Vishveshvaranand Indological Series—9
Studies in Indian Cultural History

VOLUME I

BY

P. K. GODE,
M.A., D.Litt. (h.c., Paris).

HOSHIARPUR
विश्वेश्वरानन्द-वैदिक-शोध-संस्थान
Vishveshvaranand Vedic Research Institute
Dr.
Parashuram Krishna
Gode

Born: 11 July, 1891
Died: 28 May, 1961

A most pathetic interest attaches to the publication of this volume in that its learned author passed away within twentyfour hours of his having addressed his last letter in connection with it to the present writer. The letter which had been signed at and posted from Poona on 27 May, 1961, was received at Hoshiarpur on 29 May, 1961. And, in between, what an irony of this mysterious phenomenon known as 'life', our dearest Dr. Gode was declared 'no more' on 28 May, 1961 at 11.20 A. M. by the doctors attending on him in a hospital at Poona!

He had been apparently all right till the previous midnight when his heart first started giving a warning of the coming catastrophe. However, he remained quite conscious till he breathed his last, may be, without even feeling that he would not breathe any more. So, there could be no question of any thought crossing his mind at that moment except, possibly, his keen desire to hasten back to his duty by his desk. For, during the past full forty years and more, he had most implicitly been following the Vedic precept of constant activity (Kurvānevāha kārmānti jītvācchhatam sāmāḥ—White Yajurveda 40, 2). Yet, to paraphrase another Vedic utterance (madhyā kārtor vitataṃ sām jabhūra
Rgveda 1, 115, 4), the glory that was Godeji was withdrawn while the switch of Action was still on. Would that he could live longer in our midst! But, alas, that was not to be! The very last point to which his frame which had remained predisposed to asthma throughout could be dragged by his iron will had now been reached, irrevocably. Therefore, as the similarly grief-stricken Vedic poet, Kavasa had burst out (Nā devānām āti vratām, satātmā ca nā jīvāti; Tāthā yujā vi-vāvṛte—Rgveda 10, 33, 9), we must resign ourselves to this sad bereavement which has befallen us under the inscrutable working of the Law Universal that brooks no break, not even a brake. Still how sad that this humble person to whom he was pleased only the other day to dedicate, so lovingly, this very volume, should have to prefix itself with this obituary note about him!

Collected Works of Dr. P. K. Gode

Possibly, the decision taken a decade back by his friends and admirers to present him with a Commemoration Volume on his 60th birthday had reacted on his subconscious mind in a way which led him to start collecting and editing his five hundred odd research papers towards their publication in several volumes, that is to say, to packing up and getting ready for the zero hour. However, even though he did succeed in getting the great satisfaction of seeing this huge task quite forging ahead towards its well secured consummation, he could witness only four of the volumes coming out before his eyes, the three more as in the schedule being still in the press when he closed his eyes for good.

The said seven volumes have been grouped together under two separate titles as follows: (1) Studies in Indian Literary History, Vols. I-III and (2) Studies in Indian Cultural History, Vols. I-IV. Bharatiya Vidya Bhawan has published Vols. I and II and Prof. Gode Works Publication Committee Vol. III of the former work. The V. V. R. Institute has just published Vol. I of the latter work of which the said Prof. Gode W. P. Committee has already published Vol. II and is going to publish in due course Vols. III and IV.

At present, 5-volume sets, priced at Rs. 115/- each, can be had of Vishveshvaranand Book Agency, P. O. Sadhu Ashram, Hoshiarpur (Pb. India).

V. V. R. INSTITUTE,
HOSHIARPUR,
15-6-1961.

VISHVA BANDHU
FOREWORD

I am a great admirer of Dr. Parashuram K. Gode, the learned writer of the 50 papers included in the present volume which is Volume One of his papers, grouped together for purposes of publication in a book-form under the title "Studies in Indian Cultural History" and Volume Four of his "Collected Works" now under progressive publication. During the past over four decades that he has been occupying with great distinction the Curatorial chair at the Bhandarkar Oriental Research Institute, Poona, he has set an example of ideal devotion to Sarasvati (Goddess of Learning) dedicating to her exclusive service, literally, more than one-half of every twenty-four hours that he has had at his disposal. And, all this he has done most patiently, unassumingly and silently. It is a matter of great rejoicing that the mid-night oil that he has burnt, so profusely, paying its price in maximum self-surrender, has produced an exceptionally bright light which bids fair to grow and glow for ever, bringing ever fresh glory to his name. He is at once the envy of and the beacon for the hundreds upon hundreds of the very inquisitive fellow-workers in his varied field who would fain follow in his footsteps but wonder, at every turn, how this hero of their hopes had managed to mould his pen to turn out the five centuries of his extremely learned papers.

Whenever there comes my way an occasion to go to Poona, I always feel duty-bound to make a call on this great scholar to pay my respects to him. It was in the course of one of these calls, made in 1954, that I made an offer, to which he was pleased to agree, that our Institute might publish one volume of his papers, dealing with the cultural history of our country. I am happy with the appearance of the present volume which marks the successful consummation of the necessary efforts that our Institute has since been able to make in this direction. This volume is being issued as Number Fourteen in the
Vishveshvaranand Indological Series which, besides the two other research series, namely, the Shantakuti Vedic Series and the Woolner Indological Series, is being run by the Institute.

I am very thankful to Shri Godeji for having been pleased to give this most welcome opportunity to our Institute to show to him by including this volume in our publication programme our greatest respect and regard for the yeoman’s service he has so sincerely rendered to the cause of Indological study and research. I would also record here my greatest personal appreciation of the valuable co-operation extended by my colleagues in the Printing and the Publication Departments of our Institute towards production of this volume in proper form and according to schedule.

SADHU ASHRAM,
HOSHIARPUR,
March 5, 1961.

VISHVA BANDHU,
General Editor & Director,
V. V. R. Institute.
PREFACE

I have great pleasure in presenting to the world of scholars this fourth volume in the series of my Collected Works. It is Volume I of my *Studies in Indian Cultural History*. The first three, being Volumes I—III of *My Studies in Indian Literary History*, were published between 1954 and 1956.

In November 1954, my esteemed friend, Prof. Vishva Bandhujii, Honorary Director of Vishveshvaranand Vedic Research Institute, Hoshiarpur (Panjab) was in Poona, when he met me and inquired about the progress of the Volumes I and II of my Studies, which had been undertaken for publication in the *Singhi Jain Series* by my affectionate friend, Muni Shri Jinavijayaji, Honorary Director of Bharatiya Vidya Bhavan, Bombay. I showed him both these volumes in a completed form to his great joy and satisfaction. During our talk, he was good enough to offer to publish in the well-known *Vishveshvaranand Indological Research Series* of his Institute a volume of my studies containing the articles on the cultural history of India. I thanked him for this friendly gesture and promised to prepare the press-copy of the desired volume as soon as I was free from the work of editing Volume III of my Collected Works for which funds had been collected by my loving friends, Dr. A. D. Pusalker and Prof. N. A. Gore. This volume was subsequently published in 1956. The press-copy of the present volume was sent to Prof. Vishva Bandhuji on the 16th January, 1956. Its printing has since been steadily and satisfactorily carried out by the Printing Department of the V. V. R. Institute. My best thanks are due not only to Prof. Vishva Bandhuji but also to the workers of his Printing Department for the neat and careful printing of this volume.

The present volume contains three groups of my articles bearing on Indian cultural history, *viz.* (1) Studies in the History of Indian *Gandha-śāstra* (science of cosmetics and perfumery),
(2) Studies in the History of Tambula and (3) Studies in the History of Indian Plants. Subjects like the history of Indian cosmetics and perfumery and the history of Indian plants pertain, properly, to the history of Indian technical sciences, which requires for its reconstruction close co-operation of Indologists and scientists. I owe my interest in these subjects, entirely, to my contact with two eminent scientists in India, viz. Dr. Sadgopal (now Deputy Director [Chemicals] of the Indian Standards Institution, New Delhi) and that renowned botanist, the late Dr. Birbal Sahni of the University of Lucknow. It was a fortunate moment when Dr. Sahni read my paper on the History of the Fig published in the New Indian Antiquary and wrote to me that I would be doing a great service to Indian botany if I published similar papers on other plants of medical and nutritive value. Subsequently, he met me at the time of the Science Conference in Poona and discussed with me the details of his suggested plan. I published several papers on the history of Indian plants and sent him their copies up to the moment of his sad demise some years ago. It is unfortunate that he should not be with us to see all my plant studies in the present book form. However, I record here my grateful homage to Dr. Sahni, whose contact first inspired me to carry on these studies.

In my Preface to the recently published Volume V of my Collected Works, I have given a table showing the progress of the publication of these volumes. With the publication of the present volume, five out of the six volumes mentioned in that table are now in the hands of the readers.

The sixth one is also now in the press and is expected to be out in another year through the benefaction of my esteemed friend, Prof. K.K. Handiqui (ex-Vice-Chancellor of the Gauhati University, Assam), who has further expressed his desire to help me towards the publication of one more volume. I cannot adequately thank Prof. Handiqui for this voluntary help.

I owe my academic existence entirely to the good will and active co-operation of my learned friends, who have helped me
in diverse ways in the progress of my research work and its publication during the last forty five years of my life. The volumes of my studies which have been published so far might serve as a good index to all this good will and co-operation, so lovingly extended to me. Among these scholar-friends, Prof. Vishva Bandhuji stands in the front rank by virtue of his scholarship and capacity to organise scholarship and direct it in productive channels as vouched by his unremitting toil in the cause of his Institute during the last four decades. His name "Vishva Bandhu" is very significant as he has proved to be a benefactor or Kalyānamitra of many of his scholar-friends like myself in the field of Oriental learning. Ever since my contact with him forty years ago, my esteem for his good work and high regard for the work done by his brother-workers under his inspiration has been increasing more and more. I have therefore taken the liberty of dedicating the present volume to him as a permanent token of our friendship. I know that if I had asked his permission for it, he would have hesitated and not approved of this idea owing to his being the General Editor of the V.I.R. Series in which this volume is being published.

Historical studies without necessary indices cannot be easily used by research scholars. It was, therefore, my good fortune when Dr. A. D. Pusalker (now Director of the Post-Graduate and Research Department of the B. O. R. Institute) and Prof. N. A. Gore (now Librarian of the Marathwada University, Aurangabad) volunteered about eight years ago to prepare elaborate indices for all the volumes. The General Index prepared by Dr. Pusalker to each of the four volumes, previously published, and to the present volume has been a very painstaking work. The Subject Index to all these volumes prepared by Prof. Gore has been equally so. I cannot adequately thank both these learned friends for this labour of love, which has enhanced the reference value of my volumes, and also for having helped me in the correction of the proofs of the present volume. Similarly, Shri S. N. Savadi of the B. O. R. Institute deserves my most grateful thanks for his voluntary collaboration in the correction
of the proofs of the present volume as also those of the previous four volumes.

In conclusion, I have to thank most cordially the authorities of the V. V. R. Institute for having accepted this volume for publication in their V. I. R. Series. Words fail to express my gratitude to my affectionate friend, Vishva Bandhuji for the help he has given me in all my academic work during the last forty years including the publication of the present volume.

