusniḡḍhamisacchyamala śubhrakam /
Nirmalāṁ daharaktaṁ ca śoḍhā kāṁsyaṁ praśasyate /
Tatpītaṁ dahane tāmraṁ kharaṁ rūkṣaṁ ghaṇāsaham /
Mardanādāgatajyotiḥ saptadhā Kāṁsyamutsṛjet //
RS. 5/204-206.
4. Taptam kāṁsyaṁ gavāṁ mūtre vāpitaṁ pariśudhyati, RS. 5/209.
5. Mriyate gandhaśālabhyaṁ nirutthaṁ paṁcabhiḥ puṭaiḥ / ,
RS. 5/210.

- (b) Give saturation to these kṣāras and five salts with the juice of lemon seven times.

Next smear the leaf of bell metal with this essence. Then put it into a śāravaśaṃputa and heat it in a gajapuṭāgni. There will take place the calcination of bell-metal by this process repeated several times.¹

Jasta (Zinc)

Jasta or jasada (Zinc) has been mentioned in the Suvāna-Raupya-Siddhi-Śāstra in connection with some chemical process.²

1. The process purification of jasta:— Melt zinc 10 times in an iron cup and put it into oil. This is the process of purification of Zinc.³

2. Purify the leaf of zinc in the juice of Anacardium, next quench it in Goyalā, in white oleander (Nerium odorum) in the urine of ass, in Euphantopsus Scaber (gobhi) in Āuliphul, in the milk of Euphorbia antiquorum (vajri) in Aloe vera and Nisā.⁴

Some Chemical process by using Zinc.

Melt zinc in a covered crucible and stir it up with a wooden stick. If the stick gets melted, killed or decayed, it will come into use. On putting zinc again there becomes jodo (soap)⁵ again.

2. Make a leaf of zinc pai. 1., grind (pound) cinnabar mā. 1, realgar mā. 2, kaneri-Somal (oxide of arsenic), orpiment mā. 2, tamarind 1 (mā), juice of Aloe vera 1 (mā) and juice of Elephantopus scaber 1 (mā) and and close them into a copper saṃputa; heat it in the fire of dry wild cowdung cakes—10 srs. and coal 3½ srs. Rub realgar ¼ sr. in the essence of grapes and saṃdhava salt.⁶ (The Zinc plate will be purified if the essence is applied on it)⁶

1. Triksāraṃ pañcalavaṇaṃ, saptadhā'amlcna bhāvayet/Kāṃsyā' arakūṭa-patrāṇi tena kalkena lepayet/Ruddhivā gajapuṭe pakvaṃ
Śuddhabhasmatvamāpnuṣāt//,
Rs. 5/211.

2. SRSS. Ch. III. 1, 2, 3, 3, 16, 24, 39, 40, 70, 73, (Jasta); III, 104, 107, (Jasad).

3. Ibid. III. 73.

4. SRSS. III, 6

5. Ibid—III. 40

6. Ibid., 11. 2. 6.

Killing of all metals

Metal is killed with the oil of orpiment and $\frac{1}{2}$ pai of salt ammoniac. Put them into a bottle and place it in a Tikaliyantra, oil comes out. All metals get killed with orpiment and realgar.¹

The process of making camphor

1. Mix phe. camphor and borax-ṭā 7 each, Fill them into kṣināna (sweet rice cooked with milk ?) and keep them there for 22 praharas. There will be comphor.²

2. Scrape the nāh (tube-wood) of bomboo, fill it into the womb of bulb (cepa) of a banana plant. Fill brarāsa camphor (Borneo camphor) under and over it. and keep it in the sunshine for 2 ghaḍis (2x24 minutes by spreading it out). Barāsa camphor is produced.³

Second Section

Apparatus (Yantra)

The Suvarṇa-Raupya-Siddhi Śāstra refers to the construction of apparatus for brining about the chemical process. It is stated that mercury, a pair of medicines, quantum of fire and earthen Pots (earthen) lids-śaravāi are necessary for bringing about the chemical process. Its author speaks of chemistry and metallurgy. (dhāvāo) by covering the remaining demonstrations.⁴

This work makes mention of various types of apparatus for chemical action (rasakarma) in course of its discourse on different kinds of Chemical preparations, such as Dolikāyantra.⁵

Valukāyantra ⁶, Paṭālayantra.⁷, Damaruyantra⁸ Dalāyantra⁹,

1. SRSS, Ch. V. 1.

2. SRSS, Ch. XIII. 10

3. Ibid., XIII. 11.

4. Suvarṇa-Raupya-Siddhi-Śāstra, Ch. 1, 5.

5. Ibid. Ch. 3. 20, 3. 21, 3. 40, 3. 81; 3. 83, 4. 18; 4. 25; 5. 38; 6. 6; 6. 15, 7. 9, 7.28; 9. 14; 9. 25; 9.27; 10.1; 11.35; 11. 2, 26; 11.2, 32; 12.8; 13.24,

6. Ibid., Ch. 2.11, 3.3; 3.8; 5.3; 5.40; 6.29; 6.30; 6.31; 8.25; 29, 31, 32. 33; 9.45; 9.58; 10.11; 12. 26; 13. 16.

7. Ibid, Ch. 3.6; 4. 14; 5. 35; 7. 23; 10. 28; 11. 41; 12. 9.

8. Ibid. Ch. 9.56; 66; 11. 1. 6; 11. 2. 1; 12. 5.

9. Ibid; Ch. 4. 11, 6. 17x; 7. 15; 16; 8.11; 8. 12; 9, 40; 10. 22; 23.

Kavacyantra,¹ Sineyantra², Tikaliyantra³, Sateyantra⁴, Bhubharayantra⁵ Nalantiyantra,⁶ Ghajhoyantra⁷ Thaliyantra^{7x} and some crucibles.⁸ But a detailed description of their construction has not been given in this work as is found in other Indian works on Rasayanavidyā such as Rasārṇava, Rasaratna Samuccaya. etc. The above-mentioned apparatus are common to the list of Janina, Baudhha and Hindu alchemical works.

Dolikāyantra

(The medicine)-Mercury, etc, tied in a piece of cloth is suspended with a thread from a rod placed across the mouth of a pot half-filled with liquid, (Kṣāra, amla, kāñji etc.) The liquid is allowed to boil in the pot having its mouth closed (covered) with a layer of cloth and clay and the medicine is heated by its vapour as a result of gentle fire given under the pot. This is called Dolikayantra.⁹

Veluyantra or Vālukā or Velukāyantra

The process of construction of a Vālukāyantra is this that "A glass flask with a long neck containing mercurials is to be wrapped up with several folds of cloth smeared with clay and next it is to be dried in the sun. It is to be buried up to three fourths of its length in sand placed in an earthen pot, whilst another pot is to be placed invertedly over it", the

1. Ibid., Ch. 4. 1; 12. 3,
2. Ibid; Ch. 6. 31;
3. Ibid., Ch. 5. 1.
4. Ibid., Ch. 4. 48.
5. Ibid., Ch. 11. 11.
6. Ibid., Ch. 5. 6,
7. Ibid., Ch. 3.84 7x. Ibid Ch. 3.66.
8. Ibid. Ch. (2. Comm.); Ch. 7.16; 11. 11. 1; 11. 2.35; 11. 2.36.
9. Dravadravyena bhāṇḍasya pūritārdhhodarasya ca.
Mukhe tiryakkṛte bhāṇḍe rasam sūtreṇa lambitam//
Taṁ Svedayet I talagataṁ Dolāyantramiti Smṛtam//.
Rasārṇava, pāṭa I, IV./7.
Dravadravyeṇa bhāṇḍasya pūritārdhhodaKasya ca/
Mukhasyobhayaṭo dvāradvayamkṛtvā prayatnataḥ//
Tayostu nikṣipeddandaṁ tanmadhye rasapotalim/
Badhyā tu svedayedetaddolāyantramiti smṛtam // ,
Rasaratna Samuccaya 9/3-4.

rims of both are to be luted with clay. Heat is to be applied "till a straw placed on its top gets burnt."¹

Pātālayantra²

In it one pot having holes in its sides is put over another pot. Having placed it into a pit, fire is given to it from above. Sulphur, orpiment, etc. are purified by this process by putting them into the pot.³

Damaruyantra⁴

Put the mouth of an earthen pot upside down (inverted) on the mouth of another earthen pot. Close the joint in between them with the layer of clay and cloth. The shape of this apparatus becomes like that of Damaru. For this reason it is called Damaruyantra. It is useful in making ash of mercury.⁵

1. "Jārayet bālukāyāntre khoṭo bhavati tatkaṣaṇāt (12/19);
Jārayet bālukāyāntre bhāvitaṁ gaṁdhaṁ punaḥ / (15-87)
- 2 Prāguktābālukāyāntre tailaṁ dattvā vicakṣaṇaḥ / (16/81), Raṣārṇava
Sarasāṁ gūḍhavaḍḍakṛm mṛdvastrāṅgulaghaṇāvṛtām /
Śoṣitaṁ kācakalāsīn tṛṣṇu bhāgeṣu pūrayet //
Bhāṇḍe vitastigambhīre vālukā spratiṣṭhā /
Tadbhāṇḍe pūrayet tṛbhīrayabhiravagunṭhayet //
Bhāṇḍavakṛm maṇikayā sandhi līpenmṛdā pacet /
Culiyāṁ tṛṇasya cādāhānmanikāpṛsthavartinaḥ //
Etaddhi bālukāyamitraṁ tadyantraṁ (avaṇāśrayam) //
Rasaratna Samuccaya, 9/33-35.
See History of Chemistry, p. 190.
2. Suvarṇa-Raupya-Siddhi-Śāstra-Ch. 3. 6; 4. 14; 5.35; 7. 23; 10. 28;
11. 41; 12. 9.
3. Grāhyaṁ tatphalatailāṁ vā yāntre pātālayāntre
Raṣārṇava. 12. 21.; (kha) Pātālayāntre tattailāṁ gṛhṇīyāt tāmra-
bhājane, Ibid. 12. 59.
4. Suvarṇa-Raupya-Siddhi-Śāstra.
Ch. 9. 56; 9. 66; 11. 1.6; 11.21; 12. 5.
5. Yantrasthalupari sthalim myabiga datva nirundhayet/
Yantram damarukakhyam tadrasabhasmarte hitam/Rasaratna Samucc-
ayaṁ, Ch. 9. 54.

Jalayantra.¹

The process of making Jalayantra

Make a round earthen vessel by a potter, having 14 angulas (fingers, in height and 10 angulas (fingers) in circumference. It is called Jalayantra. Then cast the medicinal powder into that vessel that is Jalayantra. Next cover it up with an inverted (upside down) cup made of the Nepalese copper-*pa*. 7½, till it covers the powder. Cover it up with an inverted (upside down) Śarava (lid), over it, (**inside down**) **Sarava (lid)**. Cover it up with an earthen vessel. After that make a seal on all sides of the vessel, i.e. smearing is to be given to it. Then water is to be filled in on all sides of Jalayantra up to all the brims. Hold it thus. Again water is to be poured little by little.

Next Jalayantra is to be placed on the Kumalika furnace Fire of Khicaḍi is to be lit for 32 praharas. Then the pot of Jalayantra is to be taken out and placed on the ground. When Jalayantra gets cooled down, then it is to be opened up. The cup also becomes **Astryo**². Sulphur, etc. get combined with the cup. Then the cup is to be powdered by crushing it. Thus Astryasiddhi is accomplished.³

This Jalayantra is called Kacchapayantra in the Rasendra Cintāmaṇi, etc.⁴

In the Rasaprakāśa Sudhākara of Yaśodhara the description of Jalayantra is given in detail in the following manner.

Fill up 3 ādhakas=1 of water into a round iron pot, then put mercury into an iron saṃputa (lid) and close it up firmly. Next place it into the water of the iron pot. Combine Bṛā (16 bhāga) and the essence of mica (64 bhāga) with mercury into the saṃputa, in proper dose. Close the joint of Saṃputa with clay churned, in water or vahnimitti (fire burnt soil) (which is prepared with chalk, salt kiṭṭa, etc. and is heat-bearing). Place Jalayantra on the oven and make it hot slowly by filling it with

1. Suvarna Raupya Siddhi-Sāstra. Ch. 4. 11, 6:17, 7.15, 7.16, 8.11. 8.12 9.40, 10. 22, 3, 20. 22. 20. 23.
2. It could not be explained for want of commentary.
3. SRSS., Ch. 10. 23.
4. Vide. Prācīna Bhārat men, Rasāyanka vikāsa, Dr. Satyaprakāśa p. 441.

hot water up to 1½ days. On doing this, mercury takes up (assimilates) mica.¹

Some processes as performed in Jalayantra

Wash (purify) mercury 3 in the water of Triphla (āmalakī=phyllanthus emblica, haritakī=Terminalia Chebual and Vahedā=Semecarpus anacardium) and rub it in a mortar for 3 days. Next rub it with Saimdhava salt in the juice of citrus lemon for 3 days. Make a ball of mercury to. 1, āmalsar sulphur to. 6, sal-ammoniac-to. 1 and killed white lead to. 1 with the juice of Aloe vera. Cast the whole thing into a Jalayantra and worship Kṣetrapāla.

Then again worship Kṣetrapāla, give it fire-high, medium and low. First give dīpāgni (fire of lamp) for 4 praharas, then dhānyāgni (fire for boiling paddy) for 4 praharas, next bhātāgni (fire for cooking rice) for 8 praharas, then bhātāgni (fire of kiln) for 16 praharas, or give dhyānyāgni to it for 16 praharas. Next the essence is accomplished. Mix ratio of the essence into 1 tola of silver, copper and lead respectively also. This is Jalayantra. True².

Rub Sulphur 9, Sal-ammoniac 1, mercury 2, realgar 2, and golden pyrite 2, thus 16 in all and fix them for 3 days. Rub them with Nāgar belī (piper betel) in the juice of Aloe vera, give them 4 or 5 Saturations every day. By holding and holding the whole thing in the sunshine the Saturation is to be given to it. Thus it should be given for 3 days. Take out the powder from the mortar on the fourth day and put it into a Jalayantra according to the process by casting it into the same.³

1. Ato hi jalayantrasya lakṣaṇaṁ kathyate mayā /
Suvṛttaṁ lohapatraṁ ca jalam tatrāḍhaka-trayam //
Tanmadhye sudṛghaṁ samyak kartavyaṁ lohasaṁpuṭam /
Lohasaṁpuṭamadye tu niḥṣiptaṁ śuddhapāradam //
Bhīḍaṁ sahitam caiva śoḍaśaṁśena yantnataḥ.
Catuḥ śaṣṭyaṁśakaṁ cābhrāsattvaṁ Saṁpuṭake tathā //
Saṁpuṭam mudrayetpāścāddṛghayā toyamṛtsnayā /
Vahnimṛttikayā vāpi sandhirodham tu kārayet //
Culyaṁ niveśya taṁ yantram jalenosṇena pūritam /
Kramādagñiḥ prakartavyo divasārdhakameva hi //
Evaṁ kṛte grāsamānaṁ bhakṣayennātra Saṁśayaḥ /
Anenaiva prakāreṇa śaḍgrāsaṁ bhakṣayeddhruvam, /
Rasaparakāśa sudhākara, Yaśodhara, 1/69-74.

2. SRSS., Ch. 6. 17 X

3. Ibid., Ch. 10. 22.

Besides these Yantras, there are references to Nalanīyantra³, Kavacīyantra⁴, Sineyantra⁵, Tikaliyantra⁶, Sateyantra⁸, jhājhoṇyantra⁷ and Bhubhara (dhara ?) Yantra.⁸ But no description on the process of their making has been given in the Suvarṇa-Raupya-Siddhi-Śāstra.

Nalanīyantra of this work may be identified with Nālikāyantra of the Rasaratnasamuccaya of Vāgbhaṭa.⁹

Mercury is filled up with proper medicine into an iron tube. By closing the mouth of the tube, it is put into a Lavaṇayantra. Again the mouth of Lavaṇayantra is closed by lid with a layer of cloth and clay and the whole thing is cooked inside. The name of the apparatus is called Nālikāyantra.¹⁰

The process of making glass Crucible

The SRSS. refers to two kinds of Mūṣā, viz. Andha-mūṣā^{1x} and Uḍha mūṣā^{1y}. (closed and open crucibles)

2. SRSS, Ch. 5. 6.
3. Ibid., Ch. 4.1; 12.3.
4. Ibid., Ch. 6. 31.
5. Ibid., Ch. 5.1.
6. Ibid., Ch. 4. 48.
7. Ibid., Ch. 3-81.
8. Ibid., Ch. 11. 11
9. Rasaratna Samuccaya, 9/40,
10. "Lohanālagatam sūtam bhāṇḍe lavaṇapurite /
Niruddham vipacet prāgvannālikāyantramritam //
Rasaratnasamuccaya, 9/40.
- 1x. SRSS. 2.4; 2.9; 3.19; 3.40; 3.103; 4.14; 4.28; 7.23; 8.2; 9.55; 11/25; 11/36; 11. 2.4 XI. 2.5.
- 1y. SRSS. Ch. 8.34; 9.11; 9.54; 11. 2.20; 3.85; 6.33; 7.12; 7.21; 8.3; 11. 2.2; 10. 47; 12. 28; 13. 14.

(1) Make first fine powder of glass bangle and make gund (gum) wet. Make the crucible by rubbing the glass powder with it (gund). Some Ācāryas say, "make the crucible by rubbing the powder with honey instead of gund". Next put the medicines into it¹ (crucible).

This is the process of making a crucible of glass.

(2) Crush magnetic stone, to fine pieces, crush it with human blood and put it into a Jalayantra. Give it a hard seal so that water does not break (escape). Crush these five articles, viz. earth (soil), husk (fotrā), prahina (not identified), chalk, ghike (not identified), sea-salt (Saindhava) and make a crucible by mixing them. It will be a hard crucible.²

(3) Make a crucible by grinding all these articles together—ash of fine coating of rice 2 (parts), chalk-1 (part), Kātho (lime mixed with Khadir)-1 (part), ash of dry wild cow-dung cake 1 (part), salt 1 (part), Kāṭaḍi × 1 (part), jhiko 1 (part) and clay of potter or make a crucible by grinding together salt 1 (part) and ash 3 or 7 parts.³

(4) Make a crucible out of ash of mukha-vastra (mouth-cover)-1 (part), ujalimāṇi (bright soil) 1 (part) and glass-1 (part) in the milk of Nivadaga.

Take gāra 1 part (clay and cowdung), lime 1 (part), carbon of cloth (Vastra masi), 1 (part), varumāṭi 1 (part)—a kind of soil (or clay) and make a crucible in milk.⁴

(5) Take Śvetamāṭi (white soil) part 1, lime, part 1 and flux part $\frac{1}{4}$ and make a strong crucible (Vajramūsā).⁵

(6) Take lime 1 (part), clay 1 (part), black kātho 1 (part), ash of rice (Vrahi rakṣā) 1 (part), rust of iron (lohakāṭa) 1 part and haritaki 1 (part) and make a strong crucible⁶. There are two kinds of crucible—closed crucible⁷ and open crucible.⁸

1. SRSS., Ch. 2. (Comm.)

2. SRSS., Ch. 7. 16.

× Not identified.

3. SRSS. Ch. 11. 2.1.

4. SRSS., 11. 2. 35.

5. Ibid., Ch. 11. 2. 36.

6. Ibid. Ch. 11. 2. 36.

7. Ibid., Ch. 2.4, 9; 3.19. 40, 103; 4.19, 28; 7.23; 8.2; 9.55; 11.25; 11.36; 11. 2.4; 11. 2.5.

8. Ibid., Ch. 2.2; 2.3; 2.7.

Various processes of making crucibles are found in Rasārṇava¹, Rasasāra of Govindācārya², Rasaprakāśasudhākara³, and Rasaratnaśamuccaya.⁴

1. Rasārṇava; 4/35-45.

Gārā dagdhā tuṣā dagdhā valmīkamṛttikā /
 Cīramāṅgarakaḥ Kiṭṭam Vajreṇāpi na bhidyate //
 Dagdhāṅgārasya śadbhāgā bhāgekā Kṛṣṇamṛttikā /
 Cīramāṅgarakaḥ Kiṭṭam Vajramuṣā prakīrtita //
 Tuṣam Vastrasamam dagdham mṛttikā caturamśikā /
 Kūtpāśāṇasamyukṭā varamuṣā prakīrtita //
 Prakāśacā' andhamuṣā ca muṣā tu dvividhā smṛtā /
 Prakāśamuṣā deveśi ! śarāvākārasamṛta //
 Dravyanīrvāhaṇe sā ca vādikāḥ suprasīyate
 Andhamuṣā tu Kartavyā gostanākārasannibhā
 Pidhānakasamāyukṭā Kiñcidunnatamastakā,
 Patralepe tathā raṅge dvandvamelāpake tathā /
 Saiva cchidrānvitā mandā gambhīrā sārāṇocitā //
 Tilabhasma dviramśam tu iṣṭakāmśasamanvitam /
 Bhasmamūṣā tu vijñeyā tārasamśodhane hitā //
 Mocakṣārasya, bhāgau dvau iṣṭakāmśasamanvitau /
 Mṛdbhāgastārasuddhyarthamuttamā varavarpini /
 Raktavargeṇa sammīśrā raktavargapariplutā
 Raktavargakṛtālepā sarvasuddhiṣu śobhanā,
 Śuklavargeṇa sammīśrā Śuklavargapariplutā,
 Śuklavargakṛtālepā śuklasuddhiṣu śobhanā (4/35-45) //

2. Kaupēna ca samāyukṭā vajramuṣā ca kathyate /
 Dagdhātuṣattu bhāgaikam mṛd-bhāgadavayameva ca //
 Kūrpeṇa ca samāyukṭā vajramuṣā ca kathyate //
 Kācācūrnam ca bhāgaikam samabhāgam tu mṛttikā /
 Muṣabandhaḥ prakarttavyo dhamaṇād-vajratam vrajet //
 22/8-9. Rasasāra, Govindācārya.

3. Yogamuṣā, gāramuṣā, varamuṣā, Varṇamuṣā, rūpyamuṣā, vidamuṣā, vajramuṣā, Vṇtakamuṣā, gostanimamuṣā mallamuṣā and muṣalamuṣā, Rasaprakāśasudhākara of Yaśodhara, vide Pācīna Bhāratamen. Rasāyana kā Vikāsa, pp. 458-9.

4. Rasaratna Samuccaya.

10/1-2; 10/5; 10/6; 10/7-8; 10/9; 10/10-11; 10/12-13; 10/14; 10/15;
 10/16; 10/17; 10/18; 10/19-21; 10/23-24; 10/25; 10/26; 10/27; 10/28;
 10/29; 10/30; 10/31; 10/22.

According to Rasārṇava, Vajramūṣā (hard crucible) is made of burnt gāra, husk, white ant-hill soil, cloth, charcoal and rust of iron by mixing them together. Vajramūṣā is made by the combination of burnt charcoal 6 parts, black soil 1 part, cloth, burning coal and iron rust. Mūṣā made of equal portion of husk and cloth, burnt soil- 4 parts and stone at the bed of river (Kūpi-pāṣāṇa) is called varamūṣā.

There are two kinds of mūṣā (crucible), viz. prakāśamūṣā and haramūṣā (open and closed crucibles). The open crucible is of the shape of lid (Śarāva). There is a lid cover of high head by catching which it can be opened and closed.

Mūṣā having holes is good for patralepana smearing of leaf, colouring work, uniting joints, sāraṇa, etc.

Bhasamūṣā made by the combination of 2 parts of ash of Tilakāṣṭha (sesamum wood) and brick is useful for purification of silver.

Mūṣā made of 2 parts of Mocakṣāra, brick dust and clay is the best for the purification of silver.

Mūṣā made of raktavarga and pariṣṭa and smeared with raktavarga is very good for the purification of all metals (things). In place of raktavarga if Śuklavarga articles are applied for making Mūṣā, it will be good for purification of Śuklavarga (Silver, etc.)²

In Rasasāra it is stated that Vajramūṣā is made by the combination of 1 part of iron rust, 2 parts of burnt husk, 3 parts of clay, and a little cotton.

Or vajramūṣā can be made by combining iron-rust, burnt husk, powder of Sipi (Oyster shell ?) and stone lying on river bed of equal portion and clay equal to the same quantity.

A strong Vajramūṣā is also made by combining clay of well or kernal of cocoanut and also by mixing glass powder and clay.³

According to the Rasaratna Samuccaya, the other names of Mūṣā (crucible) are Krauñcika, Kumudī, Karahāṭikā, pācāni and Vahnimitra. It removes or destroys (moṣaṇa) the defects (impurities) of medicines; for this reason it is called Mūṣā. Mūṣā is made of clay and iron.³

1. Rasārṇava 4/35-45,
2. Rasasāra 22/8-9.
3. Mūṣā hi krauñcika proktā kumudī karahāṭikā /
Pācāni Vahnimitra ca rasavādibhirrīyate //
Muṣnāti doṣānmūṣa yā sā mūseti nigadyate //
Upādānaṁ bhavettasya mṛttikā lohameva ca /
Rasaratna Samuccaya, 10/1-3.

The act of closing the joints of the lid and crucible is called bandhana (binding), Sandhilepana (smearing of joint), andhraṇa, randhraṇa, saṁśliṣṭa and sandhibandhana.¹

The process of making Crucible

Clay or soil for making a crucible should be yellow and fine or sandy and red and of yellow colour. It can bear the heat of fire for ever and is the best. If such clay is not available, then white and-hill's soil or potter's clay should be taken for making it.²

Mix ash of husk of paddy, coal and horse-dung into this clay and make them properly, grind them properly with an iron rod. This clay is good for common crucible. The following things may be mixed for making a crucible, Viz. Śvetāsma (white chalk), ash of burnt husk, coal, flux, powder of Khiparo (not identified), horse-dung, and rust of iron and black soil.³

In the Rasaratnasamuccaya there is mention of 17 kinds of crucible, viz. Vajramūṣā, Yogamūṣā, Vajradrāvaṇi mūṣā, gāramūṣā, varamūṣā, varṇamūṣā, raupyamūṣā, Viḍamūṣā, another kind of vajradrāvaṇi mūṣā vṛntāka mūṣā, gostani mūṣā, mallamūṣā, golamūṣā, mahāmūṣā, maṇḍukamūṣā and musalamūṣā.

Vajramūṣā

It is made by the combination of 3 parts of clay, 1 part of flux, 1 part of horse dung, 1 part of ash of burnt husk, 1 part of white chalk and $\frac{1}{2}$ part of iron-dust after grinding them well. It is useful for the work of Satvapātana.⁴

1. Mūṣāpidhānayorbandhe bandhaṁ sandhilepanam /
Andhraṇaṁ randhraṇaṁ caiva saṁśliṣṭaṁ saṁdhibandhanam //
Ibid. 10/5.
2. Mṛttikā pāṇḍurasthulā sārkaṛaṣaṇapāṇḍurā /
Ciraḍhmānasahā sā hi mūṣāsāthamatisāsyate //
Tadabhāve ca vālmiki kaulāli vā samiryate Ibid. 10/6.
3. Yā mṛttikādagdhatuṣaṁ śaṇena śikhitrakairiva hayaḷaddina ca/
Lauhena daṇḍena ca Kuṭṭitā yā sādharmaṇā syātkhalu mūṣikārthe //
Śvetāsmanastuṣā dagdhā śikhitrāṇaṁ sanakarpāre/
Laddhiḥ Kiṭṭaṁ Kṛṣṇamṛtsnā saṁyojyā mūṣikāmr̥di // Ibid. 10/7-8.
4. Mṛdastrībhaḡaḥ śaṇaladdibhaḡau bhāgaścau nirdagdhatuṣopalādeḥ /
Kiṭṭārdhabhaḡaṁ parikhaṇḍya vajramūṣāṁ vidadhyatā khalu sattvapāte /
Ibid., 10/9.

Yogamūṣā—It is made by the combination of burnt coal, burnt husk, black soil (or clay), soil of white ant's-hill and Biḍa after crushing or grinding them. The smearing of Biḍa is given inside and outside of it. Mercury purified in it is very beneficial.¹

Vajradrāvaṇi Mūṣā :- It is made of sticky clay of pond or river, the essence of earth worm, flux, burnt husk of equal portion and clay of crucible equal to the quantity of all these articles, rubber with the milk of she-buffalo. Make the crucible according to the size of the apparatus in which it is to be placed.

In this crucible even the hard substance like diamond gets melted. This crucible is often called Krauṇcikā.²

(4) **Gāramūṣā** :- It is made by combining rust of iron-1 part, coal-1 part and gāra-6 parts in black soil and rubbing them with the milk of she-buffalo. It does not melt even in heating it in fire for 2 praharas.³

(5) **Varamūṣā** :- Take equal parts of these two things-vajrāṅgāra (charcoal of the wood of thuhara) and ash of husk and combine black soil four times more than that and gāra (soil) of the same quantity with the mixture of the previous two, and make the crucible. It is called varamūṣā. It can bear fire for 1 prāhara.⁴

-
1. Dagdhāṅgāratuṣopetā mṛtsnā valmikamṛttikā /
Tadtad biḍasamāyuktā tadtad -biḍavilepita //
Tayā yā vibhita mūṣā yogamūṣeti kathyate /
Anayā sādhitāḥ suto jāyate gunavattarah // Ibid (10/10-11).
 2. Garabhūnagadhautābhyām śāṇirdagdhātuṣairapi /
Samaiḥ samā ca mūṣā mṛṇmahīṣi dugdhamardita //
Krauṇcika yantramātram hi bahudhā Parikṛttā /
Tayā viracitā mūṣā vajradrāvaṇi Kocita II, Ibid (10-/12-13)
 3. Dughaṣṭaṣadguṇagārā kiṭṭāṅgāraśāṇānvita /
Kṛṣṇamṛdbhiḥ kṛtāmūṣā gāramūṣetyudāhṛtā //
Yamayugmaparidhmanātrāsau daravati vahninā (10/14)
 4. Vajrāṅgāratuṣāstulyāstaccaturguṇa-mṛttikā, /
gārā ca mṛttikātulyā sarvairatarvinirmita /
Varamūṣeti nirdiṣṭā yamamagnim Śaheta sā II, (Ibid. 10/15)

6. Varṇamūṣā : Rub red soil free from stone in the juice or decoction of medicines of raktavarga and make mūṣā out of that, make the smearing of powder of virabahuṭi (not identified) over it. It is called varṇamūṣā. It makes the colour of superior minerals, inferior minerals or rasa (minerals or mercury) deep (intense) varnotkarṣavidhāyini.¹

7. Raupyamūṣā :- Rub white soil free from stone in the juice of medicines of Śvetavarga and make smearing of the powder of Virabahuṭi from above (outside). It is called Raupya Mūṣā. It comes into the use of increasing the white colour.²

8. Viḍamūṣā : Make a crucible by combining other things with the soil of the land, in which such viḍa is born. On the smearing over that crucible with that viḍa, Viḍamūṣā will be thus made.³

Viḍamūṣā is used in the preparation of the essence (yoga) making the body firm like iron.⁴

(9) Vajradrāvaṇa Krauñcika (second) Mūṣā : Take gārā (gāramiṭṭi= wet soil)-1 part, the essence of earthe worm-I part, husk (ash of husk) -8 parts and clay just equal to the quantity of all and make a crucible by rubbing them all in the milk of she-buffalo, having that much size of an apparatus as to be kept in it and heated. Get this crucible dried up by making a smearing of the blood of lice. Again get it dried up by smearing it with the mixture of Sugandhabala, Nāgaramoṭha and Ākāśabala.⁵ Thus the crucible called Vajradrāvaṇa Krauñcika is made. This crucible can bear fire for 4 praharas on account of its remaining filled up with the liquid.⁶

1. Pāṣāṇarahita raktā raktavargānūsādhita I
Mṛttayā sādhitā mūṣā kṣitikecaraleptā II
Varṇamūṣeti sā proktā varnotkarṣe niyujyate (10-16)
2. Pāṣāṇarahita śveta śvetavargānūsādhita I
Mṛttayā sādhitā mūṣā Kṣitikecaraleptā I
Raupyamūṣeti sā proktā Śvetavarṇāya śasyate I, Ibid, (10-17)
3. Tattadbhedamṛdodbhūta tattadviḍavilepitā /
Dehalohārthayogārham Viḍamūṣe tyudāhṛta /, Ibid., 10/18.
4. Ibid.
5. Plants.
6. Gārabhūnāgadhautābhyām tuṣamṛṣṭaśaṇena ca /
Samaiḥ samā ca mūṣā mṛnmahiśidughamardita /
Krauñcika yantramātre hi bahudhā parikṛtita /
Tayā viracitā mūṣā līptā matkuṇaśontaiḥ //
Balabdhadhvaniṇulaiśca vajradrāvaṇakrauñcika /
Sahate' agniṁ caturyāmāṁ draveṇa vyādhita sati //
Ibid. 10/19-21

10. Vṛntāka Mūṣā : Make a crucible of the shape of a brinjal and put a tube of 12 fingers into its stomach (belly). It should be high like the flower of datura, well firmed and fitted. One hole should be made on the side of caude bhāg (breadth part) of the crucible, having the length of 8 fingers; medicine is put through this hole and again the hole is closed. It is called Vṛntākamūṣā. It is useful in extracting the essence of soft things like calomel (Kharpara, etc).¹

11. Gostanimūṣā : This crucible is of the shape of udder of a cow and its lid (cover) is śikhāyukta (large) from bottom and thin at the top. This crucible is used in melting the essence and purification.²

12. Malla Mūṣā : Make two cups (Malla) of clay. Put medicine into one and cover it with the other and put a layer of cloth and clay over it. Then heat it on fire. This type of crucible made thus is called Malla Mūṣā.

It is useful for the svedana of rasas (medicines) like parpati etc.³

13. Pakvamūṣā : Make crucible equal to the (shape of) the pot of a potter and cook (heat) it in the furnace of the potter. This type of crucible is called Pakvamūṣā. It is useful in the cooking of the rasas (medicines) like poṭali etc.⁴

14. Golamūṣā : Make two round nirvākra sakore (pots) like that of mallamūṣā. Fill medicines fit for giving roasting into one and make a Saṃpuṭa by joining in the two. This Saṃpuṭa (lid) is just round and mouthless. It is called golamūṣā. This crucible purifies the immediate things.⁵

1. Vṛntākakāramūṣāyām nālaṃ dvādaśakāṃgulam /
Dhaturapuṣpavaccordhvaṃ sudṛadhaṃ śliṣṭapuṣpavat //
Aṣṭāṅgulaṃ sacchidraṃ sā syād vṛntākamūṣikā
Anayā kharparādīnāṃ mṛdūnāṃ sattvamāharet //
Ibid. (10/23-24)
2. Mūṣā yā gostanākārā śikhāyuktapi dhānakā,
Sattvanāṃ drāvaṇe śuddhau mūṣā sā gostani bhavet /,
Ibid. 10/25
3. Nirddiṣṭā mallamūṣā yā malladvitayasampūṭat /
parpatyādi rasādīnāṃ svedanāya praeṛtita //
Ibid., 10/26.
4. Kulālabhāṇḍarūpā yā dṛḍhā ca paripācītā /
Pakvamūṣeti sā proktā potalyādivipācane /,
Ibid. 10/27.
5. Nirvakraḡolākākārā puṭanadravyagarbhini /
Golamūṣeti sā proktā sattvarāṃ dravyaśodhinī /,
Ibid. 10/98.

15. Mahāmūṣā : It is small or narrow (or thin) at the bottom like the shape of kūrpara or kachue (tortoise) and it is broad gradually at the top and in the middle it is thick like a big brinjal. This Mūṣā is used for melting the essence of iron and mica etc. and giving puṭa,¹ (roasting)

16. Maṇḍukamūṣā : This crucible is of the shape of a frog, long at the bottom, broad and khokhalt (empty ?) having the length of 6 fingers. It is to be burned in the earth by digging a pit (ditch) and puṭa (roasting) is given over it, i. e. fire is lit from above.²

17. Musalākhyā Mūṣā : This crucible is 8 fingers high, round and flat at the bottom. It is useful in binding mercury like wheel.³

18. Mūṣā-āpyāyana : Put the crucible on fire for melting any metal by putting the thing into it. When that metal gets melted, then take it out from fire. The action of taking it out is called Mṣūāpyāyana.⁴

1. Tale ya kurparākara kramādupari viṣṭā /
Sthālavṛtakavastisūṣā mahāmūṣe tyasan smṛtā //
Sā cayoābhrakasattvadeh puṭāyā drāvāṇāyā ca" /,
Ibid. 19/29.
2. Maṇḍukakāramūṣā ya nimnatāyāvistarā /
saḍaṁgulapramāṇena mūṣā maṇḍukasamgnikā //
Bhūmau nikhanya taṁ mūṣaṁ dadyāt puṭamathopari //,
Ibid. 10/30.
3. Mūṣā ya cipitā mūle vartulā aṣṭaṁgulocchrayā /
Mūṣā sa musalākhyā syāccakri baddharase hita,
Ibid. 10/30.
4. Drave dravibhavamukhe mūṣāyā dhmanayogataḥ /
Kṣaṇamuddharaṇaṁ yattanmūṣā, āpyāyanamucyate //
Ibid., 10/12

Second Chapter

Various Chemical Processes.

First Section

Mercury and Its Application in Chemical processes.

It is stated in the *Suvarṇa-Raupya-Siddhi-Śāstra* that some rasa 1 (mercury) exists in the womb of mica (gagana), some rasa exists in the possession of Kāminī (Murraya exotica), some rasa exists in stars and planets, some rasa exists in the words of the guru.¹

The processes of making mercury

Drench mica into water for 4 praharas, next take it out and make its layers separated. Make them fine by grinding. Then bind the whole thing in a wet cloth for an hour and keep it in the sun. Mix mercury into it, then put black tolaḍi golo (a kind of molasses ?), make a fine hole under the jar, put a small pot underneath, place it on the furnace, lit fire on the jar, then there comes up five coloured flame, then mercury falls out of coloured mica. Thus is pāradadruti of mica.²

Take out the juice of grapes, again take out its spirit (tejāb), smear the leaves of mica with that spirit. Tap the leaves of mica after their drying up. Mercury will come out. Thus tap them (repeat the process) 5 or 7 times by smearing and smearing. (The leaves of mica), mercury comes out of mica. This is called marvellous mercury.³

Dip mica into the juice of kāmṭa seliya (a kind of Vanaspati) and put it into a shieve (cālant) and then put it in the Sunshine. Mercury comes out of it.⁴

Put a handful of rice into a cocoanut having, water, grind it, mercury is produced.⁵

1. SRSS., Ch. I. 30

2. SRSS. III. 27

3. Ibid., V. 37.

4. SRSS., Ch. VIII. 17.

5. Ibid., Ch. XIII 3.

Burn a big oyster shell of pearl-1 sr. and grind it, pound it by rubbing. Next get it drenched into the milk of *Euphorbia antiquorum* and make tablets of it, put them into an earthen bowl. Make 5 holes at the bottom of the bowl. Later on, dig a pit measuring $1\frac{1}{2}$ yards deep, dig a small pit into it, do as such that a small pot (loṭā) of copper or a pan is fitted there. And put a cup of copper into that. Put the earthen bowl over it. Close the joint of the bowl and the cup. Next again close the middle part of the bowl with clay up to the mouth of the bowl. Put 7 layers of cloth and clay over it from the mouth to the middle portion of the bowl or vessel. Next give it fire of goat's dung for 12 praharas. Mercury comes up. Fill up water below (under) into the cup and the copper vessel. Mercury will come up into it. True.¹ Rub mercury $2\frac{1}{2}$, oxide of arsenic (Somal Saṃkhiu) (a kind of oxide of arsenic)- $2\frac{1}{2}$ and Sal-ammoniac 5, with honey $5/16$ sr. Glose the whole thing into a small box. Give it fire for four praharas. Mercury is produced.²

The process of purification of Mercury

The impurity of fire in mercury is purified by Triphalās-amalaki (phyllanthus emblica), haritaki (Terminalia chebula), and Vaheda (Terminalia belerica). How? Mercury becomes free from artificial defects, allows-tin and lead by means of distillation.³

Fixation of Mercury

Rub mercury in the juice of Rāḍhā(gā)lī, (a kind of Vanaspati) rub it in the juice of daturā, next rub the oil of datura in the juice of Rāḍhagali, fix it into a bottle for 15 days.⁴

Jalasī is of two kinds, one kind is like the leaf of Ocimum Album and Bhedi (White basil) and the other is of thick leaf like pipali (piper longum).

Know that Thoriyā Saji goes. Know that it is born much in the swamps behind the temple of Hanumān (the monkey god) on the bank of the river.

Mercury is fixed (in it).⁵

1. SRSS., Ch. XIII. 22.

2. SRSS., Ch. XIII. 2. 14

3. Ibid. Ch. II. (comm.)

4. SRSS., Ch. VIII. 27

5. Ibid., Ch. VI. 35.

Rub Kalicuno (lime) pai 10 and mercury pai 5 for 6 days. Next wash the same, * Luṇi will come out, take that. Next it remain in lime, blow that in Dolikāyantra. It goes away and mercury becomes fixed.¹

Grind 'maṇmata, homapā and gora-raka' ix in the juice of tāmbola (betel leaf) put fresh mica in between them, give a chipaṭi (tip) of bark of the root of Echinops Echinata (uṭakaṭa) and uṇṭiu gaṇḍhaka (a kind of sulphur). There remains the fire of thick grass for 12 praharas (i.e. give it fire for 12 praharas); quench lead 121 times in the urine of ass, its blackness goes away. Next rub molasses in the urine of ass 21 times. Rub saffron (Kesara) tā 1 and 2 lemons for 4 ghāḍis (4 × 24 minutes), smear the leaf of copper with it. Reduce it (Copper leaf) to ashes in a closed crucible. Keep it alive, (give it) tips of surakhāra (a kind of oxide) pai 4, natron-māsā 6, pāpaḍi (saṁcaro) māsā 6 in an iron cup; mercury is fixed.²

Put equal portions of the juice of Visakhāparā (Pigweed) pañcāṅga (five parts of Visakhāparā³ [and white scented oleander) Dholi Kanera-pai 1, Sa,⁴ 20 bhār, mercury pai. 5 into a jar (gāḍuā), put a seal to its mouth. Bury the jar into the earth. Keep its rim 2 fingers above the ground, fill up ash up to 4 angulas over it, give it fire of dry wild cowdung cake 1 up to 3 days. Mercury gets fixed, if you do it (repeat) the process for 7 days, it gets much fixed.⁵

Put cāsaṁṣṭa (excrea of cāsa (a species of bird) to, (1a)-3 and mercury to (1a) into an earthen pot and close it up. Next put mercury into the earthen pot, spit on it (mercury) by chewing Betel leaf (piper bettle). Go on putting the stool of Cāsa little by little. Mercury is fixed. Next apply (smear) white ash (or mercury) on the veins of piper bettle; it becomes red. This is the test.⁶

Take mercury tola 1 and Borneo camphor, Sumātrā camphor, (Bhṛmaseni Barāsa) tola 1, make a hole into a green cocoanut existing on the tree and put first ½ tola of camphor, (next) put mercury tola 1, put

X No clearly understood, it seems scum of them.

1. SRSS, Ch. IX. 37,

IX Not explainable without commentary.

2. SRSS., 9.55.

3. Flower, fruits, up to roots.

4. Sa—not clear.

5. SRSS., Ch. 10. 32.

6. SRSS, Ch. X. 37.

again $\frac{1}{2}$ tola of camphor on it and keep the things into it for six months. Keep it up and seal up the cocoaunt. There becomes pill (guṭṭi), rub it in the juice of *Murraya exotica* (Kāmanti), *Ocimum Sanctum* (Rāma Tulsi) for 12 praharas. Rub it in Kācali with the butt of Neem. Mercury is fixed.

Rub tin 1, mercury 1, Kāyam Navasāra (a kind of Salammuniac) and carbonate of potash=Potassiaum carbonus (javakhāra) in the juice of the leaf of Aloe vera. Close up the mixture into a crucible having the shape of cow's udder (Gostana). Give it fire of coal, boil Candārk (a kind of vanaspati (?), brinjal and seed to *Balanites Aegyptica* Syn B. *Roxburghii*, sulphur and cuu × (चूड), put the thing into a bottle. The process makes mercury fixed. It is experimented by Soni Devaji.¹

If you dip the aforesaid things in the essence of *Achyranthus aspera* and rub and smear it to the plate and put it in the sunshine, oil comes out.

Like this, make juice of the five parts of Aloe vera or make decoction of it and dip the powder of seeds of *Jamālagōṭa* (a kind of vanaspati) into it by making its powder and rub it. Oil comes out.

Put the leaf of Guṭṭa into a bottle, place sulphur over it place it, layer by layer. Take the essence like cūyā (drops), take the thing (artha), that thing will come into use, it fixes mercury, while iron gets killed by its use.²

Rub 5 of each of *Achyranthus aspera* (aghādā) *wedelia calendulacea* (bhāṅgrā), black daturā, Halulau (Myrobalan ?), Dhāholi (a kind of vanaspati) and mercury to. 3. Mercury is fixed.³

Cook mercury in the juice of leaf of *Hastikanda* (*Colceasia Indica*); it gets fixed by this process.⁴

Rub mercury in green tobacco in a Kācala (a kind of pot). Mercury gets fixed.⁵

Fixation of Mercury from Tridoṣas (three impurities)

Dirt, fire and poison : It is fixed by the process of burning (heating) it in combination with three things—white mica, orpiment and silver.⁶

X Not identified.

1. SRSS., Ch. 11. 14.
2. SRSS., Ch. 11. 19.
3. SRSS., Ch. XI. 29.
4. Ibid., XI. 30x.
5. Ibid., XI. 33.
6. SRSS., Ch. II.

Rub mercury in the juice of the bark of Sohijānā (Sobhañjana= Horse radish tree, *Morigapterigo sperma*) for 3 or 4 days. Then mercury will be black lump like collyrium; put it into an earthen pot, give it fire slowly and slowly as many times till the juice gets burnt up (dried up). That mercury will be grain-like; it will be butter-like at the time, i.e., smooth or soft like butter. Mākhaniū pāṛada is accomplished.¹

Make Dhānyābhra of Śvetābhra (white mica), cook it by putting it into the juice (milk) of the ripe leaf of Kaṇḍali Thohara (Milk's Hedge= *Euphorbia Trayogona*). Put milk pai 4 and mercury tā 9, this much. There will be pill of mercury.² True.

If mercury pai 1 is rubbed (or reduced to paste) with these two—the juice of Uṭakaṭā (Thistle= *Simbhalī pippali*= *Brahmadandī*, pai 1 and that of the tuber (gāṭhā) of green turmeric pai-1 bhār, there will be butter, i.e. it will be soft like butter.³

Take the powder of pure gajavela iron pai 4, put the juice of citrus medica-2 srs. into a glass-casket and a pot of Nimaḍā (Neem), put the powder of iron into them and close the mouth. Stir it up for 4 or 5 days, again keep it, again stir it up for 4 or 5 days. In this way keep the same for 25 days. Iron, getting melted, becomes water. Reduce mercury to paste with all these, after rubbing mercury becomes butter-like. True.⁴

Take Harabast—its name : [1] rice (cokhā), [2] Shrebera Swietenoides (Nakhasī), [3] *Rubia cordifolia* (Majīṭh), [4] Liquorice root=*glyeyrrhiza*, (jeṭhmadh) and [5] *Rheum edoci* (Revamcīni). Crush these to fine particles and take equal portion of each of them. Put 1 māśā of mercury under and 1 māśā of it over in a Vajramūṣā (strong Crucible). Put two ratis of mercury with two māśās of medicine thus prepared. Mercury swells; mercury should be seen dhedhiu × ? But the Jina knows tattva (principle). Mix mercury with *Ricinus communis* and centipeda orbicularis (Eraṇḍī and Chikantī). Mercury becomes butter-like.⁵

1. Ibid., Ch. III. 22.

2. Ibid., Ch. III. 55.

3. SRSS., Ch. III. 56.

4. SRSS., Ch. III. 64.

X Not clear.

5. SRSS., Ch. VI. 18.

There is a creeper with three leaves, its leaf is at a distance of four fingers. Rub (mercury) into it. There will be *goṭikā* (pill or ball) (of mercury). Rub it like that in the juice of white *Colocynth* (*Indrayani*) for 14 days. Mercury becomes butter-like.¹

Rub mercury *tolā* 1 and the essence of mica *tolā* 1/2 in two juices—juice of *Marahaṭhi* and *Wedelia calendulacea* (*Bāṅgrā*) and give the drops (*tūyā*) to them for 1 *prahara*. The lump of mercury and mica becomes fire-proved (bearing).²

Give *tūyā* (drop) of the juice of the inner bark of *Sālaṭi* (a kind of *Vaspati*) to mercury for 1 *prahara*, rub it for 1 *prahara*, it becomes butter-like.³

Give saturation to mercury *ṭā* 9 equally with *Kahlara phudadi* (not identified) and *Aloe vera* (*Kumārī*). Next put the juice of *Rodanti* 7 *sr.* (*Rodanti* is a kind of creeper) into an iron *dāvadā* (pan); pour 1 *sr.* of it into mercury, heat it with fine (gentle) fire, go on putting juice, while getting it dried up. Make fire thus for 7 days. Bind (fix) mercury in a *gāṭhi* (bundle) of piece of cloth. Put the *gāṭhi* (bundle) into the horse-dung 2 *sr.*, put 2 *sr.* of horse-dung over it, spread out 4 *sr.* of dust over it. Keep it there for 2 or 4 days in that state and cover it up. That is, it gets bound (lumped). It is accomplished.⁴

The Second Process .

Take about ½ maund of leaves of *Daturā*; make two divisions of one portion, dig a pit measuring 1 cubic yard, spread out some horse-dung 4 *sr.*, put over it *pān goṭaka* (a full leaf of *Daturā*), put about 10 *sr.* of horse-dung over it, put mercury *ṭā* 9 into it, put *thākato golo* (a kind of molasses ?) over it, put again 4 *sr.* of horse-dung over it. Cover it up with a layer of dust—2 fingers-thick over it, give fire on it for 4 or 5 days. That is *goṭako* is accomplished. Offer 4 sacrifices and bring down 4 *āhutis* (sacrificial offer), give *āhutis* (sacrificial offer) of clarified butter and sugar. Do not bring own sight over it. This the chemical *goṭako* (pill).⁵

Melt or mix mercury *ṭā* 9 in the milk of *Citrullus* (*Uttaravṛuṇi*) for 3 days, then fix it up, put it into an earthen postsherd and give fire under

1. Ibid., Ch. X. 55.

2. SRSS., Ch. X. 72.

3. Ibid., Ch. 73.

4. SRSS., Ch. III. 81.

5. SRSS., Ch. III. 82.

it. Put the milk of citrullus (Uttaravārūṇi) into it. Put a lamp below it by lighting its wick made of 14 strands of thread. Next stir up the goṭaka (Pill). After the milk getting dried up, take it out, do it for 3 days. Next give saturation to it in the milk of the Banyan tree; put it into the mouth of fire in an earthen potshered, do it for 3 days. Next bind it in a piece of thin cloth, give fire to it with 5 srs. of Citrus lemon, etc. in a Dolikāyantra thus for 7 days. Thus give saturation to it in the juice of castor for 7 days, give paṭa (saturation or roasting ?) in the juice of Citrullus colocynthis for 7 days, paṭas in the juice of Tamarind for 7 days, in the juice of citrus medica for 7 days, in the juice of Bakayāṇi (a kind of Limadā=Melia Azadirach) for 7 days, in the milk of phyllanthus niruri (Tāḍi) for 7 days and give mudrā (seal) inside the fruit of Datura with the juice of 15 citrus lemon by closing Datura, give paṭa (cover) layer of cloth and clay for 20 days. When Kaurisā (not clear) is not found, then do not leave the juice of citrus lemon. All these paṭas are to be given in a Dolikāyantra on fire etc., Suryapuṭa (roasting in the sunshine) in the daytime, agnipuṭa (roasting in fire) at night. Next if nothing is available, then rub it with spittle on palms and give puṭa of milk of Uttaravārūṇi (Citrullus Colocynthus), do not pour pāṇi-paṭa (saturation with water), i. e. do not stop paṭa, but do not allow even a day to go in vain. Next put it into cooking paddy (rice). Do not put salt, keep it into the same upto that time. Do not allow a woman to touch it. Next keep it into the mouth, keep it on a tree hanging for 15 days. Thus keeping many things, give paṭa of dews for 15 or 21 days, paṭa of fruits of Datura for 108 times. Keep it away from all these-oil of Ferula alliacea (Hingul,) Spilanthus oleracia (Peniroyal=Marahaṭi) Alhaji Maurorum (Javāso) for 8 or 13 months. Then give paṭa, it is accomplished. Do not keep it starved for a day. Next make it drink milk, put it into 1½ maunds of milk. That is, the the chemical essence is produced. Know it as accomplished gutiko.¹

Rub mercury pai. 2 in the juice of Sarapumkhā (purple tephrosia) pai. 15 for two days. The whole thing becomes like white butter. Take milk of she-camel, giving the first birth, before the suckling of her milk by the new born calf. Cook mercury pai 1 bhār and tin (Kathir) pai 1 bhār of each into that milk.

If milk pai. 4 and mercury ṭā 9 are fermented, goṭako (pill of mercury) is accomplished.²

Sulphur is fixed in 108 pieces of big ripe Euphorbia nivuia. Mix copper 1 tola with the essence 1 māsā. Make it settle and mix ½sr. of the

1. SRSS., Ch. III. 83.

2. SRSS., Ch. III. 59.

juice of Aghāḍa (Achyranthus), mercury- $\frac{1}{2}$ 5 and the juice of Neem $2\frac{1}{2}$ sr. for 7 days, dry up the juice, give it heat of fire. Mercury becomes butter-like with fire. True.

Triturate it in a red earthen Kunda (Vessel) and place it in a Kuba (shell). The pill of mercury thus gets separated.¹

The process of killing Mercury

Mercury is killed (calcinated) with the juice of thorny apple (Dhaturā)².

Take one pala of milk of each of Ficus glomerata (odumbara), Calotropis gigantea, Ficus Bengalensis (Vaṭa), lac-pala=1, magnetic iron-palas 4, when they are mixed together and cooked with the oil of linseed, their essence is helpful in killing mercury. It is called Madanamudrā.³

Rub mercury with the juice of Euphorbia pilulifera (Nāgarjunt) in a mortar for a day, put it on fire and reduce it to paste for 7 praharas in a mortar, go on putting juice, mercury gets killed.⁴

Mercury rubbed with the juice of musket (moschusnāhi), piper beetle (Nāgalatikā), water lily (Induvallabha), (Soyimida febrifuga) and lotus (Droṇapūṣpi)=Kubā heated or roasted gently one by one seven times, quickly attains the state of ash⁵ (i.e. gets killed).

That is to say, give saturation to mercury with the juice of musket (Nāhi), next give seven roastings (puṭas) with the juice of Nāgarabeli (Piper beetle), then give seven puṭas to it with the juice of water lily, then give cūyā (drop) of $\frac{1}{2}$ maund (10 srs) of the juice of Kubā (water lily=lotus), is calcinated⁶ (Bhasma) Mercury.

Take the water of the medicinal plant-Dudhiu (glory lily=gloriosa superbia), it exists in the bed (shelter) of tank and river, its leaf is like that of ocimum sanctum (Tulasi). There exists baribothā (not identified) on it. But the smell of its leaf becomes like the smell of a dead body, if mercury is put (mixed) into its juice, but ṣaṭguṇa-Sulphur gets assimilated (jāraṇa), into it. It is a great art, crush it in the juice of seven-leaved thorny apple (Daturā) for 1 day. Next give tūyā (drops) to it in an earthen vessel. Silver gets settled, crush it in the juice of Evolvulus alsinodides Nāga and Dhaturā, give it tūyā (drops). There becomes ash (of mercury ?)⁷

1. SRSS., Ch. VI. 27.
2. SRSS., Ch. I; Ch. II. (comm).
3. Ibid.. Ch. 1.55
4. SRSS., Ch. 4. 21.
5. Ibid., Ch. 1. 38.
6. SRSS., Ch. 2. 1. 38 (comm).
7. SRSS., Ch. II. 23.

Crush out the juice of *Sonchus aruenois* (*Vernonia cinerea* Less (Sahadevi), *clitoria tematea* (giraṇṭ=garāṇṭ) and *Evolvulus alsionoides* (Kālāphul) and *Eclipta alb* (Bhāṅgrā) and give ṭyā to mercury with it, it becomes ash¹. Rub mercury with barley, etc., next cook it with milk in *Dolikāyantra*. It is to be burnt.²

Give ṭyā (drops) to pāṇepo in the juice of *Nānāhino* for 12 praharas, give it ṭyā in the juice of *Kāsendra*³ like that. Give it ṭyā in the juice of *bhasmasūta phudeḍi* (a kind of *Vanaspati*), give it ṭyā in the juice of *Udarakaṇṭ* (*Ipomaea reniformis*), give it ṭyā in the juice of best *Euphorbia pilulifera* (*Nāgārjunī-dudhi*), give it cūyā (drop) in the juice of *Vanakhaḍā*, mercury is reduced to ashes.⁴

Mercury becomes fixed by *chārapampoti* (a kind of *Vanaspati*) for 7 days, it is killed with a little puṭa (roasting).⁵

Cook mercury in *Garuḍa paṁkhiu* (not identified). If it is done 3 times, it is reduced to ashes.⁶

Rub mercury 1 sr. in ½ sr. of the juice of *Achyran-thus aspera* (aghāḍā) for 1 prahara. Keep the essence in the Śunshine for 3 praharas. Thus do it for 2 months. Mercury gets killed and incinerated.⁷

Rub mercury tola 1 in the juice of *Uttarāyana tola 1* for 7 days, rub it in the *Mālakāraṅgani* (*Celastrus paniculata* tree) tola 7 and in the juice of black *daturā tola 7* for 7 days, every day tola 1. Next put a cup of long gourd under *Śarāva* (Koḍiyā), put a piece of *Daturā* over it, close the *Śarāva* (lid) and give it fire for 4 praharas. If red colour is generated, (Mercury) dies.⁸

Mix these three things—*Kāginel* (not identified) 1 sr., mercury 1 sr. and sulphur 1½ srs. and put them into a Chinese cup. Cook them into an earthen vessel for cooking rice. Mercury becomes ashes (gets reduced to ash) i. e. killed.⁹

Put mercury pai. 2½ into a zinc cup of pal 1. Next fill *Sambhara lūna* (Salt of *Sambhar lake*) 3 srs into an earthen bowl, put the cup over that, fill it up with the juice of lemon, lit haṭhāgni under it, give juice till mercury gets reduced to ash, put it into 1 tola (of copper).¹⁰

1. SRSS., Ch., 6, 24
2. SRSS., Ch. 9. 14.
3. *Cassia occidentalis*.
4. SRSS., Ch. 9. 32.
5. SRSS., Ch. p. 34.
6. *Ibid.*, Ch. 10. 65
7. *Ibid.* Ch. 10. 66
8. SRSS., Ch. XI. 20.
9. *Ibid.*, Ch. XI. 2. 7x
10. SRSS., Ch. XI. 2. 16.

The Process of making Mercury fire-proved

Take out the juice of the leaf of Castor plant, give *ṭayā* (drops) to mercury with it for 21 days by putting mercury into an earthen vessel. Mercury becomes fire-proved.¹

Take a mortar and a pestle of black *Alangium lamarkii*. Rub mercury tola 10 in it (mortar) for 1 or 2 days. Mercury becomes butter-like and fire-proved.²

Some Chemical Processes of Mercury

Mix 20 parts of Sulphur and 20 parts of Salammoniac-rasa (mineral) by consideration. The whole thing is to be put on fire for thirty praharas.

Then there takes place the process of Rasa Sindura Saṁyoga (chemical combination of minerals).³

The first letter is ka, the last letter is ka. Between them there lie two letters, i.e. Kuravaka (*Berberia Cristata*). Lead is killed with it, mercury is dried up. The people enjoy it by dividing.⁴

Take mercury *ṭā* 1, a fine strong (hard) piece of Cloth-1 cubit (in length), give 5 or 7 *puṭas* of dew-water to it. (*Khāra*) makes it very hard, put mercury into the fold of the clothing by wrapping it. Next sew the cloth.

Then put the cloth into a new earthen vessel, seal it up and keep the earthen vessel into the dust bin of the village for 2 or 3 months. The cloth, getting burnt, will be reduced to ash. That ash dries up (sucks) *kathir* (tin).⁵

Take mercury, sulphur, Kaneriu realgar, orpiment and oxide of arsenic. Combine mercury *ṭā* 8, sulphur *ṭā* 8, Kaneriu realgar *ṭā* 4, orpiment *ṭā* 2 and oxide of arsenic *ṭā* 1 and give 7 *puṭas* to the combined thing with the juice of small and large *Euphorbia pilulifera*; next give the combination 7 *puṭas* (roastings) with the leaf of aiper beetle. Next put lime (*Katho cuṇo*) into it and take out the juice, give it 7 *puṭas* of *Datura*, 7 *puṭas* of the juice of *Ajhijhādā*;¹ × then 7 *puṭas* of *Dolichondron falcata*, 7 *puṭas* of peniroyal (*Spilanthus oleracia*), 7 *puṭas* of the juice of *Hirabona* 1 these *puṭas*.⁷

1. SRSS. Ch. III. 108.

2. Ibid., Ch. 5. 14.

3. SRSS., Ch. I. 31.

4. Ibid., Ch. 51.

5. SRSS., Ch. 5. 2.

1x a kind of *Vanaspathi*

Next again give it 7 puṣas of Ajhijhara, put it into a bottle and seal it up, put it into a Valukāyantra, give it fire for 8 or 12 praharas. On its getting cooled down, take it out. (It is accomplished).¹

Reduce mercury to paste tola 1. and sal-ammoniac-tola 1 into the juice of cypripedium rotundus (gundī), then blow it up in a Nalinīyantra three times, then take it out. The essence is completed. Give 1 māsa of it into tin-tolas 3; mercury gets dried up.²

Purify mercury tā 3, bind over 2 thin roots of Alangium lamarkii, keep it into an earthen vessel, put mercury on it, give a seal into its mouth, give it fire of 1 prahara by putting a layer of cloth and clay over it. There become pills (goṣikās) if it is crushed, it will be lime. It becomes like cow-dung, it does not fly.³

Crush the small fruits of Neem tree, rub or reduce mercury to paste in its oil in a mortar, give 21 puṣas to it, give tin $\frac{1}{2}$ bhār into it, make pill of them. True.⁴

Give paṣas (roasting) to ash of mercury tola 1 and gum of Amjharu (not identified) tola 1 with codhāri hadasāmkali (dissus quadrangularis) for 7 days. Next give the combination 3 puṣas in the juice of the flower of white sweet-scented oleander (Nerium odorum), get them dried up. Next close the thing into a bottle of glass-casket, give it fire of 50 wild dry cowdung cakes by putting it in a Velukāyantra. It is said by Khambhāti Kṣatriya. (You) know that.⁵

Rub mercury tā 4 in the juice of datura (thorny apple) and in the juice of Aloe vera. Copper burns; there becomes pill of it. Next rub it in the oil of daturā and keep it in oil, there becomes mouth.⁶

Put mercury tola-1 into an egg and close it up into the powder of wheat (i. e. close the hole with the paste of powder of wheat). Next put 4 srs. of lime into an earthen bowl, put the egg in the middle and close it by keeping its mouth open. Fill it up with water. Place it on fire by lighting it. Put again water by knowing when water becomes less, give it fire for 21 praharas. Guṭika is produced, get it dried up by putting it into milk. There becomes mouth in it.⁷

1. SRSS., Ch. 5. 3.

2. SRSS., Ch. 5. 6.

3. SRSS., Ch. 5. 8.

4. Ibid., Ch. 5. 11.

5. SRSS., Ch. 8. 25.

6. Ibid., Ch. 8. 26.

7. SRSS., Ch. 8. 28

Rub mercury $\frac{1}{4}$ in the juice of *Sesbania glandiflora* (*Agastapuṣpa*) for 7 days and in the juice of *datura* for 7 days respectively. It becomes like thick paste. Put it in citrus lemon and close it. Place it into an iron pan in a *Valukāyantra* by filling it under and over with sand, give it fire for 32 praharas. There becomes *gotikā* (pill), it becomes hard. Next make a big hole into a green *Butea frondosa* and put it (*gutikā*) into it and close the mouth. Put a cup of Silver into its mouth. Heat and melt it; fix the tablet (or ball), then put a layer of cloth and clay over it. There becomes mouth in it.¹

(Take) mercury ga, (*diyāna*) 2 and a piece of wood of *Neem*, a ripe green piece of wood, do not separate the branch from the plant (tree). Make a hole into it, put that mercury into it. First put vermilion, next mercury, and close its mouth by putting a piece of seal into it. Give dry dung cake of she-buffalo. If the branch remains green, know that it is accomplished. If it gets dried up, there does not become mouth. Keep it there for 6 months.²

Take both mercury 1 and *Samkhio Somala* (*Salammoniac*) 1, in equal proportion. Rub them in the milk of *Euphorbia antiquorum*, rub them in the milk of *Calotropis gigantea*. Give a *paṭa* (roasting) of *Ricinus communis* to them. Put the whole thing into a bottle and make a strong seal of it. Give it fire for 4 praharas in a *Valukāyantra*, give it *mandāgni* (gentle fire) for 1 prahara and *haṭhāgni* for 3 praharas.

Take ³Pa. de. po. 1 *nā* (or) $\frac{1}{2}$. Next combine equally 2 srs. of powder of old Jowar and $\frac{1}{2}$ sr. of salt, make 2 breads in the milk of *calotropis gigantea*, conceal or cover somala (oxide of arsenic) in one bread and put the second bread over it and close them. Fry them in the oil of *Ricinus communis*. On its becoming hard and red, take the thing out. Put tin $\frac{1}{2}$ and *pādu* (not identified) *gādiyāna* 2 into *Nāla* 1 (*Phragmites karka*), make a hole into a lemon, put realgar inside it by cutting a piece from it and closing it (with that.) Cook it in the fire of straw of wheat. On its getting cooled down, take the thing out. Do this 108 times of *prādekha* or $\frac{1}{2}$, thus (not clear) (in the case of) of *brinjal* 100 times, (in the case) of branch of *Euphorbia antiquorum* 100 times, Just so is its quality.

Take *Vayukumbha* (not identified) and lead in equal portion. Take green *Vayukumbha* (*Careya arborea* ?), wash blackness of lead with lemon by pouring it into its juice, next make a thin leaf of it. Put it inside *Vayukumbha* by taking out its kernel. Fill lead into it to that extent. Put

1. SRSS. Ch. 8. 29

2. SRSS., Ch. 8. 29x.

3. Not clear and explainable without Commentary.

a layer of cloth and clay over it and burn it in fire. On its getting cooled down, take the thing out.¹

Take cinnamon bark (taja) pai 1, Alangium 1 amarku (Akalakaro), Rheum emodi (Revam̐cini) pai 1 and that of mercury.

Make a cup of silver tola 1, put these things into it and crush it. Next drench (put) the wine of Muhuḍā (Bassia Latifolia)-5 srs. and the juice of lemon-5 srs. into the cup. Next, when Khicadi=mixture=(hotpotch)-100 srs. bubbles, put the whole thing into it. Then close the mouth and make a smearing over it.²

Wash mercury by mixing it into the juice of sweet citrus lemon, give drops (tūyā) of the juice of Vagadānā to sal-ammoniac. Give fire to the earthen pot by putting the whole thing into it. It becomes dhānī (a stage of chemical action of mercury) by swelling.³

Put mercury 1, Sulphur 1, and alum 1 into a bottle and give it fire for 4 praharas. It is best in taking.⁴

Combine mercury t̄ā 1, semen of ox t̄ā 3 and green vitriol or iron sulphate t̄ā 6 into tin and rub them in the juice of Alhaji maurorum (Javāsi) for 3 days. Smear two tin cups (trapu-vāṭaki) of $\frac{1}{4}$ sr. make 3 Kharāḍas (?) smeared inside, get them dried up in the shade. Next give (put) a layer of cowdung and clay over them, heat (cook) them separately. There becomes powder. Next give 3 saturations of powder. Next put 1 bhār and fix mercury (?)⁵.

Rub mercury in asaṁ, aṅke and Euphorbia pilulifera for 7 days in the juice of red branch of Achyranthus aspera. There becomes A, Kho, A Daṁ.⁶ Take mercury t̄ā $\frac{1}{4}$, skin (bark) of the horn of a sheep t̄ā $\frac{1}{4}$, hoof of a horse, t̄ā $\frac{1}{2}$, take tips of them only, put them into gajaveli (iron pot ?), it melts; iron pai 2 $\frac{1}{2}$, iron melts in Rāsaga & copper, give mineral calamine pai. 1, molasses t̄ā 9 under and over them, put a layer of cloth and clay over the bowl. Thus give it fire three times.⁷

Grind killed mercury t̄ā 1, borax 1, white glass t̄ā 1, white Dhānyabhra, (mica) t̄ā 1 in the milk of Euphorbia antiquorum (vajrī), rub Haṁkhedi gandhaka (a kind of sulphur) pai 4, pāsa (pāro=mercury) pai 4, and seed

1. SRSS., Ch. 8. 32.

2. Ibid., Ch. 8. 35.

3. SRSS., Ch. 8. 13.

4. Ibid., Ch. 8. 22.

5. SRSS., Ch. 8. 30.

6. Ibid., Ch. 9. 10. The meaning is not clear in the absence of a commentary.

7. SRSS., Ch. 9. 53

of limboli (Neem) 1 sr. for 3 days. Put the whole thing into a fire-proof bottle and seal it up. Put a cork of Neem into its mouth and 7 layers of cloth and clay over it. Heat it in a Damaruyantra by lighting fire of 2 maunds of dry dung of he-goat. Further it is to be known from the guru.¹

Rub mercury $\frac{1}{2}$, tabakī orpiment, $\frac{1}{2}$ and opium $\frac{1}{2}$ with the juice of Solanum nigrum (Kācamācī) for one day. Next make their tablets. Smear an earthen vessel (bowl) from its middle (part) up to its bottom. Next put the tablets into that earthen vessel and close it with a new lid and seal it up. As said above, next fill up the vessel with sand, give it fire for 32 praharas. Feed a Brāhmaṇa when a Yantra is placed (on fire), feed a Brāhmaṇa when the Yantra is taken out in the name of Hanumanta. Next on its getting cooled down, take out the essence.²

Put mercury pai $2\frac{1}{2}$ into a zinc cup of pai 5, bhar. Fill salt into an earthen bowl; next mix cinnabar 1, realgar 1, orpiment 1 and Somala (oxide of arsenic) 1 under (it) and put (give) the cup from above.

Give cūyā (drops) of lemon, black Aloe vera and urine of ass till the whole thing becomes limelike. Mix 1 māsā of the essence into 1 tola of copper, particularly give it ciya of lemon and Aloe vera.³

Give drops of the juice of five parts of raddish (Mūlā paṃcāṅga) to tin for 25 praharas till it melts. Again give drops to zinc for 25 praharas till it melts. Again (if) you give drops (to copper) copper melts; it melts on fire for so many times. 1 rati of mercury pierces into copper 64%⁴

The Process of Making Pārāpāṇī (Water of mercury)

Make a little water of Sal-ammoniac $\frac{1}{2}$ 30. put mercury $\frac{1}{2}$ 10 into it and rub it. First keep separate a little water of sal-ammoniac, put that water little by little and rub it (mercury?). When the whole thing is rubbed, put it into an earthen vessel, and a lid on it and wrap it up with a layer of cloth and clay over it. Place the vessel on the furnace (oven), make dipāgni for 1 prahāra. Again take it out. Put the whole thing into a mortar. Pour that preserved water of sal-ammoniac little by little and rub it again by the first method, put the whole thing into an earthen vessel and place it on fire, make dipāgni for 1 prahāra. Thus give it fire 23 times. Next put the whole thing into a glass-casket, spread out straw into an earthen vessel, put the casket into it and place it (Vessel) on the furnace, give fire below it till the thing of the casket becomes water.

This is the process of making water of mercury.⁵

1. SRSS., Ch. 9. 56.

2. SRSS., Ch. 10. 26.

3. SRSS., Ch. 11. 2, 17. IX flower, fruits, etc. up to roots.

4. SRSS., 11. 7.

5. SRSS., Ch. 7. 27.

Second Section.

Other Chemical Processes;

The Process of Menamudrā (making seal with Wax)

Grind *Barlaria Prionitis* (Dilawālī Kurāṇḍa) finely; filter it in a piece of cloth; rub it with varnish oil (rogān) for 2 or 3 days. Next put it into a thāliyantra. It is Menamudrā (the process of making wax).¹

Crush all these—red lead or **plumbum oxide** (Sindur) pai 1, wax pai 1, iron dust pai 3, magnetic stone, (Camak pākhan)– pai 4, Katho (a mixture of lime and Khadir) pai, lime pai 1, lac pai-1 and natron (pai-1) and filter them in a piece of cloth. Rub them with the oil of *Anacardium* for 3 days. Then there is accomplishment; it is true. It is written by Hitavijaya.²

Put together wax pai 2, magnetic stone pai 1 and mercury pai 1 $\frac{1}{2}$ into the milk of *Aloe vera* as much quantity as possible into the milk of *Vata* (Banyan tree) and combine them together; again put grains of iron (iron-dust); make them fine, combine them together. Put that much of the combination into the oil of linseed and grind it. Put approximately 3 or 4 of them. Next crush them with iron-hammer and combine the together. Menamudrā (the process of treating wax is accomplished).³

Take lead $\frac{1}{2}$ sr., milk of *Ficus glomerata* (umbara) $\frac{1}{2}$ sr., milk of Banyan tree $\frac{1}{2}$ sr., milk of *Calotropis gigantea* $\frac{1}{2}$ sr., leaf of *Betula Utilis* 5, *Yogini* 5, and *Mūyālī* 5.

Boil *Butea Utilis* and *Mūyālī* (not identified) in $\frac{1}{2}$ sr. or water, next make them into pieces in a pot of bell-metal. Menamudrā is accomplished.⁴

Fry *Kalicāno* (oyster lime) 30 and *Samkhanābhi* 45 with linseed oil 75 and take them out and seal them up. Go on giving cūyā (drops) to the powder of salt pai 2 with the juice of *Anacardium* for 3 or 7 days by crushing *Khāra* (oxide). Menamudrā is accomplished.⁵

Combine together these four things—magnetic stone $\frac{1}{2}$ sr., particles (or grains) of iron $\frac{1}{2}$ sr., milk of *gularc* (*Ficus glomerata*) 1 sr. and wax $\frac{1}{2}$ sr. and grind them for 3 days. Next make pill (of them), put the pill into a earthen jar of water. Ferment the pill in it till it comes up in the water. Next give it fire. Then takes place the accomplishment of the process of Menamudrā (seal of wax.) True.⁶

1. SRSS., Ch. 3. 66.

2. SRSS., Ch. 7. 13.

3. Ibid., Ch. 7. 14.

4. SRSS., Ch. 7. 17.

5. Ibid., Ch. 7. 18.

6. SRSS., Ch. V. 44.

The mudrā (seal) is to be placed over it (jar). Give fire to it for 14 praharas, on its getting cooled down, take it out. Thus is Bhasma-pāradavidhi.⁴

Cast Wax (Bābā Shahr) 40 into an iron pan, put oil 1 sr. and water 5 srs., give fire under it. As soon as wax settles down at the bottom of the pan, take it out. Remove the dirt struck up over the wax. Thus do it for 4 days. Next combine together wax tā 25, magnetic stone tā 25, milk of Banyan tree tā 25, Betula utilis (bhojapatra) tā 25, linseed oil tā 25, old iron tā 25, pure Kātho (a kind of lime) mixed with Khadir tā 25 and crush (or grind) them till they become ripe (well-mixed). This is the process of wax².

Combine all these together—milk of Banyan tree pai 2, milk of Calotropis gigantea pai 2, wax pai 2, Kapūri guḍa (a kind of molasses) pai 2, Bhaira gugula (Indian Bdellium) pai 2, white Kātho (a kind of lime) mixed with Khadir, pai 2, Kalicūno (a kind of lime made of oyster shell) pai 2, Mākhapiṣṭa (a kind of mineral) pai 2, Mastaki (Pistacia lentiscus) pai 2, hair of small calf of she-sheep (ewe) pai 2, Multāni māṭi (earth or soil of Multan) pai 2, magnetic stone pai 2, and crush them into small pieces and bind them into the milk of Bheḍala (sheep). Grind them for 10 days. As it becomes hard, so go on giving milk of she-sheep. Menamudrā (seal of wax) is accomplished.³

Grind all these—vermillion pai 1, wax pai 1, grains of iron pai 2, magnetic stone pai 54, Kātho-pai 1, Mākhapiṣṭa (a kind of mineral) (Makha's powder) pai 1, lime pai 1, lac pai 1, natron pai 1, and filter them with a piece of cloth. Rub them with the juice of Anacardium. Then there becomes an accomplishment¹ (of its making).

Again pour wax 1 sr. into Samudravāri (Sea water ?) by melting and melting it (wax) . do it (repeat it) 125 times,⁵ or in case of Madanamudrā, pour it (wax) into the oil of Anacardium.⁶

1. Idid. Ch. V. 45.

2. SRSS., Ch. V. 45

3. SRSS. Ch. X. 25

4. Ibid., XII. 2-5

5. Ibid,

6. Ibid.

Again Mudrā :

Pour pure wax into linseed oil 108 times, pour it into the oil of Anacardium 21-108 times; pour it into bedā (egg) of Kukaḍā (hen) 21 times and into Samudravāri (sea water ?) 108 times.

Smear the leaf of tin with the oil of Anacardium 108 times and make it into pieces for 8 praharas.

It is vajramudrā (hard or strong) seal.¹

Khaḥipo Khamina Mudrā :

Take wax tā 9, lac tā 9, and Rāla tā (kind of wax=resin) tā 9; make wax heated in a pot (loṭā), it becomes liquid. Next put lac, after it put rāla (resin); next mix the powder of Khadir tā 9 (Acacia catechu) into an iron-grinder. Next put magnetic stone tā 9, Mastaki tā 5 and Muḍo pāhāṇa (Muḍo × stone) tā 9².

Mudrā in the medicine of Menamudrā

Lit fire and put sulphur into an oil bottle in a Jalayantra, crush it in a mortar of iron having a big mouth for one day. Next seal up the bottle and put it into the Jalayantra. Mudrā is accomplished.³

That medicine is to be kept by making Kuṇḍu (earthen jar) having the capacity of containing water, measuring about 5 srs. Such a light kuṇḍu is to be made. Put the whole thing into that.

Crush 3 things into it by tūyā (drops), fill 5 (times ?), rub takho (iron or chilli ?) tā 3, lonas (salt ?) tā 3, and āmalasāra, garūdhaka (Sulphur) tā 3 in the juice of Marahatṭhi (Spilanthus oleracia) (tā) 1; next in the juice of Centipeda orbicularis (Chikani) for 1 day; if wet (Chikani) is not available, bring dry one-1 sr. and boil it in 8 srs. of water and keep ½ sr, rub the same in that for 4 praharas.

Next make a lump (of them) and put it into Kaṇṭūyā and allow an earthen lid (to be settled over (it)). Put it in such a way that it remains into the mouth of Kaṇṭūyā 1 finger high above the mouth of Kaṇṭūyā.

Next give Menamudrā (seal of wax). Close the border of the seal by the side of the brim of the seal in best possible way. Keep a hole into it in such a way by the side of the brim of the seal that a small mustard seed falls into it, pour cold water (into it) and take out hot water for 8

1. SRSS., Ch. XIII. 2,6

lx. not clear.

2. SRSS. IX. 40x

3. Ibid., IX.40 y

praharas, put cold water and go on taking out hot water from it. Give it fire for 8 praharas. On its getting cooled down, take it out.¹

Put as many as pills of medicine like may (the size of phaseolus radiatus) and the nail (hoof) of horse māsa 1. As previously done, give a seal to it (Samputa) Do such as Mudra lavana is. Heat it on fire for 1 prahara. On its getting cooled down, take it out. Pills are produced.

Po. Khahū halo,^{1x} worship of Bhairava, sacrifice, (take) vaṇe bālākā, mahudā, molasses, its dhāna, (maka) recitation of Svasti, recite the mantra to make the grains of rice fly. put on light by making the wick of the lamp of ghee.²

Killing of Lead :

Go on putting lead $\frac{1}{4}$ and leaf of Neem. Go on stirring them with the stick of Neem. Lead gets killed in an earthen vessel in a prahara and turns yellow.³ Next shieve it and rub it in the urine of a she-goat, which has not given birth to any kid, for 12 praharas. Take an earthen bowl which may contain Khicadi (mixture, Hotch-potch) of 1 sr., put tablets into that and close it with a lid, give it fire for 6 praharas. It becomes of vermilion colour. Next take it out and put mercury pai 1 into it. Chew ripe betel leaf and kātho cūno (lime) together and go on spitting it, go on grinding it for 12 praharas. Next close it and give dipakagmi for 6 praharas. Close the bowl with a lid by covering it. Give (put) a lid into the mouth of the bowl. put (chalk), Kātho cūno (lime) and molasses into its joint as said before, again seal it up with such mudra (devices of seal) by killing lead in the leaf of 'Neem. Next place it again in the juice of custota reflexa (Amṛtaveli).⁴

Close tin $\frac{1}{4}$ sr. and marking nuṭ (Semecarpus anacardium) $\frac{1}{4}$ sr. in to the horn of a buffalow. Put the thing into fire of 2 buckets of dry wild cowdung cakes. Om of 4 kinds.

Make 1 rotalo (bread) of soft leaf of Sāga (Indian teak tree), make two breads of Bassia Latifolia (Mahudā). Then make 3 pieces of bread in all. Next bring pure zinc, make bread by melting and purifying it. Next bring an earthen bowl, put the bread of Bassia Latifolia into it, put the bread of leaf of Indian teak tree over it. Next put the leaf of zinc over

1. SRSS., Ch. IX. 40y
2. SRSS., Ch. IX. 41X.
3. SRSS., Ch. IX 42;
4. SRSS., Ch. IX 42.

1x. Not explanatory without commentary

it, next put the bread of *Bassia Latifolia* into it. Put the bread of leaf of Indian teak tree over it. Next put the leaf of zinc over it next put the bread of *Bassia latifolia* over it. Then close the mouth of the earthen bowl and put a layer of cloth and clay over it. Give it fire of dry wild cowdung, burn the clay-cover on fire. Fire is to be given for 8 praharas, put gold 12 into it. Give the second *Paṭa* (roasting). It becomes good.¹

The process of Lime-making

Take mercury $\frac{1}{3}$, grind beetle (leaf) and arica nut (*Supāri*) and lime together and extract the juice from them; it drinks milk for 1 prahara (i.e. drench the whole thing in milk). Next make *sāṃpuṭa* of the root of *Amkōla* (*Alangium lamarku-A. hexapellum*); put mercury into it and seal up the *Sāṃpuṭa* (lid), give three layers of clay and cloth to it and put it on fire of dry owdung cakes for 4 ghaḍhis ($24 \times 4 = 96$ minutes). On its getting cooled down, take it out. There will be lime.²

The seven processes of taking out the essence

1. Take out the essence of (metals and minerals) blowing dirt in a *Damaruyantra*.
2. Rub sulphur $\frac{1}{2}$ sr. in *āsava* (essence) of grapes and take it out by blowing its dirt.
3. Rub *Somala* (oxide of arsenic) $\frac{1}{4}$ sr. and *āraṃjoli*=*eraṇḍi* (*Ricinus Communis*) in the white portion of an egg of a hen and take out the essence by blowing dirt.
4. Take *Saṃgharaph* (*Himṅula*) (cinnabar). Keep *āmlā* (*phyllanthus emblica*) by dipping it in the juice of lemon and rub *Saṃgharaph* in that water. Take out the essence by blowing dirt.³
5. Rub golden pyrite $\frac{1}{4}$ sr. and borax $\frac{1}{2}$ sr. in honey, and clarified butter, next there does not remain *jeharau* of *Bharata*. Make construction of the whole thing and rub it, give coal into the mouth (of the oven). By doing thus, take out the thing of the bottom portion.
6. Rub *sal-ammoniac* $\frac{1}{2}$ sr. and lime of oyster shell $\frac{1}{2}$ sr. in the milk of *calotropis gigantea* $\frac{1}{2}$ sr. and cow's milk $\frac{1}{2}$ sr. and take out the essence by blowing dirt.
7. Take out the essence of mica by blowing out dirt on the day of *Mūlanakṣatra*.

These are the seven processes of taking out the essence.⁴

1. SRSS., IX. 43.
2. SRSS., Ch. V. 7.
3. SRSS., Ch. 11. 2.7
4. SRSS., Ch. 11. 2.7

Some Chemical Processes

Make kajjali (black sulphide of mercury or aethiop's mineral of mercury) tā 5 and sulphur tā.5 by rubbing them with the juice of Sonchus aruenois (Sahadevi) and rub them in the juice of Vitisakauntegyulari (Codhara haḍasakali). Put the whole thing into a crucible and seal it up. Give it fire in a Vālukāyantra for 4 praharas-dīpāgni, madhurāgni; Kālagni, and haṭhāgni—thus (for) 5 praharas (with these five kinds of fire respectively).

Prāṇe kha-hāsa,¹

Rub the **king of sulphur** (or sulphur and mercury ?) in the juice of variegated-coloured Kakarudā (a kind of vanaspati). Put zinc mixed with śambhara salt into a small copper box and wrap it up with iron and wire, and close it up, give it fire for four praharas.

It is said by Mahādeva Majyo.²

Grind lime of oyster shell in the milk of Euphorbia nivuisa. Keep that powder dipped (immersed) in milk for 8 praharas. Next fill it into a horn of she-buffalo and close it up, put 3 layers of cloth and clay over it. Dig a pit measuring up to the knee, put the horn into it, give it fire of 2 baskets of dry wild cowdung cakes; the thing (essence) is produced.³

Cook Kāmini (Nāgachikani), Kanda (bud of garlic), juice of Jambira (citrus medica) orpiment in a Vālukāyantra. What the famine will do⁴ ? x. That is, gold or silver will be produced by this chemical process.

Its meaning :

Take orpiment $\frac{1}{2}$ sr. and mercury $\frac{1}{2}$ sr., purify mercury and make collyrium of both. Next rub it in the juice of Kāmini-Nāgachikani (Centipeda orbicularis) If green (Nāgachikani) is not found take $\frac{1}{4}$ th of that, rub it in that, next Kanda—it is (bud), bud of garlic, rub it in the juice of garlic for 10 days.

Next rub it in the juice of Jambira (citrus medica) for 10 days. Next dry it up and fill it into a bottle with open mouth, make it covered with a layer of wax and cloth, and put it into a Vālukāyantra, Cook it with fire for 12 praharas. Thus 3 and 7 bottles are to be turned over. That becomes successful (accomplished), give only 1 dose of medicine measuring 1 māsa of rice.⁵

1. SRSS., Ch. IX. 45 x. Not explainable in absence of a commentary.
2. SRSS., Ch. 11. 2.24
3. Ibid., Ch. 12. 24
- x. SRSS., Ch. XIII. 2.16 (vesse)
4. SRSS., Ch. XIII. 2.16.
5. Ibid.

It makes a great benefit. Mix the essence-1 rati into 1 tola of silver, tin and copper¹ respectively. It pierces them ! i.e. gold is produced.

Rub orpiment $\frac{1}{4}$ sr. in the juice of 33 lemons for 12 or 21 days, with the juice of onion for 1 day, and in the juice of Aloe vera for 1 day.

Next dig a pit, put the pāli (big pill) in an earthen bowl, make the pāli light (thin), dry it up, put it inside and seal it up by giving (putting) a lid over it, place it into that pit and lit fire of dry cowdung cakes for $\frac{1}{2}$ prahra.

Tolaḍṭ of the above things is produced.²

Crush together these two-śūro (Khāro) tola 1 and borax tola 1. Put the whole thing and 2 tolas of Sesamum oil into a new earthen bowl and give fire to it. After the brunging of oil, again crush them for the second time. Next make a good crucible.

Then put $\frac{1}{2}$ medicine under and $\frac{1}{2}$ of it over it, give pānitōlūnne^x. Next chew beetle leaf and spit on the medicine, then close the mouth of the crucible. Next give it fire-dhānyagni for 4 ghaḍis (24 × 4 = 96 minutes), it is produced.³

Clitoria ternatea of yellow flower (Viṣṇukantā) is like (resembling) the leaf of cṛṇa (Bengal gram) (chick pea), rub that with mercury. It gets fixed in seven days. Melt Hamkha (not identified) and give it (the water of) ash of gram (Khāra) After the burning of that rasa, give it the juice of Būti (a vind of vanaspati). On the side put pura Masini (not identified) by rubbing it in the juice of citrus medica (Bijorā). Its quality is just like that of Jalajāmbu.⁴

Close red oxide of arsenic 1, borax 1, Kaṇeriu orpiment 1, mercury 1, sulphur double of it, into a dust bin (of the village) (where it will be some chemical production), keep it there for a month. Yogavidya is true⁵

Heat the pieces of sulphur in the light of a lamp by putting them into an iron cup, put a cup of sugar inside or an iron cup. Do it as such that it remains 1 finger high. Take the upper cup as bigger than the lower one. The half of sulphur comes out surely, dip (drench) iron into it for 2 days. Svetabhasma. (i.e. it turns into white ashes); it is beneficial, (when) mixed with the essence. True.⁶

1. SRSS., Ch. XIII, 2.16

2. SRSS., Ch. IX. 31

x. Not explainable in the absence of commentary.

3. SRSS., Ch. 9. 36

4. SRSS., Ch. X. 31

5. Ibid., Ch. XII. 12

6. SRSS., Ch. 6. 41

Make pill of Hamsapaka cinnabar tā. 5, sulphur tā. 5 and godanti orpiment tā 5 in the juice of Aloe vera and dry it up. Put it into a pot, close it and put a layer of cloth and clay over it. Place it in a Valukāyantra and make workshop. Give it fire for 5 praharas—first dipāgni, second—madhurāgni. third—kalāgni and fourth—hathāgni like this; give it fire for 5 praharas and purify the content., give it fire for 3 days 8 times. Make thorn-piercing leaf of zinc. Give it 21 puṭas (roastings) in the milk of vajri (Euphorbia antiquorum) by heating and heating it and 21 puṭas in the milk of Calotropis gigantea. Put it into Bhñā (not identified) and crush it. Next give it 7 puṭas in the milk of Aloe vera. Then make a ball of it, next put it into a crucible and give a layer of cloth and clay over it. Next place it in a Valukāyantra and make worship and give it fire for 5 praharas—madhurāgni, kalāgni, and hathāgni. Then make offerings of grains, etc, sprinkle honey, next take it out. If it remains unaccomplished, again give it fire for 1 prahara.

Pour Triyoni(not identified) ga. 1 into the dung of Pasahi buffalovāla $\frac{1}{2}$ twelve times. Make the leaf of zinc purified in green ajamo (Trachyspermum ammi svn (arum copticum or ptychlobis ajawan). Next bring milk of Calotropis gigantea 5 srs., combine five salts into it viz, saindhava lavaṇa tā 4, samācala Salt tā 4; Kācalavaṇa tā. 4. natron (Sarji) tā. 4 and sea-salt tā. 4, pound these as fine as possible and put them into an earthen bowl. Put inside it $\frac{1}{2}$ salt under and $\frac{1}{2}$ salt over the leaf. Fill milk of calotropis gigantea 5 sr. over that, put salt over that and close it by putting a lid over it; put the bowl into a pit and keep it there for 3 months by filling it up and it should be seen by taking it out. If it remains raw, again give milk of calotropis gigantea $2\frac{1}{2}$ srs. into it in a bowl, close it and place it into the earth for 3 days. Rub potash Rāsa—vaāla 10 (not identified) and tikho (Chili) tā. 5 in the juice of datura for 4 praharas and rub them in the juice of Nāhi (Corallo carpus epigus); rub them in the juice of Spilanthus oleracia (Maharatti)— $\frac{1}{2}$ sr. and put them into a crucible and put a layer of cloth and clay over it and heat it in fire for 8 praharas. The essence is accomplished.¹

Next pound takho (black pepper ?) to.—1 and Pāṃḍu (not identified) to. 1 in the juice of Khāpara (pigweed)=punanhava-(Boerhavia Diffusa) Make tablets of it and put them into an earthen bowl, give it gajapuṭāgni for 4 praharas. Rub Hamkha po. 1 (not identified), mix Su (tu) 1, (not identified), zinc tā. 25, Khāḍa (not identified) tā. 12 for 4 praharas by making a hole (Khācha (ja) (into the bowl).

Next give the whole thing 108 saturations of Aloe Vera. Then put realgar to. 1 into them and keep it steeped. Next make 2 open crucibles out of the excreta (earth) of earth-worms; give them fire of dry wild cowdung cakes—2 srs. Thus give them fire 108 times.

Rub. Po (not identified) 1, pour milk of Euphorbia Antiquorum 4½ srs., oil 4½ srs. and juice of datura $\frac{3}{4}$ sr. into an iron pan and give the cake of uḍad (a kind of pulse) (into them); give it fire of wood of *calotropis gigantea* for 4 praharas.

Take it out in the morning. Keep it up to the evening, allow it (to) settle.¹

Combine together pure mercury and purified lead. Rub them with the juice of Udarakanni (*Ipomaea reniformis*) for 1 day. Next rub them in the juice of Amaranthus (*Tadalaja*) = Tricolour var *tristis*) for 1 day, rub them with the juice of Rativoni for 1 day in the juice of Aradusa (*Ailanthus excelsa* Roxb) for 1 day. Next make the cake of Aḍad (a kind of pulse). Put mercury and yellow clay into that cake with the juice of datura and make a pill of both.

Put killed lead and mercury into the pill, place that pill into an earthen vessel; fill the vessel with salt. Next give it fire for two praharas up to 5 days. Thus purify sulphur—double the quantity of mercury and lead, put the pill over it, put the leaf of *Tamaridus Indica* and give it a cover. Burn it for 2 praharas up to 5 days. That is, it is produced.²

Some medicinal processes : Accomplished by Chemical action.

The wise grinds garlic 100 tolas finely and casts it into a small copper box on all sides. Put one piece of camphor (which weighs fourteen tolas) into the box and make copper leaf. Wrap over it a layer of cloth soaked (besmeared) with clay and next lit fire of the pieces of dry wild cowdung cake. When the fire becomes smokeless, put the box into the fire, cover it up on all sides, not less nor more. On the cooking down of fire, take out the thing by order (one by one) and put the same as previously done into the second box³.

As only garlic burns without camphor, so give fire to it with care Intelligent ! Take out the unburnt garlic and use it (again) as done before. It is burnt, another garlic is to be taken here no doubt. Garlic is to be

1. SRSS. Ch. 8.34

2. SRSS., 7.24

3. SRSS., Ch. 14, VV. 5.9.

placed first below, being placed into the box it gets cooked by forty puṭas (roastings). Getting itself melted, it becomes hard like diamond. If it is held on fire, it extinguishes fire instantly. Even camphor does not fly, this is its test¹.