B.O.R. Institute, P. K. GODE
POONA. 4.
# CONTENTS

<table>
<thead>
<tr>
<th>Article</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreword by Prof. Vishva Bandhu</td>
<td>i—ii</td>
</tr>
<tr>
<td>Preface</td>
<td>iii—vi</td>
</tr>
<tr>
<td>Articles</td>
<td>1—459</td>
</tr>
<tr>
<td>Indices</td>
<td>461</td>
</tr>
<tr>
<td>1. Indian Science of Cosmetics and Perfumery.</td>
<td>3</td>
</tr>
<tr>
<td>2. History of Ambergris in India (Between about A.D. 700 and 1900).</td>
<td>9</td>
</tr>
<tr>
<td>4. Buchanan’s Account of the Manufacture of Rose-water and other Perfumes at Patna in A.D. 1811 and its bearing on the History of Indian Perfumery Industry.</td>
<td>36</td>
</tr>
<tr>
<td>5. Studies in the History of Indian Cosmetics and Perfumery—A Critical Analysis of a Rare Manuscript of Gandhavāda and its Marathi Commentary (Between c.A.D. 1350 and 1550).</td>
<td>43</td>
</tr>
<tr>
<td>6. Perfumes and Cosmetics in the Royal Bath (c. A.D. 1130).</td>
<td>53</td>
</tr>
<tr>
<td>7. Studies in the History of Indian Cosmetics and Perfumery—The Campaka oil and its Manufacture (Between A.D. 500 and 1850).</td>
<td>57</td>
</tr>
<tr>
<td>8. Verses pertaining to Gandhayukti in the Agnipurāṇa (9th Century A.D.) and their relation to the topics dealt with in Gaṅgādhara’s Gandhasāra (Between A.D. 1300 and 1600).</td>
<td>68</td>
</tr>
<tr>
<td>9. The Gandhayukti Section of the Viṣṇudharmottara and its Relation to other Texts on the Gandhasāstra.</td>
<td>74</td>
</tr>
<tr>
<td>11. Some Sanskrit Verses regarding the Manufacture of Rose-water Found in a Manuscript of the Bhojanakuttihala, Dated Śaka 1773 = (A.D. 1851)</td>
<td>94</td>
</tr>
<tr>
<td>12. Recipes for Hair-dyes in the Nāvanitaka (c. 2nd Century A.D.) and their close Affinity with the Recipes for Ink-manufacture (after A.D. 1000).</td>
<td>101</td>
</tr>
</tbody>
</table>
13. References to Tāmbūla in Indian Inscriptions (Between A.D. 473 and 1800). ... 113
14. Studies in the History of Tāmbūla—Use of Tāmbūla outside India (Between A.D. 650 and 1900). ... 121
15. The Attitude of Hindu Dharmaśāstra towards Tāmbūla-Bhoga (Enjoyment of Betel). ... 131
16. Studies in the History of Tāmbūla: Some Beliefs about the Number of Ingredients in a Tāmbūla. ... 139
17. Studies in the History of Tāmbūla—History of the Verse about the Thirteen qualities of Tāmbūla (Between A.D. 1200 and 1900). ... 145
18. Studies in the History of Tāmbūla—The Amatory Perspective of the Matrimonial Custom of cutting the Betel-leaf Roll (Viḍī). ... 149
19. Studies in the History of Tāmbūla—Use of Lime (Cūrṇa) and Catechu (Khadira) in Tāmbūla and its Antiquity (c. A.D. 100—1900). ... 155
20. The Tāmbūla Kalpasaṃgraha of Nṛśimhabhāttā and its date (Later than c. A.D. 1350). ... 168
21. Indian Nut-Cracker (A.D. 1300-1800). ... 171
22. Some words for the Nut-Cracker. ... 177
23. History of the Spittoon in India. ... 181
24. Studies in the History of Indian Plants—Some Notes on the History of Caṇāka (Cicer Arietinum, Between 500 B.C. and A.D. 1820). ... 193
25. Studies in the History of Indian Plants—History of Caṇāka (Gram) as Food for Horses (Between c. A.D. 800 and 1870) together with some notes on the Import of Foreign Horses into India in Ancient and Mediaeval Times. ... 218
26. Use of Caṇāka at an Aśvamedha in the Rāmāyana, of Caṇakāmla in Rasavidya (c. A.D. 1000 onwards) and Trade in Caṇāka (about A.D. 1300). ... 233
27. Studies in the History of Indian Plants. The use of Caṇāka (Gram) as Horse-Food vouched by Five Sanskrit Treatises on the Aśvaśāstra. ... 240
28. Studies in the History of Indian Plants. The Role of Yava and Caṇāka (Gram) in Regimen of Indian Horses as disclosed in the Aśvāyurveda of Vāgbhaṭa Son of Vikrama. ... 245
29. Some Cultural Gleanings from the Jñānakāṇḍa of the Kāśyapasamhitā of the Vaikhānasas. ... 252
<table>
<thead>
<tr>
<th>No.</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>30.</td>
<td>Studies in the History of Indian Plants. The Mahāśāli Variety of Rice in Magadha (Between A. D. 600 and 1100).</td>
<td>257</td>
</tr>
<tr>
<td>31.</td>
<td>Studies in the History of Indian Plants. Antiquity of Jawār or Jondhā (Holcus Sorghum—From B. C. 2200 to A. D. 1850).</td>
<td>266</td>
</tr>
<tr>
<td>32.</td>
<td>The History of Maize (Makā) in India (Between A, D, 1500 and 1900).</td>
<td>283</td>
</tr>
<tr>
<td>33.</td>
<td>Some Notes on the History of Fig (Ficus Carica) from Foreign and Indian Sources.</td>
<td>295</td>
</tr>
<tr>
<td>34.</td>
<td>Some Notes on the History of the Fig—Does the Word “Phalgu” used by Caraka and Suśruta mean “Añjīra”?</td>
<td>307</td>
</tr>
<tr>
<td>35.</td>
<td>Early Indian Interest in Syrian Figs in the 3rd Century B. C. Contrasted with their Late Cultivation in the Deccan in the 17th Century A. D.</td>
<td>311</td>
</tr>
<tr>
<td>36.</td>
<td>Some Notes on the History of Candana (Sandal) in general and of Śveta—Candana (White sandal) in particular (Between 500 and 900 A. D.).</td>
<td>314</td>
</tr>
<tr>
<td>37.</td>
<td>History of Mendi or Hennā (Between B. C. 2000 and A. D. 1850).</td>
<td>347</td>
</tr>
<tr>
<td>38.</td>
<td>Some Notes on the History of the Almond (Badām) in India (Between c. A. D. 100 and 1900).</td>
<td>357</td>
</tr>
<tr>
<td>39.</td>
<td>The use of the White Mustard in Ancient and Mediaeval India.</td>
<td>365</td>
</tr>
<tr>
<td>40.</td>
<td>Some Notes on the History of Tea.</td>
<td>370</td>
</tr>
<tr>
<td>41.</td>
<td>The History of the Aksāyavaṭa (Undecaying Banyan Tree) at Prayāga and Gayā as revealed by some Sanskrit Texts (Between the First Century A. D. and 1900).</td>
<td>374</td>
</tr>
<tr>
<td>42.</td>
<td>Studies in the History of Indian Plants—History of Fenugreek and alfalfa (Lucerne) in India and other countries (Between c. B. C. 700 and A. D. 1800).</td>
<td>384</td>
</tr>
<tr>
<td>43.</td>
<td>Studies in the History of Indian Plants—Aśvabalā or Hisphittha explained by Dallaṇa as a variety of Methikā (in the 12th Century A. D.).</td>
<td>393</td>
</tr>
<tr>
<td>44.</td>
<td>Studies in the History of Indian Plants—Some References to Aśvabalā in the Caraka-Saṁhitā and the Suśruta Saṁhitā.</td>
<td>406</td>
</tr>
<tr>
<td>45.</td>
<td>References to Tobacco in some Sanskrit Works (Between A. D. 1600 and 1900).</td>
<td>410</td>
</tr>
<tr>
<td>46.</td>
<td>References to Tobacco in Marathi Literature and Records (Between A. D. 1600 and 1900).</td>
<td>418</td>
</tr>
</tbody>
</table>
47. A Reference to Tobacco in the Poems of Senā Nhāvi and its Bearing on his Date (Later than c. A. D. 1550). ... 427
48. The History of Tobacco in India and Europe (Between A. D. 1500 and 1900). ... 429
49. History of the Art of Grafting Plants (Between c. 500 B. C. and A. D. 1800). ... 439
50. References to Grafted Mangoes in India (Between A. D. 1550 and 1800). ... 452
51. The Plant Lore of Ancient India. ... 455
TO
MY ESTEEMED FRIEND
VISHVA BANDHU
STUDIES IN THE
HISTORY OF INDIAN GANDHA-SAstra
(SCIENCE OF COSMETICS AND PERFUMERY)
1. Indian Science

OF

Cosmetics and Perfumery *

Sanskrit literature is full of references to cosmetics and perfumes that were used by ancient Indians especially during the last three thousand years for which literary sources are available for study and research. The history of the technical sciences of ancient Indians is being gradually reconstructed. The work of such reconstruction becomes easy when any regular treatises on different technical sciences written by ancient or mediaeval authors become available to research scholars for analysis and evaluation in the light of modern scientific research. The late Sir P. C. Ray, the renowned scientist of India, wrote his History of Hindu Chemistry in two volumes on the strength of many treatises on Indian alchemy (rasa-vidyā). Similarly, some books have been written on Indian architecture, mathematics, painting, etc. by competent scholars. For all these books regular textual evidence about these sciences and arts was available either in the form of complete systematic treatises or in the form of summaries of their contents incorporated in Sanskrit works of the encyclopaedic type like the Brhat samhita of Varāhamihira (A. D. 500), the Manasollasa of King Someśvara (A. D. 1130), the Agnipurāṇa and others. So far as I know no special treatises on Indian Science of Cosmetics and Perfumery were known to Indologists till my discovery in 1944 of two such treatises devoted to this subject.

Gandhaśāstra means the “science of cosmetics and perfumery” and Gandhayuktī means the “art of preparing different cosmetics and perfumery.” The two treatises discovered by me are (1) the Gandhasāra of Gaṅgadhara and (2) Gandhavāda (anonymous) with a commentary in Marathi, the vernacular of the Deccan to-day. I have published special articles on these treatises, which deal both with the science and art of cosmetics and perfumery. According to my evidence these treatises were composed some time between A. D. 1200 and 1600 on the basis of earlier texts, some of which are partly extant, and were composed between A.D. 500 and 1000. Subsequent to my discovery of these two treatises several Indian scholars have taken from me copies of these Sanskrit treatises with a view to editing them.

Gaṅgadhara, the author of the treatise Gandhasāra referred to

above, defines in a beautiful stanza the scope and purpose of the Indian science and art of cosmetics and perfumery as follows:

"This science of cosmetics and perfumery is helpful in the worship of gods, which requires the use of auspicious perfumes and incense; it contributes to the pleasures of men; it leads to the attainment of three ends of human life (viz., religious merit, worldly prosperity and sensual enjoyments); it removes one's own poverty; it contributes to the pleasures of kings and it gives the highest delight to the minds of accomplished ladies."

We have to understand the Indian science of cosmetics and perfumery in the light of the above remarks. I leave it to the readers of this journal to judge if they are applicable to the history of cosmetics and perfumery in Europe. At any rate they are true in respect of the use of cosmetics and perfumery in India to-day.

The manufacture and trade in cosmetics and perfumes was in a flourishing condition in ancient and mediaeval India. The celebrated collection of moral tales called the Pañcatantra in Sanskrit, which is about fifteen hundred years old, contains a stanza which vouches for the prosperity attained by the dealers in Cosmetics and Perfumes. I give below an English rendering of this stanza:

"Of all trades the trade of the perfumer is the best; other trades like those of dealers in gold etc. are of no avail. In the case of the trade in cosmetics and perfumery what one purchases for one (rupee) can be sold for hundred (rupees)."

I can vouch the correctness of these remarks from my own experience of some of the sellers of scented oils and attars in my school days. These sellers used to go from village to village with boxes of bottles containing scented oils and attars and small empty spare bottles which were used for selling these oils and attars to customers in villages. Pure sesame oil was poured into these small bottles. Wooden needles with cotton swabs at their ends were dipped into the different bottles of scented oils and then dipped into the bottles full of sesame oil. In this way the trader can prepare hundred bottles of scented oils for his customers, consisting generally of ladies and children. The head of the family had to pay down though reluctantly, the heavy prices of the different scents purchased in this way, not so much to please himself as to create an agreeable atmosphere in the house especially during the Daśahara and Diwāli festivals, when these sellers of scents moved about with a view to finding a sure sale for their scented goods. The scent disappeared from the purchased bottles in a few days and pure sesame oil was left behind much to the chagrin of
the head of the family who had paid cash for it rather disproportionately, if not extravagantly, from his poor purse.

The history of Indian Cosmetics and Perfumery cannot be accurately reconstructed without understanding the history of all aromatic ingredients which were used in the manufacture of cosmetics and perfumery. As many of these ingredients have medical properties they are mentioned in oldest Indian medical treatises like those of Caraka and Suśruta with their therapeutic values. The Indian Gandhaśastra or the science of odour (cosmetics and perfumery) is thus a part of the Indian Medical Science or Ayurveda (Science of life). Consequently the history of every aromatic ingredient (gandha-dravya) is a part of the history of Indian Materia Medica which has not been reconstructed scientifically in respect of each item of this Materia Medica. I have been studying this history of the several items of this Materia Medica, which comprises the history of Indian plants of medical and nutritive value, minerals and organic substances like musk, ambergris etc. The study of the history of Indian Materia Medica being closely connected with the history of Indian Pharmacology, is a subject of profound interest to the students of Indian Botany and Medicine alike, not to say its value for the reconstruction of the history of Indian Culture in general. In fact my studies in this direction have put me in touch with many eminent medical men, botanists, and historians of culture in India and outside. The study of the Indian Gandhaśastra is only one line on the spectrum of Indian Civilization, so rich with variegated streaks of culture of the different periods of Indian history from the Vedic times to the advent of the Indian Independence.

To understand the full significance of the Indian Gandhaśastra it is necessary for us to study the history of cosmetics and perfumery in other civilizations like those of Egypt, Babylonia, Greece and Rome. I shall feel thankful if the readers of this article acquaint me with the literary sources, especially Greek and Roman, which deal systematically with the manufacture of cosmetics and perfumery. In particular, I am eager to know if special treatises on Gandhaśastra were written during Greco-Roman times. If such treatises have come down to us we shall be in a position to compare them with the Indian treatises on Gandhaśastra viz. (1) the Gandhasāra and (2) the Gandhavāda discovered by me some years ago. Cosmetics and perfumes are as old as humanity but with the development of civilization the art of manufacturing them appears to have been developed to cater to the needs of the accomplished ladies and gentlemen of the different periods of human civilization. The manufacture of the different varieties of the cosmetics and perfumes was dependent on the
refined taste of their consumers. It is, therefore, possible to suppose that the degree of excellence and refinement of cosmetics and perfumes, current at any period of civilization, was an index of the cultural development of that period.

Indian medical literature that has survived to this day contains a few Nighanta or glossaries which record classified lists of medical and botanical terms. In particular they are a record of the names and properties of the important items of Indian Materia Medica current at different periods of Indian medical history. In these glossaries or Nighanta, we find a record of many aromatic ingredients used in the manufacture of cosmetics and perfumes. So far as I know a glossary entirely devoted to the aromatic ingredients (gandha-dravyas) has not come to light up to now. Such a glossary is, however, found as chapter III of the treatise on Gandhastra discovered by me viz. the Gandhasra by Gaṅgādharma. In this chapter the author tells us how to examine and use the several aromatic ingredients in the manufacture of cosmetics and perfumes. He classifies the aromatic ingredients in different vargas or classes as follows:

1. leaves — Holy Basil leaves etc.
2. flowers — Saffron, campaka flowers, clove etc.
3. fruits — Pepper, nutmeg, cardamom etc.
4. barks — Bark of camphor tree, bark of clove tree etc.
5. woods — Sandal wood, fir wood etc.
6. roots — Nut-grass (cyperus rotundus) pavonia odorata (Vala) etc.
7. exudations from plants — Camphor etc.
8. organic products — Musk, honey, lac, ghee etc.

The eight-fold classification of aromatic ingredients given by Gaṅgādharma will be found sufficiently intelligent, if not scientific according to modern standards. At any rate it justifies the statement of Gaṅgādharma that he is a Kovidā or expert in the science of cosmetics and perfumery, which he describes as "difficult to comprehend, vast in its scope, and consisting of materials of a scattered nature." He further states that he has compiled his treatise on the basis of earlier treatises or texts, which unfortunately he does not name.

One of the objects of the Gandhastra according to Gaṅgādharma is the use of perfumes in the worship of gods. Consistent with this religious background of the gandhastra there is a presiding deity for this science of cosmetics and perfumes. At the commencement of his treatise Gaṅgādharma bows to four deities viz. (1) Śiva (2) Gaṅapati (3) Sarasvati (the goddess of learning and arts) and (4) Gandharva.
Yakṣa or Gandha Yakṣa, a demi-god attending upon God Śiva. I have not come across any reference to the demi-god of the name "Gandha Yakṣa" the presiding deity of Gandhaśāstra specifically mentioned by Gaṅgādhara in his treatise. The science of perfumes is, however, semi-divine as the perfumes have the power to put us in a good frame of mind and lift us at least temporarily from the worries of this world. All lovers of perfumes will, therefore, welcome whole-heartedly Gaṅgādhara’s belief in a “Gandha Yakṣa” as the presiding deity for the science of cosmetics and perfumes.

Gaṅgādhara’s treatise on cosmetics and perfumes contains three chapters on the following topics:—

Chapter I — This chapter explains technical processes and terminology of Gandhaśāstra.

Chapter II — This chapter gives in detail the recipes for the manufacture of different perfumed products such as perfumed waters, oils, sticks, powders, incense etc.

Chapter III — This chapter gives a classified glossary of aromatic ingredients to be used in the manufacture of cosmetics and perfumes.