Chemical process for making medicine

Pound lime of Oyster shell tā. 5, and mercury tā. 5, with the juice of Aloe vera up to 1 prahara. Give it (combination) fire in a śaravasampuṭa. Ash of mercury is thus killed. Eighty four vāyus (gases) go away (i.e. get cured) if it is taken. In joints mercury becomes padyā.^x (?) It becomes vedhaka (piercing).²

Chemical processes for gold-making

Kill mercury, sulphar, Kaṇeri realgar, orpiment oxide of arsenic (sasismala) with the juice of Aristolochia bracteata, apply the essence. of silver, it **becomes gold**. It is said by vitarāga³ (dispassionate). That is, mix mercury (tā. 2, realgar-Kaṇeriya tā. 4, orpiment tā. 2, oxide of arsenic tā. 1 together, give them seven puṭas (roastings) with the juice of small and large Euphorbia pilulifera (Nāgarjuni), give them seven puṭas with the juice of the leaf of piper beetle (Nāgarveli), putting Kāthācūṇā (lime mixed with Khadir) into it, take out the essence (rasa), give it 17 puṭas of the juice of the leaf of Unmatta (datura), give it 7 puṭas (roastings) of Ājhijhārā (a kind of vanaspati), give it 7 puṭas of the juice of Medhasini (Helicterus, Isora), give it seven puṭas of Marahaṭhi, give it 7 puṭas with Hiravaṇirui cotton of Hiravaṇi (a kind of vanaspati). Again give it 7 puṭas with juice of Ājhijhārā, seal it up by putting it, into a bottle. Then heat it into a Valukayantra with fire for 12 praharas. Take it out by making it completely cooled down. There is success. Thus Śrī Siddhānto-padeśa-vyākhyā-leśāṁtath.⁴

Other Chemical Processes

Rub mercury tā. 3 or tā. 9 in the juice of Cymnema Sylvestro (Mṛghasiṅgi) or Fogonici Arabica (Dhamāsā) for 4 days. The pill (guṭika) gets accomplished and bound. Next put it into the fruit of Datura and place

1. SRSS., Ch. 14, VV. 10-14,

× Not explainable in the absenbe of commentary.

2. SRSS., Ch. 8.24.

3. SRSS., Ch. 1.50.

4. SRSS., Ch. 2.1 50. (Comm.)

it in Dolikāyantra. It becomes hard. Put the juice of *Cymnema sylvestro* into the mouth and take out the juice by chewing it. Thus is the tradition.¹

Make the thorn-piercing copper leaf, heat and quench it into salt and sal-ammoniac 5 times. (There will be gold?)²

Process of piercing the leaves of silver and copper.

Melt lead $\frac{1}{2}$ sr. and give drops of urine of ass. 5 or 7 srs. over it. Next that lead becomes powder; it pierces the leaves of silver and copper.

Rub mercury $\frac{1}{2}$ ā 5 in the juice of *Māṇikanarītā* (a kind of *vanaspati*) $\frac{1}{2}$ ā. 5 in the juice of *phyllanthus niruri* (*Bhui āvilā*) $\frac{1}{2}$ ā. 5, in the juice of *poinciana elata* (*Saṁdesarā*) $\frac{1}{2}$ ā. 5, in the juice of *Visakhāparā* (*Horse purslane*) $\frac{1}{2}$ ā. 5 and in the juice of *Tribula Ter* (*gokharu*) $\frac{1}{2}$ ā. 5 by crushing (them). Put the whole thing into a bottle in a *Velukāyantra* and give it fire for two praharas. Close the mouth of the earthen vessel. This is a best combination.³

Fry or roast (*Bhaḍātha*) oxide of arsenic $\frac{1}{2}$ ā. 6 into three branches or *Euphorbia nivulia* of (or *nerifolia*). Give powder of wheat 21 times over it, give cowdung over it, put the standing branch into the fire. Place dry wild cowdung cakes on all sides. Like this turn it round. Next make ash of *Keli* (*Musa sapientum*) 5 srs. Make water of *Khāra* (salt or ashes) and boil it. Pour it into an earthen vessel and put a piece of seal into its mouth. After that, place it into a *Dolikāyantra* and (heat it) till the water of *khāra* gets burnt (dried up). Next bring *gudasari*⁴ of *Nalinī* of *Chālī*, Make a hole into it and put oxide of arsenic into it, give powder of wheat and cowdung cakes on all sides.

Next the essence is accomplished⁵

Essence

Make wet (drench) opium, copper, lead, orpiment $\frac{1}{2}$ ā. 2. sulphur 4 ($\frac{1}{2}$ ā), *thutho* (a kind of poison) $\frac{1}{2}$ ā. 4. and lime of oyster shell (*Kalicūno*)— $\frac{1}{2}$ ā. 6 in the milk of *calotropis gigantea* and close the crucible by putting them into it. Give it fire of 1 *ṭopali* (basket) of dry wild cowdung cakes.

1. SRSS., Ch. III, 40.

2. SRSS., Ch. 3.73.

3. SRSS., Ch. 6.29.

4. Not yet identified

5. Not identified

6. „ „

7. SRSS., Ch. V. 6

On its being smookless, take it out. Give seven or twenty one puṭas to them, give it (mix it) into āmalasār sulphur.¹

Melt lohanarīnā (dust of iron ?) ga. 2 and mercury ga. 2 by putting them into an open crucible. There becomes the essence.²

Chemicals

Crush Agrai Bodāra (Muradārasing) (a kind of common mineral)³ (ash of lead=plumbum oxydum) and allow it to remain in the fermented juice (liquor) grapes for a day. Next give it fire, white Bodāra is produced by rubbing.⁴

Copper

Make big tablets by rubbing the wood of Neem 300 years old. Give paisā under and over them. (There will be) white copper, put white copper in the juice of narrow-leaved Sepistan (Cordia Rothii).⁵

Essence

Crush or reduce to paste the roof of Marahaṭi (Spilanthus oleracia=marahaṭi), with mercury and also in the juice of Thistle (Echinops echinata=uṭakaṭā) and crush also datura (thorny apple) māśā 1 and Achyranthus aspera māśā 1 in the juice of Euphorbia Pilufera (dudheli), in the juice of Hyosyanus. Niger ? (kharasānti), in the juice of plumbago and in the juice of aquatic Eclipta alba. The thing is produced in Jalayantra.⁶

Take mercury, sulphur, Kaṇeriu realgar, orpiment and oxide of arsenic; combine mercury tā. 8, sulphur tā. 8, Kaṇeriu realgar tā. 4, orpiment tā. 2 and oxide of arsenic tā. 1 and give 7 puṭas to the combined thing with the juice of small and large Euphorbia pilulifera. Next give the combination 7 puṭas with the juice of leaf of piper beetle. Next put lime (kātho-cūno) into it and take out the juice; give it 7 puṭas of datura, (a kind of vanaspati) 7 puṭas of the juice of Ajhijhādā, then 7 puṭas of Dolichondron falcata, (Medhasimṅgi) 7 puṭas of peniroyal (Spilanthus oleracia=Marahathi), 7 puṭas of the juice of Hiraboni (not identified) these puṭas-7.

1. SRSS., Ch. VI. 17

2. Ibid. Ch. VI. 21

3. It is yellow and of leafy structure and occurs in Gujarat and round about Abu.

4. SRSS., Ch. VII. 7

5. SRSS., Ch. VII. 7.

6. SRSS., Ch. 8. 12.

Next again give it 7 puṣas of Ājhijhāḍa, put it into a bottle and seal it, up, give it fire in a Velukāyantra for 12 praharas. Take it out after cooking.¹

“Rub mercury in asani avoken”^X and Euphorbia pilulifera for 7 days in the juice of red branch of Achyranthus aspera.

There becomes A. Kho. A. Dam.²

Chemical Process

Make fire of bark (Chāla) of branch (Śākha)–5 srs, crush datura 1, garlic 1, onion 1, ginger 1, Balanites roxburghii (imṅoru), lead, Anacardium and oleander (kaṇera); crush (Cinnabar) in the cūyā (drops) of these, next put it on fire. It becomes (ready). True.³

Chemicals

Heat (or burn) mercury $\frac{1}{2}$ srs. in Jhika^x (not identified) for 1 prahara, and in the powder of turmeric for 1 prahara and in Aloe vera for 1 prahara. Next take it out by washing. Then rub it in the juice of Kumbhīr-red Vāḍavāi (Ficus Bengalensis) 5 srs. for 7 days by taking out its juice. Next cut it (Vāḍavāi into pieces). (Take) 2 or 3 srs of it and pound it, place it into an earthen bowl. Put a piece of cloth over it, cover up Vāḍavāi and close it; give fire to the earthen bowl for 4 praharas. Take it out on its getting cooled down. Next boil the tender leaf (or leaves) of Kakasī (Sisymbrium irio Linn) in a little water and crush it and take out its juice, grind and rub that mixture in that rasa as said before; give it fire for 4 praharas. The process is accomplished. It is a great success. It is (the grace) of god. Take Vāḍavāi of 4 fingers in length, it is red.⁴

Chemicals

Rub Khahīpo (not identified) 1. and crush green podonae a viscosa (Nīh. Bāmdāh), and make lump. Crush orpiment ṭā 2. and tavakhīra (Curcums anguti) ṭā 2 into that and boil the whole thing by giving less

1. SRSS., 2.11.

2. SRSS., Ch. 9.10.

3. SRSS., Ch. 9.11.

IX Not identified. It is not explainable in the absence of commentary.

X. It may be a kind of plant :

Y. A kind of plant, not identified.

4. SRSS., Ch. 9. 19.

water (or a little hard grains of rice), for 2 ghaṭis ($24 \times 2 = 48$ minutes). Next that rasa gets melted.¹

Take Somalakhara (ash or oxide of arsenic) and pure sabu (soap?). Take milk of calotropis gigantea $1\frac{1}{2}$ srs. and 2 srs. respectively and rub them with it. Next make pills of them and put them into a crucible, put a layer of cloth and clay over it. Next give it fire in a Velukayantra for 5 praharas methodically. Take out the whole thing and worship it.²

Prā. dekh. hāvāz³ 10.

Give conch-shell to mercury by baking it, give it to oxide of arsenic by killing mercury.³ Good alum is given puṭa in milk, mix. 1 māsa of the essence into 1 tola of lead.⁴ (the process may lead to the making of silver?)

Grind Cinnabar pa. 1 in the juice of Aloe vera and give Bishops weed (Trachyspermum ammi syn. carum copticum (ajamo) under and over it. Thus give it fire 3 times, reduce mercury to paste in borax, give it *dyāgni* 3 times. Next on grinding these three, pound them in the juice of Mesuna ferra (Kesuṭi). Make two tablets of them. Put inside silver and copper plates and give the gum (gund) of Butea frondosa (Khākhar) over and under them, heat the whole thing in an open crucible.⁵

Take seeds of Timiri Uttaranajyoti pai, 4 or 8 and Sulphur pai 4, heat them in a Damaru yantra. True.⁶

Take the essence of grapes $\frac{1}{2}$ sr. Keep the thing (lead) drenched into it for 3 days. Grind it and next take it out by washing; white lead comes out. It is said by pātrāghaṭa.

It is fire-proved.⁷

Grind Somala (oxide of arsenic) $\frac{1}{2}$ sr. with cow's milk-1 sr. Mix by drops and next bind it. Next grind it (Somala) in $\frac{1}{2}$ sr. of milk and remove its dirt. Take it out by washing. There remains the butter of sal-

1. SRSS., Ch. x. 40
2. SRSS., Ch. IX. 46
3. SRSS., Ch. 9.50
4. Not explainable in the absence of a commentary.
5. SRSS., Ch. 9. 52.
6. SRSS., Ch. 9. 54.
7. SRSS., Ch. IX. 66.
8. Ibid., Ch. IV. 67.

ammoniac at the bottom like silver. Grind it with Aloe Vera and cook it in a Veluyantra by putting it into a bottle on fire for 12½ praharas.¹

Give Castor, datavehara (not identified) sulphur, khadadu gandho, berajo (not identified) (rice) mastaki (cyperus rotundus) and Varṅkhe (not identified) to Divāpād.² (not identified)

Grind Cinnabar in the juice of Mukā (a kind of plant) for two days, in the juice of Śaresarā (a kind of plant) for two days and in the juice of Aloe Vera for two days. Make tablets of it. Dry them up in the shade. Close them up by putting Indrajava (Kurchi, Conessei bark) under and over-pai bhār (in a vessel) and give it fire of 1 basket of dung of goat for two praharas.³

Rub green vitriol $\frac{1}{4}$ sr. and alpa (a kind of mineral ?) $\frac{1}{4}$ sr. in the juice of the ripe leaf of Calotropis gigantea. Take out the juice by making it hot. Fill it into an earthen vessel. Make lump of the leaf of green vitriol by drenching it in the juice and put it into a Śarāvasamputa. Put a layer of cloth and clay over it (Śarāvasamputa). Give it fire of dry wild cowdung Cakes-3 srs. Thus 21 times. Alpa astryā is produced.⁴

Chemical process :

Crush together prā du^x. bhag. (part) 3, Sū bhā. (part) 4, astryā bhā. 1, realgar tā 1, sulphur tā 1, Caurik 1 (Angelica glauca ?) and mercury 1 (tā). Put the whole thing into an earthen vessel, mix up the juice of Aegale Marmelos with it, as it is mixed up. Sprinkle the juice of Aegale folia. Next rub it and take it out from the fire and again rub prāde lohade. (not identified): Rub borax over (it). Give heat to the whole thing in fire. Success.⁵

Grind pro, prā. Sa (not identified), rāto (red) 1⁶ and Thuthu (a kind of poison) to. 3 and put the whole thing into an iron pot (pan). Lit strong fire in the furnace.

1. SRSS., Ch. 10. 11.

2. SRSS., Ch. 10.19.

3. SRSS., Ch. 10.20.

4. SRSS., Ch. X. 21.

x. Not identified in the absence of a commentary. But it is a kind of plant.

5. SRSS., Ch. X. 21

Thuthu begins to burn. Mercury begins to tremble, then press out the juice of the leaves of Aditi (a kind of vanaspati) by taking them in the hands—pai 1 bhāra of the juice after buring, again give juice pai 1 bhār. And while taking it out of the juice of Aditi, rub it in between two leaves of Nāgarveli (piper betel). After the juice is heated (burnt), next mercury begins to make circle (round), it begins to jump, After its jumping two times, it settles at the bottom. Take it out of the iron pot into an earthen pot. Its tablets get bound. Take $\frac{1}{4}$ rati of it by grinding it.

Give Ujeñiboa (not clear) by measuring 3 times, Name of Aditi is called Gamāra Gamdāna. Its leaf is like that of Cannabis Sativa (Bhāngi). Melt Khakha (pārābhasma) or vāṅga (tin) and put 2 ratis of orpiment. Over it put 2 ratis of pegāmī Navasāra (Sal-ammoniac). Next quench that tin into oil of Centipeda orbicularis (Nāgachikant).¹

Quench the leaf of iron in the juice of the root of Lohukhaṇḍi (Samadera Indica) 107 times, it gets reduced to ashes and quench it in the juice of raw Riber ebony (Dispyros peregrina) (Tīmbara) like that.²

Put the leaf of iron into pueraria tuberosa (Bhñikohalu) by splitting it up. Close it up and put 3 layers of cloth and clay over it. Give it gajapūṭāgni for 4 praharas.³

Take the juice of red lotus or red flower in the standing leaves of Hariṇakhuri (a kind of Plant), put its juice into a hard pot of cocoanut (Kācali) and rub it with the wood of green Neem for 4 praharas. Make a ball of it and close it up in a pot, give it fire for two praharas, grind it and give (mix) tin into it.⁴

Again by cutting phyllanthus niruri (Bhui āmbali) and Spilanthus oleracia (Marahaṭhi) of red flower (having red flower) into pieces in equal proportion, take the juice and make the process like Hariṇakhuri⁵ (a kind of plant).

Drench tin in the milk of trunk (stem) of Mimusops hexandra (Rāyaṇa) seven times, in bitter Leptadaniarati culatā (Dodī) one time, in bitter Elephantopus Scaber (galajībhi) one time and into part of white radish.⁶

1. SRSS., Ch. 10. 27

2. SRSS., Ch. 10. 35

3. Ibid., 10. 36

4. Ibid., 10. 4

5. SRSS., Ch. 10. 43

6. SRSS., Ch. 10. 59

Rub mercury pai. 5 in the juice of Dāimdi. pai 5 in a mortar, it becomes lump-like, put it into a bottle and give (put) a seal into its mouth.

Bind (tie up) old silver, Kātho (a kind of lime mixed with khadir) and clay; give (put) a layer of cloth and clay over it. Next dry it up, dig a pit according to the size of the bottle, bury it (bottle) into it, fill sand into the pit up to its rim (Koṭa), Next fill dry dung of goat 1½ srs. into it and lit¹ fire.

In this way 3 bottles are to be turned up. Give the third bottle fire of 3 srs. of wild dung of goat. Melt tin and put 1 tā of the essence into it, fill the water-pot and cover it up.²

Know it is Thāṭhāyanti vidyā.

Rub black datura in the juice of Grewia populifolia (Nāgavalli) for 7 days.; it becomes butter-like.³

The mercury tola 1, clove to 4, Chaletā (not identified) to 4, lakāḍi (Rheum emodi) 4, Centipeda orbicularis (Chikani), Euphorbia nivulia (Thohar) and Betel leaf (Nagaraveli) and combine. Heat them for 4 praharas.³(Some essence will be accomplished).

The process of extracting oil :

Boil and keep 1/8 th part of the whole thing-five parts (root, stem, branch (or flower) leaf and fruit) of peristrophe bicaliculata (Kākajamghā). Rub the seed of Alangium lamarkii Thuraites. (Amkoti), in that smear it on the new plate (Korithāli) of metal and put that plate high up the Sunshine of Vaiśākh-Jyeṣṭha, oil will come out of it, apply it; it acts.⁴

Rub the powder of seeds of datura in the essence (decoction) of Uttarāyana (a kind of vanaspati). Keep it in two plates. Put it in the sunshine, oil comes out of it. Like this oil of the seeds of Achyranthus aspera) and oil of Horse radish, come out, if taken out.⁶

Chemical Process :

Take a cup of copper of tā 1, heat (cāri) mercury tā 10 by filling the cup with the juice of Cymnema Sylvestra; with fire of 5 praharas. Next

3. SRSS., Ch. 11. 1

× Ibid.

2. SRSS., Ch. IX. 8

3. Ibid., Ch. XI. IIX

4. SRSS., Ch. 11. 18

5. Ibid., Ch. 11. 19

the cup breaks up, tin (trapu) gets dried up (sucked up or assimilated).¹

Take Somala $\frac{1}{4}$ sr. and the juice of radish-1 maund, fill a jar with it and make holes under it. Put it on a three-legged stand. Do as such that the current of the juice falls on somala (oxide of arsenic), give it fire (heat) for 24 praharas. Know that tin also is (to be treated) like this in the juice of *Ricinus communis* and in the urine of ass.²

Take an equal portion of the juice of *Sonchus aruenois* (Sahadevi) and *Ipomaea reniformis* (Umdarkant) in equal portions $\frac{1}{4}$ sr.

Next let that juice settle down, put mercury pai 2 bhār over (or on) it, Give cūyā (drops) of that juice to it, when mercury becomes incinerated in 4 praharas, then make an image of Hanumān (monkey god) (out) of the dung of a calf. Put the juice by the side of the image, sprinkle the blood with anāmikā finger (on it) and sprinkle wine, then it is accomplished. Make it in a loney place. Take a dose measuring a grain of rice, it benefits much. Rub it in the juice of black datura and white Leucas Cephalotus (*Droṇapuṣpa*) for 7 days, congratulations.³

Grind grains of tin- $\frac{1}{4}$ sr., lime of Oyster shell $\frac{1}{4}$ sr. and Kalicūno (lime), $\frac{1}{4}$ sr. with the milk of *Euphorbia antiquorum* (Vajrī) and *Calotropis gigantea*, put the whole thing into the horn of buffalo and close it, give it fire of goat's dung for 4 praharas by putting 7 layers of cloth and clay over it. The essence becomes ready, when half of it is burnt.⁴

Chemical Essence :

Dip the fruit of yellow *Loranthus longifolia* (Bandāh) with seed-2 srs. into the urine of ass for 8 praharas. Next take out the fruits and press them into the urine and throw out the dirt. Next take Harāṇīu mercury 1sr. Take out its dirt 21 times. Next put the whole thing into an earthen bowl and give fire under it. Give tūyā (drops) of Khicāḍī slowly to mercury.

Do not allow the rasa to get dried up, give tūyā continuously up to 8 praharas. When mercury becomes of yellow colour, the essence is accomplished.⁵

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1. SRSS., XI. 31
 2. SRSS., Ch. 13. 2. 11
 3. SRSS., Ch. 13. 2.15
 4. SRSS., Ch. 13.2. 15
 5. SRSS., Ch. 13. 15

Chemical Process of Mercury :

Put mercury ga. 1 into Rūtha(pā ?) naraḍṭ (not identified) gadyāna 64 by melting it. There will be truth.¹

Take out dirt from mercury $\frac{1}{4}$ sr., next filter it with a hard piece of cloth, next rub it with the juice of Ocimum sanctum for 14 days, do not allow it (to) get dried up. Next put Ciniu camphor tā 5 into it and mix with it. Next fill it into a glass bottle, again fill 1 sr. of the juice of ocimum sanctum into it, then put 7 layers of cloth and clay over it.²

Put the urine of goat-5 srs., milk of Calotropis gigantea-1 sr. and milk of Euphorbia nivuija (Thoḥar)-1 sr. into the horsedung for 21 days. Next take the whole thing out and place it on fire and give fire of Castor plant (Ricinus communis) under it. It gets dried up.³

Put Somalakhāra (Oxide of arsenic) 1 tola into these three juices- the juice of prickly pear=Slipper Thorn (=Nāgaphaṇi)-1 sr., the juice of Lagenaria Vulgaris (Kaḍui Tumbi)-1 sr. and the juice of red lotus (Kalhāra), 1-sr into an earthen bowl and cook it in a Dolikāyantra. Do as such that Somala remains 3 fingers high from the juice. Make dipāgni under it (Dolikāyantra). Take out the essence and make a hole into an Amorphophallus companulatus. Put it (Somala, etc.) into it and close it (Kanda). Smear it with paddy (husk) and cowdung. Put a layer of cloth and clay over it (Kanda); give it gajapuṭāgni for 4 praharas. Tin sucks (dries up) the water.⁴

The process of Svedana⁵

Medicine is to be cooked in a Dolāyantra with Kānjika (sour liquid thing) of urine of cow, buffalo, goat, men and ass.

The process of Jāraṇa :

It is to be accomplished by making bīḍa (Bīḷaṇa), powder of equal portions of each of the medicines like gorocana (golestone obimmer-a scented article named gorocana), alum, sal-ammoniac, sulphur, orpiment, syāda, (not identified), borax (Saubhāgya) and (silver ?) are to be cast into

1. SRSS., Ch. 13. 16
2. SRSS., Ch. 13. 18
3. SRSS., Ch. 13. 2.3
4. SRSS., Ch. 13. 24
5. SRSS., Ch. II. (Comm.)

the bile of goat and the whole thing is to be placed on the furnace for a month. Thus having made bīḍa (bīṭakhāra), next make a leaf of black mica, cast it into Yavārānala (fire lit by the straw of barley) for 8 praharas, melt it with sahastra, with phogakandalas or durvajālas (not identified). It gets (comes) flowing and is free from snā (dhātu=element).¹

Vedhā :

The process by which mercury is mixed with Vyavāyi medicines (i.e. opium, etc.) and cast into any metal is called Vedha (Piercing).²

Krāmaṇa :

Krāmaṇa is the process of alchemy which is made by taking equal portions of each of the dirt of the ear of buffalo, woman's milk and borax to rub them together throughout the day. Then make the essence of poison, cinnabar, calamine, red Kāntaka (a kind of iron ?), Indragopa (a kind of insect born in the rainy season), wax and excreta of crow and put mercury into the middle, alum and the essence over and under respectively. Having given glass-powder into it, heat the same in a closed crucible. If it is done, mercury undergoes krāmaṇa accomplished by this process.³

Udghāṭana :

The Chemical process by which transparent colour is brought about in a purified thing by removing its impurities (dirts or dregs) with mercury by purifying it is called Udghāṭana.⁴

In the case of silver lead is to be taken out, while in that of gold lead is to be given.

Mercury is fixed by the combination of amlavarga (group of acids), Khāravarga (group of salts, i.e. urine and salts, etc.) and rasavarga (group of minerals).

Mercury is purified by the intellect of Padalipta Sūri, an alchemist. O Lord (mercury) show the process of destruction of all sins-poverty, disease and old age. (Sarvaduritas)⁵.

1. SRSS. II. Comm.

2. Ibid.

3. Ibid.

4. Ibid.

5. SRSS., II. (Comm.)

The process of Dhūmravedha

The success becomes manifest in rubbing and rubbing mercury, sulphur, gold, sulphide of mercury and realgar (manasila) (Kunaṭa and Kunati). Some are Dhātuvedhi (piercer of metal), some are gāvavedhi (piercer of gāva). We, the carpaṭa yogins, are Dhūmravedhis (alchemists of Dhūmra = smoke).¹

Vedhi piercing :

Put phaṭakiu Malla (a kind of Oxide of arsenic) mā 6. in Vajri (Euphorbia antiquorum). Next mix the medicine into copper 64 (mā or tolā), it pierces.²

गुप्तु स सस सस गल गौगिर दहर ।
उनदमिससधर कुन दह तिस्ता कीनीया ॥³

The Process of making Seal

(1) Take Vateria indica (candrasa) $\frac{1}{4}$ sr., Betula Utilis (Bhuryapatra) $-\frac{1}{4}$ sr. and linseed oil-1 sr. Make small pieces of Betula Utilis by cutting it with a scissors, boil it till it becomes hard. Next crush (beat) it by taking a hammer and Saḍāṣṭi (a pincers), as it is beaten, so that it becomes soft. Then put it into a Jalayantra. As it is put there, so there remains the seal (i.e. closed) for 16 praharas. True. Make Yantraṣṭa bujāraḍṣām^x (?). There remain two seals over (it).⁴

(2) Drench Fenu greek (Trigonella foenum-graceum-Methi) into water, Multāni māṭi (Multāni earth) into the water of Methi. Make seal of it first. Next dry it up on the burning charcoal, grind first the drenched Methi and the powder of aḍad (phaseolus radintus) in equal portions. Next make a seal on the seal made first.

Spread out the powder of stone over it. Next dry it up.⁵

1. SRSS., Ch. 1, 14

2. SRSS., Ch. 13, 6

3. SRSS., Ch. 1, 58. (not deciphered yet in the absence of a commentary)

x. Meaning in not explainable in the absence of a commentary.

4. SRSS., Ch. VII, 15.

5. SRSS., Ch. XI, 12.

Third Chapter.

Various Chemical Processes for Making Gold and Silver Chemical.

First Section-Process for making gold.

Having rubbed mercury, gold and copper with the juice of yellow *Andropogon serratus*, the essence of these, measuring one guñj is to be given into copper measuring 1 tola. There will be accomplished gold¹.

Or having mixed these three things-mercury, gold and copper together, they are to be rubbed with the juice of yellow *Andropogon serratus* for four days. Seven pratipuṣas (re-roastings) are to be given to their essence every day. It is to be put into a mortar (Kharala). An earthen pot of Koṣṭhaka clay is to be made, next the pill of that (essence) is to be placed into the earthen pot. On its getting dried up, seven layers of clay and cloth are to be put over it. Next a square pit is to be dug. On filling dry pieces of wild cowdung into it (pit) and placing the earthen pot in it, lit fire on all sides. When all things get cooled down after burning, take out the earthen pot from the pit. There takes place the fruit by this process. Put the essence vāla-1 into 1 tola of copper. (There will be gold)².

On the fixation of orpiment and mercury, the classes of metals-pure copper, iron and lead get converted into gold by the contact of cinnabar and fire on the removal of blackness of mercury with the juice of black datura meta.

Then again they attain goldness by the process of saturation of the juice of medicine called pathari (*Thalophytum* ?)³

Copper together with long gourd is to be mixed with the root of *cocceinia Indica* (ṛidu). There the mixture is heated; it (Copper) becomes gold.⁴

Bring taliyo borax and calamine, and brinjal, put 4-4 pieces of (each of) borax and calamine into the brinjal on all sides; give seven chavafamvati bhāvanās (saturation) to that brinjal with $\frac{1}{2}$ maund of urine of the buffalo heifer, bring new-new brinjal seven times. Next take out the calamine (from inside of the brinjal), do it in such a way that the pieces of calamine do not break into the brinjal. They should be taken out as

1. SRSS. Ch. 1.1., Ch. II
2. SRSS., Ch. 1.1., Ch. II. 1
3. SRSS., Ch. 1.2, Ch. 2 (Comm).
4. SRSS., Ch. 1.6.

unbroken (pieces). After seven saturations calamine is to be crushed. Thus the essence is accomplished.

Next copper 2-parts, silver 2 parts and Dvādaśa suvarṇa (12 carat gold) -4 rati are to be melted together. After melting them all-vāla 8, put the essence into 8 vāla of these melted metals. As a result of the chemical process there becomes gold.¹

Another Explanation

Crush all these-2 māsās of copper, 2 māsās of gold; 4 māsās of silver, 4 or 8 māsās of calamine; rub them with the juice of new red leaves of Jambulanum; crush them all with betel leaf, make them rubbed in a mortar with the juice of leaves of Jambulanum for 4 days by combining them together. Next the whole thing is to be cast into a crucible. It is to be made of glass. Put the medicines into it, betel leaf is to be crushed and its juice is to be extracted into the crucible. The glass crucible is to be given a sampuṭa (lid covering) with a glass crucible. A cīvāra (a piece of cloth) made wet with the spittle of betel leaf is to be placed on the crucible. Over it a layer of clay and cloth is to be put. Then it is to be heated on fire of 1 seer of coal. On its being cooled down, it is to be taken out. The essence becomes gold.²

Take alum and sipant (a kind of oyster shell) and 12 (parts of) taṇakatoḍi (tejan todī māṭī a kind of soil) in tin (rāṅg). Ārpaṭa makes a magic performance,³ i.e. gold is made.

Take emerald (or gold) and lead (of equal proportion) and mercury having equal quantity of them; grind them with a butt (Puṭā) in the juice of Andropogon serratus (devadālī). Do not carry on cultivation (agriculture) labouriously. One rati of the essence (Kalka) pierces 64 tolas of any metal⁴ (to make gold.)

Mix (One part of) carbonate of soda, (one part of) rice gruel (bhājī), (one part of) alum, (one part of) mercury, two parts (double) of orpiment (Sulphite of arsenic) into copper with reason. What does the famine do?⁵ i.e. There will be gold.

1. SRSS., Ch. 1.7, Ch. 2. (Comm.)

2. SRSS., Ch. 2. (Commn.)

3. SRSS., Ch. 1.8

4. SRSS., 1. 9

5. SRSS., Ch. 1. 13

Make pieces of both abhināgā (a kind of lead ?) and ubhināgā (a kind, of lead ?), give mercury below them and borax above (them). Ārpaṭa says : Put on (golden) bangles.¹

Take orpiment tā 1, golden pyrites tā $\frac{1}{2}$, sulphide or mercury tā. $\frac{1}{2}$ realgar tā $\frac{1}{2}$, mercury tā 1, copper tā $\frac{1}{2}$ and, silver māsā tā $\frac{3}{4}$ and melt them by putting them together on fire. Make their kaṇṭakavedhipatra (thorn-piercing, leaf), rub the medicine with the juice of Solanum nigrum. (Kākamācīrasena). The whole thing is to be cooked in an iron vessel (bow for 3 prahāras and smeared (on the metal leaf as mentioned above). On its drying up, melt it in a closed crucible. It is to be heated for a prahara. It is heard that there becomes gold, the support of the travellers.²

Kill lead in Hāṭavilāsaṇi (a kind of vanaspati) and Anurata Nāli(ri) (a kind of Vanaspati gondhabhādālī which is a medicine for dysentery), fix mercury by killing lead; Carpaṭa says (it) becomes gold.³

Keep brass cooked in these two Hāṭavilāsaṇi and Anavaranārī (a kind of Vanaspati). Blackness of that brass is removed. Misery and poverty all go away⁴ (because of producing gold).

Lead is killed with three roastings (Puṭas) like vermilion. One sixteenth part of it pierces into silver and silver gets converted into gold.⁵

Kill mineral calamine in salt, rule over the four corners (of the world). Nātha says "do not think (doubt) in mind. Misery of poverty will completely go away."⁶

Take many knotted (ghanaganṭhi) Ayapomia Reniformis and many-fruited (bahuphalī-Cantichorus) whose living is in the well and pond (or at the bottom of the well). If only mercury is mixed with them, poverty will be destroyed (removed).⁷

Ayapomia Reniformis and C. antichorus-both of them grow at the bottom of pond. Mercury is killed by the first puṭa (roasting) with their juice; there becomes gold by the second roasting.⁸

1. SRSS., Ch. 1. 15
2. SRSS., Ch. 1. 16
3. SRSS., Ch. 1. 17
4. SRSS., Ch. 1. 18
5. SRSS., Ch. 1. 20
6. SRSS., Ch. 1. 24
7. SRSS., Ch. 1. 28
8. Ibid., 1, 29

Lead fills up (assimilates). Calamine (zinc carbonate), put gūyā (or sūyā=mercury ?) over it. Gorāmāi (yellow mother) serves rice, there, becomes a house of gold.¹

Mix the juice of the leaf of the plant of *Serpentina* with the urine of Sundarī elephant, lead becomes gold by garbha-nāga (not explained) (when put into the womb of the essence of medicine) after heating it.²

That is to say, take the root of *Nāgaphaṇi* (*Serpentina*=*thora*=*phani-maṇṣā*=*Sleepers' thorn*) and its root with the urine of *Sindurī* elephant. When lead is saturated with the essence, it becomes gold.³ How ?

Take out the juice of the leaf of *Nāgaphaṇi*, combine it with the urine of *Sundarī* elephant. By heating lead and rāṅg (tin), put them into the essence of the medicine. They get converted into gold.⁴

Lead gets killed, pierces into the body of mercury. Mercury is not found killed without lead. Bind (Fix) mercury with the ropes of lead. *Carpata* says : it becomes gold.⁵

Lead drinks (assimilates) calamine (Zinc carbonate), Zinc carbonate assimilates mercury. When the vessel of zinc carbonate begin to break up, there is joy in every house⁶ (because of making gold).

Mix carbonate of soda, chloride of sodium, alum, godantī orpiment and emerald (*garuḍavihaṅgana*) by taking them in equal proportions. If one rati of this essence is mixed with one tola (of copper ?) (there becomes gold).⁷

Drench *Sambara* salt in the juice of *Citrus* lemon and the juice of *jadi* (its roots ?), make essence in a burnt earthen pot and remove poverty again.⁸

8. SRSS., Ch. 1, 32

1. Ibid., 1. 33

2. Ibid., Ch. 1. 33 (Comm.)

3. SRSS., Ch. 2. 1.33 (Comm)

4. SRSS., Ch. 1. 36

5. SRSS., Ch. 1. 37

6. SRSS., Ch. 1. 39

7. SRSS., Ch. 1. 40

Lead combined with sulphured ochre, mixed with equal portion of mercury and combined with *Andropogon serratus* (devadāli) becomes gold¹.

What is the wonder here if red sulphur mixed with the essence of *Butea frondosa* (Palāṣa) in *Liccaris* (gethivana) and cooked with wild lotus converts silver into gold with tripuṣas (3 roastings)²

Take 4 parts of gold, four parts of mercury, six parts of āmāṣā sulphur, fix them carefully, (there will be) gold-light and honey.³

Take equal parts, of mineral calamine and mercury, mix the juice of of Aloe vera (Barbado Aloes) into them. Then add one guṇj of copper. Take gold by making it with happiness.⁴

Combine pure copper tā. 10, and mineral calamine tā. 10, gold tā. 4 and melt them together in a closed crucible, (There will be gold); do not die of starvation,⁵ i.e., the essence becomes yellow pills (gold pieces).⁶

Take silver tā 2, pure copper tā 3 and mineral calamine tā. 5, put them in a closed crucible and melt them with copper without blackness. It becomes gold. This is an art of the intelligent men.⁷ That is, first melt them in a closed crucible, next melt them into an open crucible. The whole thing becomes piṭa joaka (gold pieces).⁸

Equal parts of mercury and *Saussurea lappa* (kuṣṭha) are to be killed like silver and take double (the quantity of) good (pure) orpiment (mixed) with the milk of *Calotropis gigantea*. They are to be cooked with linseed oil for five days. That oil becomes Śatavedhī (piercing hundred per-cent) in the case of silver, copper and lead (to convert them into gold).⁹

Pyrites, lead, mercury and sulphur and cinnabar mixed with realgar are to be rubbed together and to be roasted by 50 puṣas in fire. In the process of killing lead there comes out silver with 100% piercing.¹⁰

1. SRSS., Ch., 1. 41
2. SRSS., Ch., 1. 42
3. SRSS., Ch. 1. 43
4. Ibid., Ch. 1. 44
5. Ibid., Ch. 1. 45
6. Ibid., Ch. 2. 1.45 (Comm.)
7. SRSS., Ch. 1. 46
8. Ibid. Ch. 2. 1.46 (Comm.)
9. SRSS., Ch. 1. 47
10. SRSS., Ch. 1. 49

That is, take lead 5 tolas, gold 2 tolas, native cinnabar-2 tolas. orpiment 1 tola, sulphur 1 tola & realgar-1 tola, give them 28 saturations with the juice of Rasendragopi (a kind of plant or mercury), give them 28 sampuṣas, cook them after grinding them in a mortar. Put them into a paceyantra, put a layer of cloth-clay.

Over the paceyantra. Next give it heat in a Vālukayantra for 12 praharas. On its getting cooled down, take it out. Mix silver tolas 22 with the essence, it becomes gold.

Poison, Anacardium (*Semecarpus anacardium*), aquatic pipala and other thing, oil of pongamia glabra, vebhaha, (not identified) brass together (Saṁciyā) are the roots of gold-making.¹

Lead moves in between Taurārasa+Sulphur (and) murasasa mercury, lead becomes modified, piercing mercury. Carpaṭa says. it becomes, gold.²

If black, red, yellow lead in black silver-7 divisions, is combined with pure gold, Nāgārjuna says : occupation is little necessary.³

If mercury, carbonate of soda, milk's hedge, alum and 2 parts of orpiment are mixed with copper, the essence becomes yellow.⁴

One (part of) lead eats up (assimilates) ten parts of tin. Cinnabar and realgar have in this way. Old tin absorbs lead. The god of wealth will sing in his house.⁵

Secret formula to make gold

I shall fix that niḥsaṁgam Mahāviraṁ (Ma=Hemamākṣikaṁ=golden pyrite, hā=hāṭakaṁ=gold, vi=black mica, ra=rasaṁ=mercury by the combination of three(trisaṁghāta=Sukumāla croton oblongifolia(Nāgadamṭi) Aristolochia bracteata (Nai) and śarostemma brevistigma (Soma).

The essence of Ratta (Red Euphorbia piluifera rakta dugdhikā), C. antichorus (Kasina=Kṛṣṇa bahuphalī), Luffa echinata, Andropogon serratus.

1. SRSS., Ch. 1. 59
2. SRSS., Ch. 1. 60
3. Ibid.,
4. Ibid., 1. 61
5. SRSS., Ch. 1.12

(paṁdura=devadāla), Aconitum, chasmanthamum (Si=Sṛṅgikaviṣaṁ), small brinjal (Ri=laghu ringaṁ) and Agave (Nikiya=Ketaki) are to be taken. Besides, gloriosa Superba (Siya=Lāṁgalikā), Seeds of Ahikaharī=Aster-cantha longifolia (Kusa gaha), mimosa (Bhīru=lajjalukā), Hydroctyle asiatic (Jalamāṇḍanikā), Ambāvanī (Sthalamāṇḍanikā), Cuscuta reflex=Nabhamāṇḍanikā.¹

Mica, killed lead and gold cannot give up brightness (fire-form), due to their brightness (full of their quantities of brightness).²

Reduce mercury pai. 1 to paste in the juice of ocimum sanctum for 4 praharas, next grind it in the juice (or sap) Clenolepis Cerusiformis (ubhayalingi - Sivalingi=bitter and Bhagalingi=sweet). Next melt zinc-paisā 2 bhār and make it a hard hump with mercury, next make soot (Kajali) of orpiment pai. 1, borax (sonro) pai. 1 bhā, alum pai 1. sām̐bhara loṇa (Salt of Sambara lake) pai. 1 or that of that zinc. Next having taken a ripe wood apple (Feronia elephantinum=Kapitthag), make a hole into it, put soot (Kajali) into it and give hard pieces of it into its mouth. After that, reduce to paste the pieces of the frame of house or salt (together) and mix water into it (paste). When the whole thing becomes soft (or light) like wax, mix it into a piece of cloth and put 7 layers of clay and cloth over it. Next lit fire of dung of she-goat 2 srs, make it (fire) smokeless. Put the wood apple into the flame of fire by making it smokeless and smokeless. Keep the second oven ready by making it smokeless (i.e. the fire of dung of she-goat) before the first one gets cooled down. Thus repeat this process for eight days. Next when the whole thing gets cooled down, take out the wood apple.³

Make a leaf of best copper and purify it, then mix 1 māsa of the essence into 1 tola of copper. There becomes gold. It is true.⁴

Fill up a jar with the urine of an ass and some zinc leaves into it, place double Sām̐bhara salt on each leaf and dry them up in a place (or plate) and cleanse them of impurities.

Next melt 1 tola of copper and mix 1 māsa of zinc into it. There becomes gold.⁵

1. SRSS., II Commentary.

2. Ibid.

3. SRSS, Ch. 3. 1.

4. Ibid.. 3. 2

5. Ibid.. 3. 3

Make a combination of these articles—mercury to. 2 and lead to. 2, and a hump of them, put sulphur tola 4 and rub these three medicines, in the juice of Aloe Vera (Kumārīrasa) for 1 prahara. Pour the whole thing into a bottle and seal it up. Put 3 layers of cloth and clay over it. Give it heat in Vālukāyantra for 1 or 2 praharas. The essence is accomplished. Mix 1 māśa of the essence into 1 tola of copper. (There becomes) gold.¹

Take the wood of sweet and bitter Nīmba=Melia azadirachta. Rub it with water like sandal (wood), smear a crucible. First purify copper, make Kaṇṭakavedhī (thorn-piercing), leaf of it. Make a ball of it like a paper ball and put it into the crucible. Melt it by heating it in fire after making it roasted (puṭa) put 1 or 2 māśas of copper into the crucible and melt it, there will be gold. This is true.²

Give 7 puṭas (roastings) to oxide of arsenic (malla=somala) tola 1, sal-ammoniac (Niṣādala) tola 1 and alum tola 1 in the milk (sap) of Banyan tree=Ficus Bengalensis=Vatadugdha, 7 puṭas in the juice of castor plant.=Ricinus communis, 7 puṭas in the juice of Jatropha glandulifera=sunflower, (Ratnajyoti), 7 puṭas in the milk of Euphorbia antiquorum (Vajri), 7 puṭas in the milk of Calotropis gigantea (arkadugdha), 7 puṭas in the juice of Aloe vera (Kumārīrasa), 7 puṭas in Kaṁkarumḍā (a kind of plant), 7 puṭas in brinjal and 7 puṭas in vedhedudheli (Euphorbia piluli-Fera).³

Take red sandal (Ratāmjanī)=Petro carpus santalinus, make it into pieces, soak them into oil and take oil (out of them) in a pātālayantra. Rub mercury pai. 1 bhāra in that oil for 1 prahara. Put Rumex vesicarius (Cuu) in a crucible with two parts (māsāmen-saṁpuṭāmen) and give gentle-slow fire (mandāgni) to it for one ghaṭī (24 minutes). On its getting cooled down, take out the whole thing. Rub it again in oil for 1 prahara, (put) it into a saṁpuṭa, give gentle fire to it for (lid) ghaṭī. Thus do it thrice heat mercury will be goṭaka (ball-like). Put that ball of mercury into a saṁpuṭa, make (lit) fire slowly and slowly for 1 prahara. The goṭaka of mercury will swell like patāsā (a kind of sweet prepared from guḍ). If that mercury vāla 1 is taken with betel leaf, 1 here will be fourfold appetite. If 1 rati of it is mixed into 1 tola of copper, there will be gold.⁴

Rub orpiment tola 2 with the juice of Nilaguli (a kind of plant) for 4 praharas. next grind it with the juice of lemon for 4 praharas. Then mix 1 māśa of that powder into 1 tola of copper. It becomes gold.⁵

1. SRSS., 3. 4

2. TRSS. ch. 3. 5

3. SRSS. Ch. 3.6

4. SRSS. Ch. 3.7.

Take Malla Dādimiu (a kind of oxide of arsenic) tola 2 or 3. The wood of Butea monosperma (palāśa lakadi), while getting burnt, will get reduced to white ash, it is called Palāśakhāra. Rub that somala with water and palāśakhāra. It will be of red colour, put that powder-māsā-1 māsā into Kathir (a kind of tin) tola-2. There will be silver.¹ If one māsā of that powder is mixed into 2 tolas of copper, there becomes gold.²

Combine together lead-gadriyāno 2, mercury gadriyāno 2, powder of Khasāragaloha (a kind of iron) gadriyāno 4, and realgar-gadriyāno-4, and grind them to powder, then rub that powder with the milk of Euphorbia neruifolia.

A leaf of lead is to be smeared with that medicine and melted by putting it into a crucible, There will be good gold.^{3x}

Take it out. Smear it with the juice of citrus lemon, put it on fire, it will be of the value of 11 carats.⁴

Crush Bergenia ligulata (Rāśāna pīpari) hard (gāḍhi), melt silver, and pour it into that. There becomes gold.⁵

Crush mineral calamine (Kharpara) 1 sr. and onosma echinoides (Nalia) -2 srs. in a mortar; grind them finely. Ferment it in the urine of horse in Dolikāyantra, for a month, next put it into the urine of ass, seal up the mouth of the pot. Keep it for a month in that state. Then take out the whole thing and dry it up, next mix up khāra (salt or ash) of Aghāḍa in $\frac{1}{4}$ th part, seal it up by putting a cover of cloth and clay, give it gajapuṭāgni.