I have already dealt with the importance of Chapter III. The detailed recipes given in Chapter II are meant for the manufacture of perfumed products, many of which are used in India to-day. They are too many to be specified in this article. The Sanskrit technical terminology of the Gandhaśāstra given in Chapter I will not be of much interest to the laymen. I must, however, mention here some of the processes of the manufacture of cosmetics and perfumes mentioned by Gaṅgādhara. The six processes mentioned by Gaṅgādhara are as follows:—

1. Bhāvana — Infusing or saturating powders with fluid.
2. Pacana — Ripening or decoction of materials after they have undergone the process of infusion (No. I above)
3. Bodha — Reviving the scent of a perfume with the help of aromatic ingredients acting as reviving agents.
4. Vedha — This process is a further development of No. 3 above. As the verses describing the process are textually defective I am unable to understand it properly.
5. Dhūpana — Fumigating with aromatic vapours of incense etc.
6. Vāsana — Scenting with the perfumes of flowers etc.

It would appear from what I have said so far about the three chapters of Gaṅgādhara’s treatise on Gandhaśāstra that this treatise is an attempt
to systematise in a compact form the theory and practice of Gandhaśāstra developed in India through centuries of Indian political and social history.

As Gaṅgādhara’s treatise on Gandhaśāstra is meant mainly for the manufacturer of cosmetics and perfumery we cannot find in it observations on any subtle topics connected with Gandhaśāstra such as the following:

1. Origin of odour (Gandha).
4. Classification of odours (Gandhas).

It is possible to find scattered observations on these topics in Sanskrit literary sources. In fact I have kept these topics in mind for future study and investigation. The rich odour of the references to Gandhaśāstra in literary sources attracts me, but I am unable to enjoy it like the bee in the thicket of golden buds of Ketaki blinded by dust and helpless in his efforts to live in it or move about owing to the loss of his wings cut off by the prickles on the buds.
2. History of Ambergris in India*

Between about A.D. 700 and 1900

The history of Indian cosmetics and perfumery has not yet been critically reconstructed though materials for such a history are found in abundance in several Sanskrit and Prakrit texts. I have discovered two treatises on Gandhaśāstra (Science of cosmetics and perfumery) and have published some papers1 on these treatises as also others bearing on the history of Indian cosmetics and perfumery. Recently a learned Jain scholar, Muni Punyavijayaji of Ahmedabad, requested me to answer the following query:

"Malayagiri, a Jain commentator of the 12th cent. A. D. mentions a perfume or aromatic ingredient of the name ambara along with aguru (aloevera wood or agallochum), karpūra (camphor) etc. burnt as incense. References to ambara as a perfume are rarely found in literature. What is, therefore, the nature and properties of ambara mentioned by Malayagiri in the 12th century A. D."

It is true that references to ambara in the sense of an aromatic ingredient are very rare in Sanskrit or Prakrit literature. The Sanskrit lexicons listed on the following page record the term ambara in the sense of a perfume or aromatic ingredient.

The Sanskrit lexicon of Amara (between A. D. 500 and 800) records the term ambara in the sense of sky, etc. but not as a perfume. The Sanskrit word ambara is phonetically similar to the Arabic word anbar for ambergris. It is possible to suppose that the Arabs or Mussulmans introduced ambergris into India sometime before A. D. 1000. This rich perfume became popular in India in a short time, and Sanskrit lexicographers instead of recording anbar as an Arabic word confused it with the already existing Sanskrit term ambara, which meant sky or garment. Consequently these lexicographers added an additional meaning, viz. perfume to the original Sanskrit word ambara so that all the lexicons composed after the introduction of ambergris into India took care to explain ambara as a perfume or aromatic ingredient as will be seen from the table given below. The last of the lexicons in this table, viz. the

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*Chymia, Vol. II, 51-
Rajavyavahara-Kośa (A. D. 1676) records ambara as an Arabic word and not as a Sanskrit word, as this lexicon is partly a record of Persian and Arabic terms current in the Deccan during the reign of the Maratha King Śivāji the Great, by whose order it was composed for court use. There is no word for ambergries in Sanskrit. Prof. Dalgado³ observes that "Perhaps the word (ambar) was imported directly from Arabic." He also points out that in many vernaculars of India the term ambar for ambergries is still current. The Latins call it ambarum Some other nations and languages give it the same name or one with very slight variation.

The following references to ambergries in non-Sanskrit sources are of interest:

1. John Marshall³ in his account of India (A.D. 1668-72) refers to ambergries at Mauritius and at Johanna. He says "What this is hath not yet beene perfectly knowne."

2. J. Fryer⁴ (A.D. 1672-1681) in his account of East India and Persia refers to ambergreek as a precious article of trade within the charter of the East India Company and states that grey ambergries is the best and that it yields a fragrant odor and feels in substance like beeswax.

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(3) Ain-i-Akbari\(^5\) (A.D. 1590) refers to the "preparations of ambergris" with which the presence chamber of Emperor Akbar was fumigated constantly. This work mentions three theories about the origin of ambergris:

"Some say that it is produced in the bottom of the sea; others make it to be the dung of the sea-cow, which is called Sara, whilst others maintain that it is the foam of the sea."

The cost of ambergris mentioned in this work is "one Mohar to three, per Tolā."

(4) Tavernier (A.D. 1676) in his Travels in India\(^6\) records some valuable remarks on both amber\(^7\) and ambergris. About ambergris\(^8\) he notes the following points:

(i) We do not know how it is formed or where it is found.
(ii) It is found in the seas of the east and some times on the English and other European coasts.
(iii) The largest quantity of it is found on the coast of Melinda, and especially at the mouth of the river Rio di Sena.
(iv) The Governor of Mozambique brings with him to Goa every three years ambergris worth 300,000 pardos (=£30,000).
(v) Tavernier devotes three pages to a story of a Frenchman (Marin Renaud of Orleans) on board a Portuguese vessel sailing from Goa to Manillas in A.D. 1627. This Frenchman discovered a piece of ambergris on the shore near the mouth of a river while bathing there. This piece weighed 33 livres. The sailors and soldiers quarrelled for it. The Captain of the ship presented it to the king of Portugal through the Viceroy and thus settled the dispute tactfully.

(5) Bernier in his Travels\(^9\) (A.D. 1656-68) mentions the imports of India. In this connection he states that India imports "ambergris from the Maldives and Mozambique."

(6) Ibn Battuta in his Travels\(^10\) (A.D. 1325-54) describes his voyage to Ma'bar (Coromandel) and his escape from a shipwreck. In this connection he states:

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7. Ibid; pp. 136-138 (remarks on amber)—The Dutch Company carried on trade in amber and the Chinese bought it from them at Batavia.
"The sailors tied ropes to the raft and swam with their aid. I sent along with them all things that I valued and the jewels and ambergries and they reached the shore in safety because the wind was in their favour."

(7) In a Portuguese poem\textsuperscript{11} "The Lusiades" (Lisbon, 1572) translated into English by W.J. Mickle, London, 1776, we find a reference to fragnant amber (ambergis) as follows:

"On Afric's strand...

From calls unknown, here bounteous ocean pours

The Fragrant amber on to sandy shores"

(8) Marco Polo in his Travels\textsuperscript{12} (A.D. 1298) makes the following references to ambergis:

Page 424-(chap. XXXIV)—Traders resorting to the "Islands of Males and Females" with the principal object "to purchase ambergis of which a quantity is collected there."

Page 425-6—Description of the island of Socotra in which the following points are noteworthy:

(1) Ambergis is found on the coasts. It is "voided from the entrails of whales."

(2) It is an article of merchandise in great demand.

(3) The inhabitants make it a business to kill the whales with harpoons and drag them ashore and "extract the ambergis" from their bellies and from their heads they procure "casks of (spermaceti) oil."

(4) Ships bound for Aden halt at Socotra (near Cape Guardafui) and purchase ambergis and cotton goods.

Page 428—Much ambergis from the whales is thrown by the tide on the coasts of Madagascar and it is collected for sale.

Page 433—Trading ships visit the island of Zanzibar and barter their goods for ambergis gathered on the coasts where it is found in quantities as the sea abounds in whales.

The references to ambara, ambar, ambergis recorded above are sufficient to establish the history of this aromatic ingredient in India and Africa from c. A. D. 700 onwards. This history is further corroborated by the following Arabic sources mentioning anbar (ambergis):—

\textsuperscript{11} Quoted on p. 103 of \textit{In Quest of Spices} by Sonia E. Howe, London, 1946.

\textsuperscript{12} \textit{Travels of Marco Polo}, ed. by T.W. Wright, London, 1901.
1. The Arab geographer Yaqubi (c. A.D. 875) mentions various kinds of anbar including anbar Hindi which is procured from the coast and then exported to Basra and other places. The anbar which comes from Hind is called karkbatus associated with a community of that name.

2. The second Arab geographer Abu Zayd (A.D. 950) gives details of the origin of anbar and describes some varieties which do not comprise any variety associated with Hind. He further states that anbar is thrown up along the coast commencing from the sea of Hind but it is not known whence it comes.

3. The Arab geographer Masudi (A.D. 950) gives the qualities of anbar and says that it grows in the bottom of the sea of Harkand etc. It is white, black, and of dark bay colour.\(^\text{13}\)

4. The fourth Arab geographer Idrisi (A.D. 1165) states that anbar (ambergris) is found on the shores of Yemen flung there by the waves after stormy tempests. He further relates that Harun-al-Rashid, the Caliph, had sent some persons to inquire from the shore-dwellers what they knew about ambergris as there were many tales then current about its origin. The result of their inquiry was that ambergris flows from springs at the bottom of the sea.\(^\text{14}\)

It would appear from these remarks of Arab geographers that some sort of anbar (ambergris) associated with Hind was known to them. Whether this ambergris was gathered on Indian shores or was imported into India by the Arabs is unknown. The only references to the use of ambara (ambergris) in Indian perfumery are found in a Sanskrit treatise viz. Gandhavada\(^\text{15}\) with Marathi commentary, represented by a single manuscript at the Bhandarkar Oriental Research Institute. This treatise was composed between A.D. 1300 and 1600.

In this attempt to reconstruct the history\(^\text{16}\) of ambergris in India

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15. *Vida* folio 27b of the manuscript of the Gandhavada—Recipe for a perfumed powder called manmathodayapistak.

16. No history of ambergris in India or outside has been recorded by George Watt in his *Dictionary of Economic Products of India*, Vol. 1, Calcutta, 1889, p. 217, where his article on ambergris appears.
Studies in Indian Cultural History

from A. D. 700 onwards, it has been difficult to determine at what time exactly it came to be used by Indians. Very probably the Arabs were responsible for its introduction into India in the 8th century A.D. 17.

17. In connection with the present inquiry I am curious to learn anything which the readers of Chymia may know concerning the history of ambergris in the ancient civilizations of Cyprus, Egypt, Mesopotamia, Greece, Rome, China, etc. In this connection I have made inquiries through my friend Dr. Gerhard Lindblom, Director of the Ethnographic Museum, Stockholm, but so far he has found no definite information which could be included in this paper.
3. Studies in the History of Indian Cosmetics and Perfumery: 

Notes on the History of the Rose, Rose-water and Attar of Roses—Between B.C. 500 and A.D. 1850"

The Marathi Dictionary Šabdakoša (by DATE and KARVE, Poona, Vol. I, 1932, p. 50) records the word attar (अत्तर) and its derivatives अत्तर-गुलाब, अत्तरदायी-नी and quotes a work called नवनाथ अक्षिकार (1896) 20, 101, as follows:—

“स्वातं फुलेन श्रो। लोकमानी मिरवतसे”

No other usage of the word अत्तर is recorded in this Dictionary. I have, however, to point out that Raghunath Pandita in his Rājavya vaharakośa (A. D. 1676) भोज्यवर्ग explains the word अत्तर as पुष्पार (essence of flowers) in the following lines:—

“अत्तर: पुष्पार: स्वाहलस्यारोक्षमायकः नूतन! ॥ भकरणी गुलाब: स्वातं फैलरे जाफता भवेत् ॥”

The word गुलाब means “rose-water” and not rose-flower. The word अत्तर in the above lines most probably means the celebrated attar of roses, about which I have to note here the following information:—

The Shorter Oxford English Dictionary (p. 1392) contains the following entry about attar or otto:—

“OTTO—also formerly otter" otter 1639. An altered form of Attar, in attar or otto of roses, the fragrant essence of roses.—Hence joc. in otto of whisky. THACKERAY.”

The Hobson-Jobson (YULE and BURNELL, London, 1903) p. 647, records the following note on Otto, Otter:—

2. Vide p. 12 of Intro. to John Marshall in India (Notes and Observations in Bengal —A.D. 1668-1672) ed. by S. A. KHAN, Oxford Uni. Press, London, 1927 p. 12—Richard Edwards a fellow-voyager to India with MARSHALL wrote on 13th July 1670 from Kasmir-bazar requesting MARSHALL to invest the produce of some sword blades sold at Patna for him in “Baroch (Broach) stuffs for breeches and the rest (if any remain) in one bottle of the best flower oyle and some otter (attar of roses) and chun (chawwāl).”
OTTO, OTTER, s. or usually ‘Otto of Roses’ or by imperfect purists Attar of Roses, an essential oil obtained in India from the petals of the flower, a manufacture of which the chief seat is Ghazipur on the Ganges. The word is the Arab itr, perfume. From this word are derived attār, a perfumery or druggist, attāri adj. pertaining to a perfumer. And a relic of Saracens rule in the Palermo is the via Latterini, the street of the perfumer’s shops. We find the same in an old Spanish account of Fez:—

A.D. 1573—"Issuing thence to the Cayzerie by a gate which faces the north there is a handsome street which is called of the Atarın, which is the spicery." —Marmol, Affrica, ii. f 88.

[Itra of roses is said to have been discovered by the Empress Nur-Jahān on her marriage with Jahāngīr. A canal in the palace garden was filled with rose-water in honour of the event, and the princess, observing a scum on the surface, caused it to be collected and found it to be of admirable fragrance, whence it was called itr-i-Jahāngīrī.]

A.D. 1712—Kaempfer enumerating the departments of the Royal Household in Persia names "Pharmacopoeia... ... ATTHAARCHONEH, in qua medicamenta et praesertim variae virtutis opiata, pro Majestate et aulicis praeparantur".

—Am. Exot, 124.

A.D. 1759—"To presents given etc.

"1 Otter box set with diamonds
"Sicca Rs. 3000.....3222-3-6"
Acts of entertainment to Jugget Set in Long. 89.

A.D. 1790—"Elles onut...surtout pour celle de rose, applée OTTA"

—Haafner, ii, 122.

A.D. 1824—The attar is obtained after the rose-water is made, by setting it out during the night and till sunrise in the morning in large open vessels exposed to the air and then skimming off the essential oil which floats at the top."

—Heber, ed. 1844, i, 154.