On its getting cooled down, take out the essence, it becomes hundred fold (100%) piercing into copper. Copper becomes gold.⁶

Give saturation of oxide of arsenic tā 3 and chloride of sodium (Siaindhava) tā. 3 with the milk of Calotropis gigantea for 3 days (by rubbing them) in a mortar. Next make a ball of the mixture and ferment the ball in the milk of she-sheep (ewe) pai. 20 in a Dolikāyantra. Then mix 1 tola of copper with 1 māsā of the essence. There becomes gold of 8 carats.⁷

1. SRSS., Ch. 3.9

2. Ibid,

3. SRSS., .9x

4. Ibid.

5. SRSS., Ch. 3. 19

6. SRSS., Ch. 3. 20

7. Ibid., Ch. 3. 21

Take oxide of arsenic (**Somala**) pai 1 and the juice of the leaf of **Anacardium** (**Bhūlāmā**) and give cūyā (drops) of the latter to the former. Mix 1 māsa of oxide of arsenic with 1 tola of copper, combine half (of copper ?) gotaka (combination of copper or gold ?)¹

The leaf of **Āditivutī** (**Helianthus** sunflower annus) is like cūyā (gram?), give saturation to white sulphide of antimony (or **Collyrium** of antimony) and sulphide of mercury (=cinnabar=himṅula) with the juice of seed of **Aditi arā** into it. (i. e. the leaf of **Āditivutī-pan**). Next give it 7 puṭas of clay. Next put the whole thing into a glass Casket (**Kacākūṭi**) and give fire to it for 4 or 8 praharas. The essence is produced. Mix one māsa of the essence with one tola of copper. There becomes good gold.²

Take **Khurāsāṇī** castor=**pārasa** castor, its fruit is without thorn, know this test : Reduce to paste orpiment, cinnabar and mercury (by rubbing) into that, make a ball out of the paste. Next put the medicine into the mouth of an earthen pot, paint it over and put a lid into its mouth. Keep a vessel (**thāma**) under it. lit fire over it. 1 tola of oil of the essence which comes out of it is to be mixed into copper vā. 1 or māsa-1. There becomes gold.³

Put together silver ma. 1, gram of raw iron-rati 4, and zinc rati 4 by mixing borax equal to the quantity of these three metals. Again put them together and heat them. When remains, 1 masa of silver, then mix 2 masas of sakharo gold. put the cup into a crucible Next there becomes gold of 3 masas⁴

Melt together silver-māsa-1, copper māsa 1, iron mā 1 and zinc mā. 1. Again, put them into the wax of **Bhōḍalazā** (a kind of bee) on a pan. Turn round the mixture again and again. When there remains 2 masas of it, then put it into a second crucible and mix 4 masas of pure gold and 1 māsa of puṭhalidala (not identified) into it and melt them. There becomes gold of 8 carats. Staying in that place, there takes, place a decrease of 2 carats in it.⁵

1. SRSS., Ch. 3. 25
2. SRSS., Ch. 3. 29
3. SRSS., Ch. 3. 33
4. SRSS., Ch. 3. 36

zx It is difficult to define **Bhodala** here whether it is tree or mica.

5. SRSS., Ch. 3. 37

Make a cup or a small piece of thorn piercing-copper leaf, crush āmalasāra sulphur- $\frac{1}{2}$ sr. and mix oxide of arsenic in equal quantity into it. That copper becomes yellow. Rub it with $\frac{1}{4}$ sr. of juice of Citrausa (a kind of vanaspati) and make it ferment for a day, next melt it by putting it into a crucible 18 times. There becomes gold.¹

Crush (or grind) gum of Purging Cassia (girmālā) tree tā 30, sal-ammoniac tā 6, sulphur tā 16 and fill them into a bottle and seal up its mouth. Keep it (bottle) in the horse dung for a month. There becomes oil (inside the bottle). Smear the leaf of silver with it, give it heat, there becomes gold.²

Melt together these three—two parts of copper, two parts of tin (a kind of tin) and four parts of brass, next, if the mixture is poured into Kāgan-ela (a kind of Vanaspati) 21 times, there becomes medium gold. If it is poured 108 times into it, there becomes best gold.³

Melt copper vāla-1 and 2 vālas of gum of the fruit of girmālā (Purging Cassia,) together. Next put milk of Euphorbia pilulifera (ksirarū=gambhārī=arkapuṣpa-dugdhikā=into that mixture.) There becomes gold.⁴

Take mineral calamine tola $1\frac{1}{4}$ and cook (ferment) it by putting it in the urine of goat. $\frac{1}{2}$ sr., cook it with gentle fire. Next dry it up by taking it out, grind it finely and put 2 māsās, it becomes roundish (or ball-like) at the time of grinding. Put (it) and grind it, then put it in an earthen crucible and put copper 3 māsās into it by purifying it. Do it thus in oil, butter-milk and cow's urine. Put that copper into the crucible, Put a layer of cloth and clay over the crucible again by closing its mouth. Heat it in coal up to 2 ghaḍis (2×24 minutes) or 3. There becomes gold.⁵

Thus pour the same into crucible twice or thrice if stirred up (turned round); there becomes best, gold (aṣṭapāda).⁶

Taka copper of the wing of a peacock. Put it into a crucible and make fire under it slowly and slowly, grind some dry wild cowdung cakes and spread out the same into it and melt copper. It becomes gold.⁷

It is certain.

1. SRSS., Ch. 3. 49

2. Ibid. 50

3. SRSS., Ch. 3. 52

4. Ibid., Ch. 3. 53

5. SRSS., Ch. 3. 57

6. SRSS., Ch. 3. 58

7. SRSS., Ch. 3. 60

Take the tail of peacock 2½ srs. Take 2 big earthen lids (Sarāvalā). Put it into them, close the two lids by putting borax 3 into them, next give a layer of cloth and clay over them by closing; give it gajapuṭāgni. Then open the saṃpuṭa and blow ashes from it. There will come out gold-1½ māśas from it. Make a small and thin pot out of it (gold); put mercury into it as far as it can contain, put a little quantity of wild dry cowdung cakes over it, hold (lit) fire over it. There becomes gold. Again mercury becomes gold in that pot in this way. True.¹

As many times as gold is desired to be made, there becomes gold. It is the wish-yielding cup like Kāmadhenu (wish-yielding cow.)²

Fill stool (excreta) of a dog 1 sr. into an earthen pot and put three leaves of kathir (tin) into it in three layers by making each leaf pai. 1. Next give fire to it (pot). When it gets burnt up, blow up ashes (out of it) and take out that tin, crush it together with orpiment pai. 1 bhār, oxide of arsenic pai. 1, Sagiū Vacanāga (a kind of poison or) Aconitium ferox paisā 1 and borax-pai. 1 bhār in 2 srs. of milk of Calotropis gigantea; next crush them in 2 srs. of Milk's Hedge. Then put the whole thing into a flat (glass) bottle and seal it up by giving a lid (into its mouth). Next give it fire. Then fills and into an earthen jar and put the Kupī=casket (glass bottle) in the middle, close the jar and give fire to it for 15 praharas. Mix 1 rati of the essence with copper 5. (There will be gold or silver.)³

Crush the inner bark of Tectonia grandis=Indian Tik tree (Teliyā sāg) in the mouth. Take the sputum (or saliva), (out of it) into an oyster Shell. Take sputum tola-1. Melt copper tolas 4. When copper becomes watery, cast (Spit) sputum or spit into copper. There will be gold. True.⁴

Melt gold-tola-1, mix pure silver māśa 3 into it. After getting it melted, make the moten thing cold. Make 10 leaves of that gold and give a smearing of the following medicines to them.

1. SRSS., Ck. 3. 63

2. SRSS., Ch. 3. 63

3. SRSS., Ch. 3, z

4. SRSS., Ch. 3, z

Take sal-ammoniac tā 1, alum tā. 2, grain (or powder) of copper tā. 3, chloride of sodium tā. 4, red ochre (genu=girimāṭi) tā. 5 and rub them with water. Next smear the leaves of gold (with this mixture), give fire to these leaves slowly and slowly by putting dry wild cowdung cakes ½ sr. into an earthen potsherd three times. Again by this process smear the leaves with medicine, give fire of wild dry cowdung cakes to these leaves in an earthen potsherd (Thikara) three times, slowly. Thus again smear the leaves of gold, again give fire to them. Thus give sal-ammoniac and fire to three smearings of coatings. That is, gold will be marvellous.

The meaning of the gāthā (Do ratta, do piyala)-Combine together all these two māsas of copper, two māsas of gold, four māsas of mineral calamine and crush and rub them in a mortar without water. Take out the leaf of Dāvu (Jāvu) which becomes red-white shooting forth. Crush that with the juice of betel leaf. Next put it into a crucible. Make glass crucible. Put the medicine into that crucible. Chew together betel leaf, lime (kātho) and areca nut and put the spittle into the crucible, give a seal of glass into the mouth of the crucible. Then wrap a piece of cloth soaked with spittle of betel-leaf over the crucible. Next put a cover of cloth and clay over it with spittle. Then get it dried up and heat it in coal Sr. 1. Make it cooled down, take it out. There becomes gold.

Take a cup of essence of that mineral calamine tā. 6, next mercury tā. 1, Sulphur tā. 1, realgar tā. 1, orpiment tā. 1, and dāḥimiyo Gomala (oxide of arsenic) tā. 1 and combine all these medicines, crush and rub them in a mortar. Reduce them to paste, give them 7 puṭas (roastings) in the juice of citrus lemon, 7 puṭas in the juice of Aloe vira, 7 puṭas in the juice of Kaval (a kind of vanaspati) and suryaputa (puta in the sun-rays).

Next make tablets out of the mixture. Hold them by side of medicine, hold the cup of the essence of mineral calamine over it. Place it into a Vajukayantra. Make worship, make (lit) fire of (for) 8 praharas. Next take out the thing and make worship. That is the essence.

Combine together pure copper tā. 2, the essence tā. 1, silver tā. 3, best gold tā. 5, and melt them first in an open crucible. Next crush them and fill them up, and put the remaining all in an earthen jar, put sand 1 sr. over it; put them into an open crucible, next pour the whole thing out. There become gold pieces.³

1. SRSS. Ch. 3. 76.

2. SRSS., Ch. 3. 77.

3. SRSS., Ch. 3. 85.

Take red saimdhava salt 5 srs. and fill that much of it into the belly of a just-born child, which may be contained into it; close it and put it into a Ukaṛaḍā (village dust bin) and take it out after 6 months. It (salt) becomes the essence. Purify silver 1 sr. and melt it; put the essence into it. There becomes gold.¹

Take zinc tā. 9, make 3 leaves of it, crush cinnabar tā. 1½, orpiment tā. 1½, realgar tā. 1½, green vitriol (Sulphate of iron) tā. 1½ and āmalasār sulphur tā. 1½ and rub them in the juice of Aloe vera, rub (smear) them on the leaves of zinc. Next put those leaves one above another in an earthen cooking vessel; give a seal into the mouth of the earthen vessel with the cake of Aḡad (a kind of pulse). Then melt them and incinerate them to ashes. Melt that powder-1 rati, silver vāla 3 and copper vāla 13 together. Melt gold vāla 4 and put Khāra (ash) into it. Melt in a closed crucible, heat much. Next melt it in an open crucible. That is gold piece. True.²

Crush lead tā. 9, mercury tā., mineral calamine tā. a Ravana kaca (a kind of glass) tā. 4, āmalasāra sulphure tā. 9, all these one by one and mix them. Next give the mixture 7 puṭas (roastings) of Āuliphula, (vanaspativṛkṣa), 7 puṭas of Kesu (water chest nut ?), 7 puṭas of the leaves of three without name (naṇāmaṇḥḥaḍa), and 7 puṭas of Dāḍimaphula (vanaspati). Next grind them all with betel leaf (tambola) and put them into a Vālukayantra. Place it on fire, give fire of three kinds for 12 praharas; next again crush ¼ th part (of lead ?) and give it 3 puṭas of Dāḍimaphula, then again place the bottle (Sisi or lead on fire) and heat it for 24 praharas. Next give it 3 puṭas with the juice of auliphat for 48 praharas. Next give 3 puṭas, of betel leaf and fire for 96 praharas. Three kinds of fire. That is, the essence is produced. Mix 1 vāla of the essence into 1 gadiyāna of copper. There becomes gold.³

Take zinc paisa 5 bhār, put it in a Saṃpuṭa (lid), spread out the leaf of gaḍaralapaṭi under it, put the pieces of zinc at the centre, put the leaf of gaḍaralapaṭi pai 5 bhār over them. Close the saṃpuṭa, make a strong seal (into it), put 5 or 7 layers of cloth and clay and spread out coal-5 srs., put the saṃpuṭa at the centre, put again 5 srs. of coal over it. That is, there becomes 10 srs. of coal, give fire to the saṃpuṭa by lighting fire with a fan. On getting the whole thing cooled down, take out the saṃpuṭa. If the lid (cover) of zinc flies

1. SRSS., Ch. 3. 86.

2. SRSS., Ch. 3. 103.

3. SRSS., Ch. 3. 105.

up, let it fly, if it remains, again in this way (spread out) the leaf of gāḍalapaṭṭa, coal 10 srs. and give fire to it (saṃpuṭa) treatment three times; put the whole thing in a saṃpuṭa. There becomes pure zinc. It does not fly up. Next put mercury just equal to zinc, and make ~~gaur~~ (lump). Take wax of 2 fingers into the oil of wild saffron (Carthamus Tinctorius) by this process. Fry (heat or boil?) it and when it becomes thick of 3 fingers, take it out. Fry mīna-kāiṃ (Wax-piece) with oil, next put mercury into that oil. Then melt that zinc, melt it by giving borax, then pour it into the oil. The lump of mercury and zinc is produced. Next take out the juice of Hastakanda (a kind of Vanaspati), put it into an earthen vessel, give a seal into its mouth, give it fire of dry wild cowdung cakes-5 or 7 srs. Like this continue the process 21 times. Take the juice of Hastakanda (vanaspativiśeṣa) everyday and give 21 puṣas with it. The essence is produced. Mix 1 māśa of the essence into 1 tola of copper. There becomes gold.¹

Make a cup of zinc pai. 3 or 5 bhār. Take out the juice of sprouts or shoots of Sovanasāga (a kind of vanaspati) measuring $\frac{1}{2}$ cup and rub mercury (with it) for 2 or 4 praharas. Next put that mercury into the cup. Rub salt with the juice of Sovanasāga for 1 prahara. Fill that salt into the cup by putting it. Next bring an earthen vessel. Fill salt into the cup by putting it. Next bring an earthen vessel. Fill salt into it by crushing it. Press the cup upside down into that salt, its brim remains covered with salt. Next place the vessel on the furnace, give fire of wood under it slowly and slowly; give it cūyā (drops) of the juice of the sprout of Sovanasāga from above for 12 praharas. When the cup bursts out and becomes well (vakasa) the essence is accomplished. Mix 1 rati of that essence into 1 tola of copper, gold.²

There will be gold and gold pieces of established stone of Lajavarada, it is 3. Crush all these and make them fine by grinding. Rub them with the milk of ewe (she-sheep) for 4 praharas. Next bind pill of 1 tola with it. Then at the time of action, put together honey, clarified butter, borax, molasses and dālī ($\frac{1}{2}$) of gunja-these five just equal to the pill and rub them in a mortar for 1 prahara. Then make leaf of gold 1 tola by rubbing. Rub that pill, make its smearing-1 tola on the leaf. Make fire of 10 srs. of dry wild cowdung cakes, put the leaf into a Kavacyantra. Put a layer of cloth and clay over it and give it fire. On its getting cooled down, take it out. Next again smear the leaf with $\frac{1}{2}$ tola of that (pill).

1. SRSS., Ch. 3. 107.

2. SRSS. Ch. 3. 109.

Give it 10 srs. of dry wild cowdung cakes in a Kavacyantra. Take it out on its being cooled down. Again make a smearing on it (leaf) with 1 tola of pill and heat it in a Kavacyantra on fire of 10 srs. of dry wild cowdung cakes. Take it out on its getting cooled down. There will come Rs. 12 on the sale of the leaf of gold. There will come Rs. 16.00 on its sale (if) its carat gets increased.¹

Take 1 sr. of the juice of the tender leaves of Babul (a kind of plant), pai 1 of the juice of the tender leaves of Jambu; (Jambu tree), pai. 1 of the juice of the red leaves of oleander (Kanera), pai 1 of the juice of the leaves of piper betel (Nagavalli) and crush half of pai. 1 of Māgaphula and put it into the juice of the four medicines. Make paste of copper-māsās, 9 and zinc māsās-3. Keep three lumps vāṭas of that rasa separate. Then melt that lump and quench it into separate rasas (juices) thrice; its blackness is removed. There will be gold.¹

Copper is pierced, silver is pierced. Keep the leaf of orpiment dipped in the juice of Tripani śaḍhi (Khati), raw Desmodium gangeticum for 5 or 7 days. Next take it out and put it on fire. If it gets boiled with bubbling sound it is accomplished. Next put mercury just equal to it (its quantity) and rub it with it for 1 or 2 praharas. Then melt copper tola-1 by mixing 1 māsa of the essence with it. There becomes gold.²

Put Hiravola (a kind of mineral ?) tola-2 into a plate, put mercury tola 1; put (give) Hiravola over it, put a cup over it and give a menamudra (seal with wax) to it. Then pour water into the plate and make dipāgni to it for 1 prahara. Mix 1 rati of the essence into 1 tola of copper. There will be gold.³

If pure essence 1 bhār is taken, there will be an appetite for (of) 10 srs. of food.⁴

Bring a tuber of turmeric and mercury double than it (tuber). Make pill (ball) by rubbing these two, make it dry and bind it with the juice of citrus lemon. Press its juice by cutting it into two pieces. Put the pill in between these two pieces of citrus lemon. Place the second piece of it over the first one, make a smearing over it with the powder of Uḍad

1. SRSS., Ch. 4. 1.
2. SRSS., Ch. 4. 3
3. SRSS., Ch. 4. 7.
4. SRSS., Ch. 4. 11
5. Ibid.

(*Phaseolus radicans*), put it on a piece of dry cowdung cake and give the second piece over it. Next give 1 or 2 pieces of dry cowdung cake and make fire. On its getting cooled down, take it out. That mercury becomes *patāsā* (a kind of sweet) like, getting swelled. If 1 rati of it is taken, there takes place an appetite. Mix 1 rati of the essence with 1 tola of copper. There becomes gold.¹

Rub sulphur *pai. 5* with the juice of *Kesuphula*² for 4 *prahras*. Next after 1 or 3 days, put it into a bottle, give *mūvafa* (hair) into its mouth, keep it into the mouth of the second bottle. Put the mouth of the bottle in a *patalayantra* and give fire under it; take out (squeeze) oil. Smear that oil on the copper leaf, dry it up like *pāpaḍi* (thin crisp cake made of flour mixed with spices) on fire. Put 5 or 7 drops of oil on it. There becomes gold.³

Rub sulphur tola 1 and mercury tola 1 with the juice of *Amaraveli* (*Cassythafiliformis*) for 1 day. Rub them in a plate with the wood of *Limba* (*Citrus lemon*) in the shade. Do not expose it in the sunshine, do as such, hold it in the sunshine in *Caitra Vaiśakh*, oil comes out of it, smear leaf of copper with it. There becomes gold.⁴

Put ash of conch-shell into mercury by reducing it (conch) to powder and into oxide of arsenic (*Malla*) by taking mercury. Mix good alum into milk, mercury-1 tola, lead and oxide arsenic-hr. *māsa*.

Take sulphur *tā. 1*, natron *tā. 1*, lime *tā 1*, salammoniac *tā 1*, oxide of iron *tā 1*, orpiment *tā 1*. Make lump of mercury and zinc. Next crush the medicines and mix them into copper. Then take wood *fordia floribunda* (*Dhahadiphula*) and put all together, put *Dhahadiphul tā 4* into copper tola 1 and zinc $\frac{1}{2}$ tola (in the essence). There will be gold.⁵

Combine tin, copper, zinc, lead and mercury and the juice of cedar deodar (and make the essence by rubbing them). Put 1 rati of the essence into 16 tolas of copper. There will be gold.⁶

1. SRSS., Ch. 4. 12

2. Flower of *Butea frondosa*=saffron coloured flowers.

3. SRSS., Ch. 4. 14

4. SRSS., Ch., 4. 18

5. SRSS., Ch. 4. 23

6. SRSS., Ch. 4. 25

Make lump of 1 tola of mercury and 2 tolas of zinc. Next put 2 tolas of mercury into a silver pot (dāvaḍi) and put a layer of clay and cloth, give it gajapuṭāgni for 12 praharas. On its getting cooled down, take it out. Combine $1\frac{1}{4}$ māsa of the essence with 1 tola of copper.

(There will be gold ?)¹

Give 22 puṭas of urine of tiger to mineral calamine-gadyāna 1, borax ṭā 1, turmeric gadyāna 1, Sovanarakhiu kāca (a kind of glass) ga. 1 and Malāvi molasses ga. 12; get dried all medicines except molasses in the sunshine and pound them. Mix 2 gadyāna of the powder (grain) of silver into them. Next put the whole thing into molasses and make lump and melt in a crucible up to 1 prahara.

There will be gold, silver carat 10 or 11. Thus is the process of making gold.²

Kill mercury, sulphur, Kaṇeri realgar, orpiment and oxide of arsenic with the juice of Aristo lochia bracteata, apply the essence to silver, it becomes gold. It is said by the dispassionate.³

Grind and crush Gujarati orpiment, Bagdadi patrālī (leaves) and reduce them to small particles. Rub them in a mortar with the juice of onion for 3 or 4 days. When the combination is heated, then it burns like wax. Then know that puṭa is ripe (cooked), next put it into a bottle. Dig a pit measuring equal to the height of the head of man and fill it up with the horse-dung. Keep the bottle into the horse dung for 6 months, then take it out, the copper leaf. There becomes gold.⁴

Mix tin $\frac{1}{2}$ sr. and mercury $\frac{1}{2}$ sr. with rice meal-milk, curd, clarified butter, urine and stool for 21 days and heat (or burn) the mixture in a furnace for 1 praharas. Put 4 ratis of the essence into 1 tola of copper by melting it. There becomes gold.⁵

Put the juices of tumbī (Long gourd) ṭā 5 and the juice of Disospyros embryopteris (Tīḍu) ṭā. 5 seven times, into Copper (ṭā) 3 by washing (purifying) it. There becomes gold.⁶

1. SRSS. Ch. 4, 27

2. SRSS., Ch. 4, 28

3. SRSS., Ch. 5, 3

4. SRSS., Ch. 5, 3x

5. SRSS., Ch. 5, 4

6. Ibid., Ch. 5, 5

Grind sal- ammoniac त्रा 3, particles of copper त्रा 1 with the juice of citrus lemon in a copper pot. All becomes liquid (rasa). Then it is completed.

Jamgala (essence or Verdigris or green rust) is accomplished. Next take Jamgala त्रा. 2 and fresh particles of tutaha (a kind of chemical substance) त्रा. 1. Make them wet (drench them) with the juice of citrus lemon for 4 praharas. Put borax and melt them, iron comes out separately. There becomes copper. Take it. Mix silver with equal portion of copper. There become 6 carats of it. Next make it Jotaka pieces of gold.¹

Take a piece of cinnabar pai. 1 bhār. Next make a bread of the powder of wheat and put cinnabar into the bread. Repeat the process into 108 breads. Then put the piece of cinnabar into an iron cup, put over it these two things-honey pai. 2½ bhār and clarified butter pai. 2½ bhār and cook it. When the piece of cinnabar dries up clarified butter and honey, then take (it) out. Next wash the cup or put it into the cup. Put again honey and clarified butter, make fire of coal ¼ sr.

Like this give it 108 fires. Then it is purified. If 1 ratī of the essence is taken with beed-leaf, there takes place an appetite of 2 or 4 srs., put 1 māsa of the essence into 1 tola of copper. There becomes gold. It becomes like gold coin.²

Give tñyā (drops) of the juice of Hoṭha (a kind of plant) to mercury to 1, give it gentle fire and tñyā of the flower of hoṭha over it. It is accomplished. Take the thing after ¼ of 1 ghāṭi (6 minutes) and blow it up; again put mercury into that crucible, again give the juice of the flower of Hoṭha, again make it cool, again put it for the third time in a crucible and give it the flower of Hoṭha. At the bottom the essence swells. Mix it into copper tola 1. There will be gold.³

Put mercury त्रा 7 and sulphur त्रा 21 in a mortar and make collyrium. Next give 360 saturations to it with the juice of Aloe vera. Then it should be put on fire. There does not become smoke, such butter-like thing gets melted. When fire gets extinguished, it is accomplished. There becomes gold⁴ by the smearing of the essence on the leaf of silver.⁴

1. SRSS. Ch. 5. 10

2. SRSS., Ch. 5. 13.

3. SRSS, Ch. 5. 15.

4. SRSS., Ch. 5. 17.

Smear the Nepalese copper-leaf with Hemakuṣṭha (dung of a first born elephant) and Bakajala by piercing it with tanka (or thorn borax?). Heat it in fire. There becomes gold.¹

First dung of a just new born elephant is called Hemakuṣṭha. Reduce it to ash and besmear it with the juice of citrus lemon. It is to be dried up on fire like thin crisp cake made of flour mixed with spices. There becomes gold.²

Boil thick curd water 10 srs. Allow it to be crystallized (vitarāḍavā), when it becomes curd (crystalized) by getting separated, then bind it in a piece of cloth, just as Śrikhaṇḍa (is bound). Take out water. Next put it in a copper vessel. Then put Tesāḍi-1 sr. into it like alum. Pour over it the juice of citrus lemon- $\frac{1}{4}$ sr. and stir it up and mix together. Next give a copper lid into the mouth of the copper vessel. Then put it into Vkarāḍā (dust bin of the village) for seven days. Next take it out and get it dried up. A pure essence is accomplished. Money will come on its sale.³

Reduce to paste mercury tā 1 and realgar tā 1 and cook them into an earthen vessel. Put over their combination the gum-the gum of Eugenia Jambolana (Jambu) or Michelia champaca (Campā), or purging Cassia (giramālā). There becomes the essence. Put it into silver, copper and lead. There becomes gold.

Then there is Dharasatāri (a kind of plant). Press it in the juice of the vegetable of Luṇi (portulacaea) and grind wax, put silver on them by melting it. There becomes gold of 14 carats. Grind the seed of Sida cordifolia (Balabāja) and make its leaves powdered, put them into copper 11 times by melting it. There becomes gold. Good gold is produced.⁴

Dip natron tā 1, borax tā 2, Sal-ammoniac tā 3 and lime tā 9 into $\frac{1}{4}$ sr. of water. Next keep that water tā 9 and Sulphur tā 3 in an iron pot. Damatanai (not clear). There becomes gold.⁵

Make a cup of Zinc tā 9 and put mercury, grind salt and give it at the bottom of an earthen pot. Put the cup of zinc over it. Next give cūvo (drops) of the water of upper layer of sour curd on it up to the time till

1. SRSS., Ch. 5. 18.

2. SRSS., Ch. 5. 19.

3. SRSS., Ch. 5. 20.

4. SRSS., Ch. 5. 24.

5. SRSS., Ch. 5. 25.

mercury and cup become one. Then mix vālas 2 of the essence into 1 tola of copper. There becomes gold.¹

Purify the thorn-piercing Copper leaf and put it into the juice of Jalasi three times by heating and heating it (in fire) It becomes gold.²

Rub golden copper pyrite with clarified butter, honey, and borax. Heat it and take it out. Next combine that copper with equal quantity of gold, there becomes gold of 11 carats. There increase two carats in light gold.³

Bind the tablets of sal-ammoniac pai. 3, impure carbonate of soda (loṇā sāji) pai. 3, oxide of arsenic (Somala-Khara) pai. 3, alum pai 3, Saṅgharāyaph (oinnabar) pai 3 and Kaheṛavo (not identified) pai. 5 in the juice of stem of candatus (Mogarikanda) and put them into an earthen pot. They drink (absorb) the juice of Mogari-2 maunds. Mix the tablets with butter-like mercury tola 121. There becomes gold.⁴

Rub mercury to. 1, oxide of arsenic tola 1, alum to. 1, borax to. 1 and saindhava salt. to. 1-all these medicines with the juice of citrus lemon in a mortar for 4 praharas. Next keep an iron pan below (under), make tablets of that medicine, put them into that cup, place a copper cup over it, press both the (saṃ)puṭas (lids) and give a layer of cloth and clay over it. Get it dried up and cook it in a gajapuṭa. The copper cup swells, crush it and give 1 or 2 ratis of the essence into 1 tola of copper. There becomes gold.⁵

There is Tecoma Undulata (Rohiḍo) of 100 years old. Take out the bark of its branch, crush it to powder. Take out srs. of bark, put 1/2 of that bark into a small earthen vessel. Next take mercury pai. 1 Next take mercury pai. 1. take lead pai 1 1/2 bhar. Make hard lump with mercury. Put the tablets of mercury and lead over that powder, give over it again that powder of Rohiḍa. Make that powder taghāri (not clear) for 7 or 9 days. There is dung of a calf of animal (cow, etc), make the powder (of it) wet by crushing it. Next give a seal into the mouth of an earthen jar by putting the whole thing into it, place that jar into a velukāyantra, put a bottle (below). Put sand into a big

1. SRSS., Ch. 5. 26.

2. SRSS., Ch. 5. 29.

3. Ibid., Ch. 5. 29.

4. SRSS., Ch. 5. 32.

5. SRSS., Ch. 5. 39.

jar and give fire for 8 praharas under it. On its getting cooled down, mix 1 māsa of the essence into 1 tola of copper. There becomes gold.¹

First put zinc in tamarind-salt and press and wash it seven times, and purify it. Next make a cup of pai. 5 (out of zinc). Put mercury (ā. 1) into that thorn-piercing cup. Then fill up the juice of yellow Dodonaea viscosa (Bandāli) up to its brim and place a lid over it; give dipagni under it (cup); go on giving 2 srs. of juice of yellow Bandāli. Keep the juice up to the brim. After its cooking, when the brim bursts out, then go on mixing the pieces into the cup. When all burst out, then combine all the pieces together. Make earthen lids, seal them up, seal them into a śaravasampūṭa and give it fire of dry cow-dung cakes for 1 prahara. Next on its getting cooled down, take it out. Mix that powder-vāla 1 into 1 tola of copper. There becomes gold.²

True according to tradition.

Make a cup of silver-1 tola, put 1 tola of mercury into it. Fill up sand into an earthen vessel, put the cup into it, place it (Vessel) on the furnace and give fire for 5 praharas under it. Give drops (rūya) of Calotropis gigantea over the cup drop by drop till the cup and mercury become one. Next mix the essence vāla 1 or māsa 1 into one tola of copper.³ (There becomes gold).

Make tablet (or lump) of lead-1 sr. and rub it in the juice of Bubā, (a kind of plant) 21 times, next rub it in the juice of Butea Frondosa (Kasura) 21 times. The essence is accomplished. Mix 1 māsa of the essence into 1 tola of copper. There becomes gold.⁴

Make lime of oyster shell, mix a little mineral calamine as said before, give 30 gajapūṭa (fires) to the combination. Mix the essence-māsa 1 into copper tola 1. (There become gold.)⁵

Make a leaf of brass to. 5, combine together the juice of Butea Frondosa and that of citrus lemon and rub haṁsapāka cinnabar (ā. 3, sal-ammoniac (ā. 1) and mercury (ā. 1), by combining mercury together. Smear the leaf (of brass). Make a hole into a wood

1. SRSS., Ch. 5. 40.

2. SRSS., Ch. 6. 1..

3. SRSS., Ch. 6. 4.

4. SRSS., Ch. 6. 9.

5. Ibid., Ch. 6. 10.

of Butea Frondosa and cast it (leaf), Thus make a hole and close it and burn it for 4 prahāras. There becomes gold. Combine some gold. There becomes joṭaka (good combination or gold pieces).¹

Make a leaf of lead 1 sr. Make a hole into a branch of green Indian tik tree and put it (lead) into the wall, give its garbha (combium-layer or kernal ?) under and over; give (put) a small piece (of cut out branch), (into that hole), and a layer of cloth and clay over it. Give it haṭhagni. There becomes gold. It becomes fit for putting on as household ornaments.²

Crush cinnabar tā. $1\frac{1}{2}$, realgar tā, $1\frac{1}{2}$, sulphur tā $\frac{1}{2}$, orpiment to $\frac{1}{2}$, oxide of arsenic to. $\frac{1}{2}$, borax to. $\frac{1}{2}$, sūrokhāra (a kind of salt) (to.) $\frac{1}{2}$, and alum to. $\frac{1}{2}$, make a pit of brick measuring $\frac{1}{2}$ cubic yard. Dig the pit to that extent in which the cup of medicine is fitted; keep 1 finger of earth below, crush the medicine and put its powder on the brick in that pit. Put the cup of zinc pai 6 bhār on it, put mercury pai. 3 bhār into it by turning over, turn over the cup with light (gentle) hand, put the medicine on that brick and the cup upside down (turned over) on it. Crush brick and close the joint (gap); go on giving Pumbhādu of the juice of lemon over it, i.e. soak cotton with the juice of lemon and put it on the cup till the cup bursts into pieces, while making fire; keep up to that. First give fire little by little. Next on the second day give it fire more and more till the cup breaks up in 3/4/5 days, up to that go on giving (applying) wet cotton soaked in lemon juice over it. Next mix 1 māsa of the essence with 1 tola of copper. There becomes gold.³

Pour zinc 1 sr. in the urine of ass 108 times. Mix both in the urine of ass till there remains only pai. 2 bhār of zinc. Combine together 1 māsa of the essence and 1 tola of copper. There becomes gold.⁴

Keep green Cadaba Farrinosa Forsk. (telioakand), in oil for 4 days. Keep over it tā. 1 of oil more, put lead 1 sr. and Cadaba Farinonsa Forsk, $\frac{1}{2}$ sr. There becomes gold.⁵

Make pieces of sulphur and put them into a hole of a big citrullus colocynthus by making it, press a lid (dāvera) into its mouth by putting the gir

1. SRSS., Ch. 6. 10.

2. SRSS., Ch. 6. 14.

3. SRSS., 6.19.

4. SRSS., Ch. 6. 21.

5. Ibid., 6.22

(kernel) of it and close it; cook it in the fire of 4 or 5 pieces of cow-dung cakes. Then cook the same in new and new citrus colocynthus 108 times. Mix the mass of the essence with one tola of copper. There becomes gold.

Give 64 puṣas (roasting) to cinnabar $\frac{1}{2}$ sr. with the juice of Sakandarā (Sohagali) $\frac{1}{2}$ sr. It is a great piercer; crush Sakandarā which is Soragali and mix it with cinnabar, get it dried up; give 64 puṣas to it in this way; crush the copper-piercing cinnabar $\frac{1}{2}$ 5 and cissus quadrangularis (Haḍasakala) and put the mixture into an earthen vessel. Put pieces of cinnabar into it. Cover $\frac{1}{2}$ 5, cissus quadrangularis (Haḍasakala) with the second crucible and wrap it up with a piece of cloth; give, (put) it 2 or 3 layer of clay (cloth) over it. Make powder and lump of pieces of dry cowdung cakes by breaking it up; make the powder of dry pieces of cowdung cake equal and give over it. Next make fire. On its getting cooled down, again make 2 earthen vessels of the second Haḍasakala. As explained before, give fire of 2 pieces of cowdung cakes, if small, give 2½ pieces, not more. By this way give 12 puṣas, give 125 puṣas, then the essence is accomplished. Mix copper $\frac{1}{2}$ 3 and 1 rati of the essence. Meet silver $\frac{1}{2}$ 1 and put 1 rati of the essence into it. There becomes gold.¹

Cut black Bhodala (raw mica) like silver (coin), crush it and make silver. Next spread out 1 māsa of silver on 1 tola (of mica leaf), give (place) them layer by layer the leaf of mica, over it. (Put) surokhāra (a kind of salt), over the leaf, again surokhāra, over it the leaf, again surokhāra, again the leaf. Put them in a paper vessel on a light lid (sarāva) and sprinkle water; give heat to them a little with four cakes of dry cowdung. There becomes gold.²

Sulphur becomes white by grinding. Melt it and heat (it), grind it in silver, put the medicine. There becomes gold of 11 carats.³

Make the essence of sulphur ga. 1, realgar ga. 1 and mercuyr ga. 1. Make a leaf of lead and smear it with the essence; give it 3 puṣas (roastings) to the leaf of lead. That lead gets killed and (gets) converted into Silver ga. 4 & gold.⁴

Make pieces of copper ga. 32, and sulphur ga. 1, just like the size of zayphus jujube (borā) give them 7 puṣas by wrapping them with a piece

1. SRSS., Ch. 6.26.

2. SRSS., Ch., 6.28.

3. SRSS., Ch. 6.40.

4. SRSS., Ch. 7.11.

5. SRSS., Ch. 7.19

of paper. Next bring $\frac{1}{2}$ maund cānokali (lime), give half of it under and half of it over that thing, put sulphur in between them, put a cover (līḥ) over it and put a layer of cloth and clay over it. Next place it into the furnace (Nibhā) of a potter. When the furnace becomes cool, take it out. Take out 2 handfuls of lime. There becomes bright sulphur; when the paper gets burnt, take that. Then combine that sulphur, and sulphur of the market tā. 1 and mercury tā. 3 by crushing them.

Make cake by crushing them in a mortar. Mix 4 ratis of pīṭhi (cake or paste) into 1 tola of silver. There becomes 11 carat-gold.¹

Melt it by mixing the powder (dust) of copper just equal to silver. There becomes 10 carat gold.²

Give 24 saturations of water of sal-ammoniac (to gold). Next put it into a glass casket, then pour^{2x} kaḍapāṇi (grass-water ?) into an earthen vessel, put the casket into the body of dhākh^{2y}, lit fire under it, heat it till there becomes water, then take it. Make the water of mercury double than all things of the casket. Then combine both the waters. That is, Rasa, (essence) is accomplished. Melt 1 tola of the Nepalese copper and mix with it 1 rati of the produced rasa. There becomes 14 carat-gold.³

Liquety lead 1 sr. and give drops (Cuyā) of Alatā.^x It is to be stirred up with a wooden piece of Butea frondosa. When the whole thing gets reduced to ash, take it out. Next melt silver mā. 2 and the essence mā. 2 together. There becomes gold.⁴

Combine purified mercury ga. 10 and put them into an earthen vessel, place it on a furnace, give 14 cūyās (droppings) of 1x Haṁasapali to the mixture, stir it up with the wooden piece of Butea frondosa or Ailanthus excelsa Roxb (Araḍusā). Smear the essence on the leaf of copper bhā. 12 and silver vāa 8 and melt them, There becomes gold.⁵

1. SRSS., Ch. . 7.25.

2. Ibid.

2x not clearly explained in the absence of commentary.

2y not identified.

3. SRSS., Ch. 7.26.

x not identified.

3x Not identified.

4. SRSS., Ch. 8.1.

5. SRSS. Ch. 8.3

Make equal parts of each of Rasegha (kind of metal)-1, Morathuthu (a kind of poison)-1, mineral Calamine 1 and combine three-silver bha. 1, copper bha. 1 and powder of Rasegha, etc. bha. 1, put them on fire in a vessel, put cinnabar vāla 2 after their melting. There becomes gold.¹

If pegami sal-ammoniac is available, put 2 tolas of it and take the previous action. The test of pegami is that copper which is given over the cup, upside down becomes gold.²

Pound these three bhajis ~ (vegetable) of^x Vāsana (not identified)-1 agni (not identified) 1 and lajaluchatu (not identified) in mercury, next rub them in a mortar for 4 praharas; give it (the combination) fire of 4 dry wild cowdung cakes in a Saravasamputa. Mix 1 tola of copper (?) with 1 rati of the essence, (gold).³

Fix lead and gold, and iron with Alangium (Akalakaro) 1 and Amaryllidaceae (Curculiog orchioideis=Musalī) 1, make pill just to the size of gram with the juice of betel leaf.

First make lead purified, remove its blackness. Melt that lead- $\frac{1}{4}$ sr. and make a hole, crush orpiment $\frac{1}{4}$ sr., rub it in the juice of garlic and Aloe vera, rub it in the juice of Aquilaria agallocha (Hamsapadr) for 3 days, rub it for four ghadis (4x24=96 minutes). Put it into a bottle and place it in a Vālukāyantra, give it fire for 12 praharas, change 3 bottles. Rub Pra. depo (Kho ?) (not identified) in a mortar, put it 1 or 5 times, again change 2 bottles; the essence becomes red. Rub pradepo (not identified) fourteen times. Melt trapu (a kind of tin) $\frac{1}{4}$ sr., put it into the curd made of milk of she-buffalo 7 times. Next heat pork $\frac{1}{4}$ sr. in these two bottles in a Vālukāyantra on fire for 1 $\frac{1}{2}$ praharas. There becomes gold.⁴ If there is no bottle, do it in a small pot.⁵

Rub Padāmokhetha (not identified) $\frac{1}{4}$ sr. and patritāla (not identified) $\frac{1}{4}$ sr. in horse-urine for a day. Next put 5 srs. of Surokhāra into an earthen

1. SRSS., Ch. 8.8.

2. SRSS., Ch. 0.19

x It may be identified with *Cocculus hirsutus* Suls.

3. SRSS., Ch. 8.23.

4. SRSS., Ch. 8.33.

5. Ibid

vessel, give copper and orpiment under and over it. Close the mouth of the earthen vessel by giving a good seal to it. Then give it fire for 3 days, there becomes gold.

Rub the bile of goat tola.1 and mercury 2, for 1 day, reduce them to paste (i.e. rub them) in the juice of Abua (Shim?) for 21 days, rub them in the juice of lemon and put copper tola 1 into sweet Tanner cassia (Cassia auraculator) (zuli), mercury gets fixed. Mix the juice of Wedalia calendulacea (Bhāngṛā) in the oil of Anacardium (Builama) and pour it into the combination of mercury three times.

Turn up him (gula) (Cinnabar) into Indrāṇā (not identified) 120. (times) (and) into ripe Aegale Marmelos 120 (times).

Rub Sū. Po. sa., (not identified), rā (jā), (mercury-mā(sā) 6 and sulphur mā. 6 in the juice of Aloe vera for 2 praharas. Smear the leaf of brass to. 1 with it, give it Śarāvasam(puṭa) fire of 2, 3, and 4 srs. (of cowdung cakes), give it 3 paṭas (roasting). Next give it Molo (not identified) (?) (There becomes gold by half Joṭakarū.³ (combination)

Take milk of swine (She pig) pai. 8, grind salammioniac pai.1, red alum pai ½, put milk into a copper pot and cook them, they become powder. Rub 1 māsa of it, mercury to. 1, sulphur to. 1, orpiment to. 1 (godanti), haṁsapāka Cinnabar to. 1, realgar to. 1, ash (khār) of gram to. 4 in the juice of 100 lemons, (Kāgaḍi), heat the leaf of zinc pai. 4, bhar and quench it in the essence of those things. Thus do it 21 times.

Next crush Hirāḍaṇa (Calanus draco) pai. 2 in the urine of cow. Next by heating and heating the leaf of copper, quench it in the thick liquid (essence) of those things, thus 21 times.

Next melt 1 tola of copper, put 1 tola of zinc into it. Ba. mā (not clear). Next give tips of gum of gadhia palas a (Butea frondosa); gold will be yellow colour⁴.

Mix hemavarga (gold) into mercury, rub it in the juice of Aloe vera for 3 praharas. Put its paste into the bulb of onion. Repeat (do) the previous action (process). There becomes gold.⁴

1. SRSS., Ch. 10. 8.
2. SRSS., Ch. 10. 30.
3. SRSS., Ch. 10.39.
4. SRSS., Ch. 10. 41.

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 Rub mercury in Kāmori (a kind of vanaspati) having black branch for 14 days. After getting it dried up, wash it like butter or sand. Take an earthen pot, drench (dip) kalicūno (lime) into 5 srs. of urine of a small boy. Take the water of upper portion of it. Drench natron 1 sr. into that water and take the water of upper portions of it. Drench the bark of the root of Pomegranate-1 sr. and the leaf of Henna (Mehadi) (Lawsonia alb.), drench the root of Sambhali (quash) into it. By making the essence (liquid substance) of these, three, drench sulphur 2 srs. into that essence. Place it on fire. Oil comes over it as cream, take that (it). Apply it to the leaf of silver, gold.¹

Combine these three—the powder of Nāgareta (particles of lead ?) pai. 3, cinnabar pai. 1 and the dust of dead earth—worm pai. 2.

Rub them together in the juice of lemon; give 21 puṭas to the whole thing; 21 puṭas of the juice of the leaf of Indian teak tree. Next give a layer of cloth and clay over a saṃputa by putting the whole thing into it and keep it in the culhā āgami (āgamari of oven) for 21 days. At point heat touches (it); at some point it does not. Next take it out, the essence is ready.

Combine copper leaf and dung of buffalo into salt by ṭaḍaḍār (mixing ?) them, thus 7 times. Next keep it in the juice of āmaṭhi (pomoea) for two days.

Next melt that leaf tola 1, put 1 māsa of the essence into it. Put the juice of lemon-jasak into it. The sacrifice of Anārudhir (not identified) is to be given into it. There becomes gold from the chemical action (Karmabhavāt).²

Rub mercury in the juice Kallāra (red Potus ?) (Celsia Coromandeliana) for two days, next rub it in the juice of Ubhi rīgani (Sankrit-Bṛhatī = Solanum indicum) for 1 day, next rub it in the milk of Kaṭṭali Thohara (Euphorbia niruila). Next put it into the pāṭhā (leaf ?) of green lumpy Aloe vera, put over it a layer of wax and cloth and make puṭapāka (cooking by puṭa) in a Bhubhar-yantra.

On stirring (it) up, there becomes goṭaka (ball), rub it into the fruit of Ubhi rīgani (Solanum indicum) and give a little fire to it till the juice gets dried up. Thus (give) puṭas 108 (87).

1. SRSS., Ch. 10. 56.

2. SRSS., Ch. 11.10.

Take rasa (mercury ?) by making it wet with the lemon, with two rasas (juice) of Nāgachikani (centipeda orbicularis), grind it into them and give it fire little by little; goṭaka (pill) gets bound.

By taking out the juice of centipeda orbicularis, rub mercury, alum, oxide of arsenic (maḥa) cinnabar in equal quantity and cast the whole thing into a crucible.

Put first mercury, next leaf, next cinnabar, next alum and next put the juice of Centipeda orbicularis. At first black smoke will come out (due to their chemical action). Next at the second time when rasa (mercury) is mixed up, then blue smoke comes out.

At the third time, on mixing rasa (mercury ?), white smoke comes out. Next take out the whole thing; pill is produced. next melt it by making it (trapu), next, it is very hard, give borax into it for the second time and melt it, ball sucks water on turning up. Having put charcoal by the side of crucible, make phūkavūja (not identified); grind the essence, mix it up. There becomes (gold) ? No doubt here.¹

Grind sulphur tā. 5, sal-ammoniac tā. 5. and honey tā. 10 with the urine of a child for seven days in an earthen pot with the but (piston) of wood of Śahatāṭ (a kind of Vanaspathi). Next put silver into the essence by melting it. There becomes gold.²

Combine sulphur $\frac{1}{2}$ sr. and green vitriol tā. 10; give 108 puṭas of Aloe vera to their essence on fire, next mix 1 tota of copper and 1 rati of the essence.³ (Gold ?)

Grind sulphur tā. 3, orpiment tā. 3, cinnabar tā. 3, Vermillion tā. 3, mercury tā. 3, golden pyrite tā. 6, Daḍimasāra (Essence of punica granatana) tā. 1, zinc tā. 3, borax tā. 3 and glass tā. 9.

Spread out glass powder under and put the powder of medicines over, put the leaf of zinc over it. Again put medicine, again cover it with glass (powder), cover it up with seal, give it fire for $1\frac{1}{2}$ praharas. There becomes gold.⁴ Cook Rāla (resin a kind of wax) and borax in the juice of lemon for 2 praharas; put the essence into copper, cook rāla alone and give water, it becomes gold.⁵

1. SRSS. Ch. 11.11.

2. SRSS., Ch. 11.13.

3. SRSS., Ch. 11. 22.

4. SRSS., Ch. 11. 24.

5. SRSS., Ch. 11. 24.

Give 3 puṭas of Datura to mineral calamine tā. 4, 3 puṭas of Kamoti (a kind of vanaspati), 3 puṭas of Achyranthus aspera (aghāḍā) and 3 puṭas of turmeric to it. Make a copper leaf tā. 4, grind the medicine in the oil of Anacardium tā. 4 and smear the leaf with that; give it fire in a closed crucible for 6 ghaḍis (6×24=144 minutes) by melting it. There becomes gold.¹

Cook cinnabar tā. 1 in the clarified butter to. 21, curd to. 21, honey to. 21 and sulphur to. 21—thus in 84 tolas of these things. True. There silver (becomes), gold.²

Cook together sulphur pai. 1, sal-ammoniac pai. 1 and honey pai. 1; mix 1 rati of the essence with silver to 1.³ (Gold ?)

Rub an egg of a hen in the rasa=(mineral) of sulphur pai 1 and sal-ammoniac pai. 1. Fill the whole thing into the case of the egg, give it fire (dīpāgni)—dīpa Jyoti or cook it in the oil of linseed in a Doliḱayantra. Mix the essence 1 rati with silver to. 1.⁴ (gold ?)

Grind śaṁgharaph (cinnabar) mā. 6, seed of Terminalia chebula (Haritaki), mineral calamine, seed of croton tig-mā 6, borax mā-6, copper mā. 6 separately and combine them together; put $\frac{1}{2}$ of the whole thing under, $\frac{1}{2}$ of it over, the leaf of copper in between, (then) heat it in a closed crucible for 6 ghaḍis (6×24=minutes). There becomes gold.⁵

Make a lump of mercury and zinc, and rub them in the juice of white oleander (Nerium odorum) for one prahara. Close the copper (plate) by smearing it with the essence. (Gold* ?)

Rub mercury, lead, cinnabar and sulphur in equal proportion in the juice of Aloe vera and heat the essence in a copper śaṁpuṭa (Śarāva=lid) on fire of coal. There becomes gold.⁷

Rub mercury and lump of zinc in the juice of Iephanopsus (gobbi) (scaber), close sulphur 1, realgar 1, cinnabar 1, green vitriol, red orchre 1 in a copper śaṁpuṭa (Śarāva). Give it fire of coal, (gold).⁸

1. SRSS., Ch. 11. 25.

2. SRSS., Ch. 11. 30.

3. SRSS., Ch. 11. 34.

4. Ibid., Ch. 11. 35.

5. SRSS., Ch. 11. 36.

6. Ibid., Ch. 11. 37.

7. SRSS., Ch. 11. 38.

8. Ibid., Ch. 11. 39.

Rub cinnabar 1 and suro (Khār) with the juice of lemon and give it 21 pūṭas (roastings) and fire for 4 ghāṭis (4x24 minutes=96 minutes). There becomes gold.¹

Quench the leaf of brass in the oil of Butea frondosa or dry it up by smearing it with the oil of Butea frondosa. There becomes gold.²

Rub all these five Helioleris isora (Muradārasimṅa) māṣā 5, cinnabar mā 5, yellow sqmala mā. 5, mercury mā. 5 and borax mā 5 for 1 prahara. Next cover the whole thing for 8 days; do thus by rubbing the things every day. Next bring a leaf (daḍavo) of black Bhodāla (abhraka=mica) and make a good crucible by boring a hole into it. Make smearing on these two crucibles with good chalk. Next fill medicines (into them). Next give cūyā (drops) of the juice of lemon and shoe flower=Hibiscus rosa=Sinnusis=Java (Jāsula) into them by drops for 4 praharas. Apply 1½ srs. of it in this case; mix 1 rati of the essence into 1 tola of copper and heat them into an open crucible. There becomes gold.³

Make a lump of copper mā 1 and zinc mā. 1 (together). Pour the mixture into the milk of Euphorbia nivulia seven times. Next pour it into the juice of Aloe vera and turmeric seven times; next grind borax tā 1 and Thutho (a kind of poison) tā. 1 and give half of it under and half of it over (that mixture); heat it on the fire of dry wild cowdung cakes, put it into a small earthen śaravālā. There becomes gold.⁴

Purify (copper) leaf pai. 1 bhār with the essence of mineral calamine pai 1, borax pai. ½, mercury pai. ½ Wedalia Calendulacea pai. 1, golden turmeric pai. 1½ and oil of Anacardium pai. 1½ by finely grinding all of them separately.

Next rub mercury in the oil of Anacardium; when they become one, (i.e. mixed) then put mineral calamine. Next put borax, next mix all and grind in a Mohaka (Datura?). Next give 1 tablet (of the combination) under (and 1 tablet over the leaf); thus put them layer by layer. Then heat it in a close crucible upto 6 ghāṭis (6x24=96 minutes). There becomes gold.⁵

1. Ibid., Ch. 11. 40.

2. SRSS., Ch. 11. 41.

3. SRSS., Ch. 11.2. 2.

4. SRSS., Ch. 11. II. 3.

5. SRSS., Ch. 11. II. 4.

Rub somala (oxide of arsenic) in the juice of Horse radish. Rub these two together-the inner bark of Horse radish tree and cow's milk pai. 5 bhār, and take out the juice, rub Somala, next make a pill to it, put it into an earthen crucible, give it gajaputāgni of goat's dung 5 srs. Every day give it fire for 21 days. This process dries up the water of mercury and tin, mix paisā 2 bhār (of copper) and 2 ratis of the essence. (Gold?)

Keep orpiment 8 srs. and red Abrus precatorius $\frac{1}{2}$ sr. dipped in the milk of she-goat and take out oil in pātālayantra. Next put mercury 1 sr. into a zinc-cup of 2 srs., make that cup drink (i.e. dip) into the juice of lamprachoesium micro cephalum (Brahmadandī)-2 srs. Fill oil into it, put lead (Nāda (ga) in between Sambhara luṇa (salt) 3 srs. by crushing it, put the cup over it, fill the cup with that oil, place the earthen bowl over that cup. Fill 15 srs. of Sambharaluṇa over that, give fire under it for 12 praharas, give (mix) 1 māsa of the essence into 1 tola copper¹. (Gold?).

Put the juice of Būgo (a kind of plant) 1 sr. and mercury 1 sr. into an iron pot, give it fire for 5 praharas, give cñyā (drops) to the whole thing. Stir up the root of Būge. If $11\frac{1}{2}$ tolas of tin are mixed into lead, there becomes gold.²

Put mercury pai 1 and zinc pai $\frac{1}{2}$ into a copper Saṁpuṭa and fill it up with the juice of Ipomaea reniformis and close the Saṁpuṭa and give it fire.³ (Gold?)

Rub orpiment pai. $\frac{1}{2}$, mercury pai. $\frac{1}{2}$ and saṁgharaph (cinnabar) pai. 1 in the juice of centripeda orbicularis and juice of lemon. Make a hole in a brick and cook them into it; give cñyā of lemon juice to the whole thing. Mix 1 rati of the essence with 1 tola (of copper?) (There becomes gold?)⁴

Take a thick piece of cloth of cloth measuring the length of 1 cubit square. Give it 6 saturations with the milk of calotropis gigantea. Apply $\frac{1}{2}$ sr. (to) it. Thus on the seventh day there becomes blue (or green) cloth (nīlaja vastra).

Take $\frac{1}{2}$ sr. of sulphur and these five kinds of seeds-pai. 1 bhār of mustard seed, pai. 1 bhār of tin seed, pai. 1 bhār of Mesua ferrea

x. SRSS., Ch. II.5.

1. SRSS., Ch. 11. 2. 10.

2. SRSS., Ch. 11. 2. 11.

3. SRSS., Ch. 11. 2. 14.

4. Ibid., Ch. 11. 2. 15.

(Mīravanī=Nagakesar), pai. 1 bhāṇ of Momordica Dioica (Kāṇṭhīja) and
pai. 1 bhāṇ of calotropis gigantea (akabīja).

spread them out over the cloth and pour Kāṭhoni (thick piece of wood?). Make it (cloth) wet with the mustard oil. Trakulo Khoipe (not identified), keep the piece in one place, it gets melted by the contact of fire. Next melt silver to. $\frac{1}{2}$ and copper to $\frac{1}{2}$ one drop (of the essence) is to be cast into that; when all copper gets decayed (assimilated), then silver becomes gold.¹

Put molasses 2 (parts), sulphur 2 (parts), lime 4 (parts), gorocanā (a scented thing)-2 parts, and a leaf of zinc into an open crucible. There becomes gold; (if) next give that zinc into copper.²

Put Daṭṭhiu sulphur 3 into a small copper box by grinding it, mix rice like pieces of zinc 3 into it. Spread out sambhara salt 3 ratis by pounding it. Give (put) a cover (lid) over the small box and a layer of clay. After drying up the two, give it heat into the fire of dry wild cow-dung cakes-7 srs. On its getting cold, take it out. The grains of zinc like pearls become gold, take it.³

Take mercury tola $3\frac{1}{2}$, zinc 4, telu borax 4, the juice of Aloe vera (tā) $\frac{1}{2}$ and the juice of black Cirupoṭi (tā) $\frac{1}{2}$ (Cireḍi?=sarcostemma brevistigma), Purify mercury in jhika, (not identified) in the juice of lemon for 3 days, next melt lead and zinc together, next make a lump with mercury. Purify amalsār sulphur in mustard oil, and quench it. By closing all things into a copper saṃpuṭa (lid) fill the juice of cirapoti and the juice of Aloe vera into a copper box (dāhi) and close it. Wrap it up with iron wire, make a smearing over it by combining brick, sweet, fig root, old boha (bodhā?=Ballon vine?) and molasses and crushing them, give (put) 3 layers of cloth and clay over it, dry it up for 3 days, give it gajapuṭāgni for 4 praharas on its getting cold, take it out. There becomes gold.⁴

Take Saṃkhiu somala (oxide of arsenic) and mercury in equal portion. Rub them in the milk of Tridhārā and Caudhārā Thohara (Euphorbia

1. SRSS., Ch. 11. 2. 20.

2. SRSS., Ch. 11. 2. 21.

3. Ibid Ch. 11. 22.

4. SRSS., Ch. 11. 2. 23

nivulīa) for 1 day and in milk of *Calotropis gigantea* for 1 day. Making pills of them, put them into a *śaṃpuṭa*, give (put) salt under and over them, close the joint (gap) of *śaṃpuṭa* (lid) and put over it 3 layers of cloth (and clay); next put coal for 44 *ghaḍis* ($44 \times 24 =$ minutes into furnace), when red flames come up, i.e. pour it (into fire). Mix pure copper *tola* 1 and 1 *māsa* of the essence *bija* (*citrus medica* ?) 3 *māsas*. There becomes *joṭaka* of 16 carats. (Gold).¹

Rub *somala* to. 3 and mercury *tā.* $\frac{1}{2}$ in the milk of cocoanut, next put the whole thing into a green cocoanut, give *dāto* (cover) of five-leaved chaste three (*Nāgadi*), make smearing of the joint (of the cocoanut), put 7 layers of cloth and clay, mix the goat-dung and cowdung, and give it *gajapuṭāgni* with their mixture for 4 *praharas*. Mix 1 *ratī* of the essence with pure copper *tola* $\frac{1}{2}$, combine *bija* (essence) *māsa*. 3; *śrī* (Wealth) is produced.² (gold ?)

Rub *Śaṃkhiṣo somala* (oxide of arsenic) to 1 and mercury *tā.* 1 in (the juice of) lemon for 3 days. Put borax *māsa* 1 into them, make balls (or pills) of them, make a hole into a brinjal, put the whole thing into it and close it up. Mix 1 *māsa* of the essence with 1 *tola* of copper, *bija* (essence) *māsa* 3. *Joṭakam*.³ (Gold pieces)

Rub mercury *tā.* 12 and leaf of silver *tā.* 12 with lemon for 2 days. Next put the whole thing into a cocoanut, close its mouth, give (put) 3 layers of cloth and clay over it. Fill an earthen jar with sand, put the cocoanut into that, close the mouth of the jar. Dig a pit measuring 2 cubits, give it fire by putting goat's dung—4 maunds, $\frac{1}{2}$ under, $\frac{1}{2}$ over it, in between the jar for 10 and 12 days. Next take it out. There become *goṭaka* (pill). If it drinks (assimilates) milk, it is accomplished. If it does not drink, it is *trivedhī* (piercing threefold). Mix 1 *tola* of copper and 1 *ratī* of the essence; lead becomes gold by drinking milk.⁴

Rub mercury to. 1 in the juice of *Datura* for 2 days. Next combine together *Śaṃkhu somala* (oxide of arsenic) to. 2 with them and rub it in honey, next put the whole thing into small copper box of $\frac{1}{2}$ + $\frac{1}{8}$ *srs.* and close it by putting the thing into it.

1. SRSS., Ch. 11. 2. 28.

2. SRSS., Ch. 11. 2. 29.

3. SRSS., Ch. 11. 2. 30.

4. SRSS., Ch. 11. 2. 39.

By digging a pit of $\frac{1}{2}$ yard (cubic), put 3 layers of cloth and clay over it (box), give it fire of dry wild cowdung cakes by placing it into the pit. Take the white thing which comes up, and mix 1 māsa of that essence into 1 tola of copper.

If sveta (white thing) does not come up, there is ash lying under, take that while mercury lying at the bottom becomes all-piercing, melt it; that melted water is the essence, dip brass in oil 7 times, then cast 4 māśas of silver into $\frac{1}{2}$ of the essence, pumāvacaṇṇ (words of Puma).

Melt (or heat) realgar 8 and kaganel (not identified) $8\frac{3}{4}$ and for 24 praharas (3 days), Mix 1 rati of the essence into silver vāla, 1. There becomes gold of 13 carats.²

Cook realgar $3\frac{3}{4}$ orpiment $2\frac{3}{4}$ and cinnabar $2\frac{3}{4}$ in a Dolikā-yantra for 24 praharas, mix the whole thing with Kāganel $6\frac{3}{4}$ srs. After performing 3 Bhairava pūjas it is completed.

Melt silver vāla 1, put 1 rati of the essence into it. There becomes gold of 13 carats. Test is experimented.³

Grind together Herpestes monninerā vāla $\frac{1}{2}$, Centipeda orbicularis vāla $1\frac{1}{2}$ or Herpestes $1\frac{1}{2}$ and Centipeda orbicularis vāla $3\frac{1}{2}$, Mahā Varāha mṛtikā (soil) 30 srs., realgar 6, and Kanauji golden pyrite 6, mercury $\frac{1}{2}$ 6, cinnabar $\frac{1}{2}$ 6, go(damtu) orpiment $\frac{1}{2}$ 6, Dādamiu Malla (oxide of arsenic) $\frac{1}{2}$ 6, sulphur $\frac{1}{2}$ 6=thus 42 $\frac{1}{2}$ and cast the whole thing in a vessel. After 42 days oil or their essence is to be taken out in a pātālay-antra. Smear the leaf of silver with that essence. (There becomes) gold.⁴

Give 65 paṭas (roastings) of citrus medica to cinnabar. Mix the essence ga. 1 into copper vāla 1, (gold)⁵

Rub together cinnabar $\frac{1}{2}$ 1, Phitaki Malla (oxide of arsenic) 1, sulphur 1, Mastaki (Distacia Lentiscus) and seed of Luffa chinata Kukada vela) 1 in the juice of Aloe vera $\frac{1}{2}$ 6.

1. SRSS., Ch. 11. 2. 40.

2. SRSS., Ch. 12, 7.

3. Ibid. Ch. 12. 8.

4. SRSS., Ch. 12. 9.

5. Ibid.,

6. SRSS. Ch. 12. 10.

Rob cinnabar 1, Haramadī 1 (*Peganum Haramala* ?) and Arkakoila (*Crotalaria* gigantea ?) 1 in. white brinjal and get the whole thing dried up in the shade. Put a layer of cloth and clay over it and give it fire for 12 praharas. Mix the essence vāla 14 into copper ga.1¹. (gold).

Rub in $\frac{1}{2}$ sr. and mercury tā 6 (rum) kam (not identified) with juice of *Euphorbia Pihulifera* and the juice of lemon in equal portions. Smear the essence on the copper leaf 21 (times) and dry it up in the shade and give it 16 puṭas in the sun. Next melt it, gold² (i.e. there becomes gold).

Grind vaṭalapanni suvapaphuṭi, phali, so (*Bergenia liqulata*) having golden flower and fruit, with root and branch. Its juice is produced from only one. One elephant remains at the door,³ that is, gold is produced by some chemical process.

Rub all these-mercury paṭa 5, sulphur-paṭa 10, Kaṇarsia-paṭa 25, put the whole thing into an old pot and close it up. Place it inside a furnace for 6 months. Do like that so that the heat of fire affects it. Give (apply to) silver de $\frac{1}{2}$. (There may be gold ?)⁴

Cook tridhārī Haḍasamīkālī (*Cissus triangularis*) on fire for 21 days, next grind Kaṇerīu realgar and smear the leaf of zinc with it, give it layer by layer on the leaf. Put it into an earthen bowl and close it up, put 7 layers of cloth and (clay) over it, put it in a vālakayantra. Close it up, make mandāgni (slow fire) for 8 praharas. Mix 1 māśa of the essence into 1 tola of silver. There becomes gold⁵ of 8 carats.

Take phatākīu mālī (a kind of oxide of arsenic) ga. 1, mercury ga. 2, thūtho (a kind of poison) ga. 2, lime of conch shell (satīkhi cūmā) ga. 2 and 2 cups of tin measuring tā. 66. By making powder of the medicines, put it into one cup, next close its mouth by putting the second cup over it. Next rub green Vitrio in the milk of Vajrī (*Euphorbia antiquorum*). Smear it on the cup, next (put) 3 layers of cloth and clay over it. Next fill the jar with sand, put the cup inside it fill sand over it measuring 2 fingers. Next seal up the mouth of the jar with a lid. Close it with clay

1. SRSS., Ch. 12. 11.

2. SRSS., Ch. 12. 18

3. SRSS., Ch. 12. 19

4. SRSS., Ch. 12. 20

5. SRSS., Ch. . 12. 26

and give it fire for 2 praharas. The essence is produced. Mix the essence vāla 1 into copper gadi 1. There becomes (gold) of 18 carates (Vijaya).

Keep *Cadaba farinosa* Forsk (Teliukanda) in oil for 5 days, do it in such a way as four fingers get sunk. Next grind *Cadaba farinosa* with oil $\frac{1}{4}$ sr., ~~and~~ 4 sr. of lead and put it into that mixture of oil, and Teliukanda. (There becomes) gold.²

Grind khara ath or (Salt) to. 3, turmeric to. 3, lemon juice to 3, meth zinc to. 1, go on putting the powder and go on putting the juice of leaves of 7. black datura, go on blowing ashes, thus go on putting juice up to 3 tolas. Mix 1 tola of copper with $1\frac{1}{2}$ masas of the essence,³ gold?

Melt sulphur into a tapeli (pot), pour it into the juice of *Bandali* (*Loranthus longifolia*) 14 times, melt together copper and silver. Mix their combination gadi 1 with the essence vāla 1. (Gold).

Grind together tin (Kalahu) 1 sr., $1\frac{1}{2}$ ratis of patri (not identified), pure orpiment ta. 3, *Euphorbia pilulifera* ta. 3, and green leaf of *Lawsonia alb* (Mahedi) and make pills. Next wrap up the pill or ball with thread, then make a hole into a big ripe brinjal, put the ball into it and close the hole by giving (putting) a piece of it into its mouth, put 7 layers of cloth and clay over it; get it dried up in the shade, next cook it in the fire of 5 and 7 dry cow-dung cakes. Thus give 108 pahas (roastings) to it. This is the essence. Mix 1 rati of the essence into 1 ~~goldena~~ of copper;⁵ (gold?)

1. SRSS., Ch. 12. 57

2. SRSS., Ch. 13. 7

3. SRSS., Ch. 13. 8

4. SRSS., Ch. 13. 9

5. SRSS., Ch. 13. 20

Quench (mix) the juice of black ocimum gratissimum (Babari) into the juice of Aristolochia Indica (Tivaralingi), it will be like small pieces of bread. Next put sambharluṇa (salt of Sambara lake)-1 sr. into an earthen pot, make it like a plain platform (cotaro), put cāṇḍakī (bread-like thing) over it.

Put it on the furnace, give sufficient juice to it up to 6 praharas. Again turn it over and give it the juice of lemon for 6 praharas, give it cūṇā (drops), thus do it 4 times. That is, give it fire for 24 praharas. The powder will be as such that it will fill the tip of fingers, that is, it is accomplished. Mix the essence vāla 1½ into 1 tolā of copper.¹ (Gold)?

Grind mercury to. 1, sulphur to. 1, orpiment to. 1, golden pyrite to. 1 and zinc ½ sr. and make two cups (of zinc). Make this smearing on them, next make a smearing on the saṃpuṭa lid inside and outside by grinding the salt. Put a cover of cloth and clay over it. Next fill sand into one bowl and put salt over it, put the cup over that, fill the pit with goat's dung, leave the cup over the bowl, fill goat's dung over it and give it fire for 3 days. Mix 1 māśā of the essence into 1 tolā of copper.² (gold).

Rub mercury (tā) 4, lead to. 1, sulphur (tā) 1, and sal-ammoniac (tā) 1 in the juice of Diospyros peregrina (Tīmbaru) for 7 days. Put the whole thing into a bottle and give it fire. Mix 1 rati of the essence into 1 tolā of copper.³ (Gold?).

Take the powder of gajaveli (iron) which gets attracted to magnetic stone. Take clarified butter, honey and borax in equal portions to that (gajaveli), put it into them by drenching it up to 21 days. Next put it into a crucible and cover it with coal and heat it till it becomes red. When it becomes red, put (pour) Dāḍimī Somala (oxide of arsenic) tā. 1 into it little by little.

On putting it 16 (times), there becomes liquid, then take it out. Next melt copper 1½ bhār and mix the essence vāla 4, 13 carat (of gold?) is produced.⁴

Fill Sonehalirasa (a kind of plant) pai. 3 into a cocoanut shell having water by boring it; put mercury pai. 1 bhār into it and seal it up. When

1. SRSS., Ch. 13. 23
2. SRSS., Ch. 13. 25
3. SRSS., Ch. 13. 2. 4
4. SRSS., Ch. 13. 2. 7

(it is) put into the fire of dry wild cowdung cakes-basket 1, if it burns quickly, put cowdung 2 (baskets), next again put 5. Thus increase and increase, but do not put cowdung at a time. If put at a time, the coconut bursts, give it fire for 8 praharas. Put 7 layers of cloth and clay over the coconut. The essence is ready, mix 1 rati of it into 1 tola (of copper).¹¹ (There becomes gold.)

Make bread with the powder of wheat in the milk of Euphorbia nivulia (Thohar), i.e. by mixing it with the milk of Thohar. Put the pieces of Saṁkhiu Somala (oxide of arsenic) into it (inside it), cook it and take it out. Next grind killed zinc and Malla (oxide of arsenic) together with the juice of lemon, next give it fire in an iron-copper saṁputa (lid).

Mix 1 rati of the essence. (There becomes gold, ?¹²) Quench an iron-leaf into Centipeda orbicularis (Chikani) 108 times. Ash of silver (i.e. calcinated ash of silver). Take the leaf of (Silver) which falls out and grind it in the juice of centipeda orbicularis and give it gajapuṭāgūi, give (mix) tin into it. If there becomes red ash (Raktabhasma), mix one rati of the essence into 1 tola of copper. There becomes gold.¹³

Mercury, two medicines. quantum of fire, two earthen lids (are necessary for the process of alchemy). Now the science of chemistry and metallurgy covering the remaining demonstration will be discussed.¹⁴

The Jina who is like the full-moon-faced, seated on the throne with the family of saṁgha, bright and white with the ray of omniscience, should be meditated upon.¹⁵

Two Jinās are white, two are black, two are red and lotus-coloured, two are emerald (green)-coloured and sixteen are of golden colour.¹⁶

It means mercury (white), mineral calamine (black), realgar (red), sulphur (lotus Coloured-yellow) and orpiment (green-coloured).

1. SRSS., Ch. 13. 2. 8

2. SRSS., Ch. 13. 2. 9

3. SRSS., Ch. 13. 2. 10

4. This gāthā is mentioned in the 1st chapter, V. 5.

5. It is mentioned the 1st chapter. V. 3

6. It is mentioned in the 1st chapter. V. 4 and explained in the 2nd chapter. Ch. 14. pariccheda II. V. 1. 2. 3

Copper with leng-gourd (Tumba gourd) is to be mixed with the root of Tiqu (Coccinia Indica), when the mixture is heated, (it) becomes gold. That is said by Jinendra.¹

The things whose oil is desired to be taken out are as follows : Sulphur or orpiment or somala (oxide of arsenic) and others. That is also only one tola of each, camphor was considered before. Only 1 māsa is to be taken and saṭ-ammoniac of the same quantity is to be taken. Next the wise casts them into a glass casket by combining them together. He should heat the whole thing on fire by his own hand. It becomes oil quickly²—the best means of making gold.

Smear the copper leaf with sulphur and heat it on fire and crush it completely.³ It becomes of yellow colour, instantly, no doubt.⁴

Smear the silver-leaf with the oil or orpiment.⁵ The learned should do like that, there becomes gold immediately, this is experimented by the author; here no hesitation should be made.⁶

Cast orpiment measuring ten tolas into an auspicious (good) copper pot of three hundred tolas by grinding the thing (orpiment).⁷ Fill in there the juice of garlic having one granthi, measuring 250 tolas.⁸ And an intelligent man, having covered its mouth with a copper leaf, should select a testing ground not attacked (encroached) by the shade of trees. One's own shadow or others' is to be avoided. By digging a pit into the earth measuring four cubits on all sides or by five cubits, fill it with the dung discharged by buffaloes, then place the pot there into the pit. Having filled it with earth, protect it by making a circular compound with thorny plants.⁹

1. It is mentioned in the 1st chapter. V. 6. SRSS. See Ch. 14., V. 4.

2. SRSS., Ch. 14; Q. VV. 15-17

3. SRSS., Ch. I. Ch. 14. 2. 18

4. Ibid., Ch. 14. 2. 19

5. SRSS., Ch. 14. 2. 19

6. Ibid., Ch. 14. 2. 20

7. SRSS., Ch. 14. 2. 21

8. Ibid. Ch. 14. 2. 22

9. Ibid., Ch. 14. 2. 23-26

Then the wise should see it (after that period) by taking it out. If the pot does not turn yellow, again he should cast it there. O man! wait for four months by closing the eyes. Then see it by taking it out, it is a golden pot.¹ Take out orpiment sticking inside the pot with care. Then oil is to be pressed by means of Patalayantra. The very fine copper-leaf smeared with that oil and heated in fire becomes gold. There is no doubt.²

Take $\frac{1}{2}$ Pala of orpiment pieces by pieces, wrap them up with thirteen layers of cloth.

Take 160 palas of the powder of lime, put $\frac{1}{2}$ of the powder into an earthen pot by placing it below with care and put orpiment into it by placing it as said before; give the powder of lime over also by covering with the remaining powder of lime. There every day water is to be cast into the things with care. Here the shadow of one's own or of any other man should not fall on it. An oblation should be paid by one desiring his own welfare. After two months, having taken out that with welcome and rubbed it with the juice of *Alex vera* in a mortar for three days, it should be rubbed like that with the juice of black Wedelia *Calendulaca*.³

Again rub it with the milk of white *Caloropis gigantea* for three days and again rub it with the milk of *Euphorbia nerifolia*, continue this process for twelve days, next cast that thing in the shape of guṭika (pill) into the ash produced from the burning of the wood of *Aśvattha* (*Ficus religiosa*).

Thus cover it by casting ash on it and put (wrap) a layer of clay and cloth over it. The whole thing is to be kept in a place devoid of one's own shadow.

The wise should lit fire and heat it for thirty praharas. That guṭika becomes like ice, after that, there becomes gold as a result of melting of that essence measuring $\frac{1}{2}$ rati, into 13 palas of pure Nepalese copper by strong fire. Or worshipping the goddess Padmavati and saluting the guru also, that gold is produced immediately, which gratifies the desire.

1. SRSS., Ch. 14. 2. 27-28

2. Ibid., Ch. 14. 2. 30

3. SRSS., Ch. 14. 31-36

When here gold is produced, half of it should be used in religious activity, then only there is success, otherwise one gets destroyed.¹

The remaining thing becomes pure like the moon by the application of one hundred and twenty puṣas (roastings). It gets certainly powdered instantly by the pressing of the hands without any difficulty. Mix only one rati of this essence into only 1 karṣa of the heated well-known Nepalese copper. Immediately it becomes certainly calcinated (bhasmataḥ). The ash can be applied to another copper leaf, that also again to another successively. This ash can thus be used seven times and eight times also.

Gold gets certainly produced in that copper (i.e. copper is converted into gold). Here it is told by Jinadattisuri meditating on the two lotus-feet of Śrīmad Arhat for the benefit of the world.²

Second Section.

Chemical processes for making silver.

First kill tin (Vamga) with the stool (excreta) of a dog, put that tin into a plate and rub orpiment, mica, poison, mercury and borax with the milk of *Calotropis gigantea* and *Euphorbia antiquorum* (Bhānuvajja). O king ! make the hill of silver.³

Another interpretation :- That is to say, first kill tin with the stool (excreta) of a dog, put that tin into a plate, put copper ṭā. 2 and silver ṭā. 2; combine them together; put tablet (of tin ?) on them, again put tablet (of it) ṭā. 2, close the saṃpuṭa (lid) and put a layer of cloth and clay over it. On its getting dried up, give it gajapuṭa (roasting) in fire in a pit of 1 sq. yard for 1 or 2 praharas. After the whole thing gets cooked, take it out, mix the essence into one tola of copper. There becomes gold.⁴

Rub mercury pai. 1 in the juice of Krakaca, it becomes like leech annelid. Next give ṭayā (drops) of its juice-5 seers (to copper), it certainly gets coloured. It is said by Vallabhadāsa "It was quenched in its juice-1 seer. It was prepared according to my own conception. Tin combined with

1. SRSS., Ch. 14- 37- 43
2. SRSS., Ch. 14. 66. 67
3. SRSS., Ch. 1. 34
4. SRSS.. Ch. 2. 1.34 (Comm.)

lead becomes hard silver in the juice of¹ *Lumprachoenium microcephalum* and *gloriosa superba* (*śalapīpar*). The combination of tin 1 part, mercury-2 parts, lead-1 part, lac generated from plumb tree-4 parts, *symplocos racemosa*-4 parts (together); their blackness is removed. Rub the *gāṭhi* (lump) of tin and mercury with sugar; their blackness is removed; it is to be quenched in the juice of *picudi* and *Lamprachoenium* and it is to be quenched in the juice of *Amorphophallus campanulatus* and *Illiodendranaglacum*. It is to be quenched in the juice of *Ambrosia* (*Amṛtvel*) and *Tinosporacodifolia*=*galo*=*guḍucti*) or white gourd and onion and long piper.²

Take equal portion (of each of) mercury, *cyperus pertenuis* (*nāgara*) and mineral calamine; make them calcinated (*bhasma*=*jāro*) and kill them by giving *Aloe perfoliata* and *plumbago rosia*. Gaṇḍu says (that) it will be *āna* (not explained), silver will be of 10 carats (*vāṇis*).³

Take one part of tin, two parts of mercury. Blackness of these two is washed away in the juice of *Symplos racemosa*. Nātha says: there is always *Divāli* (light of victory or success and happiness).⁴

Take a piece of an old pipal wood which is found. Make powder of it by cutting (it into pieces) and crushing it, then infuse or saturate the powder with the urine of a male ass. Next mix tin with *Pitetia Itegrinia* (*Navāṅgi*=*Kakadasiṅgi*) and the spreading *Hogbid* (*Śaṭoḍi vanaspati*).⁵

Infuse silver (*Trilocanacuṇaḍi*) (not explained) with the juice of *Calotropis gigantea*. This is the *cunaḍi* (formula ?) of Nāgārjuna, it does not get destroyed by a year.⁶

Best (red) sulphur, well-cooked in internal smoke, becomes (powerful) for well piercing thousand times into silver, copper or lead.⁷

(It) is to be equally saturated with the milk (sap) of *Euphorbia Tragonic* (*Vajri*) like calamine (*Kha*) mercury (*ra*) *realgar* (*ma.*), borax (*tā*)

1. SRSS., Ch. II. 1. 49 (Comm.)

2. SRSS., Ch. 1. 1.49 (Comm.)

3. SRSS., Ch. 1. 11

4. SRSS., Ch. 1. 19

5. SRSS., Ch. 1. 22

6. Ibid., Ch. 1. 23

7. SRSS., Ch. 1. 25

and orpiment (ha). (It is to be) cooked on fire many times, (it) becomes bright like Kondula (Mograpuspa), it is true.¹.

That is to say, take equal portion of these minerals and grind them. They are to be saturated with the milk of Vajri (Euphorbia antiquorum). Cast the whole thing into a varamstaranodar (a kind of vessel?) with copper plate (leaf); it is to be melted by heating it in a crucible. Then it is to be poured into the dung of buffalo, having dug a pit; it becomes silver.²

Take two parts of brass, two parts of silver, two parts of carbonate of soda (natron), two parts of borax; give śvetakāca (white glass) over, and under. Rule over the earth sitting on it.³

Take savukhāra (a kind of carbonate of soda), natron, oxide of arsenic, white glass (śvetakāca) and orpiment, get them dried up in the milk of Cuscuta reflexa (Amarbel). Testify 17 carat-silver.⁴

Combine one part of tin, 2 parts of mercury (ā. 1, tin ā. 1 (?), lead ā. 1, lac ā. 2, (rāla=yellow resin) and Symplocos racemosa ā. 2, and give (them) 3 gajapuṭāgnis (3 roastings in fire lit in a pit measuring 1 cubic yard). There becomes white lead or essence.⁵

Take six times of pure and best tin, O puppi! I say again and again, mix it with lac and resin. As a result there takes place happiness. If the essence does not become silver, abuse me.⁶

Cast pearl born of oyster-shell and tin into the pan of Kanta iron, next mercury. Then Bhaṭāgni is to be given below it (i.e. to give heat to the mixture). As a result mercury becomes silver.

1. Ibid., 1. 26

2. Ibid., Ch. 2. 1. 26 (Comm.) That is silver is produced.

3. SRSS., 1. 27

4. SRSS. Ch. 1.35

5. SRSS. Ch. 1. 53

6. Ibid., Ch. 1. 54

7. SRSS., Ch. 1. 57

Rub Samkhiu somal (a kind of oxide of arsenic) tola 1 or 2 here with the milk of Banyan tree for 3 days. Next put the combination into a sampuṭa (with two lids) and put a layer of cloth and clay over it. Place it into the fire of dry wild cowdung cakes 10 or 15. Somala will become lime. If it is mixed into copper, it will turn into silver.¹ If it is taken-
vāla 2 or 3 in betel leaf, there will be an appetite; paralytic rheumatism goes away, if it is used.

Make a combination of palevo Pāṇāno (a kind of stone) and campaka-pāṇāna (magnetic stone) in equal portion, infuse the mixture with the milk of Śrīvṛkṣa for 1 prahara. A strong seal is to be given, by rubbing it seven times. There becomes silver.²

Give saturation of the milk of Thohar (Thora) to natron tā 3 and alum tā 3 and orpiment tā. 3; smear a copper leaf with their essence three times, heat it in a closed crucible. It turns into silver.³

Give cūvā (drops) to white oxide of arsenic in the juice of castor leaf; give it fire to the extent till it swells, next heat it. This is the process of piercing of 16 parts. There becomes silver.⁴

Melt oxide of arsenic in between the half part ($\frac{1}{2}$) of Aloe vera and get it fermented in the earth-(bhūbhara yantra); give it 64 fires eight or seven or nine or ten times. Mix that essence vāla 1 and copper vāla 16, together. There becomes silver.⁵

Crush mineral calamine and red rock salt of equal quantity, mix the combination in the juice of Aloe vera, put it into śarāvasampuṭa (sampuṭa of two lids), cover it up with a layer of cloth and clay, and give fire to it in a gajapuṭa (in a pit measuring 1 cubic yard). The essence becomes of vermilion colour. Next purify lead 6 times with 7 saturation of Citrus Lemon and 7 saturations with the juice of Thohara (Euphorbia). This is the process of purifying lead. Then melt it by giving (mixing) the essence vāla-11. ($\frac{1}{2}$) into it. There becomes silver.⁶

1. SRSS., Ch. 3. 6x.
2. SRSS., 3. 10.,
8. Ibid., 3. 11.,
4. Ibid., 3. 12.,
5. SRSS., Ch. 3. 13.
6. SRSS., Ch. 3. 14

Take cinnabar (sulphide of mercury) and zinc, make the leaf of brass thin, next crush the root of uḍad (a kind pulse-plant) (Taruṣka); make phīṇavaḍā (not explained), put that leaf into Phīṇavaḍā, fry the vaḍā in the mustard oil, next make it cool. Then mix Suvarṇāntara (not clear) with the juice of Euphorbia pilulifera (Nāgarjunt). Put mercury 10 into an earthen pot and give cūyā (drops) on it with five seers of Nāgarjunt juice. Mercury may or may not become hard. There becomes silver.¹

Take Cissus quadrangularis (Tridhārī hāḍasakalī=Asthisamhārī) - gadiyānā - 3, melt trapu (a kind of tin) 1 and put the juice of Tridhārī Hāḍasakalī into it. There becomes silver.²

First pour trapu (tin) into śolanum yanthoearpum seven times. (Bhūirigani=Kaṭikārī) seven times and into a bitter long gourd seven times. It becomes silver.³

Keep the five parts (pañcāṅga) of white Tribulus Terrestris (gokharu) (fruit, flower, leaf, bark and root) in cow's urine for seven days. Next take them out, dry them up in shade.

Crush them into powder, keep it. Then mix 1 tola of this powder into 1 seer of tin. There becomes silver.⁴ True.

Make the leaf of zinc pai. 1. Next take lime pai. 5 and crush natron (sāji) pai. Lay out or spread out $\frac{1}{2}$ portion of lime at the bottom and put natron over it and put the leaf over it. Spread out natron on it (respectively). Thus put them layer by layer (one layer after another successively). Again put natron; give $\frac{1}{2}$ portion of lime on it and put the whole thing into a śamputa and seal it up, give fire to it for 12 praharas. On the cooking down of the burning cow-dung, take out the essence and give 1 māśā of it into 1 tola of copper. There will be silver, combine $\frac{1}{2}$ part of silver. Joṭaka becomes worthy for sale.

Make ash by burning the five parts⁵ of white Visakhā paro (Horse purslane) on an earthen pan. About sam sr. 3, or 4 srs. of urine of a boy & 4 sr. of urine of an ass are to be taken. Next put Kavalā Beyaḍārī (a kind of vanaspati) over it, put tin by pressing there, it becomes beautiful.⁶

1. SRSS., Ch. 3. 16,

2. Ibid., Ch. 3. 17.,

3. SRSS., Ch. 3. 23.,

4. SRSS. ch. 3. 24.,

5. Fruit, flower leaf, bark and root.

6. SRSS., Ch. 3. 26., What is silver

... Oxide of arsenic (Saṁkhiu malla) becomes quite white like a chalk. Take red and yellow Rekhai, i. e., Dāḍinu saṁkhiu somala, (a kind of oxide of arsenic), Nimālā of living or man—1 angula (of 1 angula=finger), ḍaḥr of Kaḍāni (not explained); crush nimālā (piece of finger) on the latter and approximately it becomes koḍā, (Kathā), wrap oxide of arsenic with that mālā; next put it into a glass bottle.

Then put it into an earthen pot; it becomes yellow, take it out. Next put 2 or 3 māśās of it into 1 tola of copper. If half is taken, there becomes silver. If half silver is combined with it there becomes joṭaka (good silver). If ornament is made of this joṭaka, it can be used. If it is purified in Hṇḍari mūsā (a kind of crucible), it becomes artificial silver.¹

Take that while sulphuret of antimony (Saramo) out of which there comes by swelling fresh foam up like opium and like borax, it is put on fire. Alum and oxide of arsenic are of white colour. Put on them lime by drenching it. If a little lime becomes yellow, purify it and if that which becomes red, ferments alum, put that.

Accomplishment of silver-making process.²

Give the juice of such creeper whose leaf is like jāli (net) and fruit is like liboli (neem) to tin. It turns into silver.³

If tin is drenched into the juice of Jalajambu (Hijjal=elatine varti ciletā), there becomes silver.⁴

If tin is put into alum, oxide of arsenic and copper, there becomes silver.⁵

Rub copper māśās 2 with sand (particles), rub 2 māśās of mercury and 1 māśā of silver, keep them wet with water in Saktodake (a kind of chemical water). Kill zinc 2 māśās in śrāvaṇa day. Combine all together and melt (them) by giving (putting) borax under (them). They become white like soap. There becomes silver of 5 māśās.⁶

1. SRSS. Ch. 3. 28.,

2. SRSS., Ch. 3. 30-31

3. Ibid., Ch. 3. 32.

4. SRSS., Ch. 3. 34.

5. Ibid., Ch. 3. 35.

6. SRSS., Ch. 3. 39.

Reduce to paste mercury $\frac{1}{2}$ in $\frac{1}{2}$ sr. of the juice of Sarapamkhā (purple tiphrosia) in a mortar. Next take it out by washing. Then put a big tablet (Thepali) of mercury into an earthen crucible and close it; give it gentle fire of 5 pieces of cowdung under and 5 pieces of it over it for 1 ghṛt. Take it out on its getting cooled down. Mix rati of the essence into 1 tola of tin. Silver. True.¹

Reduce to paste mercury in the juice of the root of Kasumdi (Negro coffee plant) for 4 days. Next keep it in an earthen vessel for 4 days. Then put the powder of leaves of zinc into it, give $1\frac{1}{2}$ māśas of powder (of zinc) into 1 tola of mercury. Put 1 māśa of silver into that mercury after the powder gets melted. There become silver.²

Take a wooden piece of green Butea frondosa Roxb, 1 cubit in length, 8 fingers in breadth. Make a cup of that, put into it kaviu sindūr (vermilion) pai 5 bhār, by making small pieces, and the juice of ripe citrus lemon.

Next put these three together into the cup and give a lid over its mouth.

Put a layer of cloth and clay over the cup. Dig a pit and put that wooden piece into the ground; give it fire of wood of Spong tree (Khijaḍā) and zyzypus jujube for 11 praharas. There will be silver.³

Take milk of a she-camel giving the first birth before the time her calf has not sucked her milk. Next put a piece of Kathir (a kind of tin) just equal to the quantity of milk into that milk. When it gets dried up, take out kathir (tin). There becomes silver.⁴

Make the grains (sands) of zinc, put them into the bread of powder of Temāla (not identified) and feed a he-goat for a day. Keep the he-goat hungry on the first day. Then on the second day feed it on bread. Take its dung, give puṭa to it into the juice of Gobhi (a Elephantopus scaber) by dipping it for a day. Next put it into a fresh earthen vessel and place a lid into its mouth; make a hole on the lid and close it with clay,

1. SRSS., Ch. 3. 43.

2. SRSS., Ch. 3. 44.

3. SRSS., Ch. 3. 45.

4. Ibid., Ch. 3. 46.

give fire of dry goat's dung cakes underneath the vessel. There will be silver.¹

Give 21 saturations of milk of She-sheep to the flower of white Butea Frondosa (Sveta-Palāśa). Next melt tin by purifying it. Mix 1 tola of it with 1 tola of the powder of the essence. There will be silver.²

Make the leaf of tin (Kalahr) 1 sr. as thin as thorn-piercing. Next put it into an earthen pot and pour the juice of citrus lemon on it by pressing up to part 1 with 150 citrus lemons. Next keep the leaf by washing. Then make fine powder of lime of oyster shell 2 srs. by crushing it. Then make a cup by making a hole into the main root of the wood of Sālara (Shorea robusta). Then give the powder of lime of oyster shell under and over the leaf, give it layer by layer. Close the mouth of the cup, put a layer of cloth and clay; give it gajapuṭāgni with fire of dry wild goat-dung cakes. On its getting cooled down, take it out. There becomes silver. True.³

If accomplished galija (a kind of mercury) mercury is found, put it into a crucible and put a little oxide of arsenic. Lit fire under it; go on giving covā (drops ?) of the juice of Lippia nodiflora (jala-pipar). Mercury will turn into silver.⁴

Salt, hāra (not identified), alkali or caustics (Khāra) are found in Madakaraṇakunḍa (pond) in the south. If there is brass 12 paisā bhāra, take pai. 2½ 6 bhār of salt and hāra, alkali (Khāra) of the same quantity of each. First, if brass is pai. 12, take swine's milk pai. 5 bhār. Smear the leaf (of brass) three times, give it fire. Next crush alkali with water, smear it (with it) and give it fire. Put it into a crucible and blow it into the fire of dry wild cowdung cakes up to an hour. On its getting cooled down, take it out. There becomes silver.⁵

Give 7 putas of the juice of brinjal to oxide of arsenic. Next give 7 saturations of gobhi (Elephantopus scaber) to it. Then put (give) 1 māsa of the essence into 1 tola of copper by melting it. Copper becomes white, combine ¼ of silver, (it is) good,⁶ (Śrīkāra).

1. SRSS., Ch. 3. 47.

2. SRSS., Ch. 3. 48.

3. SRSS., Ch. 3. 54.

4. SRSS., Ch. 3. 62.

5. SRSS., Ch. 3. 64.

6. SRSS., Ch. 3. 67.

Rub oxide of arsenic and mercury each in equal portion with the pulp of seed of castor (*Ricinus*) for 1 prahara. Give the tablet of 1 māsā of the essence into copper—1 tola, combine $\frac{1}{2}$ of silver into it; good silver.¹

Take oxide of arsenic 1 sr, combine together curd-water—2 srs. and the juice of citrus lemon $\frac{1}{2}$ sr., go on pouring the juice little by little on oxide of arsenic into a pot with an iron spoon and give fire under it; cook it by bhāṭāgni (fire quantum for cooking rice). Thus give it puṭa for 42 days in 2 srs. of curd-water and $\frac{1}{2}$ sr of citrus lea on on the fourth day or in the fourth puṭa (roasting) rub it (oxide of arsenic) alone one day for 1 or 2 praharas. That is, oxide of arsenic is accomplished. Stir it up with the spoon of sisam wood. Put the gloves on hands, do not take smoke in the eyes. Next it is produced. Then put 2 māsās of the essence into 1 tola of the copper. Make pills of silver māsā. Melt copper and put one pill (of silver), next again there will be silver. Next by putting it into a bottle, hang it on. If there becomes thuthadi (?). (there will be) silver. True.²

Bring sal-ammoniac, take an earthen pot of the shape of a water-jar : first spread out lime (*Kalicūno*=lime of snail shell) in the form of a circle, spread out sal-ammoniac over that (lime). Make a border (*Pāṭi*). Give lime over that, give fire under the earthen pot. When sal-ammoniac gently gets bubbled, put lime into it. When the bubbling stops, then it gets cooled down, take it out, rub the whole thing and put it into phūkanā (not identified) and close its mouth. Keep it into hot water. Make fire below the pot. Take it out by keeping it for 1 or 2 ghaṭis. Put lime (*Kalicūno*) in one pot. Put the water of sal-ammoniac (into it) from phūkanā, which is there, into lime; give a seal into the mouth of the pot; put it into the furnace of a potter. Take it out after its getting cooked. On taking out the whole thing from the pot, crush it. Put it again into Phūkanā (blowing apparatus), bind (seal up) its mouth hard, pour cold water into the jar, put phūkanā into that.