In the book “पंशवादिोवा सावलांित” by N. G. CHAPEKAR (Poona, 1937) we get the following references about गुलाबदायवा and अतरदान:

Page 207—A.D. 1783—“गुलाबदायवा ६”

—“अतरदान परी भाकणतुवा १”

Page 215—A.D. 1794 (21st January)—Banquet to Nana Phadnis—Rs. 5—“गुलाबी अतर”
Capt. Edward MOOR in the Glossary at the end of his Narrative etc. (London, 1794), page 501, records the following note on अतारː

"Atar—An exquisite perfume from roses; in England called Otter, Otteau, or Otto etc. Atar is also procured from sandal-wood but it is then distinguished from the superior essence, which is pre-eminently called Atar, only. So very difficult is it to procure the pure Atar in India even, that it is rarely seen, and perhaps not one part in five hundred of what is exported is pure and genuine. A particular account is given of the process of making Atar by Colonel Polier in Asiatic Researches, Vol. I, p. 332."

On p. 375 MOOR refers to "rose-water, gul-aab, which is sprinkled over guests," and "attar of roses" presented to each person before "beere" (तालम्बूल). On page 377 MOOR records how a soldier received the अतारː

"On a public visit paid by Purseram Bhow to Colonel Frederick, at Darwar, the manner in which one of the guests received the attar had a curious appearance, and was for a soldier, a happy idea. He was a very well-looking man, and coming into the Darbar tent sometime after the Bhow etc. were seated we had an opportunity of seeing, by the manner in which he was received, that he was a man of importance. Our attention was attracted by his habiliments, as he had no clothing, save a pair of silk drawers, that reached from his waist half way down his thigh, and a turban on his head. A sword and target completed his equipment, and as his hands were filled with them, we were curious to see how he could receive the attar. He received it on his target, which he brought to his nose with great gravity. This person was, we think Bunna Bapoo Mendla, whom we have seen in a very important command on the confines of Bednore."

The foregoing evidence shows how the attar of roses had become popular in England and India between A.D. 1600 and 1800.

In the Ain-i-Akbari (A.D. 1590) Vol. I (Eng. Trans. by Gladwin, Vol. I, Calcutta, 1897) p. 185 we read that Akbar weighed himself against the following articles—"Gold, quick-silver, raw silk, artificial perfumes, musk, Roohtootea etc."

3. In the Madhyayugina Carikarakosa (by Chitrav, Poona, 1937, p. 538) we find some account of वचाधी रेशमय मेहेंदी, who was the younger brother of Bahiro Raghumatha Mehendale, the Peshwas's Vakil with the English Resident Sir Charles Malet (A.D. 1791), Bachyaji accompanied Lord Cornwallis in his campaign against Tipoo Sultan in A.D. 1791.
Evidently these perfumes must have been produced in plenty for royal use of the above type. In fact pages 65-75 of the *Ain-i-Akbari* (Gladwin's Trans. Vol. 1) are devoted to the "Regulations of the Perfume Office of Akbar." For the history of Indian cosmetics and perfumery the account of the royal perfumery given in the *Ain-i-Akbari* is of exceptional value. I note below some points from this elaborate record:

Page 65—"His Majesty is exceedingly fond of perfumes, and the presence chamber is continually scented with flowers and fumigated with preparations of ambergris, lignum aloes etc. which are burnt in gold and silver censers.

His majesty constantly perfumes his body and the hair of his head with odoriferous ointments"

Pages 66-68—Odoriferous compositions described. I note some words from this description:

1. **Sentowk** (a great exhilarator) —Civet, Chuwah, Jasmin oil, 2 bottles of rose-water.

2. **Argehjeh** (for summer use) —Sandal wood, Lignum aloes, Myd, Chuwah, roots of violets and Kehlet, Camphor, 11 bottles of rose-water.

3. **Gul Kameh** —Ambergris, Laudan, Musk, Lignum aloes, Akysir, juice of roses, juice of lemon blossoms, juice of sweet basil.

4. **Ruh-Afza** (for burning in censers) —Lignum aloes, sandal-wood, Lauden, Akysir, Frankincense, Derhoop (from Kashmir), violet roots Ushneh, 4 bottles of Rose-water—to be made into cakes.

5. **Owpteneh** (wash for hands) —Laudan, Lignum aloes, Lemon blossoms, Lemon peel, sandal-wood, Spikenard, Ushneh, Musk, Pacheh leaves, Apples, Sad, Violets, Derhoop, Akenky, Civet, Frankincense, 160 bottles of Rose-water, 5 bottles of the juice of lemon blossoms.

6. **Abyr Mayeh** —Lignum aloes, sandal-wood, violet roots, spikenard, Duwalek Musk of Tartary, Laudan, Orange blossoms, 10 bottles of Rose-water.
(7) Keshneh
—Lignum aloes, Laudan, Frankincense, Sandalwood, Akysir, Derhoop, Violet roots, Musk, Ushneh, Sugarcandy, 2 bottles of Rose-water— to be made into cakes—gives very fragrant smell, when burnt.

(8) Bekhur
—Lignum aloes, Sandalwood, Frankincense, Musk, Akysir, Sugarcandy, 1 bottle of Rose-water.

(9) Feteyleh
—Lignum aloes, Sandalwood, Akysir, Laudan, Violets, Frankincense, Sugarcandy, 2 bottles of Rose-water.—To be made into Topers.

(10) Barjat
—Lignum aloes, Laudan, Musk, Sandalwood, Frankincense, Camphor.

(11) Abyr Akysir
—Sandalwood, Akysir, Musk,— to be ground fit for use.

(12) Chesul
—Kettowl, Musk, Chuwhah, Camphor, Myd, 2 bottles of Rose-water.

The aromatic ingredients recorded in the above notes on the different items of perfumery amply show their variety. Rose-water was used in plenty but there is no mention of the attar of roses in these notes.

Page 68—Abul Fazl then deals with "Natural Perfumes." The items in this category are :

(1) Ambergris, (2) Laudan "from the tree found in the island of Cyprus and Chois," (3) Camphor "from a large tree found in the maritime mountains of Hindustan and China," collected from trunk and branches, (4) Civet from Achin "from an animal resembling a cat (5) Kowrah "from an animal resembling the Civet" found in Achin, (6) Myd, something of the above kind but of inferior quality, (7) Lignum Aloes, root of a tree. Several kinds of it are :— Mendely, Jebely, Semendury, Kemary, Kakey, Berry, Cathaicy, Chiny (also called Kemoory), Jelaly, Mytaky, Lemaky,— of these Mendely is the best, Semendury is blue and burns for a long time on the fire, (8) Chuwhah is distilled Lignum aloes.

Page 69—Method¹ of making Chuwhah :—"Small pieces of Lignum aloes ... put into a narrow-necked vessel ... luted with philosopher's clay... composed of clay, cotton and rice bran. A small space is left at the neck

4. Compare अधःपातन वस्त्र described in the यशोप्रकाशमुचारक of
of the vessel which is placed inverted in another vessel, perforated at the bottom, and supported by a three-legged stand, under which is placed a dish full of water, so that the mouth of the first mentioned vessel may touch its surface. Then there is made round the inverted vessel a gentle fire of cowdung, which melts the aloes, till it distills into the water. This is collected and repeatedly washed with water and rose-water to take off all smell of smoke."

(9) Sandal, a native of China, "brought into Hindustan in this reign and thrives very well." (10) Sandalwood, three kinds (white, red and yellow—best is called Mekasiry, which is yellow and oily, (11) Storax a tree gum, native of Syria, liquid and dry kinds, (12) Kelumbek, a tree from Zeerbad, ground fine and mixed with other perfumes,—rosaries are also made of it, (13) Mulageer, resembling the above tree, (14) Frankincense, a tree gum from Java, (15) Scented Nails from Indus and Basra Bahrain, resemble shells collected from the nest of an animal.

Pages 69-70—Table perfumes with prices—Ingredients in this list are:— Ambergris (1 to 3 Mohars per Toliâh), Civet, Musk, Lignum aloes, Chuwah, Kowrah, Camphor, Myd, Persian Saffron, Kahghy Saffron, Cashmeery Saffron, Sandal, Musk pods, Kelumbek, Storax, Frankincense, China, Camphor, Essence of Fitneh, Essence of Baidmusk, Rose-water (1 to 1 Rupee per bottle), Essence of Orange flowers (1 to 5 Rs. per bottle), Essence of Jasmin (4 to 8 Rs. per bottle). Violet roots, scented nails, Bah leaves from Guzerath, Sugendeh Kookelah, Frankincense, Alekkhendy, Duwalek, Kanehleh, Saad, Akungy, Zedoary.

Pages 70-71—Notes on Flowers:—These notes are very useful both historically and botanically and hence deserve to be reproduced here; but for want of space I have to mention only some points from them:—

(1) Sugendehkukla—A very common shrub in Hindustan.
(2) Sewty—Resembles red rose but is smaller.
(3) Jasmin—Two kinds, one is called Roy Chembely.
(4) Royl Beyl—Resembles Jasmin, several kinds.

यसोधा (ed. by Rajvaidya J. K. Shastri, Gondal, 1940, p. 7) Chapter 1:

"प्रथमःपातकम्
पूर्वका स्त्रावलिका सम्यक् विपरीतां तु पंकिकोऽ
गरे तु स्थापितां भूमा जलमेधमूलैः पत्तकम्।
वाम-नितिन-पर्यन्तम् प्रथःपततिः पारः।
प्रथःपतनयन्त्र हि कीर्तितं रसवद्यभिः।"

"First: Patalaka
Before the list of the food properly
Grow the ones that are placed on the ground in the water.
Wāma-nitiṇa-paryantam, pratih-pattati, para.
Prathapatanantra hi kirtita rasavadya."
(5) Mownga—Resembles Roy Beyl, but larger.
(6) Chempeh—Conical in form, of a finger's length,—handsome tree flowering in seven years.
(7) Keytkey—Resembles a cone of a pine tree—delicate fragrant smell—flowers in six or seven years.
(8) Chelteh—Like a tulip but larger—has violet smell—withered flowers are boiled and eaten—tree of the size of the pomegranate tree—leaves like those of lemon tree, flowers in the 7th year.
(9) Kewrah—Like Keytkey, twice as big—tree flowers in 4 years.
(10) Tusbeh Gulal—fragrant smell, dagger-shaped petals,—2 ells high shrub, flowering in the 4th year—beads of these flowers keep fresh a week.
(11) Phulsery—less than Jasmin, indented petals, resembles walnut tree, flowers in 10th year.
(12) Sengarhar—clove-shaped, flowers in 5th year.
(13) Koobeh—resembles white rose, Abyrmaye made of this flower, used for distilling a kind of water.
(14) Padel—gives agreeable flavour to water; flowers in the first year.
(15) Jewhy—flowers in the 3rd year.
(16) Newary—resembles Roy Beyal, flowers in the 1st year.
(17) Kepurbeyl—with 5 petals, resembles saffron flower—lately brought from Europe.
(18) Saffron—Resembles Kepurbeyl; six petals and six threads. The first three petals are very beautiful, encompassed by three similar petals, between these six petals are three yellow threads, which are saffron.
(19) Sun-flower—round, broad, large; numerous petals, always turns towards the sun; height of shrub, three ells.
(20) Kenwel—2 kinds,—one yellow blowing in the morning and following the sun in its course, shutting up in the evening, with 6 petals, resembles Anemone.—other kind, white, 4 petals, blows in the moonshine and turns towards it in the same manner as the Sun-flower follows the Sun.
(21) Jafery—round beautiful, larger than Sudberg.
(22) Gorhel—like tulip, numerous petals, flowers in 2nd year.
(23) Retemnungen—4 petals smaller than Jasmin, tree and leaves resemble Roy Bel, flowers in 2nd year.
(24) Keysew—five petals, resembling the nails of a lion.
(25) Kenafyr—long time in bloom, beautiful but unlucky, one, wearing it on his head, gets into quarrels, flowers in one year.
(26) Kuddem—Round like a ball, tree and leaves resemble walnut tree.

(27) Nageshir—Shaped like the red rose, white with yellow in the middle, fine petals and threads, flowers in 7 years.

(28) Soorpun—Resembles sesame flower, yellow in the middle.

(29) Sirrykhundy—Somewhat like Jasmin, flowers in 2 years.

(30) Henna—4 petals, every shrub bears a different coloured flower.

(31) Dupahrya—Small flower, dark red colour, blows always at noon.

(32) Bhuyan Chumpa—Resembles Neelofer, five petals, grows in inundated ground, nothing but flower appears above the surface.

(33) Soodorson—Resembles Roy Bel, yellow threads within petals, the plant is like the lily.

(34) Spikenard—five petals, each 10 fingers long, and 3 fingers broad.

(35) Rotonmala—Used for dyeing cloth; a decoction of it mixed with vitriol and Masfer flowers produces red colour.

(36) Malty—Like Jasmin, but smaller, flowers in 2nd year.

(37) Soon—Like yellow Jasmin, somewhat larger, five petals, tree resembles Jasmin, flowers in 2nd year.

(38) Keroyl—beautiful, 3 little petals, made into broth and also pickled.

(39) Jacit—Grows on a large tree, leaf resembles the tamarind leaf.

(40) Chempelah—like a Nosegay—flowers in 2nd year, its bark makes red decoction, grows chiefly in mountainous countries, wood burns like candle.

(41) Lahy—shrub, 1½ ell high, branches, before the flowers appear, are eaten with bread.

(42) Kerundeh—Resembles Jewhy flower.

(43) Dhonwontor—beautiful, resembles Neelofer.

(44) Seriss—like threads of silk—sends fragrance to great distance—called the King of trees, very large tree, used in building, its heart is black and resists the axe.

(45) Kunglay—beautiful, in 5 petals, each 4 fingers long—only one flower on each stock.

(46) Hemp—in clusters like Nose—gay, leaves like those of Chinar tree—Rope is made of its bark—one species has a flower like cotton shrub and it is called Sun-paut; this makes a very soft rope.
Abul Fazl concludes his description of flowers and flowering plants as follows:

"It would be impossible for one, ignorant as I am, to describe every flower of this country. A few have been mentioned by way of specimen. Here are also found abundance of flowers transplanted from Persia and Tartary; such as roses, violets, Jasmin etc. The plants, flowers, roots etc. of this country, that are used for food, or applied to medicinal purposes are innumerable. It is said by Indian authors that if you take a leaf of every tree they will amount to six maunds."

In concluding his section of the Regulations of the Perfume Office Abul Fazl gives the following Table of flowers:

<table>
<thead>
<tr>
<th>Name</th>
<th>Colour</th>
<th>Season</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Sewty</td>
<td>White</td>
<td>All the year.</td>
</tr>
<tr>
<td>(2) Jasmin</td>
<td>White and yellow</td>
<td>The Rains and Winter</td>
</tr>
<tr>
<td>(3) Roy-beyl</td>
<td>white</td>
<td>Summer Do</td>
</tr>
<tr>
<td>(4) Mowngra</td>
<td>Do</td>
<td>All the year</td>
</tr>
<tr>
<td>(5) Chempeh</td>
<td>Pale yellow</td>
<td>Summer</td>
</tr>
<tr>
<td>(6) Keytky</td>
<td>Do</td>
<td>Winter</td>
</tr>
<tr>
<td>(7) Cheltke</td>
<td>White</td>
<td>Autumn</td>
</tr>
<tr>
<td>(8) Koozeh</td>
<td>White and Yellow</td>
<td>Spring</td>
</tr>
<tr>
<td>(9) Gulal</td>
<td>White</td>
<td>Winter</td>
</tr>
<tr>
<td>(10) Tesbeh Gulal</td>
<td>Do</td>
<td>The Rains</td>
</tr>
<tr>
<td>(11) Phulsery</td>
<td>Do</td>
<td>Summer</td>
</tr>
<tr>
<td>(12) Sengahar</td>
<td>Do</td>
<td>Spring</td>
</tr>
<tr>
<td>(13) Padil</td>
<td>Do</td>
<td>The Rain</td>
</tr>
<tr>
<td>(14) Jewhy</td>
<td>Yellow and White</td>
<td>Spring</td>
</tr>
<tr>
<td>(15) Newary</td>
<td>White</td>
<td>Do</td>
</tr>
<tr>
<td>(16) Narcisus</td>
<td>Do</td>
<td>Summer</td>
</tr>
<tr>
<td>(17) Violet</td>
<td>Gives name to a colour</td>
<td></td>
</tr>
<tr>
<td>(18) Kerneh</td>
<td>White</td>
<td>Spring</td>
</tr>
<tr>
<td>(19) Kepurbeyl</td>
<td>......</td>
<td>....</td>
</tr>
<tr>
<td>(20) Saffron</td>
<td>Violet colour</td>
<td>Autumn</td>
</tr>
</tbody>
</table>

5. Compare Edict II of Emperor Asoka:

"Wherever plants useful either for men or animals were wanting they have been imported and planted. Wherever roots and fruits were wanting they have been imported and planted." [Vide p. 47 of Surgical Instruments of the Hindus by G. Mukhopadhyaya, Vol. I, Calcutta 1913].
<table>
<thead>
<tr>
<th>Name</th>
<th>Colour</th>
<th>Season</th>
</tr>
</thead>
<tbody>
<tr>
<td>(21) Sun-flower</td>
<td>Yellow</td>
<td>...</td>
</tr>
<tr>
<td>(22) Kenwel</td>
<td>A light red half blue and white</td>
<td>The Rains</td>
</tr>
<tr>
<td>(23) Jatry</td>
<td>Dead Yellow</td>
<td>Spring</td>
</tr>
<tr>
<td>(24) Gorhel</td>
<td>Red, Yellow, Orange and White</td>
<td>The Rain</td>
</tr>
<tr>
<td>(25) Retemungeny</td>
<td>Fiery Red</td>
<td>All the year</td>
</tr>
<tr>
<td>(26) Kaysew</td>
<td>...</td>
<td>Summer</td>
</tr>
<tr>
<td>(27) Kenyar</td>
<td>Red and White</td>
<td>...</td>
</tr>
<tr>
<td>(28) Kuddem</td>
<td>Yellow and White</td>
<td>Spring</td>
</tr>
<tr>
<td>(29) Negehsir</td>
<td>Within White and Yellow</td>
<td>Do</td>
</tr>
<tr>
<td>(30) Sorpun</td>
<td>Do</td>
<td>The Rains</td>
</tr>
<tr>
<td>(31) Serry khendy</td>
<td>White, Red and Yellow</td>
<td>Spring</td>
</tr>
<tr>
<td>(32) Henna</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>(33) Dupahrya</td>
<td>Bright, Red and White</td>
<td>All the year</td>
</tr>
<tr>
<td>(34) Bhuyan Chumpa</td>
<td>Apricot colour</td>
<td>...</td>
</tr>
<tr>
<td>(35) Sudersun</td>
<td>Yellow resembling Water Lily</td>
<td>The Rains</td>
</tr>
<tr>
<td>(36) Spikenard</td>
<td>Dirty Red</td>
<td>Spring</td>
</tr>
<tr>
<td>(37) Rutenmala</td>
<td>Yellow</td>
<td>Do</td>
</tr>
<tr>
<td>(38) Soon</td>
<td>Do</td>
<td>Do</td>
</tr>
<tr>
<td>(39) Malfy</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>(40) Clove Jelly flower</td>
<td>Golden Colour</td>
<td>Spring</td>
</tr>
<tr>
<td>(41) Keroyl</td>
<td>.....</td>
<td>Do</td>
</tr>
<tr>
<td>(42) Jait</td>
<td>Yellow with Red and Black</td>
<td>The Rains</td>
</tr>
<tr>
<td>(43) Chumpelah</td>
<td>White</td>
<td>Spring</td>
</tr>
<tr>
<td>(44) Lahy</td>
<td>Yellow</td>
<td>Winter</td>
</tr>
<tr>
<td>(45) Kerundeh</td>
<td>White</td>
<td>The Rains</td>
</tr>
<tr>
<td>(46) Dhonontor</td>
<td>Like the Water Lily</td>
<td>Do</td>
</tr>
<tr>
<td>(47) Sirest</td>
<td>Yellow inclined to Green</td>
<td>Spring</td>
</tr>
<tr>
<td>(48) Kunglay</td>
<td>Red and Yellow</td>
<td>...</td>
</tr>
<tr>
<td>(49) Hemp</td>
<td>Yellow</td>
<td>The Rains</td>
</tr>
</tbody>
</table>

My object in recording the above account of cosmetics, perfumes and flowering trees and plants from the Ain-i-Akbari (A.D. 1590) is two-fold.
In the first instance this account is a fairly exhaustive record of the names of aromatic ingredients current at the Mogol Court in the 16th century. Secondly, this record is very useful for comparison of these ingredients with those recorded in the two special treatises on Gandha-śāstra discovered by me for the first time viz. the Gandhasāra⁶ of Gaṅgādhara (between A. D. 1000 and 1600) and the Gandhavāda⁷ with Marathi commentary (between A.D. 1350 and 1550). These three records which amply vouch for the wide-spread manufacture and use of cosmetics and perfumes in India say between A.D. 1200 and 1600 provide a good basis for a further study of this forgotten subject, which has its due place in any history of Indian culture, not to say the culture of humanity, for cosmetics are as old as man.

After the foregoing notes were drafted my friend Dr. Sadgopal, Chief Chemist of the Hindustan Aromatics Company at Naini (Allahabad) sent me some books on Rose and desired me to incorporate in this paper a few notes from these books bearing on the history of the Rose. I record below such notes for the benefit of the students of the history of Indian plants:—

(1) George M. Taylor in his book on "Roses, Their Culture and Management" (London, 1945) deals with the "Evolution of our Modern Roses" (Chap. 1). The following points may be noted from this chapter:—

(i) The Cabbage or Provence Rose (Rose Centifolia L)—This was long reputed to be the Rose of Pliny and Theophrastus. Scientists have now proved that "this rose was evolved very slowly over the years from the end of the sixteenth century to the beginning of the eighteenth, and it then reached the form in which we know and appreciate it today."

(ii) The history of our Garden Roses falls into two periods:—

(a) 2000 B.C. to A.D. 1800—The most important of our ancient Garden Roses originated from the wild species of the genus Rosa. These are the Red Rose, the Phoenician Rose, the Musk Rose and the common Dog Rose,

(b) A.D. 1800 to 1944—At the beginning of the 19th century there was a revolution in the Garden Roses in England, where the China Rose was introduced towards the end of the 18th century.

(iii) Ancient Garden Roses—Ancient Roses flowered only once a year. Modern Roses are potentially perpetual if the climate is

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favourable. This characteristic is due to the breeding with the China Rose. The foundation species of most of our Garden Roses is the Red Rose of Lancaster. This Rose in its wild state extends from France to Persia. Its history is lost in ages. One French rosarian claims that it was the Rose of the Persian Magi of the 12th century.

(iv) Descendants of Wild Roses from 4 wild species mentioned above (a).

(v) The China Roses — Their character of perpetual flowering—"Science has proved that a pair of these genes, one from the male and one from the female parent, is present in every growing cell of our best modern Roses."

(2) The National Rose Society of England was founded on 7th December 1876. In the Rose Annual for 1945, edited by Courtney Page, (pp. 31-33) there is an article on the "History of the Provence Rose" by G. E. J. The following points may be noted from this article:—

(i) In the long history of Roses, the Provence or "Hundred-leaved" Rose is the backbone of continuity.

(ii) Rosa gallica or French Rose is the name of the Rose grown for attar in Bulgaria, and Asia Minor (in Morocco and some parts of Asia, the Musk Rose is said to be chiefly used) and now long become an indigenous plant over almost the whole surface of Europe.

(iii) Herodotus (viii, 138) describes Roses in the Gardens of Midas: "Here Roses grew so sweet that no others can vie with them."

(iv) Paestum, a Greek town in the Greek part of Italy, became the Rose centre of the world in Roman times. From Paestum Rose cultivation spread to Southern Italy.

(v) Pliny, Hist. Nat. XXI. 19. mentions "companions" Rose as "early in blooming."

(vi) When the Roman Empire broke into pieces the sturdiest of Roses had settled itself in Gallia Provincia, after which it was called as "Provence Rose."

(vii) Lyon (Lugdunum) was the next principal centre of the growth and export of Roses through the dark rose-less ages.

(viii) The seat of the Empire next shifted towards Paris and then towards Hertfordshire and Essex.
(ix) The history of the Roses brought from France to England in the Middle Ages is irreparably lost. According to the National Rose Society's Catalogue the Provence Rose was introduced into England in A.D. 1596, while Haydn's Dictionary of Dates says that it came from Flanders in 1567.

(3) B. S. Bhattacharjji in Chapter XI of his book "Practical Rose Growing in India" (Thacket, Calcutta, 1935) deals with the classification of Roses (pp. 81 ff.). Incidentally he makes the following observations:—

(i) The Rose is no foreign to India as apart from the fact that more than one species grow wild in the Himalayas.

(ii) The Otto of the Rose was first invented by Empress Nurjehan in India as far back as the 17th century.

(iii) From the earlier part of the 18th century roses are being grown in huge quantity in India for the production of *attar*, *rose-water* and *rose-petal conserve*.

(iv) Dr. Jules Hoffmann in his German work on roses states in his Introduction that the rose is "supposed to have been introduced from India and Persia to the gardens of the ancient Greek and Roman empires" whence it spread to the whole civilized world.

(v) The China Rose is known as *Rosa Indica Semperflorence* and *Rosa Bengalensis*. They are known as *Bengal Roses* probably because "they are or were natives of Bengal." Bengal roses are perpetual bloomers.

(vi) Summer blooming and perpetual blooming roses are found wild in many parts of the Himalayas and natives collect their *rose-petals* on a commercial scale.

(vii) Prior to the introduction of *Rosa Indica* and *Rosa Indica Odorata* Europe had no perpetual blooming rose.

(viii) According to the catalogue of Petten Bros. of Luxembourg (established 1867), *Rosa Indica* was introduced from Canton (China) into England by the English traveller KeER. Of the *Rosa Indica Odorata* this catalogue says: "This rose has come to us from China. The first variety was introduced from India into England in 1789 and in France in the year 1810 by the name of *Rosa Odorata*. The yellow *Tea Rose* was brought over about 1824 and by successive crossings the two roses produced the whole brilliant series which we possess nowadays."

(ix) Owing to the untiring efforts of European growers for hybridization we have enormous varieties and classes of roses.
In Parry's *Cyclopaedia of Perfumery* (London, 1925, in 2 vols.) there is an article on the *Perfume of the Rose* (pp. 630-664). The first few pages of this article contain much useful information as will be seen from the following notes:

(i) No perfume has been so persistently popular as that of the Rose.

(ii) There is no "artificial" otto of merit which does not contain some amount of natural otto.

(iii) The Rose perfume industry is mainly in the hands of the Bulgarians, but its scientific knowledge has been mainly developed by Frenchmen.

(iv) Important treatises on the Rose:

(a) *J. P. Buchot*—"Monographie de la Rose," Paris, 1804.

(b) *M. Boitard*—"Manuel complet de l'amateur de Roses," Paris, 1836.

(c) *R. Blondel*—"Les produits odorants des Rosiers, Paris, 1889.

(v) *Herodotus* is the earliest writer to differentiate between the odours of various Roses (*Histories*, Bk. iii. ch. 138).

(vi) The Romans regarded *rose leaves* as an antidote to headaches etc. resulting from an excess of wine. This probably accounts for the practice of causing *rose-leaves to rain down on the guests* at the end of a feast and also of the practice of *steeping rose-leaves in wine*.

(vii) The use of *rose-leaf* as a source of *perfume* is very ancient. The use of *perfumed leather* was introduced very early into Rome from either Greece or Babylon.

(viii) The Romans enjoyed the perfume of the Rose in the form of *Rose-water*.

(ix) Originally *Egyptian Roses* were brought to Rome and the principal rose so imported appears to have been *Rosa damascena*.

(x) Later Roses were cultivated in Rome. *Virgil* (B.C. 70—A.D. 19) the Roman poet ("*Georgics*, IV) mentions the famous *Rose Gardens at Poestum*.

(xi) *Pliny* is the first writer to give some *botanical description* of the Rose ("*Natural History*, bk. xxi. ch. iv). He divides Roses into *wild* and *cultivated flowers* and classifies them according to *colour, odour and habitat*. He knew some of the roses which we know today viz. (1) *Rosa gallica*, (2) *R. centifolia*, (3) *R. damascena*, (4) *R. provincialis*, and (5) *R. moschata*. 
(xii) Charlemagne in his "Capitularies" recommends the cultivation of the Rose. In his time the flower and its perfume had become important in upper-class house-holds.

(xiii) The first mention of distilled rose-water in a European work is that by Joannes Actuarius (De methode medendi, Bk. v. ch. iv) who lived towards the end of the 13th century.

(xiv) The oil of Roses was discovered towards the end of the 16th and at the commencement of the 17th century. The pharmacopoeias of the 16th, 17th and 18th centuries contain many medicaments, flavoured with rose-water, powdered roses, and essence of rose.

(xv) The history of the Rose in perfumery on a modern basis dates from some time after the discovery of the method for isolating the essential oil.

(xvi) The art of distilling the rose had its origin in Persia. According to Ibn Khaldun about 810-817 in the reign of the Caliph Mamoun, the province of Farsistan was compelled to provide annually a tribute of 30000 bottles of rose-water to the treasury at Bagdad. Istakhri ("Livre des Campagnes," p 73) refers to the considerable production of rose-water throughout the province of Farsistan, which was exported to China, India, Egypt, Spain, and Morocco. The principal seats of manufacture were at Dschur (the Fituzabad of today) between Shiraz and the coast, where the rose-industry is still in existence.