If it is kept for 2 or 3 ghaṭis, there will become water of sal-ammoniac; pour it into a plate of china clay (Chinese plate) from that phūkanā; keep it in the shade for 1 or 2 days. It will become pāpaḍi (parpaṭi); keep that pāpaḍi in one place. There becomes the essence. Melt zinc and put sal-ammoniac into it little by little. At the time of filtering, put again sal-ammoniac vāla 1 into zinc. There will be silver.³

1. Ibid., Ch. 3. 68.

2. SRSS., Ch. 3. 69.

3. SRSS., Ch. 3. 70.

Mix mercury pai 2½ and oxide of arsenic 1ā. 1. Next put the whole thing into an iron pan and go on putting little by little the juice of Aloe vera with a spoon by taking out 5 srs. of it. Next take cow's urine 5 srs; put it little by little into that; when it gets burnt up (heated) wash it (the mixture) with water, then make a cup of gajavela iron; grind alum 1ā. 1 and orpiment 1ā. 1 into it; spread them over and under and put a layer of cloth and clay (over the Cup), heat it in fire of dry wild cowdung cakes for 4 ghaṭis, Mix 1 rati of essence into 1 tola of tin, it becomes silver.¹

Rub oxide of arsenic tola 1-and grains (or dust) of silver tola 1 in the juice of elephantopus scaber (gojihvā) for 4 praharas. Next put the whole thing into a Dābaḍi (a pot) and put a layer of cloth and clay over it. Give it fire of wild cowdung cakes in a pit measuring 1 cubic yard (gajapuṭa). On its getting cooled down, take it out. Mix 1 māsa of the essence into 1 tola of copper. Next pour it into cowdung, then crush sal-ammoniac and salt (Jūṇa) together. O Desirer of silver, smear the essence on the copper-leaf and heat it in fire. Next pour it into āmalasāra sulphur, even if there comes up blackness, make it hot and quench it with the juice of cirapotikā (a kind of plant.)

That goes to be thus : 1 tola of it becomes new and pure true. Golakai (Combination) is produced by the grace of god.²

Make one bread of the fruit of Tamarind, make another bread of carthamus tinctorius (Kusambha), next make pieces of oxide of arsenic and alum like that of rice; get them parched in the 1st bread and put the second bread over it, close the border of the breads. Cook it in an earthen pan. The roṭalī (small bread) is produced with that. Put together copper 1ā. 5, best brass to 5 and silver 1ā 5, this essence-oxide of arsenic to 5. There becomes silver.³

Melt zinc 21 times in all these juices-urine of horse, urine of man, urine of ass, milk of calotropis gigantea, milk of Milk's Hedge, juice of Datura, juice of citrus lemon, and juice of Sabuni tejnavi (a kind of plant) and pour it. Next whatever juice remains, melt that in a crucible. Put sal-ammoniac from above by filling with cāpuū (pot or finger), put it, while melting sal-ammoniac, borax and salt (Khāra), Kabhi-that is,

1. SRSS., Ch. 3. 71.

2. SRSS., Ch. 3. 74.

3. SRSS., Ch. 3. 102.

mineral calamine becomes pure. Next combine that mineral calamine 1 tola and silver 1 tola and melt them. Cover and put them in a crucible. That is, there become silver pieces of 18 carat.¹

Takr $\frac{1}{2}$ sr. of powder of Jowar and $\frac{1}{2}$ sr. of powder of wheat—two combining, it comes to about 1 sr. Mix 1 tola of grains of Kathira (tin) into the mixture. Next make bread and feed a cock.

Take its excreta. Mix that excreta into 15 srs. of the juice of *Euphorbia pilulifera*. Take cūyā (drops) into a pātālayantra; give it fire, it falls down, that becomes silver.²

Give 21 puṣas (roastings) to raw salt with the juice of white Bandāh and rub it. Next bind the tablet of mercury with Mora Thuthu (Thuthā) (a kind of poison); spread that salt at the bottom in a crucible, put the tablet (of mercury) in the centre and give the salt over it. Seal up the crucible and give it fire for ghaḍī 1. That tablet becomes silve.³

Make lump of these four things—silver mā. 3, zinc mā 3, kathir (a kind of tin) māsā 3 and lead mā. 3 and then put it (lump) into an earthen pot (or make tablets of it.)

Next melt them and put 4 māsās of mercury into it. Then crush 4 māsās of samkhiu somala and burn it over 5 or 7 times and go one putting it into the mixture by tips. When the essence becomes smokless, take it out. That tablet becomes reduced to ashes. Melt silver mā 6 and brass māsā 6, put this ash into the mixture. There becomes silver.⁴

Take white cinoṭhi (*Abrus precatorius* Linn) and a wood of Myroslan (Bahiḍā) 2½ srs, make a hole into the wood of Bahiḍā and put the powder of *Abrus precatoris* Linn) into it, melt old copper into that, put it into its juice. Next take 5 srs. of lime, and its fire generated by sprinkling water, next make fire of dry cowdung cakes for 1 prahara and put it on it. Then take it out and filter the thing (essence). Put mala phitaki (alum) vāla 2 into copper to. 1; silver is produced.⁵

1. SRSS., Ch. 3. 104.
2. SRSS., Ch. 3. 106.
3. SRSS., Ch. 4. 2.
4. SRSS., Ch. 4. 4.
5. SRSS., Ch. 4. 8.

Purify zinc by melting it. If mineral calamine $\frac{1}{2}$ sr. is melted, there remains $1\frac{1}{2}$ pāu from sr. $1.9 = (2\frac{1}{2})$ of (the mixture). Take the juice of the root of Ājhihārā (a kind of vanaspati) $1\frac{1}{2}$ srs; mix 3 srs. of juice of the root of colocynth with it. Melt mineral calamine in an earthen pot. After melting, give coyā (drops) to it by putting the previous juice and give it fire of the Wood of poplar-leaved fig tree (=Ficus religiosa) and it is to be stirred up by a wooden piece of pipal. The essence is accomplished. Melt together these three=copper, silver and the essence. There become's silver.¹

Rub all these together, mercury-Tola 1, oxide of arsenic tola 1 and alum tola 1 with curd for three days. Next put the lump into curd. Then take it out after 11 days and rub it in the juice of citrus lemon for 4 praharas. Next put it into a saṃpuṭa and give a gentle fire of cowdung, for 4 praharas. On its being cooled down, there becomes the essence. Mix 1 māśā of the essence with one tola of copper. There becomes silver.²

Take sal-ammoniac, rub it in the juice of visakhāparā (Pig weed or Horse Purslane) for 4 praharas. Next make powder of it by crushing it. Melt kathir (a kind of tin) and put sal-ammoniac into it. Sal-ammoniac will come up, remove it. Thus put sal-ammonic 3 or 4 times. There will be silver.³

Take water of Kathir (a kind of tin), put 1 māśā of it into 1 tola of copper by melting it. There becomes silver.⁴ Water dries up (gets dried up),

The means of making silver soft :

Take out the root of white Visakhāparā (Pig weed), take its bark and get it dried up. Keep it by making its powder. Melt that which becomes Phuṭa (not explained) dhāta, (metal) and spread that powder over it. It will be soft. The substance is produced.⁵

1. Ibid. 4. 9.

2. SRSS., Ch. 4. 13.

3. SRSS., Ch. 4. 15.

4. SRSS., Ch. 4. 16.

5. Ibid.

Make pieces of Lṇḡiv Somala Khāra (a kind of oxide of arsenic) tola 1, cook (ferment) it in a Dolikāyantra with the milk of she-goat. Mix the essence-1 māsa into 1 tola of copper. There becomes silver.¹

Place (give) Kalāhi (a kind of tin) tola-2 and carbonate of-potash under and over. Take out the juice of white cumin seed; go on giving its juice to them till they are quenched. Heat this combination, next heat it in a closed crucible. There becomes silver.²

Make kathir (a kind of tin) $\frac{1}{2}$ sr. and put it into oil and curd 2-7. times. Next put it into the juice of Neem seven times. Then melt tin in an earthen vessel. Put tamarind over it by crushing and pounding it. Secondly, lit fire, under it and cover it up with a lid over it. On getting burnt the content is reduced to ashes. It becomes dealdlike. Next put 4 vānis (things or 4 carats?). Then take bhūpāḍala (not explained) and rub mercury pai. 1 bhar. Next put it into samputa in a crucible and give a hard seal into its mouth; give it fire of the goat's dung for 4 praharas. It becomes white. Next mix 1 rati of the essence into 1 tola of copper. There becomes silver.³

Take mercury pai. 1, zinc pai. 3 bhar, blue thuthu (a kind of poison) pai. 1 and put them together on an oven and give them fire for ghaḍi-2. Mercury becomes fixed. Next make of it with zinc and mix silver-just equal (quantity) to it. There becomes good silver.⁴

Rub orpiment ṭā. 2, realgar ṭā. 2, sulphide of mercury (cinnabar) ṭā. 2 in mortar in the milk of calotropis gigantea for a prahara. Filter them in a piece of cloth and cook them in Dolikāyantra with milk for 36 praharas. Mix the essence-1 rati in Rang (a kind of metal). There becomes silver.⁵

Take mercury pai. 1 and zinc $1\frac{1}{4}$ srs. Put oil into an iron pan. Melt zinc three times. Next melt it seven times in an earthen crucible, quench

1. SRSS., Ch. 4. 17.

2. SRSS. Ch. 4. 19.

3. SRSS., Ch. 4. 20.

4. SRSS., Ch. 4. 22.

5. SRSS., Ch. 4. 24.

it into the water of Triphala (Āmalaka, Haritaki and Vahedā). Zinc will be purified. Next mix mercury with it; combine $\frac{1}{2}$ of them with pure silver. There will be good combination.¹

Silver-making

Crush the leaf of zinc $\frac{1}{2}$ sr. and sambhara luṇa (salt of sambhara lake) 1 sr., give (put) them layer by layer. Put them into an earthen pot and a small piece of cloth into its mouth, give a seal on it, give it gajapuṭāgni of (for) 21 praharas. Purify (wash) copper and mix $1\frac{1}{2}$ māsa of the essence into $1\frac{1}{2}$ tola of copper. There becomes silver.²

Make powder by grinding three things. The powder of Adiantum (Triparṇa-mukhamali) maṅgaphu pegami and sal-ammoniac. Mix 1 māsa of the essence into 1 tola of Copper. (Threr will be silver.)³

Take equal portion of each of these five things-- copper $\frac{1}{2}$ bhār, zinc $\frac{1}{2}$ bhār, brass $\frac{1}{2}$ bhār, Kathir (tin) $\frac{1}{2}$ bhār and lead $\frac{1}{2}$ bhār. Make a closed crucible, combine these five together, put them in a crucible with the oil of linseed. Mix these five in a crucible. Put over them particles (dust) of piper beetle by taking the leaf of gangeri (Sida Spinosa), put and crush kātho cuno (lime) and areca nut into the crucible. Give these five things over it. Close the crucible. Put a layer of cloth and clay over it; put it into coal of 10 srs., give it fire. On its getting cooled down, take the whole thing. Put the combination of the five things into 1 tola of copper and melt it. It will be gold. If the combination is given into kathir (tin), there will be silver.⁴

Apply the root or stem or juice of Clerodendron Siphonanthus and persian Ricinus communis to tin. There becomes silver.⁵

Mix $\frac{1}{4}$ sr. and $\frac{1}{4}$ sr. of the juice (of Brahmadandī and pārasa Eraṇḍī) into $\frac{1}{2}$ sr. of copper. There becomes silver by the mixture of these two.⁶

1. SRSS., Ch. 4. 27.
2. SRSS., Ch. 4. 29.
3. SRSS., Ch. 5. 9.
4. SRSS., Ch. 5. 12.
5. SRSS., Ch. 5. 21.
6. Ibid., Ch. 5. 21.

Give the juice of Haraṇāsūrī (a kind of plant) by putting tin into a pot. There becomes silver.¹

Put the juice of Lamprachoenium micro-Cephalum $\frac{1}{4}$ sr. into tin or zinc by melting it. There becomes silver.²

Take $\frac{1}{4}$ sr. of the juice of white Nāgarjuntī (Euphorbia pilulifera) and give drops to mercury 9 with it by putting in into earthen vessel. That mercury becomes lump. Mix 1 māsa of it into 1 tola of tin. There becomes silver.³

The juice of sevenfold Datura dries up the water of vaṁga (tin).⁴

Give drops to mercury with the juice of Harīṇa-Sūrī. Mercury gets fixed. There becomes silver.⁵

Bring Gymnosporia (Bokala) and get it dried up in the shade; crush it, cleanse it and make 2 srs. of its powder. Melt 1 sr. of tin 1 (trapu) and pour that powder into it. There becomes silver.⁶

Pour Tarun (Trapu) into the juice of Jalasī (a kind of plant) by melting and melting it. There becomes pure Silver.⁷ True.

Do it in the juice of white Trianthema crystallina (punarnavā) just like that. There becomes silver.⁸

Combine together the pieces of oxide of arsenic (Somal) pai. 5 bhar and mercury pai. 5 and boil them in the water of curd made of the milk of ewe-15 srs.

Mercury flies up (disappears) and oxide of arsenic (Somal) becomes wax (like). Rub oxide of arsenic and mercury in the juice of kākarumda (a kind of vanaspati) for 3 days. Next put the whole thing into a Dōlikā-yantra. Mix 1 rati of the essence into 1 tola of copper. There becomes Silver.⁹

1. SRSS., Ch. 5. 23.

2. SRSS., Ch. 5. 25.

3. SRSS., Ch. 5. 27.

4. Ibid.,

5. Ibid., 5. 28.

6. SRSS., Ch. 5. 33.

7. Ibid., Ch. 5. 33.

8. Ibid., Ch. 5. 34.

9. SRSS., Ch. 5. 38.

Make lump of mercury, 1 orpiment 1 and zinc 1 having equal quantity of each and give 3 saturations to the combination with the juice of *phyllanthus niruri*; close it in a *Saṃpuṭa* and put a layer of cloth and clay over it. Give *khāra* (Salt or ash) under and over it. give it two fires. Mix 1 rati of the essence into 1 tola of tin. There becomes silver.¹

Make a leaf of *gajaveli* (a kind of iron) and drench (dip) it in the juice of *Breynia potens* or that of *Kutari* (*Kākarasana*) 9 times, and get it dried up and put it into a crucible. Heat it. Mix the essence mā. 1 into 1 tola of *muha* Kam copper. Make the leaf of *gajaveli* iron thus. Quench it into the juice of *Breynia patau*s by heating and heating it in fire. Break the leaf and crush it, give the powder of it *vāla* 1 into (1 tola of) tin. There will be silver.²

Take $\frac{1}{2}$ sr. of zinc and make its leaf in *Sambhara luṇa* (Salt), give Salt layer by layer into an earthen pot and close its mouth, give it *gajapuṭāgni* for 1 prahara. Mix that essence *vāla* 3 into 1 tola of copper, 1 *māsa* into 2 tolas of copper. Otherwise combine equal quantity of each, if not piercing, there becomes silver.³

Make a thorn piercing leaf of copper. Put it into crucible and melt it. Put 1 tola of the essence just as before said. Next melt it and quench it. There becomes silver of 21 carat certainly.⁴

Now the process of purifying copper.

Take mercury oxide of arsenic alum and godanti orpiment. Make copper purified, what does the famine do? That is, gold or silver can be made.

Like this wash (purify) copper and give *vāla* 1 of *somala* (oxide of arsenic) into 1 tola of copper and quench the combination into alum. Combine silver with it. There becomes *Joṭaka*⁵ (good pieces).

1. SRSS., Ch. 6. IX

2. SRSS. Ch. 6. 2

3. Ibid., Ch. 6. 3

4. SRSS. Ch. 6. 5

5. SRSS., Ch. 6. 7

6. Ibid., Ch. 6. 8

Give cūyā (drops) of *pueria tuberosa*, *phyllanthus niruri* and white *Trianthema portulacastrum* to tin. There becomes silver.¹

Make lumps of Kathir (a kind of tin) to. 1 and mercury to $\frac{1}{2}$. Next give cūyā (drops) to it by putting it into an earthen vessel with the milk of *Holosteemmac Rheedii* (*Kṣīrīṇu jhāḍa*) t̄ā. 9, its sing (Stalk 2), is big,² bigger than Horse radish (and) it is like Horse radish. There becomes silver.³

Rub mercury t̄ā. 10 in the juice of the bark of the root of *poinciana elata* (*Sam̐dhesarā*) for 4 praharas and in the juice of *Euphorbia pilulifera* (*Dudheli*). Next put it into earthen vessel and pour borax, t̄ā. 2 and the juice of ginger t̄ā. 9 into it, close it and heat it for 4 praharas. Rub mercury in the juice of *gymnosporia spinosa* (*Boklar*) for 3 days. Then rub it in the juice of yellow *Loranthus Longifolia* (*pīl Bandali*) for 3 days. Put it into a bottle in a *Valukāyantra* and give it fire for 8 praharas. Mix 1 vāḷa of the essence with tin t̄ā. 5. There becomes silver.⁴

Reduce to paste mercury t̄ā. 5 in *Amaniyavesi Kontoria* (*Āgīyano*) t̄ā. 10 and purple *Lippia-Lippia nodiflora* (*jala pīpar*) t̄ā 10, put it into a *Kodīāsāṃputa* (a kind of lid) and in *Sineyantra* and *Veluyantra* (respectively). Put a good seal to them, give fire to it for 12 praharas., if *gajapuṭāgni* is given, give fire to it for 8 praharas, it (essence) generates great appetite. Next mix the essence into tin. There becomes silver.⁵

Crush mercury t̄ā. 5 with the flower of *Solanum xantho carpum*, make pill (ball) of it, close it into an earthen open crucible (*udhamūṣā*). Put it into the sand of a river. Keep the mouth of the crucible open, give it fire by putting dry wild cowdung cakes over it. Mix the essence into tin. There becomes silver.⁶

Purify mercury paise 1. Next make a crucible of leaf of Spanish Jasmine=*Jasminum radiflorum* (*Canmbeli*) of lova 2; put the juice of Nut meg=*Myristica fragram* (*Jāyaphala*) just like *phaseolus mung*=green gram (*maga*) into it.

1. SRSS., Ch. 6. 9

2. SRSS., Ch. 6. 20

3. SRSS., Ch. 6. 20

4. SRSS., Ch. 6. 30

5. LRSS., Ch. 6. 31.

7. SRSS., Ch. 6. 33

Put tã. 1 of the whole *Caryophyllus aromaticus* (lavaṅga) tã 1 or 2 of Visakhāparā Horse purslane and pieces of the root of white datura under and over 1 paisa into a crucible of Būti (herbs). Next make an earthen crucible, put those things into it and close (its mouth,) get it dried up, give it fire of 2 dry cowdung cakes. White lead settles like silver.¹

While going to the temple of Hanumān, first there will come Jalast (a kind of plant) born in the swamps (dubast). in the drain (mālā). It is called Jalasi. It is bitter and pungent (miri. Tarī & kathi) like Tulasi (Ocimum Albama), rub butter (or mercury) in it for 7 days. Its flower is of 4 petals. There become two things white & yellow (Silver and gold); copper coin becomes white² in khāparā (not explained) of kalāphul (convovulus microphyllus) i. e. silver.

Melt horse tooth, tooth of ass, tusk of elephant and the inner essence of the horn of a cow and the inner essence of the horn of a goat and *Abrus precatorius* (ciñothi) Take out the essence of these six and put 1 tola of silves into it, there becomes pure silver.³

Svak : if put into tin, there will be silver.⁴

Grind (or put into pieces) the leaf of *Tecomaudulata* (Rohiḍa tree), mix goat's milk into it. Fix mercury by keeping it in an open udhamusa put that mercury 1 masa into 1 tola of tin. There becomes silver.⁵

Crush all these- copper ga. 5, mercury ga. 3, realagar ga. 2, borax (ga) 1 and natron ga. 1 in the juice of *Euphorbia pilulifera* (vaḍḍudbi) and smear the leaf of lead or copper with the essence and heat it in fire. There becomes silver.⁶

Boil the leaf of kathira (Kalai=tin), ga. 16 in the urine of ass, melt 1 kaṣas (?) of salt and $\frac{1}{2}$ tola of lime, combine mercury ga. 8 into tin and boil them. Next melt that leaf by wrapping it. Put the essence ga. 1 into it. Having brought cyperus rotundus and carmaghāsa (a kind of grass) and press their juice. Put mercury into it. Give a covering of cloth and clay over it. Next plaster (wrap) cowdung over it and put it in the fire of dry wild cowdung cakes and cook it (the whole thing). Next crush kaḍāhiu gund

1. SRSS., Ch. 6. 34

2. SRSS., Ch. 6. 36

4. Ibid.,

6. SKSS., Ch. 7.20

1x. it may juice.

3. SRSS., Ch. 6. 39

5. SRSS., Ch. 7. 12

(gum of cochlosprum gossypium), put it into the milk of the goat and cook it. Next melt tin and put that mercury into it. There becomes silver.¹

Take out oil from realgar 1, orpiment 1, sulphur 1, mineral calamine, borax 1, white mica 1, anacardium-māsa 1 (by heating them) in a pātālayātra. Mix copper into that oil and melt it in equal proportion of copper combined with half-seed (essence) (arddhabija together with yukta) calamine in an earthen vessel, oil of anacardium bhā. 7, milk of calotropis bhā. 7. Echinops Echinata (jvātāmukhi=teuṭakatro) bhā. 7.

Next combine these two-silver ga. 2 and copper ga. 10, melt and heat them. Crush Maugya barley and make bread (out of it). Thrust pieces of orpiment into it, put that bread into an earthen vessel, heat it in a closed crucible and put a lid over its mouth. Make gentle fire, burn (heat) it till there becomes silver.²

Next make a leaf of tin (Kathir), give orpiment under and over it; heat it. Then put $\frac{1}{2}$ rasa (mercury ?), next give it 21 saturations of calotropis gigantea. Mix ga. 1 of silver with 1 tola of copper. Mix half silver. It becomes Narahadi (Silver ?)³

Give 7 saturations to mineral calamine tā. 1, mercury tā. 1 orpiment tā. 1, realgar (tā)-1 alum (tā) 1, white glass (Śvetakācā) (tā) 1. Sea-salt (Saimdhava) (tā) 1 natron (tā) 1 & borax (tā) 1, with the milk of Calotropis gigantea. Next smear the leaf of copper (with the essence), heat it three times in a covered crucible, pour it into the urine of ass, butter- milk and cowdung. It becomes silver.⁴

Make pieces of human hair $\frac{1}{2}$ sr., measuring 2 fingers by cutting and cutting it. Next put 1 seer of lime and 1 seer of natron together into 2 seers of tiger's urine and boil them. When there remain 5 seers of urine, take out the good essence. Then put hair into that urine and hold it on fire till all pieces of hair get melted. Next pound 1 seer of realgar, 1 seer of orpiment and 1 seer of mica and make cake of them. Rub these things with the urine in a mortar; when all urine gets mixed up (absorbed), take out the thing and get it dried up. Next make pīḍī (cake) by rubbing tili (seed of sesamum ?). Put it into a casket and give it a layer of cloth and clay over it (Sadhara 1). Then place it on the furnace, put much clay to the left and right side of it. Give it fire of khichḍī (coal, wood, etc.) Take it out on its getting cooled down. Hair and essence get separated. Mix the essence ga. 1 into copper gadyānā 16. There becomes silver.⁵

1. SRSS. Ch. 7.22

2. SRSS., Ch. 7. 23

3. SRSS., Ch. 7. 23

4. SRSS., Ch. 8. 2.

5. SRSS., Ch. 8. 4.

Combine together Kathir (Tin) 2 srs, sea salt (Saimdhava)-3 srs. and milk of *Borassus flabellifer* (palin)-5 srs and put the combination into an earthen vessel. Give a lid over its mouth, close up the joint thickly and dry it up. Again if there becomes a gap (crack), put clay to the joint. Do as such so that the smoke does not come out. Place it on the furnace, lit fire under it by setting fire with tamarind wood. Give it *dīpāgni* till salt and milk attain dryness (or fineness). There becomes silver.¹

Make the leaf of Kathir (tin) thin, next take alum and *Samkhiu somala* (a kind of oxide of arsenic) and *Anero somala khār* (a kind of *somal Khār*)-*ā*. 1½ and 2 respectively, put-¼ sr. of juice of palm into a *māṭheri* (a kind of vessel), give 7 *paṭas* (roastings) to that leaf. Dry it up in the sunrays. Next take 5 srs. of pieces of *Kalicāna* and fill an earthen vessel (or jar) with it. Bury that vessel into the ground up to its brim. Then put the leaf into the lime of ½ vessel (jar). Fill lime over it, then pour *ṭāḍi* (juice of palm ?). Next seal it up immediately with clay. Keep it for 3 days by sealing up its whole mouth. Next take out the essence. It (leaf) becomes silver.²

Drench cinnabar in the juice of *Bhūirigani* (*Solanum xantho-carpum*) 21 srs; put 200 *toḷas* of its fruit into that cooked mixture. Smear the gum of purging cassia (or *Cassia Fistula*) on the leaf (or leaves) of copper and silver three times. *Yogavidyā*-1 or 2. "Put together *rasa mineral* or liquid) of *saimdhava* (sea salt) and *līme* (*Cānā*) by combining them and pour *kathira* (tin) 108 times. Crush 1 sr. of *kathira* and 2½ srs. of lime (*Kalicāna*) and put the leaf into the mixture and make it cold. Put *Rasa* (Mineral or liquid little by little; do not put it at once (at a time). Next on its getting cooled down, take it out. There will be good silver.³

Make a hole into a *Surāṇa* (*Amorphophallus campanulatus*) and fill a cup of *Nagachikan* (*Centipeda orbicularis*). Put the leaves of *Kathira* (a kind of tin) over that. Put 1 *māsā* of mercury on the leaf of *pai*. 1 *bhār*. If there is *kathir pai*. 1 *bhār* take, *chikan* *pai*, 2 (*bhār*) put the leaves (of tin) layer by layer, close it (hole) by putting a *gaḍabacu* (pieces of *Surāṇa*), put a special cup on it. Cover it up with a layer of clay and cloth and burn it in fire. There becomes silver.⁴

1. Ibid., Ch. 8. 5.

2. SRSS., Ch. 8. 7.

3. SRSS., Ch. 8. 9.

4. SRSS., Ch. 8. 15.

Rub all these fourteen—Malaphio (a kind of mineral ?) to-1, mercury tola-1, golden pyrite to. 1, bodāra (a kind of metallic poison) to. 1, realgar to. 1, rāyasumgha (not identified) tolo 1, keravo (not identified) to. 1, candrasa (Valtria Indica) to. 1. hirādhakana (colamus draco) to. 1, jamghala to. 1, thutho (a kind of poison) to. 1. galī (Indigo) to. 1 mastakī (pistacia lentiscus) tolo-1 and sal-ammoniac to. 1 in combination with the juice of beetl, fill the content into a bottle, fill it loose, give (put) a seal into its mouth after getting the juice heated by increasing and increasing fire for 8 praharas, put mercury of the 1st bottle measuring a rāi (mustard seed), pour the juice of black eclipta alba into mercury. There becomes silver.¹

Rub these two the juice of bud of ca pa (Jasminum officinale Linn. chambā) tā. 20 and oil tā. 20 and heat the combination; put lead tā. 4 into an earthen bowl and make (lit) fire under it. Give drops (ṭuyā) of the juice of the bud of cāpā, the essence is ready. Mix 1 rati of the seence with 1 tola of silver.²

Take Kasumīdina 1 sr., (vattiserisides) Negro coffee plant=cassia occidentalis), 1 sr. big gandhāyani (coleus cyperus rertenuis), leaf of Nāgorī pā. 1, seed of dolichondron falcata (Miḥsingi) pā. 1, put two leaves in between layer by layer; place the whole thing in a saṃpuṭa and put 3 layers of cloth and clay over it; give it gajapuṭāgni for 4 praharas. Thus repeat the process two times. Silver is produced.³

Mix orpiment with clarified butter, rub it in the ash of long pepper (Pippala) 5 sr. and Butea frondosa (Khakhara)-5 srs. Mix orpiment with Cassytha filiformis (amari), mix it into an earthen bowl (or potsherd), give ashes of those things under and over it, it becomes ash. When smoke comes out of it, then put ashes, give it fire for 2 praharas. Silver is produced.⁴

Fill these two—the juice of je (in) je (im)vanti (Leptadania reticulata) and the juice of piper beetle into an earthen bowl, put a tola of mercury in it.

1. SRSS., Ch. 8. 18.

2. SRSS., Ch. 8. 21.

3. SRSS., Ch. 9. 12

4. SRSS., Ch. 9. 13.

Take a green piece of cloth which is come across on the head of a woman who has not yet given birth to a child, wrap mercury with it, put it inside the earthen vessel, seal up its mouth. There becomes mercury like mākana gaṁdhima paist. (not explained). There becomes silver.¹

Rub mercury tā. 1, alum 1, sulphur 1 and borax 1 together and heat the whole thing in a crucible and give a puṭa (roasting) of 4 dry wild cowdung cakes.

Nage po. sa. ra. 12, (not explained)

Put the juice of Sahadevi (Sonchus arvensis), saṁkhāholi (Cynolepis cerasiformis) and Bhāngro (Eclipta alba) tā. 3, into an earthen pan, fill water into it in such a way that there remains 3 fingers less from (the brim).

At Night put it into rasa (juice or mercury), give it fire for 4 ghaḍis (4×24=96 minutes) by increasing it gradually, next put water into it, go on rubbing it on hands (palms), it becomes hard.²

Take a cup of lead, weighing pai. 15, put tākho (black iron or black) tā. 5 into it, fill four handfuls of sand into it, sprinkle (water) till that cup swells up (fills up?) By making of lump, rub Khahipo, (not explained), kha., Alpa Javast=Alhaj Maurorun) tā. 10. and Tākho tā. 5 in the milk of Euphorbia pilulifera for 2 ghaḍis, close it up and put a layer of cloth and clay over it, give it fire of 3 pieces of dry wild cowdung cakes again on its getting cooled down, take it out and crush it, thus give it 7 puṭas (roastings) of (Euphorbia pilulifera (Dudheli), then give it 7 puṭas of Indigofera paucifolia (ghila). Next give kurkapuṭa of Dodonaea viscosa? (Bandadi) (li). Next grind pādepāho (not identified) 1½ and Tākho 5 in the juice of Ghodāṛgaṇi, crush the same in the juice of Sonchus arvensis (Sahadevi). Make him and put it into Euphorbia nivulia, (Thohara), it should be ripe and old, fill the juice of ghodāṛgaṇi into that and close it with the powder of Euphorbia nivulia (Thohara), put a layer cloth and clay over it. Burn it in gajapuṭa. There becomes silver.³

Pound this medicine Khaḥipo I Keapi. (not explained) Rub all the undermentioned medicines in the juice of Aloe vera in a separate mortar—all medicines for 2 praharas, mix the two-Khahipo and the rest.

1. SRSS., Ch. 9. 35.
2. SRSS., Ch. 9. 38.
3. SRSS., Ch. 9. 39.

The names of those medicines are noted below. Mastaki (pistacia lentiscus) to. 1, cinnabar to. 1, borax to. 1, alum to. 1, takho (black iron) to. 1, sulphur to. 1, samkhiu somala (a kind of oxide of arsenic), Bodara (an essence or oxide of lead) (singi), Silajuta (bitumen), godanti Haratata (a kind of orpiment) 1, Navasara hunte, (Sal-ammoniac) 1; rub all these eleven medicines such as Mastaki, etc., in the juice of Aloe vera; grind each medicine in the juice of Aloe vera and combine them together.

Make pradamo samputa (a kind of lid), make 11 pills of medicine in combination with * Dhalo $\frac{1}{4}$ sr. and Upalyov ta. 9, put them into the Samputa (lid), close it by putting a lid over it and covering it with a layer of cloth and clay over it. Close its joint with grains of clay. Put 7 layers cloth and clay over it, put it (Samputa) into an earthen bowl. Crush $1\frac{1}{4}$ srs. of salt and spread it out under; put samputa over it and give (put) a cover of clay over it. Allow the lid (to) be seated into the mouth of the vessel. Seal it up well so that smoke won't be able to come out, make fire (heat it, in fire) for 8 praharas, Take the wood of Rayana (Mimusops hekandra) make dipagni. On its getting cooled down take it out. Next open the samputa, put the nails (hoofs) of horse masā 1. into it. There will be silver.⁴

Make a thick bread of zinc, give it paṭa of lime, give it fire for 4 days. Next chew betel leaf and throw the spittle (pik) into it. Next burn it in the fire of dry wild cowdung cakes. Thus there becomes suto (rūbo) (Silver ?)²

Fill the root of sator, the root of Vaṇavāgni and the root of Datura with salt into 2 earthen jars (Kunḍas) of equal size, they are strength and energy giving, when reduced to ashes, they are equal to the full moon in lustre.³

Take the excreta of pigeon, guṇja (Abrus precatorius, mercury and borax natron, calotropis gigantea in tripūṭa (3 outas). If the essence made of them is applied on copper it, becomes white like moon.⁴

x not identified

y Not identified,

1. SRSS., Ch. 9. 41

2. SRSS., Ch. 9. 47.

3. SRSS., Ch. 9.49. (1)

4. Ibid., Ch. 9. 49, (2)

Take *Achyranthus aspera* (Aghāḍā) 1 sr., *Rubia Cordifolia* (Bikhaso) 9, heat them on fire of 100 dry wild cowdung cakes.¹

Mudrā (process) of sealing,

Take kātho (lime) tā. 5, chalk, 5 jhiko (a kind of gum) 5 Salt 5 and clay

Him (gala) Mudrā :-

Make a hole into the wood of khārijālī, (a kind of Vanaspati?) put the juice of pilavani (a kind of vanaspati) tā 9, close the hole by giving agāvaḍu (Piece of wood), cover it with 7 layers of cloth and clay; white copper will become silver² of 12 carats from 8 carats.

Pour Alhaji Maurorum (Alpa) 1 sr. by melting and melting it 108 times. Keep pai. 2 bhār. go on putting fresh urine. Take the urine of ass. Grind these 7 medicines—Khahipo pai. 1, alpa pai 8, alum pai. 7, anacardium 7, thuthu (an emetic). 7 kacialavaṇa (a kind of salt) 7 salts, 7 sal-ammoniac 7, sea-salt 7 and make them powdered. Next make 7 leaves of alpa. Take an earthen vessel or pot, put 7 layers of cloth and clay over it. Next put one layer of usaḍa (medicine) put leaves over it. Again give usaḍa (medicine) again leaves layer by layer, close it and give 7 layers of cloth and clay over it, Make fire two times. (i.e. heat it turel)

(5) Take *Achyranthus aspera* (Aghāḍā) $\frac{1}{4}$ sr. *Rubia cordifolia* (Bikhaso) 9, heat them on fire of 100 dry wild cowdung cakes.

Mudrā :- (The process of sealing)

Take Kātho (lime) tā 5 Chalk 5, Jhiko (kind of gum) 5, salt 5 and clay 7.

Him (galo) Mudrā :- Make a hole into the wood of Khārijālī, put the juice of Pilavani (a kind of Vanaspati) Taq, close the hold by giving a gāvaḍu (piece of wood), cover it with 7 layers of cloth (and clay); white copper becomes silver of 12 carats from 8 carats.

(6) Pour Alhaji Maurorum (Alpa) 1 sr. by melting and melting 108 times. Keep pai 2 bhār, go on putting (pouring) fresh (new) urine. Take

4. SRSS., Ch. 10. 5.

5. Ibid.

the urine of ass. grind these 7 medicines- Khahipo¹ pai 1, alpa-pai 8 alum pai 7, andcardium 7, thuthu (green vitriol an emetic) 7. Kacalavana (a kind of salt) 7, salt 7, sal-ammoniac 7, and sea-salt 7, and make them powdered (pounded). Next make 7 leaves of alpa, take an earthen vessel or pot, give (put) 7 layers of cloth and clay over it. Next put one layer of usaḍa (medicine) put leaves over it. Again give usaḍa (medicine) again leaves layer by layer. Close it and give 7 layers, of cloth and clay over it. Make fire two times; on its getting cold, take it out. Next melt alpa-māsā 4 and ²ṣutu-māsā 4.

On its getting cold, take it out. Next melt alpa māsā 4 and sūtu (silver) māsā 4.³

Put the leaf of iron into the juice of pomegranate (Dāḍim), having white flower for a day, it gets reduced to ashes, it becomes white. If 1 rati of it is mixed into copper and kathir (a kind of tin) there becomes silver.²

Grind (or rub) silver vārga to-1 and mercury to-1 in the milk of calotropis gigantea, make a ball (or pill) of the their paste. Put it into the bulb of onion, close it up, wrap thread around it, wrap a small piece of cloth over it, wrap the bread of powder of wheat over it, make a ball (round). Next make powder of Rāna Upala (not identified) 2½ srs.. put the ball into that. On its getting cold, take out the ball aside. Again make (repeat) the previous process, put it into the bulb of onion, take 3¾ srs. of dry wild cowdung cakes. increase it by ¼ sr. upto 5 srs., not after that The give 21 purāṣas to it, if it is mixed into 20 tola of tin, there becomes silver.¹

Make a hole into an Amorphophallus companulatus (Sūraṇa) and a cup or piece (pālo) of centipeda orbicularis, (Chikani), put tin (Kalahi) pai 1 bhār and centipeda orbicularis (Chikani) paisa 2 bhār, give powder under and over the leaf of tin, give over it particularly, give (put) wax and cloth over it, and give it gajapuṭāgni, there becomes silver.²

1. Not yet identified

2. Ibid.

3. SRSS., Ch. 10. 6.

4. SRSS., Ch. 10. 38.

Take the hard substance, (gāṃgaḍo) which is in saṃkhiā somala (oxide of arsenic), put it into a bottle, go on pouring the juice of lemon into it, go on stirring it up with a rod, but do like that so that the smelt of boiling does not come up. Place it on a Valukāyantra, give it fire for 12 praharas. On its getting cold, take the essence out. Mix 1 rati of the essence into 1 tola of copper and tin respectively.³ (There becomes silver or golā ?)

Grind paio (plices) of Kākasi (Sisymbrium irio ?) and make 2 big tablets, put one tablet into an earthen crucible, put the leaf of copper to. 5 over it, put somala (oxide of arsenic) 1 māśā over that copper leaf, put the second tablet of Kākasi, heat the whole things in on undara mūṣā (upside down crucible) There will be silver.⁴

Melt tin and pour it into the milk of Tridhārā Thohara. (a kind of euphorbia nivulia) next if Malla (oxide of iron) is put into it, there is success.⁵ (Silver ?)

Put zinc 1 sr into the urine of man three times, into the urine of ass three times, into the urine of cow three times and into the urine of goat three times and purify it, Combine mercury with zinc by taking the quantity equal to the 1/3 part of it, give drops much over it with the milk of Euphorbia nivulia (Thohara) in a new pot for 12 praharas. Mix 1 māśā of the essence with 1 tola of copper. There will be silver.⁶

Grind lime of oyster shell in the leaf of centipeda orbicularis and grind tin 1 rati with it. Make (put) a seal by putting the whole thing into an earthen pot. give it gajapuṣṭi, There will be silver.⁷

Melt brass Nāla-4 by putting it into tin vālā 16 (?), put aghāṭita vālā 8 into it by making it finely powdered so that metal gets mixed into metal (i. e. they become one). There becomes svatasiddhi (accomplishment of silver) in the case of silver undoubtedly.²

1. SRSS., Ch. 10. 40

2. SRSS., Ch. 10. 42.

3. SRSS., Ch. 10. 46.

4. SRSS., Ch. 10. 47.

5. SRSS., Ch. 10. 48.

6. SRSS., Ch. 10. 54.

7. SRSS., Ch. 10. 61.

8. Ibid. Ch. 10. 62.

Make lump of lead 1 and mercury 1 by grinding them in cissum Triangularis (Tridhārī Hadasākala) and make the essence. Put together tin 9 and the essence 1 or there will be Euphorbia nivutia or nerifolia.³

Make powder of Nācaktant (Centipeda orbicularis) by crushing it. Mix a little mercury into equal to the lime of oyster shell and close it up in an iron saṃpuṭa (lid); silver.⁴

Reduce to paste mercury in Momordica charantia (Kareli) for three days with the butt of green Neem wood (Melia Azadirachta). Close it up by giving Haravasi (not identified) and Naravasri (not identified) under and over it. Give it fire for 2 praharas. There will be black silver.⁵

Reduce mercury to 1 to paste in Kerarasa (Juice of capparis decidua Edgew) and Aconite ferox, put it into lemon (juice), next put it into ash, give it fire for 4 ghaṭikās (4×24=96 minutes). It becomes silver., True.⁶

Mix tin with sulphur It becomes silver.⁷

Rub sulphur $\frac{1}{2}$ sr and honey $\frac{1}{2}$ sr., then rub mercury $\frac{1}{4}$ sr. in the juice of Ocimum sanctum; combine both of them and fill them into a bottle and put three layers of cloth and clay over it. Dig a pit with a depth upto the waist and fill it up with horsedung and, keep that bottle into it for 6 months. There becomes oil, it is to be given to silver.¹

Give Anacardium under and over the leaf of zinc by grinding it. (Anacardium), give it gajapuṭāgni for 4 praharas. When there remains half of it, combine it with silver, give it fire of dry wild cowdung cakes.²

Put mercury $\frac{1}{4}$ sr. into a lead saṃpuṭa (lid) of 1 sr., place the saṃpuṭa into an earthen pot. (or bowl). Next pour horse's urine 5 srs. into it by mixing with saṃcala luṇa (a kind of salt) 1 sr., give (put) seven layers of cloth and clay over it and give it fire for 16 praharas. Mix 1 rati of tin. Silver is produced.³

3. SRSS., Ch. 10. 63.

4. SRSS., Ch., 11. 6.

5. SRSS., Ch. 11. 15.

6. SRSS., Ch. 11. 23.

7. SRSS. Ch. 11. 25.

1. Ibid., Ch. 11. 28.

2. SRSS., Ch. 11. 32.

3. SRSS., Ch. 11. 2. 9.

Rub mercury in the juice of *Ipomaea*, *reniformis* and the juice of *Aloe Vera* and quench it into *Kakasi* (*Sisyambrium irio*). There becomes silver.¹

Put orpiment *pai*. 6 into a glass cup, next fill up a big pan with the juice of *Kasudi* Negro coffee=Round *Podea cassia*=cassia *Sophora* or *cassia occidentalis*), keep it for 3 days, and dry it up. Do thus 3 times. Next put the juice of *Kolikanda* (Indian squill). It gets dried up in one day. Do it thus for 3 days.²

Next filter *Bassia latifolia* (*Talio moharo*) *paisa* 4 *bhār* with a piece of cloth, put it into orpiment and rub it with the juice of *cassia occidentalis* and fill it into a bottle. Put hair into the mouth of the bottle.³

Next place (hold) the glass pot (cup) under that tube. Next give it fire of, pieces of goat's dung—7 *srs.* in an earthen bowl and give it fire with goat dung. Take the essence from that which comes out. The essence that remains in it becomes white. Break the bottle and take out the essence. That essence makes copper white. Oil comes out. That makes silver bright.⁴

Rub *Somala* (*Khāra*=oxide of arsenic) 1, mercury 1, borax 1 and tin in the milk of *Vajri* (*Euphorbia antiquorum*), cook them in human urine in a *Dolikayantra*, mix that essence—3 *māsās* into purified copper to. 1, There becomes silver *Joṭakam*¹ (pieces).

Make a hole into a gourd, rub *somala* (oxide of arsenic) *tola*—3 put it into that gourd and give (put) a cover into the hole, put 7 layers of cloth and clay over it, give it, *gajapuṭāgni* (fire) of 5 maunds of dry wild cowdung cakes. Mix 1 *māsā* of the essence into 1 *tola* of copper. Clean silver comes out. Its name is *Samtaguṭikā*.²

Rub mercury to. 1 in the juice of *Tāḍi Dudheli* (*Euphorbia pilulifera*) for 1 day, rub orpiment in the juice of *Tiduri* (a kind of plant) for 1 day, make pills of them and put them in the water of lime and cook them in *Dholikayantra* for 3 *praharas*. Mix 1 *māsā* of the essence into 1 *tola* of copper, combine 4 *māsās* of *bija* (essence ?) Keep 5 (it) inside the house 5 for 1 month. There becomes pure silver.³

4. SRSS. Ch. 11. 2. 12.

5. SRSS., Ch. 11. 2. 18.

6. SRSS., Ch. 11. 2. 18.

1. SRSS., Ch. 11. 2. 27.

2. SRSS., Ch. 11. 2. 31.

3. SRSS., Ch. 11. 2. 32.

Rub the lime of oyster shell $\frac{1}{2}$ sr and tin sr. $\frac{1}{2}$ in the milk of *Euphorbia nenifolia* or in the milk of *Calotropis gigantea* $\frac{1}{2}$ sr. up to $1\frac{1}{4}$ praharas. Next smear the middle part (Peṭe) of an earthen vessel (bowl), put a strong seal into the mouth of the bowl and give it fire for 4 praharas. In the morning, on its getting cooled down, take out the whole essence. Tin, getting melted from its belly (puṭi), comes in the middle (inside).

Grind cinnabar ṭā. 1, borax ṭā $\frac{1}{2}$ and Morthutho (a kind of poison) and mix them and stir them up inside into that bowl. Again close the earthen bowl, give it fire for $\frac{1}{2}$ prahara by putting 7 layers of cloth and clay into the mouth of the bowl. There becomes silver.⁴

Melt natron 1, rock-salt 1, somal (oxide of arsenic 1, borax, Bāgadāḍi orpiment 1 and Vajrakhāra 1, (a kind of sodium) in the juice *Achyranthus aspera*. By melting copper to. 1, put the essence-1 māsa into it. Silver of 19 carats is produced.⁵

Grind Cinnabar ṭā. 9, Ferula Asafoetida (Hing) and gum of Butea Frondosa in the juice of *Citrus medica* (Bijora); smear the essence on the leaf of copper, give it 65 Kurmapuṣas, grind Cinnabar with the juice of Bijora (*Citrus medica*), grind also 2 medicines, smear the essence on the copper leaf; pure silver is produced. It is experimented by Rṣi Saṁghaji.¹

Rub Pegānsi sal-ammoniac-mā. 2 and juice of Jalasī (a kind of plant) mā. 1 with equal quantity of milk of *Nāgārjunī* (*Euphorbia pilulifera*) and smear the copper leaf. There becomes silver.²

Take natron, Varaji, (not clear) Cūṇaḍantvihu (not clear) double orpiment it will be beautiful and bright, what the famine will do? By combining all these together in equal portions, give the essence (apply) to the leaf of tin layer by layer. Fill it into a horn of a she-buffalo and close it up, put 7 layers of cloth and clay over it and give it fire-bhaṭāgni for 3 days. 1. Silver is accomplished.³

Grind Malla Saṁkhiu (a kind of oxide of arsenic) ṭā. 1, mercury ṭā. 1, mineral calamine ṭā. 1, and godanti orpiment ṭā. 1.

4. SRSS., Ch. 12. 2.

5. SRSS., Ch. 12. 6.

1. SRSS., Ch. 12. 13.

2. SRSS., Ch. 12. 17.

3. SRSS., Ch. 12. 21.

Make clarified butter by heating the fat of she-goat $1\frac{1}{2}$ srs. give tuya (drops) to the fine powder (of the above mentioned things) with clarified butter in an earthen pot. Make dipāgni in fire, dry up all clarified butter, dry it up in 10 or 20 days. Mix tin 10. 1 with one rati of the essence. Use the fat of sheep in case of alternative,¹ silver?