(xvii) The Arabs were responsible for the introduction of distillation into Europe. The Calendar of Harib for the year 961 refers to April being the most suitable month (in Spain) for the preparation of rose-water. Kaempfer ("Amonitates" 1712) speaks with admiration of the roses of Shiraz and of the considerable trade in their products. He says:—"Distilled rose-water is freely carried all over India and the provinces of Persia itself. It is esteemed as an article of luxury at feasts and reunions of friends. It is boiled with cinnamon and white sugar and is drunk as an alternative to Kahwa. Rose-water is used to sprinkle the guests with as a sign of welcome. It is more expensive than wine. The roses themselves are also expensive."

(xviii) The Rose has no special name in Persia. It is called gul—"the flower" par excellence. Kaempfer describes a garden of roses at Persepolis. He also gives the first positive indication that
we have of the definite existence of an industry for the
distillation of essence of rose, which was also made at Shiraz.

(xix) About A.D. 1574 GERONIMO ROSSI ("De distillatione liber"
Ravenna, 1582) had noted that one could separate an extremely
odorous oil matter from the surface of rose-water. ANGELUS
SALA ("Opera Medico Chymica," Frankfort) refers between
A.D. 1610 and 1630 to the volatile oil of roses as a substance "of
brilliant whiteness, resembling spirmaceti." PORNET, towards
the end of the same century refers to the sale of a small quantity
in Paris. "Besides", he states, "the water which one obtains
from roses, one can extract an odorous inflammable spirit, most
useful for fortifying and rejoicing the heart and stomach."

(xx) By the end of the 16th century oil of Rose was known to the
chemists and apothecaries of Europe. Although the East is
the original home of the rose and its perfume it was only about
the same time that the separation of the essential oil was dis-
covered there.

Langles ("Recherches sur la découverte de l'essence de Roses;"
1804) fixes the date of the discovery in the East as 1612. He
searched Persian and Mongolian literature but found no
mention of Athr gul (fat of the flower — essence of rose)
anterior to that date. Persian poets like Hafiz and Sadi
mention the rose-water and the rose, but never the athr
(essence). No European traveller to Persia before A.D. 1612
ever mentions essence of rose. The essence is first described
in a work entitled "Tarykh montakheb lubab," a history of the
Grand Moguls from A.D. 1525—1667 written in Persian by
Mohammad Achem. He mentions the essence twice in the
chapter on the marriage of Nur Jehan with Jehangir and in an-
other chapter on the 7th year of Jehangir's reign (Hijra 1021).

Manucci (in his "Histoire etc", 2nd Edn. vol. i, p. 326)
describes the circumstances about the discovery of the essence
of the Rose.

Whatever be the truth of the foregoing evidence there
is no doubt that the manufacture of essence of rose in Persia
dates from A.D. 1612. In 1664 Kaemper visited Persia and
found the Shiraz distilleries in a prosperous condition. A
century later Col. Polier wrote about the essence of roses
(Asiatic Researches, Vol. i, xvi). About this period Forster
("Voyages de l'Inde etc.," Vol. I, 294) mentions Kashmir
roses as the most beautiful in the world and refers to the
popularity of the essence of the rose. Olivier ("Voyage etc.", 1907, Vol. V, 357) found the industry in full swing in Shiraz, Farsistan and Karman.

(xxii) The distillation of the essence of rose appears to have been introduced from Persia via Bassorah and from Arabia into India first to the town of Kanauj on the Ganges and then to Ghazipur, where the industry is still in existence.

(xxii) The Turks took the industry of the distillation of Roses to Europe. Essence of Roses was distilled in the island of Chios at an early date, and, according to a tradition still current in Bulgaria, it was from Tunis that the industry was brought to Kazanlik by a Turk in about 1680. About the same time the distillation of Roses was introduced into France from the African coast.

Parry’s Encyclopaedia next deals with the Rose Perfume Industry as it exists at present. According to the account recorded in this Encyclopaedia Bulgaria supplies the greatest part of the world's consumption of the otto of rose. The Rose cultivated in Bulgaria for this purpose is Rose Damascena.

About the Rose industry in India we are informed here as follows:—

(1) For upwards of two centuries Rose distilleries have existed at Ghazipur, Lahore and Amritsar. (See Gadre and Muckerji in Journal of Indian Industries and Labour, 1922, i, 86).

(2) In 1920 the U. P. Government instituted investigation into the Rose industry and thereafter conducted certain experiments.

The account of the Rose industry in other countries (like France, Germany, Anatolia, Russia, etc.) has no historical importance and hence need not be taken note of in the present study.

I hope the foregoing data, bearing on the history of the Rose and Rose products viz. the Rose-water and Attar or Otto of Roses, collected by me from several sources will clarify our knowledge of this problem. It is still a mystery why there are no references to the Rose or Rose water in Sanskrit literature in spite of the contact of India with Rose-growing countries like Persia, Babylon, Egypt, Greece, Rome etc. for more than 2,000 years. I propose to deal in a special paper with the history of the Rose in India on the strength of documentary evidence but for this purpose it was found essential to record some historical data about the Rose and its products in their world-perspective. The chronology of
these data as recorded in the present paper will be clear from the following table:

**Chronology.**

<table>
<thead>
<tr>
<th>Period</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.C. 2000 to A.D. 1800</td>
<td>First period of the history of ancient Garden Roses which flowered once a year.</td>
</tr>
<tr>
<td>B.C. 484</td>
<td>Birth of the Greek historian Herodotus, who describes roses in the Gardens of Midas.</td>
</tr>
<tr>
<td>B.C. 287</td>
<td>Death of Theophrastus the father of Botanical Science, who refers to R in his work On Plants. Theophrastus was born about 371 B.C.</td>
</tr>
<tr>
<td>B.C. 70 — A.D. 19</td>
<td>Virgil refers to the famous R gardens at Poestum in his Georgics.</td>
</tr>
<tr>
<td>A.D. 23—79</td>
<td>Pliny gives botanical description of R in his Natural History—Use of rose-water, rose-leaf and perfumed leather by the Romans.</td>
</tr>
<tr>
<td>A.D. 768</td>
<td>Charlemagne in his “Capitularies” recommends the cultivation of R.</td>
</tr>
<tr>
<td>A.D. 810—817</td>
<td>Reign of Caliph Mamoun—Farsistan in Persia compelled to pay a tribute of 30,000 bottles of RW to the Bagdad treasury—RW from Farsistan exported to China, India, Egypt, Spain and Morocco.</td>
</tr>
<tr>
<td>A.D. 961</td>
<td>Calendar of Harib refers to April as suitable month for preparation of RW (in Spain)—The Arabs introduced R distillation into Europe.</td>
</tr>
<tr>
<td>A.D. 1275—1300</td>
<td>First mention of distilled RW in a European work of Joannes Actuarius.</td>
</tr>
<tr>
<td>A.D. 1573</td>
<td>Usage of the word ‘Atrain’ as the name of a street (see Hobson-Jobson).</td>
</tr>
</tbody>
</table>

**Reference.**

R = Rose flower and plant; RW = Rose-water; RA = Rose Attar.
c. A.D. 1574  — Geramino Rossi ("De distillatione liber" Ravenna, 1582) had noted that one could separate an extremely odorous oil matter from the surface of rose-water.

A.D. 1590  — Roses from Persia planted in India. Free use of Rose-water in the preparation of cosmetics mentioned in the Ain-i-Akbari.

A.D. 1610—1630  — Angelus Sala refers to the "volatile oil of roses as a substance of brilliant whiteness."

A.D. 1612  — Discovery of Attar of R by Nur Jehan.


A.D. 1656—1717  — Manucci describes the discovery of the RA.

c. A.D. 1667  — RA first described in a Persian work "Tarykh montekheb etc." on the history of Grand Moguls from A.D. 1525—1667.

A.D. 1670  — Richard Edwards mention "Otter."


c. A.D. 1680  — Rose industry taken to Bulgaria by a Turk.

A.D. 1684  — Kaempfer's visit to Persia—He found Rose distillaries in a flourishing condition.

A.D. 1712  — Kaempfer refers to "Atthaarchoneh" of the Royal House-hold of Persia (Hobson-Jobson).

— K. also refers to rose-water carried from Persia to all over India.

A.D. 1759  — "Otter box" (Hobson-Jobson).

A.D. 1794  — Edward Moor's note on RA in his Narrative.

— गुलाबी चार, worth Rs. 5 used at a banquet given to Nana Fadnis.

A.D. 1804  — Langles’s work on "Researches on the Discovery of the Essence of the Rose" (in French).

A.D. 1807  — Olivier found R industry in full swing in Shiraz, Farsistan and Karman in Persia.

A.D. 1824  — Heber's reference regarding the preparation of RA.

A.D. 1836  — M. Boitard's work on Roses (in French), Paris.

P.S.—After this paper was prepared I came across the following remarks on the Rose by Howard S. Reed in his History of Plant Sciences (U. S. A., 1942) p. 123 :—
Chapter VIII (Gardens)—

"European gardens have depended upon Oriental species of roses for breeding stock for many generations. LA QUINTINYE ("Instruction pour les jardins," (1697) edition) wrote of the Rose of China, but said it had several other names. He mentioned the size of the shrub, saying that it eventually attained the height of a tree. The parents of the modern cultivated rose of our gardens were three Chinese species. One of these, the China Monthly rose (Rose Chinensis) had been brought to India early in the seventeenth century by a Captain of the British East India Company. It was introduced into Holland in 1781 under the name Bengal Rose; hence it was thought to be a native of India. Sir Joseph Banks brought it to England in 1789. In 1804 the first rambler rose (R. multiflora, var... Carnea) reached England, followed in 1808 by the first tea-scented rose (R. odorata) both coming from China. These three species, then, have furnished the entire stock from which our modern roses have developed, hybridization and horti-cultural techniques having produced the wealth of garden forms now known."

In view of the important role played by the China rose in the development of modern roses it is worth while knowing the history of the Rose in China as reflected in Chinese sources botanical or otherwise. In this connection I made an inquiry in 1944 of Prof. Hsü Jen of China then working with Dr. Birbhal Sahni at the Lucknow University. Prof. Hsü was kind enough to write in this matter to his friend Mr. T.T. Yu, a research fellow in the Yunnan Botanical Institute. Mr. Yu responded promptly and sent me through Prof. Hsü his Notes on 57 varieties of Chinese Roses, cultivated in North China, East China, West China, N. W. China, S. W. China, South China, Central China, Central Asia, Korea, Japan, Burma, N. E. China etc. The names in this list are too technical to be reproduced here. I may, however, mention some varieties by their popular names such as—

1. Bank's rose, for covering banks and rockey slopes.
2. Macartney Rose (E. China).
3. Himalayan Musk Rose (W. C.).
5. Cabbage Rose (Caucasus) introduced.
6. Cherokee Rose (E. and S.) — fruit and seed used in medicine.
7. Seven Sisters Rose.
8. Tea Rose (R. Odorata)—S. W.

While forwarding to me Mr. Yu's list of 57 Roses Prof. Hsü sent me some valuable information about Chinese Roses and literature pertaining to them as follows:—
Lucknow, 9th Sept. 1944—"Two famous Chinese books dealing with plants are Chih-wuming-Shih-tu-K'ao, a manual of flowering plants with illustrations of figures and Chyun-fanpu, a manual of ornamental plants. The former is a great book, written by Wu-Chi-Chun in the early period of the Ching Dynasty, 300 years ago. The author described adequately 1714 species of plants with illustrations of accurate figures to certain amount, from different parts of China including Yunnan province. It is a great work and one can trace the plants by his figures even at present. One best Chinese taxonomist had traced these plants and wished to give some supplements, with Latin names etc. for publication but very unfortunately the work has not yet been finished as he died by illness two years ago. The second is only a manual of ornamental plants, written by Wang Shiang Ching in Sung Dynasty, about 10th to 11th century. Besides these, a great Chinese Materia Medica Pen-tsao-Kangmu, was written by the great herbalist, Li Shee-tsin of Ming Dynasty in 1595 but it is not merely a manual of plants, because it deals with some minerals and animals. As to the most ancient Chinese Materia Medica, probably it is the book "Shen-nung-pen-tsao-Ching," the materia medica of Shen-nung, which was believed to have been started as early as in the Han Dynasty since 31 B.C. and perfected by Tao Hung-Ching (A.D. 456-541).

In Mr. Yu's Notes on Roses, Rosa banksiae has been described in two books, Hua-Ching, the key of flowering plants, and Chun-fan-pu. The former is also a manual of ornamental plants, but I am sorry, I do not know the date and author of this book. Rosa laevigata has been described in Jia-yow-pen-tsao, a materia medica written by Jang Yu-Shee and others in A.D. 1057. Rosa microcarpa has been described in Pen-tsao-shih-yee, Materia Medica Supplementum by Chao Shyne-meng in 1765 A.D. Rosa Chinensis has been described in Pen-tsao-kang mu; Rosa multiflora in Shen-mung-pen-tsao-Ching; three varieties of Rosa multiflora in Chun-fan-pu, Rosa Roxburghii in Chih-wu-ming-shih-tu-Kao; Rosa rubus in Rua-Ching and Rosa rugosa in Chun-fan-pu." I hope the above remarks of Prof. Hsü will widen our knowledge of the Chinese roses and their historical back-ground.

In concluding these few notes of mine on the history of the Rose and Rose-products in their world-perspective I have to record my hearty thanks to Dr. Sadgopal, who stimulated my interest in the history of Gandhaśāstra, to Professor Hsü and Mr. Yu for the painstaking scholarly manner in which they supplied some information about the Chinese Roses and their history and finally to Dr. Birbal Sahni not only for putting me in touch with these Chinese scholars but also for stimulating my study of the age-long history of Indian plants, a vast unexplored field, as it appears to me when I study problem after problem connected with this field.
5. Buchanan's Account of the Manufacture of Rose-water and other Perfumes at Patna in A.D. 1811 and its bearing on the History of Indian Perfumery Industry

In my paper on "Some Sanskrit verses regarding the Manufacture of Rose-water" (found in a MS of A.D. 1851) I have recorded the following facts bearing on the history of rose and rose-water in India:—

(1) As the Sanskrit verses regarding the manufacture of rose-water by the process of distillation are found interpolated in a MS of A.D. 1851 by some Sanskrit Pandit we can easily suppose that the manufacture of rose-water from roses cultivated on Indian soil had commenced long before A.D. 1851. We must, however, investigate the exact chronology of this indigenous rose-water by recording earlier references to the manufacture of indigenous rose-water found in Sanskrit or non-Sanskrit sources.

(2) The Rājavyavahāraḥakṣa (c. A.D. 1676) refers to gulāb or rose-water but does not record the process of its manufacture.

(3) The work Kṣemakutūhala of Kṣemaśarman (c. A.D. 1550) refers to a flower goulala which may perhaps mean a rose-flower.

(4) Bhagavantrao Yādava refers to gulāh or rose in his Marathi poem in praise of Nana Saheb Peshwa (A.D. 1721-1761).

(5) Raja Shahu of Satara ordered in A.D. 1723 twenty bottles of rose-water from the British though Kanhoji Angria. This reference suggests that indigenous rose-water was not available to Shahu or that the imported rose-water was of superior quality.

(6) In MSS dated 1787 A.D. and 1874 A.D. of a work called Hakim Pharakšis which is a mixture of Sanskrit, Marathi and Hindi, we find references to gulāb flower, gulāb attār and gulkand, all of which show the growing popularity of the rose in India.

(7) The Hindi poet Bihari (A.D. 1603—1663) refers to gulāb in the sense of rose-flower and rose-water in his Satasai.

(8) The rose-water festival current at the court of the Mogul Emperor Shah Jahan (A.D. 1628—1658) suggests the use of imported rose-water rather than the indigenous one.

The foregoing data, though useful for an accurate history of rose-flowers in India, does not enlighten us as to the history of the indigenous manufacture of rose water. I shall, therefore, record in this paper some more data regarding this manufacture as recorded by Francis Buchanan in his _Patna-Gaya Report_ (A.D. 1811—12) published by the Behar and Orissa Research Society. These data support the Sanskrit verses regarding the manufacture of rose-water found interpolated in a MS of A.D. 1851.

Speaking of persons by whom commerce is conducted, Buchanan states in his _Patna-Gaya Report_ as follows:—

_Vol. II, p. 689_—"The Gandhi deal in rose-water, perfumed oils and essences, toothpowder and finer kinds of implements used for smoking. They have capitals from 100 to 1,000 Rs. The perfumes are also retailed by those who make them."

_Page 768_—Buchanan mentions 8 Distillers of rose-water and essences at Patna City and 3 Chambeli-flower-oil-makers at Bar.

_Page 777_—In Table 44 Buchanan records the exports and imports of Perfumes and essences as follows:—

<table>
<thead>
<tr>
<th></th>
<th>Exports</th>
<th>Imports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patna</td>
<td>Rs. 3,100</td>
<td>Rs. 5,300</td>
</tr>
<tr>
<td>Patna and other Divisions</td>
<td>Rs. 4,000</td>
<td>Rs. 5,950</td>
</tr>
</tbody>
</table>

The above figures clearly show the economic value of the perfumery trade (in A.D. 1811) of which rose-water was one of the items. Buchanan’s remarks on the manufacture of articles of Indian perfumery are highly informative and useful for the history of this perfumery and hence may be quoted in extenso. Speaking of the ‘common artists’ he says:—

_Page 631 ff._—‘Those who distil perfumes complain that the business is overstocked and that the prices have of late been much reduced; but they still seem high, and no dependence can be placed on what they say, no two of them agreeing in their account but _they are in easy circumstances_. They use a copper still which may hold from 150 to 200

2. Published by Behar and Orissa Research Society, Patna. _Vol. II, p. 689_—Buchanan refers to betel-leaf-sellers as follows:—

_The Tumbul is retail betel-leaf and the lime used for chewing, a few in shops but mostly in the streets. They are not all of the Tumbul Caste. They have as Capitals from 8 annas to 50 rupees except in Patna, where some have to the extent of 500 Rs._

3. This is the _Dolayantya_ referred to in the Sanskrit verses about rose-water. In these verses the _dolayantya_ is called _tālakā_ (made of copper). For a picture of _Dolayantya_, see _Plate 11_ (10), on p. 114 of _Aryan Medical Science_ by Thakore Saheb of Goondal, London, 1896. The Sanskrit verses call _roose-water_ "पुष्प बयंत्र, पुष्प राहु. It is verle cold (सुंदित) and fragrant (सुस्वाग). The use of silver basin (स्वात्त्र) and silver tray (रोपयाग्र) referred to in Sanskrit verses is absent in Buchanan’s description."
lbs. of water, and has a flat head. A tube bent at right angles conveys the
vapours into a copper cucurbit, which serves as a recipient and is placed in
a wide-mouthed earthen vessel to contain water for condensing the vapour.
The whole apparatus and the place where it stands are exceedingly
slowly.

The artists make three kinds of water, from roses, from the Pandanus
(Keara) and from the lime (citrus); but the quantity of the two latter is
very trifling. The rose water is either single or double-distilled, the latter
being drawn a second-time from fresh roses. These flowers are only used
when fresh gathered. Even in three hours they are supposed to lose their
perfume. The single-distilled rose-water sells, by whole-sale, at from 12 to
13 Rs. and by retail, at from 16 to 20 Rs. the man, which weighs about
76 lbs. Each distillation, according to some, for a man of water requires
22,000 roses and about 56 seers of water, of which 40 only are drawn off.
The double-distilled rose under retails at 2 Rs. a seer (1 9/10 lb.), and being
only in demand among Europeans, is not made except when commissioned.
Others allege that all is distilled twice, as such alone will keep, and that
what is required for common use is diluted with water when wanted.

The other waters are distilled in the same manner. All their essences
consist of sandal-wood oil impregnated with various smells, for imbibing
which, this oil has a strong capacity. The best workmen distil their own
sandal-oil but some is imported. The sandal wood comes from Malabar.
It is rasped, soaked three days in a little water, and the oil is found floating
on the surface of water in the recipient, and distilling over into this the
waters from various substances such as roses, the flowers of the Bel
(Jasminum Sambac W.), spices, the roots of the Andropogon called Kus,
the flower of the Chameli (Jasminum grandiflorum), that of the
Mulsari (Mimusops Elengi), Agar wood (Agallochum), the flower of the
Keara (Pandanus), the flower called Juhi (Jasminum) and even clay. The
most common by far is the rose, and what is in almost universal use among
the natives of India, as atur of roses is sandal-wood oil impregnated in
this manner, which, according to its quality, sells at from 1 to 2 Rs. for a
rupee weight while the real essential oil of roses costs 50 Rs. at Patna.
The sandal oil seems to extract the whole perfume from the rose-water, as
this passes into the recipient.

4. This is the Ketaka or Ketaki plant of classical antiquity. Kalidasa refers to it:-
"केतकेकुचिनिमी।" (Meghaduta 23, Raghuvamsa, VI, 17; XIII, 16; II, 23 ("इसिदितिभ व्यिप्शे
सुचिमि: केतकीनाम्") and II, 20 (flower of this plant), Ghatakarpara Kavya 15 refers to it:
"प्रतिमालियम वनानि केतकानाम्."
The next most common essence, called Motiya is made from Bel flower (Jasminum Sambac), and is cheaper than the common essence of roses. The only other essence commonly used is that impregnated with the odour of spices and called Mujma. The ingredients vary from 5 to 50, but cloves, nutmegs, greater and lesser cardamoms, and saffron are the most common. It sells for from 1 to 3 rupees for a rupee weight (3 drams apothecaries weight) but is not at all agreeable to my sense of smelling which is indeed the case with all the others. By the skill, however, of European artists they might perhaps be rendered useful ingredients in perfumes as they preserve the smell of various very agreeable odorous substance, which could not be readily procured in Europe, especially that of the Pandanus\textsuperscript{5} flower. The most strange of these essences is that made with the clay which communicates to oil of sandal-wood the smell, which dry clay emits, when first wetted, and which to me, is far from agreeable. It sells at 1\textolinebreak\$\frac{1}{3} rupee for each rupee weight. The best sandal oil costs here about half a rupee for the rupee weight.

The workman of Bar, instead of a distilled oil impregnate an expressed oil with the odour of Chambeli flower (Jasminum grandiflorum W.) At the beginning of the flowering season they take 82 seers (about 169 lbs.) of the seed of sesameum (Til), and every fair day during the season add to one-half of it as many flowers as they can collect, which may be from one-forth to one-fourth of its weight; next day these old flowers are picked out and put to the other half of the seed. The season lasts about three months and the whole quantity of flowers may in that time equal the whole weight of seed; but one-half of the seed is impregnated entirely with the fresh flowers, while those given to the other half are withered, and have lost part of their strength. The seed is then squeezed in a common oil mill, and each gives 12 seers, or about 24 lbs. of oil; that impregnated by the fresh flowers being of twice as much value as what is impregnated with the withered. I am told that the 12 seers of the best kind are mixed with 96 seers of common oil of Sesamum, and the mixture here sells at half a rupee for the seer so that it brings 54 Rs. The people who make it valued it at 12 Rs, and thus made it appear that they lost by

\textsuperscript{5} Vide Dr. Sadgopal’s article on Kewda in “Soap, Perfumery and Cosmetics, May, 1937. The Kewda or Pandanus Odoratissimus L. Occurs in India, Arabia and Persia. In India occurs in Bengal, South India, Central India, United Provinces and North-West Burma. The superior type of Kewda is found in Ganjam Dist. of Orissa.
the manufacture, but they live easily," and do no other work than to pick the flowers from among the seed, and mix and retail the oil. The inferior oil at the same rate will bring 27 Rs. and the total value will be 81 Rs. The real charges are 82 seers of Sesamum seed, at 25 seers a rupee = 3 Rs. 5 as. 9 pies; 44 seers of oil of Sesamum, 12 Rs. 12 annas; 2 mans of flowers, 12 Rs.; expressing the oil 8 annas; total 19 Rs. 9 as. 9 pies; profit 61 Rs. 6 as. 3 pies.

Those who express oils from various seeds (Teli) use the same mill exactly that is used in the districts hitherto surveyed.

Buchanan's survey of Perfumery industry as recorded in the foregoing extracts shows European interest in Indian perfumery at the time of the British advent in India. As a result of this very interest India lost her world markets and "European nations began seriously entering the domain of perfumes also. A time came when France and Germany captured all the markets for their aromatics and to-day we find India, the cradle of Perfume Industry, as one of the biggest consumers of foreign perfumes. While Europe made rapid advance with the help of modern scientific knowledge, India lost even that much which it treasured so successfully for centuries past."?

It appears from Buchanan's account of the distillation of Rose-water in A.D. 1811-12 at Patna that owners of big gardens were cultivating the rose at this centre with a view to supplying the necessary rose-flowers for manufacturing rose-water and attar of roses as well. We must now trace the account of this manufacture by Indian perfumers earlier than A.D. 1800 and find out the exact chronology of the rose-water manufacture as started by Indians. As there can be no distillation of flower perfumes without

6. This remark reminds me of the following stanza of the Pañcatantra about the lucrative character of perfumery trade:—

"पंपयानं गांविकं परशं किमये : काश्मरादिभि : |
त挹ेन च यहिण्तेत ततु शतेन प्रदीयते ||"

7. Vide Dr. Sadgopal's article in Indian Soap Journal (July-Sept. 1943) on "An up-to-date survey of Indian Perfumery Industry". I note some points from this interesting article:

(1) Big centres of perfumery industry sprang up at Kanauj, Jaunpur, and Ghazipur, a mention of which is made in Shah Nama of Firdousi (c. A.D. 1030).

(2) Some of the old houses of perfumery at Kanauj are even to-day masters of millions and billions.

(3) Avicenna, the Arabian physician was well versed in the art of making perfumes. When Sultan Saladin made his triumphant entry the walls of the mosque of Omar were washed with rose-water brought from the East.
flower-gardens Buchanan has taken care to record his notes on these flower-gardens, in which rose was prominently cultivated as will be seen from the following extract:

Pages 518-519 (Vol. II) — Flower Gardens.

"Flower gardens for ornament are not quite so much neglected as in Bhagalpur. Raja Mitrajit, two or three other Zemindars, and many merchants of Patna have such; but they are far from being neat, or from containing a great variety of plants. The only garden worth notice is one belonging to Baidyanath Babu, a banker of Patna. In the whole of both districts there may be 200. The garland makers especially near Gaya, raise a considerable quantity of flowers for sale: but they study very little to make their garlands ornamental. They make them of whatever flower is reared most easily at the season, so that they have little or no variety. During the cold season when I travelled through the district, no flower almost was in use, except that of the _Tagetes erecta_. Those who extract essences have several flower gardens at Patna and Bar. At the former between two and three hundred persons have rose-gardens containing from two to ten Kathas each that is from 1/15 to 1/3 of an acre. The rose which is cultivated in these gardens is said to have originally come from Busorah and at Patna is called by that name; but in Bengal it is called the Patna rose. It does not seem to differ materially from the common red rose of European gardens (Rosa gallica). It is propagated by cutting in the rainy season. The cuttings are planted in a bed until they take root and are then placed three or four together, in one hole, the holes being from two to three cubits distant. Every two or three years the bushes are pruned. They flower from the middle of February to the middle of May and must be watered in the dry season. The flowers which are rather smaller than those in Europe, sell to the distillers at from 1000 to 4000 to the rupee. They are allowed to expand fully before they are sold. At Bar those who make essences use almost entirely the Chambeli, which botanists call Jasminum gradiiflorum. I have very strong doubts whether it can be considered as a different species from the common jasmine of Europe.

Most of the gardens belong to the persons who make the oil. These pretend to be losers by the concern so that little dependence can be placed on what they said as they live very easily and perform no kind of manual labour. They alleged that all the gardens amount to 25 bigahs or about 17 acres; but others alleged twice the extent. I could procure no estimate of the value or the quantity of the produce of a bigah on which the least dependence could be placed.
The gardens are managed much like those of the rose tree, but the plant does not require pruning. It is not supported, as it grows more erect than in Europe. It produces its flower in the rainy season. A great many official plants are reared in the gardens near Patna but I shall here pass them over as I have done those which grow spontaneously because I could say nothing on the subject but what being entirely scientific, would be altogether unintelligible except to the botanist and physician."