Take the juice of Āsarvata¹ × 1 sr. and the juice of Haḍasākala (Cissus quadrangularis)-13, give tuya (drops) of mercury to silver. Give tuya of two juices to it in an iron cup, make mandāgni, put, māsa of the essence into 1 tola of tin. There becomes silver.²

Take a piece of phaṭakiu Malla (a kind of oxide of arsenic) tā. 6, put it into the hole of Amorphophallus campanulatus by making it into this thing (sūraṇ), (give) a lid into its mouth by putting the juice of Abrus precatorius (cipōḥṭi) into it (hole). By covering it and filling sand into an earthen bowl, put the Amorphophallus inside it (bowl) and place it on the furnace, give it fire, till the juice inside Amorphophallus gets dried up. Thus next close it into Indian squill=urginoea, Indica (Kolikanda) and wrap it up with cowdung and heat it. Next put it into lemon warp it up with cowdung and put it into Bhara.^x Thus do it seven times, take out the lemon, melt copper to. 10, put powder gadāno. Next give it 7 puṣas of Bābi.^y There becomes silver.³

Rub mercury tā. 4 and sulphur tā. 4 in the juice of ctenolepis cerasiformis (Saṁkhāholi) for 1 day. Rub or grind them in the juice of Horse purslane (Sātoḍi) for 1 day and grind them in the juice of Aloe vera for 1 day in a mortar in good manner. Next put the whole thing into a glass kettle (or casket) and give (put) a layer of clay over the bottle and get it dried up in the shade, again smear it. Dig a little deep pit, put half of goat's dung under it and half over it, place a cover over it. Burn it with fire for 3 days. When it becomes red, take out the essence. Next melt copper. tā. 3, put the essence vāla 2 into it, There becomes silver.⁴

Melt that which is not produced in an open crucible It becomes silver (?) of 12 carats. True.⁵

1. SRSS. Ch. 12. 23.

2. SRSS., Ch. 12. 25.

x. It may be a pot.

3. SRSS., Ch. 12. 26

4. SRSS., Ch. 12. 28

5. SRSS., Ch. 12. 29

Ix. a kind of fruit?

y. Not identified.

Make a cup of silver, put mercury ga. $\frac{1}{2}$ into it, bring the milk of Euphorbia Nerufolia $\frac{1}{2}$ sr. Sprinkle it on mercury by drops. Next give it by putting it in an earthen bowl for 28 praharas, give it bhatāgni. Mage fire (i.e. give it fire) up to that time (till) it becomes soft; when pressed by nails, it gets powdered. Put the cup into the earthen bowl. Mix sand with the gruel of old fine grains of rice. Put that sand into the bowl, put that cup. On that sand, put the essence vāla 2 into 9 tolas of tin. There becomes good silver.¹

Take mineral calamine tā, 9 and the juice of leaves of good zizyphus sativa (āchanaboti), grind the mineral calamine with that (it) and make a lump together. Next put the hair of a man into the lid (Śaravālā), put the lump of medicine into it and close the lid, give it fire for three days by placing bhari (bundle of fire stick) into dry wild cowdung cakes. That is, the essence is produced. Mix vāla 2 of the essence into copper gadriyāna 1. There becomes silver of 14 carats.²

Mix mercury tā, 4 and sulphur tā. 4 with the milk of she Sheep (cue) for 1 day, next mix them with the juice of lemon for 1 days, next essence is accomplished. Next melt tin tā. 9 and mix it with the essence, vāla 2. There becomes silver.³

Take white Tinospora cordifolia (galo) and its five limbs—fruit, flower, bark, leaf and root, make them in the shade. Mix 1 sr. of them with tin tā. 4 There becomes silver⁴

Rub white glass (Svetakāca) and mercury for 3 days. Next smear the the copper leaf with their essence (Rasa) and melt it. There becomes silver.⁵

Grind together natron tā. 1, hamsapāka (Hingala ?) tā. 1, realgar tā. 1 and orpiment tā. 1, put $\frac{1}{2}$ sr. of milk of one-coloured cow in an earthen vessel. give a cover over it. Make dipāgni (and heat it) Take out all milk from it (Eaase). Next purify tin and make a leaf of it. Melt it into an open crucible by giving the powder of the essence layer by layer. Silver is accomplished.⁶

1. SRSS., Ch. 12. 29
2. Ibid., Ch. 12. 30
3. SRSS., Ch. 13. 2
4. SRSS., Ch. 13. 4
5. Ibid., Ch. 13. 5
6. SRSS., Ch. 13. 12.

Rub all these—lead ga. 5, mercury ga. 5, relalgar ga. 5 and orpiment ga. 5 with the juice of Bandāli (*Loranthus Longifolia*) for 3 days. Next fill all (these things) into the horn of a cow, next give a seal into the mouth of the horn with a piece, of earthen potsherd. Then put a seal on all sides by grinding molasses and salt.

Next put 7 layers of cloth and clay over the horn and dry it up. Then give it fire of float's dung up to 23 days. Next on its getting cooled down, give (mix) the essence—ga 1 into tin gadiyānā 64, Pour tin into water of Eugenia (=Iambolana) 108 times There becomes silver.¹

Take mercury tā. 1 and sulphur tank. 1 and next rub them with buffa rechinata (*Kutarabalahi*) for 4 praharas. Mix 1 māsā of the essence into 1 tola of tin, next spread out cowdung over it by pressing it on palm. There becomes silver.²

The Chemical processes of increasing carats of gold and silver.

Take one between the two—a little lime and natron. Bring green bark of jambu (*jambulanum*) and mango trees. Take out juice by grinding them. Sprinkle (or spread out) it on the gold-leaf having 11 carats by heating and heating it. The original carat (i. e. 11) increases to 13 and 14 carates. increases.³

The process of increasing carats of gold

Put these four—paripā (mineral calamine ?) (or a kind of mineral) and borax tā. 1 sal-aammoniac tā. 1, surokhāra (a kind of oxide) tā. 1 into the juice of Elephantopus scaber (*galajibhi*) and stir them up. Make three leaves of copper and brass and quench them into that medicinal juice 5 and 7 times If light gold leaf of 3 carats is made and quenched into that rasa, there become carats 4 and 5 respectively, quench the gold leaf into the oil of Anacardium by melting it, as a result its carat increase to. 7. There takes place the increase of two carats.⁴

1. SRSS., Ch. 13. 14

2. SRSS., Ch. 13. 17

3. SKSS., Ch. 13. 26

4. SRSS., Ch. 5. 21

5. SRSS., Ch. 5. 22

The process of making carat

Combine all these—two māsas of silver, 1 māsa of copper. 2 māsa of particles of iron 2 māsas of bell metal. 2 māsas of lead in an earthen pot and liquefy; while melting, there remains 3 māsas of them. Stop it then, give rāṅg (a kind of metal ?) to silver. Then melt Hunnāno silver-7 ratis with one rati of Kalka (essence) with 3 māsas of the above things. Put the essences, while melting them. Put one rati of copper of Thuthā. Melt all those. There will be good gold.¹ If 1 māsa of the essence is put into 3 tolas of Vāni (thing), these increases the carat. Thus true.²

Dried up juice of cannbis Sativa and that of Wedelia Calendulacea absorb water. Take it out on its getting cold. If that water is given as drop (ṭūyā) in an earth vessel on the leaf of green vitriol-gold smeared with lemon, it becomes pure, its carat increase.³

Make pilis of orpiment 1, sulphur 1 realgar, thuthu (a kind of poison) golden pyrite 1, cinnabar 1 and light green vitrio with honey. The essence will assimilate silver of equal portions. It becomes equal to gold. Its carat increases.⁴

Take sal-ammoniac tā. 3, alum jā 3, thuthu tā, 3 Khṇḍi (chalk) tā. 3 Muñamāti (Māni soil). tā. 3. and pohara of brick tā. 3, all in equal portions. Make thorn-piercing leaf of gold of 8 carats, smear or dip it with (or in) rsaiu (mercury ?) spread out the powder of these things. Next give (put) a layer of wax and cloth over the samputa (lid) by putting the whole thing into it Place it (Saravasaṃputa) in a vālukāyantra and heat it for 1 prahara. There increases the carat.⁵

Put sulphur into a ripe Bel (Aegle mormelous) and place it into an earthen vessel. Close it up and put it into a dust-heap for a month. Take it out and mix 1 rati of the essence with 1 tola of silver. There becomes fain-coloured gold, it should be dipped into the water urine) of cat or a kind of plant). There takes place increase of its carat.⁶

1. SRSS., Ch. 5. 36

2. Ibid.,

3. SRSS., Ch. 10. 29

4. SRSS., Ch. 11. 16

5. SRSS., Ch. 11. 17

6. SRSS., Ch. 11. 16

FOURTH CHAPTER

MEDICAL RECIPES

Introduction :

The Jainācāryas have made a notable contribution to the development of Indian Āyurvedic system of medical science as a whole in the Āyurvedic, post-Āyurvedic and Iatro-Chemical periods of India. But in the early stage the medical science was not encouraged by them as the Jaina monastic jurisprudence strictly prohibited them to take medicine for the 'cure of disease' as it involved sinful act in killing life (rambha samārambha) in the preparation of medicines by crushing, grinding, rubbing and triturating medical plants and herbs.

In the Jaina cononical work the medical science (āyurvedia or tegicchā) was first regarded as one of the nine false science (pāvasuya).² According to the Jaina tradition, Dhaanatarī was the founder of the medical science.³

The Jaina tradition avers that Āyurveda consists of eight branches, viz. pediatric (Kumārabbicca), surgery and midwifery (salaga), treatment of eye, ear, nose and throat (Sallahattha), treatment of bodily diseases (Kāyatigicchā), toxicology (Jāṅgala) demonology (Phūyavijjā), the science of restoring lost health in old age (rasāyana) and sexual rejuvenation (vājīkaraṇa of Khāraṇtra).⁴

1. paṇṣaha and Bhikṣācārya sapa prakaraṇa 5, pp 311-39. But it is to be noted here that Mahāvira himself took medicine prepared by Revatī with the saturation of Kukkuṭamamṣa and got cured of his blood dysentery (See Bhagavati, 15th śataka).
2. Sthānāṅga Sūtra, 409, 9.678.
3. According to the Suśruta 1.1.1. c. Brahmā has created the medical science for mankind, he taught it to Dakṣarajapati, from whom it was learnt by Aśvinkumār, in turn Indra learnt it from Aśvinkumāra and taught it to Dhanvantarī, ;see Nīṣṭha cūrṇi, 15. 944, c. Milindapaṇṇa. p. 227, See Ayōgharajātaka, No. 510, IV. pp. 496, 398.
4. Vivāgasuya, 7, p. 41, also of. Suśruta Saṁhitā, Ch., 1.8, p. 4ff.

It seems that in the later period the Jainācāryas have shown some interest in the medical science for the cure of various types of disease, as it is evidenced by some references to them and their cure as found in some canonical works. It is stated that the Jaina monks suffering from sickness should procure the service of a Physician.¹

The evicences of the Jaina texts regarding the development of *Āyurveda* are fully corroborated by the Buddhists² and Hindu³ works which furnish a good deal of information about the study and practice of this important science in its different branches.

The Jaina texts refer to various kinds of disease, such as, boils (*gaṇḍi*), leprosy (*Kuṣṭha* of eighteen types)⁴, Consumption (*rāyamasi*), epilepsy (*avamariya*), blindness (*Kaṇiya*).

Stiffness (*jeimiya*), lameness (*Kumiya*), hump, back (*khujjiya*). (*udari*), dumbness, (*mūya*), swelling (*Sumiya*), over-appetite (*gilāni*) trembling (*vevai*), disability (*pidhasappi*), elephantiasis (*pilivaya*), diabetes (*modhumēea*)⁵, ring worm (*Diaddu*)⁶, billious fever (*pittajvara*)⁷, blood dysentery⁸ piles (*aṁsiyo*)⁹ or arisa¹⁰ cheumatic (*vātaka*) bilious (*pittika*) and phleg-

1. Nīstha cārṇi and other later works refer to the medical treatment of the monks.

2. C. F. Milindapaṇḥa, p. 272.

See Ayogharā Jātaka, No. 510 IV., pp. 496 ff; Dīghanikāya I, p. 12; 1; p. 9; Majjhimanikāya I., pp. 265 ff. See Mahaniddesa, p. 120. Milindapaṇḥa, p. 40, for the knowledge of the process of conception, gradual development of the foetus in the womb.

3. Sūśruta Saṁhitā, Sūtrasthāna IV. 4.4 8. (learning from different experts) Caraka Saṁhitā. Vimānasthāna 8-4 (practical training in medicine), Sūśruta, Sūtrasthāna. Ch. 9 (training in Surgery); Sārirosthāna 5.49.

4. Refer to Sūśrutasaṁhitā, Nidānasthāna 5.4-5, p. 342, Carakasamhitā, ch. 7. pp. 2069-73 for eighteen kinds of Kuṣṭha.

5. Ācāranga Sūtra, 6-1.173

6. Bhagavatī Sūtra 7-6.288

7. Ibid., 9.33. 386; 15. 1. 557

8. Ibid., 15, 1. 572.

9. Bhagavatī 18, 1. 647

10. Cf. Vivāga Sūya I; p. 7

matic (şlesmic) diseases,¹ typhoid (Sannipātika)² insanity (unmāda)³ etc. asthma(sāsā), cough (Kāsa), fever (jvara), inflammation (dāha), intestinal colic (Kucchiśūla) fistula (bhagandar), etc.,⁴

The Bhagavati Sūtra and the Taṇḍul Veyaliya throw some light upon the human anatomy, physiology and pathology by dealing with the process of conception⁵ of a child by a mother, fertilization⁶ of embryo, position⁷ of the child in her womb and his birth in due time.

According to the Jaina āgamic works, various causes are attributed to the appearance of diseases in the human body, such as, "Over eating, taking of bad food, over over-sleeping, over-walking, checking calls of nature, travelling, irregularity of taking food and indulgence in sexual intercourse."⁸

As regards the medicine, treatment, diet and hospitalization they give a detailed account on two lines of treatment, viz. medical proper and surgical. Thus various kinds of treatment were prescribed by the physicians on the basis of the nature of the disease, such as, "rubbing with oil (abhaṅga), rubbing with powder (uvvattana), oil drinks (Sinnehapāna) vomiting (Vamana), purging (viteyana), branding (Svaddahana), medicated baths (avanthana), oil enema (dhuvasana), head bath, purging by drugs (niruha), opening veins (Sirāveha), cutting (tacchana), scrapping (pacchana) bathing the head with oil (tappaṇa) by means of ingredient roasted on

1 Bhagavati 18. 10. 647

2. Ibid.

3. Ibid, 14. 2. 503.

4. Refer to Jambu Sū. (14. p. 120) which records family disease (Kualroga), village disease (gāmaroga), country disease (maṇḍalaroga) etc., see Nīltha Cūṇi II, p. 737 ff. Jivabhigra Sūtra 3. p. 153; Mbh III. 230-44 ff. History of pāli literature, p. 282.

5. Bhagavati 2.5.105, 106, 10.2.327, 2.5 102, 2.5 103, 2.5. 104, Taudul-aveyaliya 1. 6)

6. Bhavavati Sūtra 1.7.61

7. Ibid., 1.7.62

8. Thāṅga suya, 9.667, Vide life in Ancient India as depicted in the Jaina Canons, p. 180 Dr. J. C. Jain

fire by puṣapāka method, barks, roots bulb, leaves, flowers, fruits, seeds, bitters (silika)¹ pills, nrugs (Nsaha) etc.²

Besides these a long list of other kinds of treatment—both medical and surgical as prescribed by the physicians on the basis of the nature of disease is provided by the different Jaina texts, e. g. the use of hairy or hairless (saḷomanilloma) skin for the old monks and nuns, the lying down on the skin in the case of flatulence (uddhavāta) or paralysis (dhanuggaha) or of piles or severe pain or of the dislocations of foot or of the attack of wind on the whole or the part of the body of a nun, the wrapping up of the affected part of the body with the skin of hyaena (traccha) in the case of her rheumatism (vāta) and the lying down on tiger's skin (divicamma) in that of dog biting³ etc.⁴

The Nīṣṭha cūrṇi II throws a welcome light upon the surgical treatment by referring to various kinds of instruments⁵ for operation, while the Vivāga suya mentions the Surgical cases⁶ treated by the surgeons.

As regards the diet of the patients there is mention of meat and wine as prescribed by the physician in special cases of disease.⁷

Besides, other kinds of treatment are found to have been prescribed in the Jaina works, such as, the drinking of wine (maya), skin treatment for the Jaina monks suffering from serious leprosy, (galantakoḍha), piles, Kacchu or Kiḍibha—a kind of leprosy known as pama⁸ the tying of a leg of a vulture, the use of the teeth and nails of a bear and the hair of a ram for paralysis.⁹

1. Vivāga suya 1. p. 8. Bṛhatkalpa Bhāṣya 3816–18.

2. Bṛhatkalpa sūtra 3.36, Bṛhatkalpa Bhāṣya 3839–41

3. Bṛhatkalpa Bhāṣya, 3816–18

4. See life in Ancient India. Dr. J. C. Jain, p. 180.

5. Nīṣṭha Cūrṇi II, p. 701

6. Vivāga Suva, i. p. 48.

Sec Vinayavastu of Mulasarvastivāda, pp. 27.43

7. Nāyadhammakahāo 5, p. 80.

C.F. Vivāga suya II, cf. Mahavagga VI. 10.2

8. Bṛhatkalpa Bhāṣya, 3839–48.

9. Ogha Nijjuttī, p. 734, Bombay edition, 1919 Piṇḍanijjuttī, p. 48. ff.

The Nis̥tha Cūṇi gives a long list of diseases.¹ Various medical processes of treatment, such as, medicated baths (snāna) or cleansing a particular portion of the body (uccholana), massaging of the body, drinking of clarified butter (ghee) or oil for getting clear complexion, etc. have been prescribed for the treatment of various types of diseases. Rasāyana-vidyā (the Science of elixir vitae) was distinct branch of medicines aimed at maintaining the perpetual youth by arresting the body of old age and senile decay with the help of proper medicines.² The powder or oil of lotus (padma or utpala), castor, (craṇḍa), neem (nimba), citron (mātulūṃga) was prescribed for the disease of Vāta (rheum), pitta (biles) and sannipāta (typhoid)³ respectively. There was a type of pill (guṭikā) which could change the voice and complexion of a person (Saravaṇṇa) Karaṇihim guliyaluṃ vā appānaṃ annaha karejja,⁴

The mud from the ant-hill salt, gold and incantation were used as the means to cure the snake's bites.⁵ In the Oghanjuttī there is mention of the fire-fly dropping used in the case of vomiting and the horse-fly to remove the dirt from the eyes⁶, pearl oysters (Suktikas) were used for storing medicine.⁷

In the post-Āyurvedic period the Jaina approach to medicine was methodized and arranged properly by Ugradityacārya in his work 'Kalyāṇakāraka (815 A. D.)—a medical treatise dealing with medicine and surgery in the main more or less on the rational basis with scientific terminology on the line of the Caraka and the Sūgruta. In this work the author discusses in twenty five chapters various topics like preservation of health, Rasāyanavidhi, Vāta-vidhi-Cikitsā, pittavidhi Cikitsā, etc. But the note-worthy fact about this work is that liquor, meat and honey have not been prescribed in the application of medicine because they involve injury to animals. This indicates the practice of ahimsā (non-violence) to animals even in the case of using medicine. Only plants, minerals and metals, etc. have been used in the application of medicines.

1. See A Cultural study of the Nis̥tha Cūṇi, Dr. Mrs. Madhu Sen, P.V. Research Institute Varānasi 5.
2. Nis̥tha Cūṇi, 13, p. 392.
3. Ibid., 12, p. 316.
4. Ibid., 3, p. 194.
5. Ibid., p. 88.
6. Ogh-Nijjuttī. p. 135.
7. Ibid., 134.

In the Iatro-Chemical period (1300-1550 A.D.) the same medical principles of preparing medicine from plants—herbs and simples, minerals and metals were followed by the jainācāryas in the use of medicine with some exception in the case of honey, fat, etc.

The prominent feature of their medical science of this period lay in the search after the elixir vitae. Numerous preparations of mercury, iron, copper, gold, silver and minerals are found to be helpful accessories in medicine. At first they came to be used cautiously and tentatively with the medical recipes which were drawn chiefly from the plant kingdom, but they began soon to assert a supremacy of their own to supplant old Āyurvedic treatment by herbs and simples. One of the Characteristic features of this period is that opium is recognized as the official drug in the Jaina materia medica as it is found in the Hindu materia medica. A special stress has been put on the therapeutic efficiency of mineral preparations. Both opium¹ and mineral acids² are prescribed for many diseases as remedies. In addition to opium some foreign drugs were incorporated in the pharmacology of the Jaina medical science, e.g. Chobchini (China smilax); rasakarpūr (Calomel, etc.) to treat the case of syphilis (Phirangiropa)³, a foreign disease.

The Jainācāryas have dealt with the preparation of medicinal tinctures and prescribed mercury treated with some minerals and plants as the remedy for many kinds of disease including venereal disease (Phirangiropa).⁴

The Virtues of mercury are commended by the Jainācāryas that men are freed from multitude of diseases by partaking of medicine prepared with mercury.⁵

It is a well-known historical fact that the portuguese had fairly established at Goa and some parts of India by the beginning of the sixteenth century A. D.⁶

“As a result of intercourse of India with them that dreadful scourge the Venereal disease Syphilis made its appearance”⁷ in India.

1. See Suvarṇa-Raupya-Siddhi Śāstra, Ch. III. 30-31; VI. 17.

2. Ibid., Ch. X. 26. etc.

3. See Vaidyaka Saṁgraha, Phinangivatasamādhi etc.

4. See Vaidyakasaṁgraha of an unknown author (18th cen. A.D.) who seems to be a Jaina.

5. SRSS., Ch. IX. 1. 2.

6. Hindu Chemistry, Dr. p. C. Ray, p. 162.

7. Ibid.,

“Syphilis (phiangiropa)¹ as mentioned in the Jaina and other Indian Works of the period had now to be reckoned with and a new name to be coined for it.”²

“The use of this drug—Chobchini³—China root, smilax China, (C̣ñiakapūr) as a remedy for syphilis, it is believed, was made known to the Portuguese at goa by the Chinese traders about A. D. 1535. Vaidyaka saimgraha prescribes both herbs and minerals, such as, Chobesnini, ṛasakapur (calomel) and mercury, (pārada) bodarasingi (oxide of lead), etc. for phiningaroga on the basis of the study of its symptomology.

FOURTH CHAPTER

First Section

Medical Remedies for appelike etc. : Rub mercury 4 and chaletā^x of hen 15 for a day and cover the whole thing with a layer of cloth and clay and dry it up in shade. Next when the smoke of fire lit with the goat's dung stops, then give it (the mixture of mercury and chaleta of hen) by putting it into a bottle. Next morning it becomes cool, take it out. There becomes the essence. If 1 rati of it is taken with betel leaf, it produces appetite.⁴

Put Barāsa karpua (Camphor from Java), Borneo camphor tola-2 and mercury to. 1 in a plate. Give Camphor under and over mercury and Cover mercury. Cover it up with a cup and seal it up with wax. Make dipāgni by putting it (plate) under, give fire to it for 1 prahara. All these will become the essence. Mix 1 rati of the essence into 1 tola of copper. If 1 rati of the essence is taken with betel leaf, there will be appetite of 10 srs⁵

Purify lead ¼ sr., make a thin leaf of it. Next make collyrium (Kājali) of mercury pai. and sulphur pai. 2, for 4 praharas. Then take a jar and

1. Vaidyaka saṁgraha, a MS. No. 30994, in L.D. Institute of Indology, Ahmedabad; See Arkaprakāśa of Ravana and Bṇāvaprakāśa also of Bhāva Miśra.
2. Hīndu Chemistry, p. 162
3. Ibid.,
- x Not explained in absence of a commentary.
4. SRSS., Ch. 3. 51.
5. SRSS., Ch. 4. 10.

put a layer of cloth and clay, spread out bhoḍala, leaf of raw ramica ?) into it; one leaf under and one leaf over large bhoḍala patra 1, spread out Surakhāra. (a kind of oxide)- $\frac{1}{2}$ sr. over it, put the leaf of lead over bhoḍala (raw mica ?); Sprinkle collyrium over it; give again the leaf of lead; Sprinkle collyrium again, leaf, again, collyrium, thus give (put) (them) layer by layer. Again, crush surakhāra $\frac{1}{4}$ sr. (pava) and give (put) it over the leaf of lead and press it, place an earthen pot over it; put 3 or 7 layers of clay and cloth over it and get it dried up, fill sand into it, put it on furnace, give it fire, while increasing gradually, to for 8 praharas. On its getting cooled down, take sand out, take lead. Next make ash of 6 Ājhijhāra (not identified) 4 or 5 srs. Bind it in a piece of red cloth like Kasaṁbha (wild saffron) and put water (into it). Keep that water by filling it into a bottle. Put that lead and that sulphur pai. $2\frac{1}{4}$ together and crush it with that water for 4 praharas. Next make tablets of them and put them into an earthen jar. Like the first process give the canda (not identified, it may be layer) raw of bhoḍala (raw mica), crush surakhāra (a kind of oxide) pai. 5 bhār and spread it out.

Crush it and put thikaliyā (not clear, tablets ?), give again Surakhāra over it. Give a seal into the mouth of the jar by filling sand into it, give it fire of 8 praharas. On its getting cooled down, take it out. Give sulphur pai. $1\frac{1}{2}$ with that water. Do it again like that. Like the previous process, give it fire, etc., Take it out by giving and giving fire, etc. Thus do it sever times. If that thing 1 rati is taken, the appetite will be double. It makes many other benefits, give fire to seven yantras for 8 praharas.¹

Take out the juice of pure gorakha Tambola (beetl piper) pai. 1 bhār and rub mercury with it while rubbing, mercury comes up, take it. By doing thus for 24 praharas, make it ball-like. Make a hole into the stem of Scilla indica=Indian Squill (Kolikanda) and put it (ball of mercury) there and close the mouth (of the hole). Smear the powder of what over it, cover it with a layer of cloth and clay. Let it dry up. Then remove the layer (of cloth and clay) to the sides and take out mercury (from inside). Feed any body with that mercury rati 2 or 3 together with belt pipar by putting Ficus Tsiela (pipad) and Caryophyllus aromatus (lavang). If a dose equal to 1 or 2 or 3 maṇḍala is taken, (doess of pills) all diseases go away. There will be double appetite.²

Purify mercury is sugar till sugar remains white. It becomes black, Next rub it in the juice of Bhitabhedi (a kind of plant) in a mortar for

1. SRSS., Ch. 4. 30

2. SRSS., Ch. 5. 42

40 praharas. Next put it into an iron pot and stir it up with an iron rod, put the juice of yellow Myrobalans (*Terminalia chelula*) (Haloia). Give fire of wood under it (iron pot). Put the juice till mercury becomes lime (like) (cūno). Take 1 dose equal to the size of rice, appetite becomes double. Salty and sour things are to be given up.¹

From the flower of Aloe vera, Aloe vera flowers which remain (exist become healthy (luxuriant). Take yourself the juice of its leaf (pāṭha), crush the tip of the flowers in the juice of Aloe vera and Cinnabar in the juice of Āptipa (a kind of plant) for 7 days. Give fire-dīpāgni to the whole thing in a Velukāyantra for 12 praharas. Gonorrhoea is cured with the prepared medicine. There takes place an appetite of 5 srs.²

Take Mally (Somalakhara)=oxide of arsenic $\frac{1}{2}$ orpiment $1\frac{1}{2}$, mercury $\frac{1}{2}$, copper pai. 1, give the root of Horse drum stick=horse radish tree, and the root of Calotropis gigantea respectively under and over them, next give them gajaputāgni for 4 praharas. All action becomes successful. It will be best in taking³

Take the root koarasāṇiyā (ajamo) (guizotica abyssinica or Hyoscamus niger), its bark $\frac{1}{2}$, ajano (Bishops' weed) $\frac{1}{2}$. If this much is taken every day, it is useful in the case of lost sexual capacity and tumour goes away.⁴

Put the leaf of Fudeḍi-(a kind of Vanaspālī) $\frac{1}{4}$ sr. and gohalipatra (Leaf of Gohali=a kind of vanaspālī)- $\frac{1}{4}$ sr. into an earthen vessel and close it, give it fire for 1 prahara. The medicine thus prepared increases appetite; it is very efficacious.⁵ Grind pure iron $\frac{1}{2}$ sr. and mercury pai. 1, juice of Muñjāla (a kind of vanaspālī, $\frac{1}{4}$ sr. and put the whole thing into an earthen vessel and close it, give it fire for 1 prahara. The essence prepared thus increases appetite. It is very beneficial.⁶

Put together copper, zinc, silver, steel of equal weight, borax pai. $1\frac{1}{2}$ bhār (or) otherwise double and melt them. The essence⁷ is produced in our dream (according to own imagination).

1. SRSS., Ch. 8. 14

2. SRSS., Ch. 9. 58

3. Ibid., Ch. 9. 59

4. LRSS., Ch. 10. 3

5. Ibid., Ch. 10. 4

6. SRSS., Ch. 5. 27

7. Ibid., 10. 17

Reduce to paste mercury in the juice of puṇḍrā (a kind of plant), put linseed oil into it and give it fire; (it becomes) medicine for taking.¹

Rub that (mercury?), which comes first of own accord in Buṭi (Trachyperrum roxburghianum? = Boḍi Ahamoda) and give it 7 puṇḍ. (roastings), put it into an (iron cup. Over it give puṇḍ to these three- Daḍimīu Somala (a kind of oxide of assehic) ṭā. 6, China Camphor (Chiniu Kapūra) or China smilax and realgar just with the juice of lemon, first give them dīpāgani and next haṭhāgni for 64 praharas; go on putting the juice of that plant into an iron cup, if desire comes up. Mercury gets fixed well be an in essence is prepared. There will appetite, if taken.²

Rub mercury $\frac{1}{2}$ sr. in the juice of bitter long gourd-1 sr., in the juice of the leaf of Calotropis gigartea 1 sr. and in the juice of the leaf of Euphorbia nivulia 1 sr. for 5 praharas. Next give it fire for 15 praharas. (If taken) one's appetite becomes double.³

Remedies of gastralgia, etc.

Reduce to paste mercury pa. 1, sulphur pa. 1, somala samkhiu (oxide of arsenic) ṭā. 3, photarā (not identified) ṭā 13 and give gajapuṭāgni to the whole thing for 1 praharas.

Give 1 dose vāla $\frac{1}{2}$, diet-molasses and butter milk are to be taken, salty and sour things are prohibited. The medicine controls gas.⁴

Put orpiment to. 2 seed of Croton tiglium (Nepālā), Castor to. 2. and sābu to. 2 (Horse purslane or something else) into an earthen pot; put an iron cup over it give a strong seal to the cup. Take oil which comes up. Put that (it) into the juice of Neem for 7 days. Next it will come into action (use).⁵

Take Ārśa (in āṣeṣu) tyapo (not identified) 1; tūrserjasapti (not identified) is to be cast into it. It becomes Dhātuvedhi (metal piercing); many diseases go away (i. e. are cured) by the use of this medicine.⁶

1. Ibid., 10. 18

2. SRSS., Ch. 11. 9

3. SRSS., Ch. 5. 23

4. SRSS., Ch. 5. 25

5. Ibid., Ch. 10. 15

6. SRSS., Ch. 10. 24

Remedies for Piles and Jaundice

Incurable haemorrhage (bleeding or piles) and jaundice go away by the use of stool (excreta) of rat, give it to the patient afflicted with the said diseases with butter-milk (Chāsi) tā $\frac{1}{2}$. true¹.

Remedy for Gonorrhoea

Give 1 paṭa (roasting) of clipla alb = wedelia calendulaca (Bhāṅgrā) to black mica, 2 paṭas of datura meta, 1 paṭa of Calotropis gigantea, 1 paṭa of Euphorbia pilulifera (Nāgadudhi), 1 pa. of purple rephrosia (śarāpamkha), 1 paṭa of adventitious branch of Banian tree (vaḍavāi), 1 paṭa of cow's urine (to it), each paṭa is followed by the heat of fire for 1 hour².

Medicine :

Viṣama jvara (typhoid fever) goes away (if the medicine thus prepared is taken), it is to be taken with butter made of she-buffalo's milk; all gonorrhoeas (syphotic diseases) go away (i.e. cured) (if it is taken)³.

Put coral $\frac{1}{2}$ sr. and black mica tā. $1\frac{1}{2}$ into an earthen vessel, fill it up to that extent till (as, they get sunk into the milk Aloe vera; give the whole thing gajapuṭāgni. Take the clay of the house of a potter. Next dig a pit equal to the height of the waist (of a man), fill two gāṭhaḍis (bundles) of dry wild cowdung cakes into the pit. Place the vessel on fire of 2 bundles of dry cowdung cakes, fire becomes bright. Again and again, thus give them fire seven times. The essence benefits that much like mercury. Its price-value will come as demanded by mouth (word). Sell 4 parikās (doses) for Rs. 1/-; make fire strong. Cough, breathing trouble and semen trouble (gonorrhoea) stop, (if taken); give it fire for 4 praharas⁴.

Grind cinnabar in the juice of the flower of Segāṭhā for 12 praharas, give it dipāgni (fire of lamp) for 12 praharas all types of gonorrhoea are cured by this medicine⁵.

1. SRSS., Ch. 10. 64
2. SRSS., Ch. 7. 1.
3. Ibid.
4. SRSS., Ch. 7. 5
5. SRSS., Ch. 9. 60

Remedies for impotency

Rub mercury tā. 4 with the juice of red *Ricinus communis* (rakta erraṇḍa) with the juice of gandharva (***Ricinus communis***) for 3 praharas. Bind the pill or ball of it. Next make powder of glorisa superba (Dudhiu vachanāga) by crushing it. Then make 2 vāṭakis (cups) by crushing lead with the milk of *Calotropis gigantea* (arkadugdha). Do as such that saṁputā (śārā=lid) sits fully on it; put pill into it. Close the lid and dry it up. Next get it dried up by wrapping or mingling (viti) it with powder (Kanake). Next get it dried up by wrapping or mingling in (or with) cowdung; put it into the earth by digging a pit of 12 angulas, depth give it fire of dry wild cowdung cakes for 12 ghaḍis (1 ghaḍi = 24 minutes) in the month of Bhādra. It is true. This Rūhāgnāhyā (not identified) mudrikā (ring) is held on (put on) the waist, there becomes, fixation (erection) of penis (Sthambhanam). It is his own conception on diseaselessness¹.

Rub mercury tā. 9 (in a mortar) in the juice of Fudedi² - (a kind of plant ?) for 1 day, in the juice of c. antichorus (Bahuphalt for 1 day and in the juice of purple Lippia (Jalapipār) for 1 day. Rub it in pongamia glabra (Kaṇajhi = kind of oil for making soap) and onion for 1 day and in egg of hen for 1 day.

Next make a crucible of day (earthen crucible) put chotra (not identified) tā. 9 (piece of bark or husk or shell, into it by crushing it., rub mercury over it, rub chotra over it. Close the saṁputā, heat it in a gajaputa. On its being cooled down, take it out. Give 1 rati only to a person; it is very much sex-exciting. Add anupāna (Complementary medicine) of the wood of piper longum (pipal) to it. If 1 rati of Kesar (*Mesua ferrea*), 1 rati of lavang (*Caryophyllus aromaticus*) are taken, there take place an appetite and the nourishment of the today. It is sexual desire exciting. If it is taken with piper longum, constipation stops. (i.e. gets cured). If it is taken with honey and piper, typhoid goes away (is cured)³.

Reduce to paste mercury tā. 9 with ocimum sanctum for 1 prahara, grind it with Nohera (not identified) for 1 prahara. Next combine (mix) pure sulphur tā. 9 realgar (tā. 7), sweet scented oleander (*Nerium odorum*)

1. SRSS., Ch. 6. 25
2. If it is not identified
3. SRSS., Ch. 6. 32.

tā. 7 and Somalakhārā (oxide of arsenic) tā. $3\frac{1}{2}$ by crushing them, pound them to powder. Bring one big earthen bowl of big mouth.

Make a round piece of white mica by cutting it and put it into that (bowl) and close (Cover) it with a new lid or plate (carudo=vāsana), put mercury over that mica. Cover it up again with mica, make 2 pieces of mica and 2 pieces of Chāndā (not identified), put the plate over it, close the mouth so that smoke does not come out. After that, fill sand into the jar (above) up to the brim, give it fire for 3 praharas by putting a layer of cloth over it. Take it out on its getting cooled down. Best medicine (is produced) (it is to be taken) with honey and piper (long pepper). Appetite will be felt, it is sex-exciting. True. It is very much good¹.

Take cinnabar tā. 1 mercury tā. 1 and gola (garbha=core) of Ferula (Foetida). Make pill out of them, measuring the size, of gram. It is good in the case of impotency².

Take out the bark of the root of Kharasamḍiyā (Euphorbia Tirucalli linn = Milk Bush) tā. $2\frac{1}{2}$ Ajamo (Trachyspermum syn-Carum copticum or ptychotis ajawan tā. $1\frac{1}{2}$). Take this much every day; thus for 50 days, it is good in the case of impotency. True.

Round tumour goes away. It is the best of all opportunities³.

Dry up the bark of the root of Sarakhaṇḍiya (Kharasamḍiya ?) in the shade. Combine together the two — its powder tā. $2\frac{1}{2}$ and ajamo tā. $2\frac{1}{2}$.

Make the process with water everyday for 40 days. It is good in the case of impotency⁴.

Medicine for impotency

Take black curculigo orehioides (Kali Muśali) tā. 3 white curculigo orchoides (Dholi Muśali) tā 3, Bombax ceiba linn (Mocarasa) (Salmalia malabarica) tā 3, essence of Tonospora cordifolia (galo sauvā) tā. 3, Antichorus (Bahuphali) (tā) 3, Astercantha longifolia (Ekharo) (tā) 3, Tribulus Ter (Gokharu) (tā) 3, Cowhedge plant (Pucuna Pruriens)

1. SRSS., Ch. 9. 23.

2. Ibid., Ch. 9. 24.

3. Ibid., Ch. 9. 24.

4. SRSS., Ch. 9. 24.

(Kaucān) (tā) 3, Mālavani-Bāvaci (Purple Fleabane tā. 3, Balavija-3, cublba officinalis (canak bābā) tā. 3, Blephares edulis Pers (Uṭegāṇa) tā. 3, Conessei bark=Holarrhena anti-dysenterica (Indrajava) tā. 3, anacyclus pyrethrum (Akkalakaro- tā. 3. gum of vata (Vadagundā) tā. 3, Narrow-leaved sepiston=Cardia Angasti folia (Cālta) 9) and Aconite palmatum (prati) tā. 9 mix sugar tā. 9, and bnuko (hask) tā. 13 into these medicines. Medicine prepared with these articles is useful in the case of lost sexual power¹.

Rub (or reduce to paste) mercury in thorn (kāṭālo) Tribulus Tar of kālāphul (Evolvulus alsinoides), it becomes butter-like in 3 days.

Next make a crucible of lippa nodiflora (gajapipar) give alum under and over and close its mouth. Su. (Silver ?)

Give it fire of 1 prahara. Thus rub mercury in Tribulus and make a crucible of standing=galasi, give alum po. 1 and pā. kha. $1\frac{1}{2}$ under and over. Having rubbed it in this way, make a crucible of Hastipaga (Crucible of this shape), give śamcoro loṇa (Sodiai chloradum) under and over. Give it gajaputāgni for 4 praharas. Put po. kh. $1\frac{1}{2}$ into a red earthen vessel; next mercury tā. 1 go on putting powder (dust) of chaletā (not identified) go on stirring it up with root of (green) Vāgā (measua ferrea ?).

Under it burn the woods of Acacia catechu (Khadira) ana Mimususops hexandra (Rāyāṇa).

There will be an appetite of 8 srs. (if tu medicine is taken) it is sex-exciting².

Make (break) somala (oxidie of arsenic) into pieces, put them into an iron cup, give it fire for 16 praharas. Give drops (tūyā) of the juice of brinjal to it, it melts like oil in gentle fire.

Take Malla (oxide of arsenic) and cinnabar and sulphur six times more than these two. While making the pieces of cinnabar as equal to the size of red jujube put it into an iron cup. Combine all these—clarified butter of cow's milk pai. 2 sulphur pai. 2, honey pai. 2, gain, (not identified) and place them together on the oven, give it fire of coal for 4 praharas. After its melting, put Khārā (ashes) of Achyranthus aspera (Aghādā) into it. In this way give 30 puṭas to it. Next brind that cinnabar and give grains of rice-māsā 1 into it. There takes place sexual excitement, if it is taken.³

1. SRSS., Ch 10. 2.

2. SRSS., Ch. 10. 12.

3. SRSS., Ch. 10. 57.

Melt copper mā. 9 and silver mā 3, and put 1 rati of the essence into them.¹

Rub mercury in the juice of Ipomaea, close it into a copper samputa and fill rasa (juice) into it and close it firmly. The essence makes sexual appetite².

Rub mercury into a coconut for 1 day and give it sunshine for 3 days. Next rub it in the juice of Bāvi (not identified). Make pill, keep it into the mouth, semen is fixed (i.e. penis is fixed)³.

Rub wet mica to. 12 and mercury to. 12 together. Rub sweetless honey (milo) and borax in clarified butter. Put the whole thing in a strong crucible and close it and put it into an earthen jar, give it bhaṭhāgni for 2 praharas. Next worship it by taking it out. Pill becomes viryasthambhi (i.e. it makes semen fixed.)⁴

Boil the juice of the leaf of lemon, the juice of the leaf of tamarind and the juice of the banana leaf in equal portions and smear the penis, enjoy the wife. The penis gets fixed (erected ?) like that of a dog. The fixation of the penis (takes place) True⁵.

Rub together the root of black cirami (not identified) and that of Veū (not identified) and smear the penis as said before⁶.

Rub mercury tā. 9 in the juice of cowdung for 1 day, in curd-water, in curd for 1 day, in the juice of Agathia (Agastya glandiflora) for 1 day and with the seed of Mimulus Lexandra (Rāyaṇa) for 1 day. Next grind Luffa Echinata ? (Kukaḍa chaletā) 7 (tā) and make it fine; combine together the root of Sonchus aruenois. (sahadevi) tā. 5 and put it into a crucible, fill half with husk and the root of Sonchus aruenois (Sahadevi) over it, take (eat) sweet (Cūramu). Lost sexual comes up⁷.

1. Ibid

2. SRSS., Ch. 11. 2. 13.

3. SRSS., Ch. 11. 2. 34.

4. SRSS., Ch. 11. 2. 37.

5. SRSS., Ch. 12. 12.

6. SRSS., Ch. 13. 13.

7. SRSS., Ch. 13. 2. 12.

Fry the seed of Kākaca (not identified) with clarified butter and take it with sugar, it is good in the case of impotency, gas of the abdomen gets cured. It is also sex-exciting¹.

The second kind — administer this medicine to a patient by combining these four things — juice of betel leaf, juice of ginger, juice of onion and juice of śatāvāri (*Asparagus racemosus*) together 1 sr., honey t̄a. 5 and clarified butter t̄a. 5 every day up to one month. Lost sexual power returns to him².

Birth of Male Child

Drink the essence of Sebala (*Ferula sumbul* or *Vitex trifolia*) bhā 4, Devadāru (*Cedrus deodāra*) bhā; 4, Bijoru (*Citrus medica*) bhāra 8 with cows' milk after three days of menstruation, salt and sour (thing) are to be given up. (There will be born) male child³.

Remedy for removal of poison from the body

Take the juice of wild *Amaranthus tricolour* var. *tristis* (Tāndalo)- $\frac{1}{4}$ sr. and clarified butter $\frac{1}{4}$ sr. Any kind of poison comes out of the body, if they are taken together. If the juice of Soapabery (*Trifolium sapindus*), pressed on of its chali (bark) is drunk with water, all non-moving and moving poison will come out⁴.

Medicine for counteracting poison

If cinnabar $\frac{1}{2}$ t̄a. is taken with water of sour curd at day time poison comes out from the belly⁵.

Remedies for cough, etc.

Combine together borax 1 (t̄a), mercury 5 (t̄a) tin 3 (t̄a), drye ginger 4 (t̄a) and *Elettaria Cardamomum* (elaci), give the (the whole thing) ginger-putas (roastings) and 7 putas (roastings) of beetle leaf and mix the whole thing with Borneo comphor ga.1

If a pill of these combinations measuring the size of a gram is taken, khayan-vikāra disease goes away⁶.

1. SRSS., Ch. 9. 30.
2. Ibid.
3. SRSS., Ch. 12. 22.
4. SRSS., Ch. 6. 16.
5. SRSS., Ch. 12. 31.
6. SRSS., Ch. 12. 31.

Remedies for fever

Put mercury $\frac{1}{4}$ sr. 30 into a chinese pot. Fill it up with the urine of donkey 25 srs., close its mouth, keep it into a village dustbin for 6 or 7 months.

Perhaps (if ever) the urine does not get dried up, keep it there for 1 month again. Pra. de. pohāra 1, ha, 2. (not deciphered).

Manibhadra pill is used in old fever¹.

Make lump of mercury $\frac{1}{4}$ sr. 5 and trapu (a king of tin) $\frac{1}{4}$ sr. 5, soaf cinnabar $\frac{1}{4}$ sr. 5, Trigadu (not identified) $\frac{1}{4}$ sr. 15, Caryophyllus aromaticus $\frac{1}{4}$ sr. 5, Ficus Tsief (pipali or piper longum) and Alangium lamarku (cakalakaro) $\frac{1}{4}$ sr. 5 in the juice of ocimum sanctum and in the juice of betel leaf.

If a pill measuring a guṇja is taken, all fevers go away².

The mixture of lemon 1, dried up date (Khārika) 5 and miri kṇa (grain of black pepper) 4 is administered in the case of a patient, suffering from bile and gas with Caryophyllus aromatics (lavaṅga) and mīśri (condensed) sugar and the diet-Khicādi (hotpetch) rice and pulse-Tuyar with clarified butter (is served to him) as much as liked by him, all types of fever go away. This pill is Jaśavantavāli³.

Rub mercury $\frac{1}{4}$ sr. in a jhikā (jug ? or vanaspati) for 1 prahara in Aloe vera and in turmeric for 1 prahara each. Rub mercury $\frac{1}{2}$ sr. in the juice of ocimum sanctum $\frac{1}{2}$ sr. Make it lump and rub it in the juice of Bāvaci (purple Fleabane-psovaha corylifolia) $\frac{1}{2}$ sr., rub it in the juice of Marhaṭhi (Spilanthus oleraces) $\frac{1}{2}$ sr. and Nāgaladudhi (Euphorbia pilulifera) $\frac{1}{2}$ sr.

Śakandara which is just like Sarakhaṇḍiya, the leaf of which is like jhijharu (biophytum Sensitivum) or the flower of which is yellow. Its leaf is like that of sarikhāholi (Ctendepis cerasiformis). But its juice is very much sticky. If it does not come forth, take it with ocimum sanctum. Boil ocimum sanctum. Boil that juice $\frac{1}{2}$ sr. and the juice of Śakandara and take it out, put it into a Dolikāyantra, Make 4 balls by preparing lump of the juice of Arnikoli (Alanguim lamarkii) $1\frac{1}{2}$ sr.

1. SRSS., Ch. 13. 2. 13.

x. Sunth, maric and pipal=trigadu

2. SRSS., Ch. 9. 21.

3. Ibid., Ch. 9. 22.

Make 2 crucibles of clay of potter and get them dried up. Put the balls into it and close it. Put a layer of cloth and clay over it, give a layer of cloth and clay by crushing salt and coal, give a layer of cūno kātho (lime) salt, chalk on one joint of the earthen bowl, give the other three as said before, give 3 layers of cloth and clay over it.

By drying it up, bring kātho 1 put one earthen bowl over that; put sarīpuṭa (lid) over that, give it fire of $\frac{1}{2}$ or 3 maunds of dry wild cowdung cakes, on its getting cooled down, take it out. Make 60 pills by combining mercury to 1, Kesara to. 1, (Mesuaferri) Jāvantrī (Myristica fragrans) to. 1, and Lavaṅga (caryophyllus aromaticus) to. 1 with the juice of betel leaf.

All types of fever & cough and chilliness go away by partaking of this medicine, The pill is called Mahādeva Vyāsāvālī. All fevers go away in 7 or 8 days¹.

Rub cinnabar ṭā. 3 with lemon (juice of lemon) for 4 ghadis. Rub mercury ṭā. 3 in the juice of ocimum sanctum, combine together these eight things — Jāyaphala (Myristica Fragrans) ṭā. 3, Akalakari (Alangium lamarkia) ṭā. 3, dry ginger ṭā. 3, pīparī (Ficus Tsiela) ṭā 3. and black piper ṭā, 3, and crush them with the juice of lemon and make pills of them equal to the weight of 2 grains. Purify Vachanāga (Aconite ferox) and mix it in milk ṭā. 3 as said before.

Having ground lemon piece 1, black piper 4, miśri (condensed sugar) ṭā. $2\frac{1}{2}$, make 4 pieces of pill. Next quench these four things. Fever goes away, if used for four days give a pill equal to the size of 1 bhār gram in the case of small boy

Give the pill to a patient of bile by crushing it in grapes. Give the pill to a patient of gas by crushing it in Myristica fragrans, give it to a patient in the case of typhoid fever by crushing it with the juice of lemon as it is marvellous.

Give small leaves of Datura $3\frac{3}{4}$ by wrapping them with molassess for 3 days. Intermittent fever-tryahik and caturahnik (i. e. mateia fever coming on the third and fourth days alternately, fevers will go away, (if taken), it is experimented².

1. SRSS., Ch. 9. 25.

2. Ibid., Ch. 9. 27.

Make pills of mercury tā. 2, malla (Somalakhāra) oxide of arsenic tā. $\frac{1}{2}$ and, black piper nigrum tā. 1, dhūsa tā. 1, and borax tā. 1 by combining them with the juice of lemon measuring the size of a gram. All fevers go away, (if they are taken)¹

Grind lead tā. 3, cinnabar (tā. 3) purified in milk with the juice of lemon for 4 ghadhis ($4 \times 24 = 96$ minutes,) reduce mercury tā. 3 to paste in the juice of ocimum sanctum, combine these three and grind Trigaḍu (Sunṭh, maric and pipal) tā. 9 Myristica ragnans tā. 3, and Alangium lamarkii (tā. 3) in the juice of lemon for 4 ghadhis (4×24 minutes), Mix these 8 things and make pills, measuring the weigh of 2 grams. Fever goes away; if it becomes chronic, the pill should be given to the patient with the juice of 1 lemon, miśri (condensed sugar) tā. $2\frac{1}{2}$ and 4 black pipers, In regard to the diet, he is to take khicaḍī of rice and tuyar dal (a kind of pulse) with clarified butter. give him Jauli ghee-Kita (seed) for 3 or 4 days all, all types of fevers go away; rheumatic fever also goes away.²

Tailavidhih (The process of making oil) and Remedy for fever,

Bring Indigo (Nīl=gālī) and dry it up in the shade. Next take its oil in Pātālayantra. Rub mercury in the juice of centipeda orbicularis (Chūkant) it becomes fixed, Puṭ it into an earthen vessel and give it gentle fire, give it drops (tūyā) of the juice of portulacaea oleracea (Lunī). Take 1 rati out of the $\frac{1}{2}$ sr. killed mercury is be to take with piper betel or nine minerals ? (navarasa) or some kind of plant ? fever goes away; disease goes away.³

Remedies for skin diseases.

Make the pieces of the root of pentapetes phoenicia (Boporiyā) and and boil them in Tāmdalajā (Amarantus polygamous) till the vegetable is well cooked. Next take it out and boil it in cow's milk in a Dolikayantra. Then crush it, a pill of it measuring 4 Tūyar (a kind of pulses) is to be taken with water. Besides., salty and sour things are not to be taken, but only curmu (lāḍu of wheat with clarified butter and guḍ) bread is to be taken. sweet rice, sugar and cold drink (of saravat) are to be taken. Every kind of boil goes away within-7-14-49 days, It is said by Manigalaji of Navapurā⁴.

1. Ibid., Ch. 9. 28.
2. SRSS., Ch. 9. 29.
3. SRSS., Ch. 10. 28.
4. SRSS., Ch. 7. 9.

Drench Emblic myrobalans (āmlā) pai. 1½ and sulphur (umṣiu) Jamā-vāli pai. 1 with the juice of lemon for 3 days and apply the medicine on the affected skin.

Lukharasa (urticaria ?) eczema (Kharajūa) leucoderma (Karolia) and itching (Kharajia kind of skin disease) disappear on the application of this medicine. i.e. get cured.¹

Make ashes by bruning Emblic myrobalans. : Smear the body with lime (Kalicāno) by putting oil into it. Then sit in the dila (hot) sunshine for 3 days. voughness (lukh) goes away.²

Grind cinnabar to. (1) and Kita (dhātumala) in the clarified butter and smear it on the body; any type of eczema goes away.³

Fry onion and leaf of Neem in the clarified butter by melting (them). Put Rāla (yellow resin) tā. of and wax tā. 9 into it, wash ointment with water 7 times. All blisters or ulcers (Cāmdās) go away.⁴

Make powder by grinding Sabarsing (horn of savara ? or Sāvarā = lodhar ?), put honey into it, heat ointment combined with Neem and onion together with honey and grind it, Then put it (the prepared medicine) into the sceptic ulcer. The sceptic ulcer gets cured within 7 or 21 days.⁵

Give borax under and over calomel ruberb Rāpectnī (Revanacīnī) and Mesua ferrea (Nagakesara). Take Khurāsānī Hingalo (cinnabar) 5, Bishop's weed = ptychotis (ajamo) 5, khurāsānī ajamo 5, Kṛimānī ajamo centipeda orbicularis (Chikanī), lead 5, jarcinia (Revanicīnī) morellea desrous 5, curcuma angusti folia (tavakhira) 5, Alangium lamarkii (Akalakaro) 5, Conessei bark (Indrayava) 5, croton tiglium (Nepālā) 5.

Give all these medicines under and over, put them by crushing these in Aloe vera (Kumārī), lamparachoen microcephalum (Brahmadāṇḍī) ginger (ādraka), datura, garlic, onion, brinjal. Citrullus colocynthis (Indravārūnī), flower of horse radish tree Saraghunpuṣpa. flower of white oleander (Śveta Kaṇera), Nerium odorum (sonaholt) pñahalola (Yellow teminalia

1. SRSS., Ch. 8. 16.
2. Ibid., Ch. 9. 61.
3. Ibid., 9. 62.
4. SRSS., Ch. 9. 63.
5. Ibid., 9. 64.

chebula), popaṭl (a kind of vanaspati) Kulārī (Setaria glenca) and Bandālī (Luffa echinata=kukaḍaveli); put the above mentioned medicines under and over. Haṁsapāka (a process of medicinal cooking is to be performed for taking.

According to own concept it is written.¹

Heat Malla (oxide of arsenic) as described in the aforesaid Kākido Saṁpuṭa and apply it with clarified butter. The sceptic ulcer goes away, if applied.²

Grind phudeṭī (not identified) and apply it on the ulcer, the sceptic ulcer goes away,³ if applied.

There is boil an the head, it is bandaged by making bread of phudeṭī it is cured in seven days, all headaches go away by the application of this process.⁴

Rub mercury with the oil of Nut (Badām). If it is applied on the face, its blackness goes away.⁵

If purple tephrosia (Sarapamkhānu) is taken with honey, the burning sensarion goes away,⁶ True.

Remedy for Elixir vitae

The processing of hill water is written.

There are four colours of hill water, viz, white, yellow, red and black.

- (1) One is kṣaṇavedhī (piercing in a instant)
- (2) One is praharavedhī (piercing in 1 prahara.)
- (3) One is dinavedhī (piercing in 1 day) and
- (4) One is aṣṭādinako vedhī (piercing in 8 days).
- (5) One is paṇi cadasadinavedhī. piercing in 15 days).
- (6) One is navatī dinavedhī (piercing in 90 days).
- (7) One is ṣaṭmāsavedhī (piercing in six months) and
- (8) One is varṣadinavedhī (piercing in one year=365 days).

1. SRSS., Ch. 9. 68.

2. SRSS. Ch. 10. 49.

3. Ibid., Ch. 10. 50.

4. Ibid. Ch. 10. 51.

5. Ibid., Ch. 10. 52.

6. SRSS., Ch. 10. 53.

Three woods have fallen in that water and their leaves also have fallen. Take that (Water), purify (mercury Copper) in that water. Keep it for two months, there it becomes like fire when heated. Next give fire to that mercury (i. e. heat it) it becomes linal like. Put it into a brinjaj and burn it in fire.

It (mercury) becomes Nāgavaṅgavedhī (piercing into lead and tin). If it, having the size, of half of a rice gram, is taken, one can enjoy 100 women. If it is taken with clarified butter, it makes the human body deathless.

And if mercury is kept in the hill water for 12 or 21 days, it becomes guṭikā (pill). If that mercury is kept into the mouth whatever work is done by reciting the aforesaid incantation becomes successful. It is the process of all arts.¹

Pound Viko (not known and identified) or that Khaciko, (not identified). if you rub it in cassia angustifolia (Soṇamukhi) (or golden copper pyrite ?) it becomes Nāgavaṅgavedhi (piercing into lead and tin). True If it half of the size of a gram of rice is taken, anything can be eaten. It makes the body deathless, true.²

Rub mercury in the hill water, if (it) is kept in Khrakanda (bhūmikusmānda) (puerarial tuberosa) and next kept in hill water, mercury gets fixed and makes mouth. It is the process of thousand arts.³

Guṭikā (pill of mercury) becomes uḍamta gaḍamta and piercing. Take it into a pot of long gourd or xanthoylum alatam, it does not stay in any other pot. Mix that guṭikā into water, Drink one spoonful of it, while the sun is rising. One will live for thousand, months.⁴

Mix mercury into Ferula foetida by making a hole into it give (put a lid over it. wrapping (1) vāla in the tail of a cow, mix it into hill water. That mercury gets fixed and becomes soft. It is the best Nāga-Vangavedhī capable of piercing into lead 2 and tin) If it is kept into the mouth, it strengthesis⁵ much. (i.e. gives much strength).

1. SRSS., Ch. 9. 1.

2. SRSS., Ch. 9. 2.

3. Ibid., 9. 3.

3. SRSS., Ch. 9. 4.

4. SRSS., Ch. 9. 5.

Rub gold $\frac{1}{2}$ and mercury to 4 in a mortar. Make a hole into the wood of Sivan (gmelina arborea) put it into that hole and give a lid into it. Next keep it in hill water; it becomes stone-like. Reduce it to ashes. If that ash, equal to half the size of a grain of rice is taken, one goes up to 1000 gālus.¹

Rub cinnabar 1, orpiment 1 sulphur 1, realgar, and mercury 1 in hill-water. Make holes into the wood of Sivan (gmelina arborea and Butea monosperam) (Khākpari) and burn the mixture by putting it into them respectively it becomes sarvadhātuvēdhī (capable of piercing into all metals). & Grind (reduce to paste) mercury pai. 1, sulphur pai. 1 and borax pai. $\frac{1}{2}$ in the juice of Aloe vera and fill it into an Aegale Marmelos (Bilva-phala) and close it up. Give it gajapuṭāgni. Mercury becomes good in taking.²

Grind black paper in the juice of Damanā (Sweet marjora) for 4 prahas. Make tablet and put it into an earthen vessel, fill half of it with the juice. and make (lit) fire under it. When the juice gets burnt, then put dry wild cowdung cakes over it, the essence is best in taking.³

Take orpiment pai and powder of black pepper pai. 1, go on mixing 1-1 paisa bhār of pepper for 20 days, (take) only 1 rati of that orpiment. Appetite will be there, if taken), it is the nourishment of all etc.ments All diseases go away.⁴

Rub mercury pai $\frac{1}{2}$, cinnabar pai. $\frac{1}{4}$, and vitriol (Kasīsa) pai. 1, in the essence of grapes pai. 6 bhār. Rubbing them in the essence of grapes, dry up the whole thing, rub it in the ripe leaf of calotropis gigantea. Next put the whole thing into a earthen bowl and put 3 layers of cloth and clay over it. Dry it up and give it gajapuṭāgni. Next give 7 puṭas to the essence with the milk of calotropis gigantea. The prepared thing, it taken, creates sexual appetite. There takes place the nourishment of strength.⁵

1. SRSS., Ch. 9. 6. -a length equal to kroṣa.

2. Ibid., Ch. 9. 7.

3. SRSS., Ch. 10. 60.

4. SRSS., Ch. 10. 67.

5. Ibid., Ch. 10. 68.

6. SRSS., Ch. 10. 69.

Mercurial Medicines and its curative powers

Rub mercury त्रा. 5 in the juice of sweet bottle a gourd (Liagenaria vulgaris). Make lump of it, grind fresh lime and make galo^{1x} with jarādy^{1y} of an earthen vessel (Kulaḍāni). Make Khāto^{1z} into that put the lump of mercury into that, next give juice of sweet bottle gourd and dose it up. Put it into an earthen vessel, give it fire under it; lump gets burnt and becomes ash; on its getting cold, take it out, that mercury gets incinerated, it makes many benefits.¹

Rub mercury त्रा 5 and cinnabar, त्रा. 5 with the Kernal (garbha) of a ripe wood apple (Aegale Marmelos), rub them with the milk of cow, pai 1 bhār. In this way do it for 7 days. Next taking out the kernal of the second wood-apple, put it into that, seal it up, put 7 layers of wax and cloth over it and give it gajapūṣṭi by filling the pit with dry dung of goat. For 21 days. On its getting cold, take it out, $\frac{1}{4}$ rati of the essence (thus prepared) is the rule in its taking.²

Other remedies for strength.

Purify copper $\frac{1}{4}$ sr., next grind all these Saṁkhio śomala (oxide of arsenic) to. 1, Aconitum ferox (Vachanāga) to. 1, borax to. 1 and sal-ammoniac to. 1 in the juice of Achyranthus aspera for 4 days, apply 3 srs. of the juice of the juice of Achyranthus aspera. Next make thick tablets, Dry them up in the shade. Next make two earthen crucibles and one earthen bowl; put them into it; give 4 layers of cloth and clay over it by closing it; get it dried up, next dig 2 pits side by side into the earth, fill them with dry cowdung cakes and lit fire. Next when the fire becomes smokeless, then put the balls (or pills) into it (one) cover the fire, next make the fire of the second pit ready, before the first one does not get cooled down. Make it smokeless. Next by taking out the golās (balls or pills) from the first pit, put the same into the second. In this way make fire for 14 praharas. On its getting cooled down, take out golās, the medicine becomes white, it is accomplished; give (mix) a does measuring 1 a grain of rice into a leaf. It is efficacious, it is generator of appetits and strength.³

1. SRSS., Ch. 10. 70.

2. SRSS., Ch. 10. 71.

3. SRSS., Ch. 13. 21.

1x. not clear

1y. not clear

1z. not clear

Remedies generalities for various of diseases. Epilepsy and Hiccoughs :

If *cuminum cyminum* (Jirā) is taken with *vasipāṇi* (old water) of 6 month, the diseases of *Rakta-pitta* (blood-bile) goes away. If taken with the juice of ginger, cough and *dyspnoea* (breathing trouble) go away. If taken with rice water, epilepsy goes away and hiccough also goes away¹.

If collyrium is made with *caryophyllus aromaticus* (*lavatṅga*) and citrus lemon, all diseases of the eye go away, give *anupāna* (trituration) $\frac{1}{4}$ rati with honey.²

Mūtra kṛcchata (urinal trouble) scanty urination stops, (i.e. gets cured) if it is taken.³

If *caryophyllus* with clarified butter-rati 2 is given to a patient his *jholo* (a kind of disease) goes away.⁴

If one dose measuring only a *til* (*Sesamum*) is given with rice water, *Mabarakhi* (not identified) disease goes away, *Huka*, *cuka*, *Nala*, *Barahalla* (not identified) *aṣṭagūlma* (8 kinds of tumours) go away. If it is taken with water, giddiness stops, arthritis (or gout) and *bhrama-coragṛi* (not identified) diseases go away. If mung (a kind of pulse) rice, wheat, clarified butter *ā. 15.* and 1 *rota* (bread) are taken, the weak becomes strong.⁵

Medicines for worms.

Put the drops of the juice of camphor and *pāḍarūpā* (a kind of *vanaspati*) into the nose. The worms come out.⁶

Remedies for worms etc.

Two worms of the nose fall out.

Remedy : Take 1 *sr.* of *centipeda orbicularis* (*Chikant*) and 8 *srs.* of water, After boiling it, when water comes down to $\frac{1}{4}$ *sr.*; take it out; put borax, (*Tamkaṇa*) into it and give the juice of *Amorphophallus com-*

1. SRSS., Ch. 7. 1.

2. Ibid., 7. 2.

3. Ibid.

4. SRSS., Ch. 7. 2.

5. Ibid.

6. SRSS., Ch. 9. 69

ponlatus, Blume (Sūraṇa) $\frac{1}{2}$ sr. and water of centipeda orbicularis $\frac{1}{2}$ sr. into it. Give puṭa (roasting) of and chinops Echinata Uṭakaṭā with the milk of Euphorbia (dudheli) & (Dandelion=taraxacum) (3) with udholi (not identified) and (4) with white drona (Leucas cephalotus) give fire to the four things (together) for 4 praharas. Śaśaka (blue vitriol ?) melts in bone dust; copper metal melts in the hair of man; iron melts in salt.¹

Take surokhāra (Dotash Nitrus=Nitrate of Salt Peter) pai 3, mercury pai 1 and hair of sheep pai. 4, give them Dīpāgni and Bhaḍakāgni Give Dīpāgni to clarified butter (ghee-ājaye) 9 srs. and calomeḥ pai $1\frac{1}{2}$ in a Dholikāyantra for 12 praharas with 12 srs of fire-wood. Give a small pot into the mouth of an earthen vessel and close it. (Take) oil of Aucaardium-2 srs., calamine $\frac{1}{2}$ sr. and copper $\frac{1}{4}$ sr. Smear calamine with (in) oil and heat it in fire and quench it in oil of Ahacardium six times, Take hair of sheep-4 srs. and mercury pai. 3, give Dīpāgni to them, (First) rub them in the juice Euphorbia pilulifera in that of Vaḍavai (adventitious branch of Banyan tree) in that of Sambhālī (Ferula sumbul) in that of Elephantopus scaber (galajbhī) and put the whole thing on fire.²

Medicine for Rheumatism

Put lime (Kalicuco) 3, pure natron 1 sr. and water $\frac{1}{2}$ maund into a big earthen vessel. Keep water 10 srs. Next put sulphur into a fresh cup or bottle and cover it wholly with layer of cloth and clay and give drops (ṭayā) to it. Sulphur melts, oil is produced. Rheumatism goes away.³

Remedy for Tumour

Reduce to paste mercury In jhikā, (not identified) rub it in the juice of green (wet) purging cassia (girimallikā=Kuṭaja). Next rub it in the milk of Thohara (Euphorbia nivulia) for 1 prahara. Close it up in a śāmpuṭa (lid) and give it fire of pasālī 1 (inandful) of goat's dung, again rub it in milk, give it fire of pasālī 2 of goat's dung. Thus increasing pasālī, give goat's dung for 21 days.

Dha(gu ?)lma (tumour) disappears, if this medicine is taken.⁴

1. SRSS., Ch. 10. 1.
2. SRSS., Ch. 10. 1x
3. Ibid., Ch. 9. 70.
4. SRSS., Ch. 10. 13.

Remedy for general diseases

Make the liquid (rasa) of earth (clay) and saok (dip) a piece of cloth into it, wrap a bottle with it, warp thread over it, like that give seven putas to it. Next get it dried up, next close the mouth of the bottle (kūpi) with clay by putting a piece of brick into its mouth. Next dig a pit measuring 1 gaja=3 cubits depth and 2 gajas=6 cubits on all sides. Fill it up with goat's dung put the bottle into it, fill in goat's dung over it, give it fire (i. e. burn it) for 3 days, go on taking out ashes and go on putting goat's dung. On its getting cooled down, take out the medicine from the bottle, again like that rub the medicine in the juice of ocimum sanctum up to 3 days, again put camphor $\frac{1}{2}$ and combine together by grinding, again fill up the bottle (kūpi=casket) as previously done. Pour the thing into the juice of ocimum sanctum 1 sr. and close the mouth of the bottle (kūpi) and put 7 layers of cloth and clay over it. As before instructed, close its mouth and get it dried up. next give it fire of goat's dung up to 108 praharas by lighting fire. Next on its getting cooled down, that essence is produced. Take it out from the Kūpi (casket) put in into a bottle give rice (cokho) 1 bhar or 1 bhar into the leaf, it will destroy all diseases.¹

Get Luffa Echinata into Centipeda orbicularis for 8 praharas, give tūyā to mercury $\frac{1}{2}$, with the juice of parpoṭi (oldenlandia corymbosa)-1 sr. in a iron pot; go on giving the juice $\frac{1}{2}$ over it. In this way give all the juice. Hold on that mercury with an earthen pot or an iron pot into water, it (mercury) becomes like Somala (oxide of arsenic.)

One rati of this medicine taken by patients, cures all diseases.²

Remedies for other diseases.

(Khecari guṇikā prathama)

Rub pure mercury $\frac{1}{2}$ (3 $\frac{1}{4}$ tola) in a mortar in oil-2 $\frac{1}{2}$ palas (=8 tolas), produced from the seed of black datura for seven days till there becomes the best form of mercury like leach.³ First mix it with the powder of phaseolus radiatus, then wrap it up with a strong thread. Dry it up with the survey to make the plaster of it thick like the small finger, dry it up again in the surays. When it gets dried up well, then cook it in mustard

1. SRSS., Ch. 10. 13.

2. SRSS., Ch. 13. 27.

3. SRSS., Ch. 14. 1.

oil, measuring 8 kgs (10 prastha), all oil gets burnt up till guṭikā (pill) is formed, place it max in a cool shade, then slowly take out the accomplished guṭikā.¹

Next put the guṭikā into a strong jar filled with milk, when milk gets dried up, take out the guṭikā, put it into the mouth of a he-goat. As soon as that guṭikā enters into its mouth, it is seen as burning. It really excites sexual desire in the goat, but it does not affect the balance of health of its body, when it enters into its stomach, it gives certainly a sense of love. An intelligent man must test the guṭikā and a healthy man should put it into his mouth to verify the test. A sādḥaka (experimenter or practiser) goes to one hundred yojanas with its power and can enjoy one hundred women. If it is kept into one's mouth, the striking from others on his body is not felt by him. If the guṭikā is kept into the mouth, it kills (cures) many other kinds of diseases without doubt.²

It destroys (i.e. cures) all those diseases which are found in between the tongue and the palate (tālu), such as Kaṇṭha tāluka, etc. etc. (a kind of mouth disease in throat, etc), uvula, long tongue, two tongues etc. which are too serious, seventy six kinds of diseases, heart diseases, nasal diseases. etc.³

The guṭikā named khecara prepared by the process of dhūmāvalokitarasa (mercury pierced by smoka), of jārita (jāraṇa)⁴ and sārīta (Sārāṇa)⁵ in the essence of mica with mercury (vīja), combined with the pyrite and iron falls (becomes effective) just by its throwing into the mouth, one becomes greatly worshipped by the gods, demons, the perfect beings and Indra, etc.⁶

Bhasma (ash of medicine or gold) measuring 1 grain of rice, mixed with butter should be given to a Napuṃśaka (an impotent or a person

1. Ibid., 14. 2-4.

2. SRSS., Ch. 14. 5-10.

3. SRSS., Ch. 14. 11-12.

4. Jāraṇa drut hue svaṇārdi padārka. pāre kesath jo. pāk kiya jāta hai/use jāraṇ kahate hain, Prācin Bhāratmen Rasāyan kā vikāsa, Dr. Satya-prakaśa, p. 442.

Tel Se bhari hut andhamūsāmen pāra dālakarūsamen sonā, cāndī ādi. dhātuon ko dālakar jo vedh kiya jāta hain arthat. viśeṣa guṇon kā udhbhavan kiya jāta hai, use sārāṇa kahate hain. Ibid. p. 444.

5. SRSS., Ch. 14. 13. 14.

of third sex) for three days. The patient should give up acidic stuff, curd, molasses, oil, salt and chilli with care by all means. The man (that person) should drink milk measuring twenty four prasthas and enjoy rice measuring seven seers and again clarified butter measuring five seers is to be drunk by him. The tativavida (one who knows this science) himself enjoys twenty one woman without labour even. When (if) the semen does not fall (get discharged), the sugar measuring three palas is to be taken, consequently hapiness is born or produced.

This medicine is not to be given to him in whose house there is no wife. If it is given to him, blood would come out of his penis. There is no doubt about it. Even an impotent becomes very much sex-excited (passionate) by partaking of this bhasma, just measuring one grain-of rice. I say, it is true.

Medicinal ash is to be used by a patient afflicted with leprosy (Kuşṭha) also by the method as said before. But he should take only roti (Indian bread) made of gram powder.

It is to be used by a patient afflicted with leucoderma also by the same way as explained before, but it is to be known that the diet of boiled water (soup) of phaseolus mungo with clarified butter should be given to him by the process as said before.

Even the disease of jaundice goes away on the use of the medicinal ash for three days and the taking of sāthi rice by the way as said before.

Dropsy also thus goes away, if it is given by the way as explained before; the patient should take godhūmathulika (grains of wheat) cooked with sugar.

Medicinal ash measuring one grains of rice, if taken for four days destroys (cures) quickly the disease called śtāṅgajhola (comatose?). But an intelligent patient should take the diet of phaseolus radiatus and rice (which is) called hotch-potch (Kṣipracāṭikā=kichadī) for the cure of the disease quickly.

That medicinal ash drunk with the combination of the juice of piper belt, as said before, together with the taking of diet—Godhūmalapaṭa, a kind of wheat preparation, destroys (cures) apasmara (epilepsy), a kind of vāyuroga.

That medicinal ash measuring $\frac{1}{4}$ rati, taken for four days with the chief of Indian bread made of gram powder without clarified butter, destroys (cures) the dyspnoea. (The breathing trouble=asthma).

The same medicine used according to the medical science destroys also instantly (immediately) the disease-psoriasis (Kṛtikānagarābhikhyāmapī) of different types.

Here what is the use by saying too much. There is no case without death no doubt. This great nourishing medicine destroys all diseases.

The medicinal recipe given by Jagadambū (The mother of the universe) with her own desire as mercy to those saluting her and revealed by her and known from the tradition of the gurus has become greatly under-saying like the golden man.¹

One makes this uncomparable thing pure and accomplished like a shape of pill (guṭikā) by meditating on Hṛmākāraṁ, etc. and taking pure mercury measuring 1 pala, every day only its one masa by saturating it with the juice of date three and rubbing it with gold-leaf measuring 1 pala in a mortar²

Grind together sky coloured sulphur, somala (saī-ammoniac), then white borax also in equal portion, each measuring two māśas, as very fine (powder) and rubbing them with orpiment in a mortar, take it with the liquid of the juice of Aloe vera which is washing (Changing) the beauty of the body and smear the guṭikā with that which is stiky.³

Place it into a śarāba (earthen lid) and place another śarāb over it, wrap the whole thing (Śarāb) with a piece of cloth smeared with clay. Then cast it into the burning fire of dry wild cowdung cakes, the heat of which becomes bearable to fingers and take it out (the śarāb from the fire) and make it cool, then take the medicine out (of the lid), by removing the cover of clay-cloth wrapped over it.⁴

A wise man makes treatment of it (Saniskṛti) with one hundred two puṭas (roastings) by the aforesaid smearing and again heating it by fire

1. SRSS., Ch. 14. 2. 44.-61

2. Ibid. 14. 2. 62

3. Ibid. 14. 2. 63

4. SRSS., Ch. 14. 2. 64.

like that (method). The medicine becomes worthy by fifty puṣas (roastings) and then it is taken (accepted) within a pala (moment). The smearing of this medicine cures all diseases just as the great strong air (wind) removes a piece of cloud within a pala.¹

The process of making medicinal pill (guṭika bādhavānī vidhi)

Bring the fruits of Neem tree (Liboh) $\frac{1}{2}$ srs and take out its juice. The inner part (inside) of it is green. After that, crush the fresh seed of black Datura and take out its juice. Rub mercury $1\frac{1}{2}$ tolas with that juice for 3 praharas, that is, there becomes the pill and it gets bound. Next put the pill into a Sarāb (earthen lid) and close it with the second Sarāb and put 7 layers of cloth and clay over it. Burn it in the fire of 50 dry wild cowdung cakes. On its getting cooked down, take it. There it becomes dry. Goṭikāvidhi (It is the process of making pill).²

The processing of Calomel perchloride of mercury

Cook mercury 1 sr., green vitriol 1 sr. and Saindhava (Sea Sakt) 1 sr. There becomes Rasa karpūra (Calomel) by this process.³

Make a cup of zinc. Next take milk of *Calotropis gigantea*, put salt into it. it gets burnt. Then put the cup upside down into an earthen vessel. Next make (lit) fire it. then grind it and give it tūyā up to 3 months. Then give it sūryapuṣa (roasting by the sunrays) for a month. That cup becomes powdered if not, give paṭa (roasting) to it again like that as done before. Close pāde (not clear) pour the juice of *Achyranthus (agthāḍa)* tā. 9 into a fresh earthen vessel, put copper 3 tolas into it, put somala (oxide of arsenic) 1 māsa (into it), stir up the whole thing, cover it up, give it gentle fire (mandāgni), take it out on its getting cold. If it is bound by pouring it into a piece of cloth, the pill becomes marvellous.⁴

The juice of Rāvaloliyā (a kind of plant,) is very strong. Take 6 srs. of its juice and stir it up with the branch of *calotropes gigantea*. It is of 2 paṅktis (Pakas=coookings), give it fire of *calotropis gigantea* and stir it up in the juice of *Wedelia calendulaca* (Bhāṅgrā). It gets reduced to ashes.⁵

1. Ibid., Ch. 14. 2. 65

2. SRSS., Ch. 4. 5

3. SRSS., Ch. 9. 43

4. SRSS., Ch. 9. 48

5. SRSS., Ch. 9. 49

Lit fire of dry wild cowdung cakes. Take salammoniac tā. 10, and lime (Kalicund) tā. 50, make lime finely powdered and put half of it under and half of it over in the vessel, put sal-ammoniac in between them. Close it and give it fire of dry wild cowdung cakes of 1 basket. There becomes goṭaka¹ (combination).

Give 21 puṣas to saṁkhiu somala (oxide of arsenic) in the juice of lemon, dry it up in the sun 21 times. Thus give 21 time in the juice of Kaṇṭāthohara (Euphorbia nivulia ?) and 21 ātapas (21 heats) in the sun, 21 puṣas in the milk, of calotropis gigantea, 21 heats in the sun, 21 puṣas in the milk of calotropis gigantea, 21 heats in the sun, 21 puṣas in the milk of Kharasāni ajamo (Hyoscyamus Niger), 21 ātapas (heats) in the sun. Next give it 21 puṣas with the juice of a big lemon, 21 puṣas in Amorphallus companulatus (Sūrana) 21 puṣas in gourd and 21 puṣas in Indian squavill (Kelikand). Smear the joint. Medicine is ready²

Grind these seven articles :-

1. Kātho (time mixed with Khayer) (Kadhir)
2. Lime, 3. Molasses, 4. glass
5. Myrobalans (Terminalis chebula)
- (Harāḍa) 6. Husk of rice and 7. suṁḍaranu (red coating of rice.)

Close them into a vaḍa (a kind of vessel) and put 7 layers of cloth and clay over it. i. e. close it. Shere becomes goṭaka³ (combination)

Dry up water in tin. Next put it into maund of milk If vomits (comes out). Its name is saṁtaguṭika⁴

The process of making medicinal pills.

Put mercury tā. 4 into the mouth of a frog and sew it. Next bring a black snake. But put that frog into an earthen jar and close its mouth. Then pour 15 srs. of oil into it and boil it, put the snake into it. When the boiling oil comes down to the point of 5 srs., take out the snake. See it by cutting it (making) into pieces, goṭaka is accomplished. Take it out. If luck favours, (the work gets done successfully) There becomes goṭika, it is true.⁵

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1. SRSS., Ch. 10. 9
 2. SRSS., Ch. 11. 2. 25
 3. SRSS., Ch. 11. 2. 26
 4. SRSS., Ch. 11. 2. 38
 5. SRSS., Ch. 3. 78

Next keep each piece separately into the fruit of seven-leaved (Satpaḍā) datura, press one leaf of datura every day and put the juice into the fruit. Do it this every day. Keep them by your side by putting them into a bag, while getting juice. (every day), there will be mouth into the pieces (of the body of the snake) after six months. Amongst these guṭikā two kinds of guṭikā are produced. One is the accomplished goṭikā of frog, it is called Buḍanta. Its importance (or power) is now stated.

A river flows, even then one can cross the flood water, water will get divided (separated) to (on) both sides. This is the process of Buḍantagoṭikā.¹

The second guṭikā is produced into the belly of the snake. Its name is called Gaḍanta guṭikā by which magic (or miracle) is shown to the people.

As a Gojin takes a cave, just so one (magician) digst a pit and enter into it by keeping the guṭikā with him and is covered (spread) over with dust, he sits on the brink of the pit by coming out of it. The people do not see him. The people know that he is inside (the pit). The pit is filled up with dust. The people go to the house. The man himself roams about from country to country (or place to place) with pleasure. After some days he sends letter. The people ask where-from he has got out. This is the process of one gaḍanta guṭikā. These are the processes of two goṭikās.²

Now the third is Uḍanta

Goṭikā. Its process of making is written :-

A kite (bird) had made a nest. Take out an egg from it and pierce it with a needle. Put mercury (ā. 1½) into it, then put a cover over it by filling it into the nest, give incense frankincense to the nest for 2 or 3 days. After some days the eggs of the kite become large, then the kinds fly away after hatching. Next take out the egg and keep it in a separate place. Every day give fresh incense to it after taking food. Having given it (incense) put it in its proper place. A period of 6 months and 6 days is passed by doing thus.

Then take out the egg, pierce it and look into it. gotaka is produced. Next if luck favours or Karma gets fulfilled, in case, there becomes mouth into it, there becomes Uḍanta goṭikā. If it is kept on hand, one goes to

1. SRSS., Ch. 79. (1)

2. SRSS., Ch. 3. 79

the place of which he thinks. He will come back by going to a distance of 100 or 1000 gaus¹ (easily). This is the process Uḍamta juṭikā²

Now is the process of making the fourth goṭikā :—

Sow sātpaḍo (seven petalled) datura in an earthen pot. After its growing large, make a hole in between two joints and put mercury (into it) and put wax into the hole. Keep it for 6 months and 6 days in this condition. Next see it by splitting its branch that goṭikā, is lying into its stem and root and into the earth by the side of its root. Take it out by digging earth a spade. Having taken it out from there, keep it with you. The king and the subjects (people) becomes loyal (Obedient or submissive to you by its influence or power. If there becomes mouth into it silver is produced from trapu (a kind of tin) by applying it.³

5. Now is the process of the fifth goṭaka :—

Now the process of gaḍibadha goṭakā is written.

A famous hero dies by fighting in a battle, while confronting his enemy, his face gets cut off and his head falls on the ground. Take it. Having brought it to the house, put mercury into the mouth of the cut off dead soldier on Sunday and hang it up by the side of a stem of a tree. Keep it there for 6 months and 6 days. Next take it out goṭaka (pill) is produced; one can fight 1000 soldiers by keeping it with him. The enemy gets defeated. This is the process making the fifth goṭakā.⁴

Location Hill water is written

- (1) There hill water at Kalyāṇanagara,
- (2) at Girnar, (3) at Tāraṅgā, (4) at Gahuyārt.
- (5) at Vegavala, (6) at Gaura parvata,
- (7) at Tuṃgiyā, (8) at Bhoḥagiri parvata,
- (9) at Ahmadanagar, (10) at Bhaṭanara,
- (11) at Paranera, (12) at Ārimāra
- (13) at Buṃdimnāgramā, (14) at Bagalāṇā,
- (15) at Kaṇyārī, (16) at Dharānagara,
- (17) at Śūlapāna, (18) at Ratnamālā,
- (18) at Āvu, respectively.

There are many others where hill water is located.⁵

1. (a) Kind of Indian measurement of length of distance.
2. SRSS, 3. 80
3. Ibid., 3. 80
4. Ibid, 3. 80
5. SRSS, 9. 8

Second Section

Occultism

Take Kalaphu (Saṁkhāvali=Evolvulus asinoides) and Mehadi (Henna =Lawsonia alb)— $\frac{1}{4}$ sr. and sāthi rice $\frac{1}{2}$ sr. and cook (prepare) kṣīra with them in the milk of ewe (she-sheep) and take it. Hidden treasure is seen, take it out. After that it is not seen.¹

Make collyrium with the root of white calotropis gigantea-1 and camphor-1. This is the process of becoming invisible.²

Take white Alangium lamarkii-1, camphor-1 and Pāṭalamadh (a kind of honey?), tie (bind) 7 leaves of piper longum (Ficus Tsiela); tie 7 layers of cloth over the eyes. It is dravyāñjana.³

Take these four things—Khākasi (pistacia integerrima? or sisymbrium irio) 1, Sahadevi (Sonchus oruenois), saṁkhāhulī (Convolvulus inicrophyllus) and Uttaravārūṇī (Citrullus colocynthis), take their roots by reciting incantation on Sunday. Take them during the time of Dhanīṣṭā Nakṣatra. Put them in the wick of Hiravanti (Nāgakesara=Mesua ferrea), make light with clarified butter made milk of a one-coloured cold. One sees wealth by making seated a woman having Devagaṇa. Extend invitation to Trinthema cystallina (Sāṅhoḍī) on the 14th of Divālī and take it out on the day of Divālī and worship it. Next rub it with cow's urine and black pepper. Śākinī says all names.⁴

Rub black sulphurate of antimony (Saramo kālo) 1, pork 1, placenta of a she-elephant 1 and placenta of a black shecat. 1 and wrap them up with eight kinds of metals, put them into a Mādaliya (Kavaca) of eight metals. Names of eight metals are (1) iron (2), lead (3) tin. (4) Copper (5) bell-metal (6) brass, (7) Silver and (8) gold.

One becomes invisible by putting it (madulī) on There is no doubt here.⁵

1. SRSS., Ch. 6. 11.

2. Ibid.,

3. SRSS., Ch. 6. 11.

4. SRSS., Ch. 6. 12.

5. SRSS., Ch. 6.13.

Make collyrium by rubbing the root of Istar, the root of *Hepestes monniera* (Brahmī) and the root of *Corallocarpus epigaeus* (Nāṇi) upto $3\frac{1}{2}$ gaḍhīs ($3\frac{1}{2} \times 24$ minutes=84 minutes.)

There is the process of making invisible,¹ if it is applied.

Rub mercury and sulphur 5 in the juice of Bhola (a kind of *vanaspati*), put it into a bottle and seal it up; place that bottle into a *jalabhājana* (water pot), give it fire of 8 days, in a *Dolikā Yantra*. Take *paTālamadhū* (a kind of honey or plant?) before the sunset and *sātpuḍā Kaṇavīra* (Seven-leaved sweet scented oleander) at the root, which has been taken at night, rub these two things and make *netrāṇjana* (collyrium for eye). Tie 7 leaves of *pipala* (*piper longum*) over the eyes of a boy born in *pādajāt* or of *Mulanakṣatra*. If seen into the mouth of *Veḍakā* (jrog) he sees wealth.²

A Tantric incantation (Mantra) :

Auṁ Hṛīm Śrīm Klim Aiṁ tvaṁ Cakreśvanrī saṁkhaçakragadāprahāriṇī
mama darśanaṁ kuru kuru svāhā 1”

This mantra is to be recited 108 times in the evening. She will tell of auspicious or inauspicious things.³

“Om salutation to Bhagavati; make and heavy rain in such a village. Attract and attract 12 pieces of cloud, svāhā.”⁴

The process of worship and Causing rain through it.

Make 3000 recitations of this mantra (incantation), make worship of the goddess with fragrant flowers, make sacrifice with *gujala* (Balsam-odenron, mukul), *Kaṇavīra* (Sweet scented oleander?), clarified butter, milk and sugar for three days, Cloud Showers rain. There is no doubt here.⁵

Make a hole into a *kṣirakanda*=*Bhūmi Kusmāṇḍa* (*pueraria tuberosa*) and put mercury 8 into it. Close the hole, keep it in cold water into

1. SRSS., Ch. 12. 32.
2. SRSS., 6. 15.
3. SRSS., Ch. 7. 4.
4. SRSS., Ch. 7. 6.
5. Ibid.

cold water for 21 days. Bytaking it out, make worship. Keep that guṭika in the mouth. If your think of the desire born in your mind to go to some place, you will go there.¹

Take the **seeds of these three**—kālāphula melhina (seed of Fenugreek (Methi, having black flower) or Evolvulus alsinoides), 1 or Sāmo (Panicum colonum ?) and seed of Kanagharī (Digera arvensis).

Take kṣīra (milk) of these three by cooking them in the milk of evel (she-sheep). One sees hidden (under ground) treasure. If he vomits, he does not see it.²

Rub the root of Pātāla Tumbarī (Ceropegia Scuminata) 1, the root of white sātoḍī (Horse purslane), pātālamadhū (a kind of plant ? or white kaṣera (sweet scented oleander) and make collyrium. Bind 49 leaves of pipāla (Ficus Religiosa) on the eyes. one sees (under ground) wealth. If he is born in Mūlanakṣatra, he sees it or one who has drunk sees it.³

Bind pāṭa (bandage) over the eyes by putting 7 paṭas (pieces) of Mahivastra. Take 14 roots of white Butea frondosa of the northern direction. Apply the collyrium over the eyes of some one; he sees underground (hidden) treasure.⁴

Fill up powder of copper and grain of sulphur into a doll and sprinkle water over it, it becomes hot. put the hand of a patient over it, say "your disease is gone," for it has come here. This is miracle. Take a deadleech on Sunday, give dhupa (fragrance) to it for 8 days from Sunday to Sunday. Next on the second Sunday turn the leech and burn it with fire of pieces of sticks for cleaning teeth. Next take ashes of the leech. Mix it with sweet on the festival day. Apply just a little quantity of it, measuring a sesamum, on some body. The effect is enchantment (vaśi) Dudadattamṇayah.⁵

Bismar Jālāphul (a kind of flower) with clarified butter and make with its wick, on the 14th Divālī at midnight. Make carbon (masī) with it. Stick it to the cloth of one woman at quiet time at midnight; she will be enchanted (Vaśi) and will not leave your waist.⁶

1. SRSS., Ch. 11. 2. 33,
2. SRSS., Ch. 12. 14,
3. SRSS., Ch. 12. 15.,
4. Ibid., Ch. 12. 16.
5. SRSS., Ch. 6. 42
6. SRSS., Ch. 8. 10.

Make a ball of these five the stool of Makarī (she crocodile) part, gorocana 1 (part), excreta (stool) of a bat (vaigoli), śivanir mālya (secret leaves and flowers used in the worship of the god Śiva), śilārāsa (liquid storax : Altingia excelsa) 1 parti and ash of **Terminalia bellerica** Roxb. smear it into the vagina of a woman. The man (male) will be enchanted. He will not desire (like) another woman.¹

Combine together cat's vasana fātor ctestes ?) vāla rat's hair (Vā) 1 feather of Ulluka (akind of bird ?) and feather of a crow (Vā), put them into wax and smear (touch) the head of a man (Siyyāi śarāṇe) by taking (remembering or reciting) his name. Both the female (woman) and the male (man) fight as a consequenc. Love is lost (between them).²

Take jasmine's root in the solar eclipse of eastern side, being naked, while the eclipse is taking place, rub sāṭhī rice with water, and sprinkle it on an woman she becomes vaśī (enchanted). Take the root of jasmine at the time of the end of the eclipse. She is released (by the power of) that root.

Such is the rule of vaḍavāi.³

Having written thus Vaśī 7/7/47//2//74// 62I//908//, keep it with you. The one (she) who does not come (Like to come), she also will come.⁴

Aum saturation to khākarsī Vetāla. He whose name I give is affected by this incantation. If it dies not affect (him), it is the order of Brahma-jāla (god). If anyone who fears by seeing me dies. Oh khākariya Vetāla, our strength manifeots. my will (desire) gets fulfilled. "Aum phuṭa svāha." Feed one 5 caryophyllus aromaticus by reciting this incantation, he or she will be overpowered or enchanted.⁵

Conclusion :

The universe is composed of material substances and rediant energy. Jaina alchemy as considered in the light of the definition of chemistry

1. SRSS., Ch. 11. 2.
2. SRSS., Ch. 11. 3,
3. SRSS., Ch. 11. 4.,
4. Ibid., Ch. 11. 5.
5. SRSS., Ch. 13. 1. 1.

includes biology which deals with the substances that are present in living organisms and geology which deals with substances called minerals that make up the earth.

There is an evidence of the earth-science in the Jaina Āgamas. It is stated in the Jaina Āgamas¹ that the earth-lives are of two kinds : Subtile and gross, both of them are either fully developed or undeveloped (71). The gross and fully developed are of two kinds : viz. smooth and rough. The smooth ones are of seven kinds (72)—black, blue, red, yellow, white, pale dust and clay, The rough ones are of thirty six kind (73), viz. earth, gravel, sand, rocks, rock-salt², iron, copper, tin, lead, silver, gold and diamond (74), orpiment, vermillion, realgar, sasaka³, antimony, coral, a bhrapaṭala (mica layer), abhravāluka (mica dust). These are varieties of gross (earth) bodies and kinds of precious stones (75). Next there come the followings, hyacinth, natron, aṅka, crystal, lohitaṅka, emerald, māṣara-galla, bhujamokaka and sapphire, Candana, red chalk, haṁsagarbha, pulāka⁴ and sulphur, cendraprabha, lapis, lazuli; jalakānta and sūryakānta⁵ (77).

These thirty six kinds of rough earth have been enumerated. The subtile earth is but of one kind, as there is no variety (78). The subtile species is distributed all over the world, but the gross one is found in a part of the world only.⁶

It appears from a study of the Jaina, Hind and Bauddha works on Rasayanāsasṭra that their authors have classified earth-lives, or substances into maharasas (Superior minerals), Uparasas (inferior minerals), sadharanāsasas (common minerals), ratnas (gems) and lohas (metals) in their respective works later on with the development of Indian alchemy chemistry and metallurgy and medical science for their utilization in the service of men and the society to remove their all miseries-poverty, disease and old age with the aid of philosophy of mercury, etc.

1. Uttarādhyayana Sūtra XXXVI, VV. 71-8, Sūtrakṛtāṅga II. 3, SBE, Vol. XLV, pp. 213-14.
2. Lavaṇas.
3. The commentators only say that it is a kind of mineral-dhātuviśeṣa.
4. A medicinal earth, commonly called kaṁkuṣṭha.
5. The enumeration contains thirty-nine, instead of thirty-six items as stated in the verse 73 and 76 of the Uttarādhyayana Sūtra.
6. Uttarādhyayana Sūtras, XXXVI; SBE, Vol. XLV., pp. 213-15, Jacobi, Sūtrakṛtāṅga II. 3.

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 Piṇḍa Nijjutti
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 Rasaprakāśa, Sudhākara
 Yośodhara
 Rasanakṣatramallikā
 Mathana Simha
 Rasasāra, Govindācārya

Rasārṇava
 Rasendrasaṣaṁgraha, Gopālakṛṣṇa
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