The above account of the growing number of flower-gardens in Bihar and in particular of the rose gardens which supplied rose-flowers for the distillation of rose-water is highly instructive and interesting. We may now link it up with the account of the cultivation of roses as described in a Hindi work "Bag Vilas" composed by the Court-poet Šiva Kavi, patronized by Maharaja Daulatrao Scindia of Gwalior (A.D. 1780–1827). Daulatrao was a ruler of aesthetic tastes. He was a great lover of gardens and gardening and laid out the famous Phool Bag of Gwalior. Šiva Kavi composed this treatise to please Daulatrao. In this treatise he refers to the four types of roses and many other varieties of fruit and flower trees worth planting in a model garden. About roses this poet says:—

—"जल देण आविष्कारयामि, पुनि हुन खेब जताय।
पूरा मास मे कलम कर, शीघ्र सरस गुलाब।
आये बली गुलाब मे, तबको हुनो विचार।
कुमलपत्र भरि मास मे, नीर न दौजे जान।"

—"कैमन्द सरस गुलाब को, अस सेवति सुजान।
बुझौ मे खुलास को, जिगर एक अभिराम।"

Both Daulatrao Scindia and his Court-poet Šiva Kavi were contemporaries of Francis Buchanan and hence their interest in gardens and cultivation of roses at Gwalior, c. A.D. 1800, is contemporaneous with the cultivation of rose gardens at Patna so graphically described by Buchanan in A.D. 1811-1812. As I have not read the Bag Vilas of Šiva Kavi I cannot say if this treatise contains any reference to the manufacture of rose-water at Gwalior c. A.D. 1800.
5. Studies in the History of Indian Cosmetics and Perfumery
A Critical Analysis of a Rare Manuscript of Gandhavāda and its Marathi Commentary
(Between c. A.D. 1350 and 1550)*

In a paper contributed by me to the *Journal of the Bombay University*, I have given a critical analysis of a rare treatise on the science of cosmetics and perfumery represented by a single MS in the Radži Collection of the Bhandarkar O. R. Institute, Poona. This work is called the *Gandhasara* by Gaṅgādhara. In the same bundle in which I discovered the *Gandhasara* there is another work written in the same hand called the *Gandhavāda* with a Marathi commentary. Folios 1 to 27a comprise the *Gandhasara*, while folios 27b to 49 comprise the *Gandhavāda* with commentary. After the colophon of the *Gandhasara* the MS of the *Gandhavāda* begins as follows:—

Folio 27b—"वर्णनलिखनमर्मिन्तिया जवस्रनाधिकसरिता मदमनकलागशिषितं भवनमर्मिन्तिया कारालविषयितानिशाशकरङ्गुत्तृताः। यतावस्तुसैविकं मूर्तिविज्ञितम्।"

|| हर्षे नमः || गंधवादु ||

नखपलिं भागपतं गंधो श्रुत्यागरपलं।
नख ध्रुवलकं चैव ध्रुवलं जाति कृतसं।
मंती शैलजमालीवं उद्योगदानपरिकं।
चंपाजसद लोकान गंधाणस्ति पुनर्खं।
प्रथकसलिमं भारी वर्कं हच्चापायत्व।
सहवानंवरं। चैव चुतं चुतक्षादशस्त्रं।
स्तलेखं च तलंगं च कोडं च चाल श्रावायं।
सुरभं च तुल्यं च नकं च धुतपायं।
पुष्पासं चुयासं च केरक्षादलकं।

|| मन्मोदविष्ठम् ||

टीका || श्रीस्वरं पलं २०। अग्रं पलं २। ज्ञायत्री पलं २। मांभि पलं २। सैलज पलं २। तालीस्वरं पलं २। चाल पलं २। भोल्ल टाकं १२। पावि टाकं १२। अंबसा टाकं १२। तक टाकं १२। उत्तरा टाकं १२। लंग टाकं ६। कोठ टाकं ६। नख टाकं ६।

कृपया तत्त्वात्मक होती नेत्रोंके दुलटा पानिवे। 
तैती तूर्ण मोजराजके आंदोलनदारों ग्राहीं दानियों। 
फुलचार बाजु दीजे। 
उत्तम बाजु होय, रायाय गोम्बेव देत गोम्बेव बुझा होय। 
अति उत्तम होय। 
भगवान उगारलून धारियो। 
हाँ महानुमंद दोहे।

मासी बुलड़े संभागीय लंबावार्धमिशा पुरकक।
अभासम नयेघाणी गाढ़िवालमर घेलिजे।
दुवाणा मह भूरि च सेलासर पुरकक नहुँ।
कूर्ते। संपर्कवत्का पुरकक द्रापरमागितक।
विश्वासी भद्दमुस्ता च पिपुलनागढीयो।
पुरुषार्थी योगयो निशा व्यजाय पले पले।
पलाया स्वर्णप्रव रेषर व्यारी बयमालित।
नबरा पुनरपचय च पेशाविलासर्तका।
पुष्पवाले नयेराखी राजगोम्बो च विन्दु।

वशीदृश्य समर्पितजनक मनूरोह।

टीका।
मासी पले 8। बुलड़े महानुमंडला भोजविनुपूल पले 8। सेलेनी पले 8। लरंगा पले 8। भ्राई हलाद पले 8। गाढ़िवाला पले 8। महानुमंडला पले 4। नबरा पले 4। सेलेने पले 4। दुवाणा पले 4। भूरि पले 4। सेलासर पले 4। कूर्ते पले 12। नापिकला पले 12। भद्दमुस्ता पले 20। पिपुलनागढीयो पले 2। पुनरमर पले 2। कोट पले 2। हलाद पले 1। जारकुल पले 1। गेह पलु 'उ। नबरा तत्त्वात्मक होती दानियो।

कलांकित। 
मग सेलासराबी भाटना दीजे। 
फुलचार बाजु दीजे। 
राजवर्ष सीक्षित 
जनवर्ष मनरंज बुझा समर्पितहरू। 9।”

**Folio 31** 
- अथ कहलरीपरीक्षा।
- कहलरीपरीक्षा।

**Folio 32** 
- पुनरपचय कहलरी कथरी।

**Folio 32b** 
- अथ कहलरी कथरी।
- अथ ज्ञायनकी कथरी।

**Folio 33b** 
- “कचहल तेल”
- “तेलवै वारपकारसी च महुसा मोजराज द्रापरमान। मासी चारक।” etc.

**Folio 34a** 
- “दूसरा काय मेलवकी।”

**Folio 35b** 
- “केन्द्र फुलचार बाजु दीजे। उत्तम बुझा होय।”

**Folio 36-37** — Recipes for several varieties of बुझा।

**Folio 37** 
- “आग सैलेन।”

**Folio 38** 
- “मोजराज हुट बाढ।”

**Folio 39** 
- “अथ मंडराजु।”

**Folio 40b** 
- “या नव भूपार्चल्लु।”
Folio 41a — "|| या नाव राजमलिनोह || मानिनीमानंबंजन—गंधराजु। होये।"
Folio 41b — "या गंधराजा नाव बुर्कर्षकोलाहल् ॥ २ ॥"
— "या गंधराजा नाव कामिनीमोहन्"
Folio 42a — "या नाव मदनकामेश्वर”
— "या नाव जनाकुश। रामायणहाद्व। ॥ ५ ॥"
— ("स्वेत जनाकुशो नाम कामिनीप्राणवल्लभा।”)
Folio 42b — "या नाव बुर्कर्षसेकर”
Folio 43a — "हा गंधराजु इन्द्रनिषिद्धि ("तेलं देवेत्रनिषिद्धि।”)

Then follow some more recipes for गंधराज, each ending with a certificate "होये” or "गंधराजु चोकट”
Folio 45b — "अथ धूपाची करणी”
— "राजयोग्य धूप”
Folio 46a — "अनंगचेंद्र (धूप) नाम इसे निषिद्धि”
— "या धूपानाव कोलाहलु”
Folio 47 — "या नाव कुमारधूप”
— "दिनविनै ("उत्तमचालिता होति")
— "या नाव लुंदरववेंति”
— "या नाव भूपालवल्लभवणि”
Folio 47b — "अथ उद्वाहि”
Folio 48 — "उत्तमचल्वणि”
— "सुगमेत केल”
— "काचा तेल”
Folio 49 — "|| इति बुर्का गंधराज आयि तेलिया मालिया तथा सुगमेत तथा काचा तेल तथा कस्तूरीची परीक्षा व करणी व जाबादीची करणी तथा कमलकरणी तथा धूपकरणी गोलिया तथा उद्वधते खितक मेलाचा परिपूर्ण जाला असे। || इति गंधराजु चोकट।”

Folio 49a —

<table>
<thead>
<tr>
<th>बुर्का</th>
<th>बुर्का</th>
<th>कस्तूरीकरणी</th>
<th>बुर्का</th>
<th>बुर्का</th>
</tr>
</thead>
<tbody>
<tr>
<td>बुर्का</td>
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<tr>
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<td>बुर्का</td>
<td>बुर्का</td>
<td>बुर्का</td>
</tr>
</tbody>
</table>
The MS containing these two treatises viz. (1) the Gandhasāra and the Gandhavāda with Bhaṣā commentary appears to be about 200 years old, judging by the condition of the paper on which it is written and also its script. The question about the authorship and chronology of these two treatises may now be discussed as follows:—

(1) Is it possible to suppose that the treatise Gandhavāda is also the work of Gāndhārā, the author of the Gandhasāra?

There is no definite evidence to answer this question in the positive or negative.

(2) Who is the author of the Bhaṣā or Marathi commentary on the Gandhavāda in Sanskrit?

This question also cannot be answered definitely though it is possible to suppose that the author of the Gandhavāda himself composed the Marathi commentary on his own work.

(3) What is the chronology of both these works and the Bhaṣā commentary?

All these texts are certainly more than 200 years old. The inference based on the condition of the manuscript and its script finds corroboration from the old Marathi language of the commentary. At any rate the form of the Marathi language of the commentary will provide us some criterion to fix its chronology approximately. I note below some words and expressions from the commentary to enable scholars to fix its chronology:—

— वेष (Sansk. वेष) (27) — होए, होये (28)
— श्रीमण (27) — जाए (30)
— वाक्येन्द्र, कौरे (33) — भिन्नों श्रीमण (33)
Judging by the above forms of the Marathi language of the commentary I may tentatively assign this commentary to the latter half of the 15th century or the middle of the 16th century A.D.

The Marathi commentary is useful linguistically because it gives us the vernacular equivalents for some of the Sanskrit terms in the text of the Gandhāvāda. In the MS of the Gandhāsāra some tables of aromatic materials are recorded on some folios. I cannot say if these tables form part of the text of the Gandhāsāra of Gaṅgādhara. I reproduce these tables below as they contain both Sanskrit and vernacular terms:—

<table>
<thead>
<tr>
<th>तन</th>
<th>कृष्ट</th>
<th>लवंग</th>
<th>चंदन</th>
<th>सीफ</th>
<th>मोथ</th>
</tr>
</thead>
<tbody>
<tr>
<td>जासिपी</td>
<td>वालाक</td>
<td>अलावालकु</td>
<td>जायिफल</td>
<td>चंद्रवक्तक</td>
<td>पठािला</td>
</tr>
<tr>
<td>हिस्तें</td>
<td>रोहिस</td>
<td>वरिष्या</td>
<td>वलंगवक्तक</td>
<td>पत्रक</td>
<td>नीली</td>
</tr>
<tr>
<td>पत्रक</td>
<td>नीली</td>
<td>चोरपुष्पी</td>
<td>रेशुक</td>
<td>पत्रक</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>पन्नक</th>
<th>कृष्ट</th>
<th>नली</th>
<th>एकांगी</th>
<th>तंग</th>
</tr>
</thead>
<tbody>
<tr>
<td>शैलज</td>
<td>मुरा</td>
<td>मुस्तच</td>
<td>चोरपुष्पी</td>
<td>मासी</td>
</tr>
<tr>
<td>वाल</td>
<td>मुशीर</td>
<td>तेजवली</td>
<td>नागकेसर</td>
<td>बोल</td>
</tr>
<tr>
<td>काँदा</td>
<td>लताकुंसूर</td>
<td>विहारी</td>
<td>कुरुं</td>
<td>प्रियंगु</td>
</tr>
<tr>
<td>सीफ</td>
<td>मदन</td>
<td>रोहिस</td>
<td>मस्तव</td>
<td>पत्रक</td>
</tr>
</tbody>
</table>
### Folio 11a

<table>
<thead>
<tr>
<th>मांसी</th>
<th>हिरंडे</th>
<th>नागकेशर</th>
<th>गड़वन</th>
<th>रौखेला</th>
</tr>
</thead>
<tbody>
<tr>
<td>पद्रक</td>
<td>मुरा</td>
<td>कुट</td>
<td>मुला</td>
<td>वालक</td>
</tr>
<tr>
<td>शरीर</td>
<td>तज</td>
<td>एकांगी</td>
<td>पश्चाक</td>
<td>सिञ्हा</td>
</tr>
<tr>
<td>संफ</td>
<td>रुपूक</td>
<td>तगार</td>
<td>लगास</td>
<td>तिबचपा</td>
</tr>
<tr>
<td>दशरीर</td>
<td>विहार</td>
<td>नख</td>
<td>एलावालु</td>
<td>चंपक</td>
</tr>
</tbody>
</table>

### Folio 11b

<table>
<thead>
<tr>
<th>मियंगु</th>
<th>हृदंतकी</th>
<th>शरीर</th>
<th>लवंग</th>
</tr>
</thead>
<tbody>
<tr>
<td>शीफ</td>
<td>नागकेशर</td>
<td>दशरीर</td>
<td>द्वार</td>
</tr>
<tr>
<td>सुधेला</td>
<td>मरीचिकोटु</td>
<td>कुट</td>
<td>जाइपती</td>
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</tbody>
</table>

### Folio 12a

<table>
<thead>
<tr>
<th>चंदन</th>
<th>जाइपती</th>
<th>क्रंकोल</th>
<th>लवंगलकु</th>
<th>जाइपती</th>
</tr>
</thead>
<tbody>
<tr>
<td>पश्चाक</td>
<td>कुट</td>
<td>सिञ्हा</td>
<td>तज</td>
<td>नख</td>
</tr>
<tr>
<td>खबास</td>
<td>मुरा</td>
<td>ईदलकु</td>
<td>हिरंडे</td>
<td>एला�</td>
</tr>
<tr>
<td>कुंकुम</td>
<td>एलावालु</td>
<td>लवंग</td>
<td>नागकेशर</td>
<td>द्रशुरु</td>
</tr>
<tr>
<td>माठवन</td>
<td>बोल</td>
<td>कव्वर</td>
<td>शरी</td>
<td>मांसी</td>
</tr>
</tbody>
</table>

### Folio 16a

<table>
<thead>
<tr>
<th>ग्राम</th>
<th>चंदन</th>
<th>देवदार</th>
<th>सुभी</th>
<th>तिहार</th>
<th>मांसी</th>
<th>गुरा</th>
</tr>
</thead>
<tbody>
<tr>
<td>वालक</td>
<td>कुट</td>
<td>मुस्ता</td>
<td>गल</td>
<td>लचा</td>
<td>गुमुख</td>
<td>श्रोबस</td>
</tr>
<tr>
<td>बाल</td>
<td>कुंकुम</td>
<td>सलगी</td>
<td>श्रीलाल</td>
<td>कुंकुम</td>
<td>नागकेशर</td>
<td>हिरंडे</td>
</tr>
<tr>
<td>मांसी</td>
<td>बचा</td>
<td>मतीरकोल</td>
<td>जाटीकोप</td>
<td>जाइफल</td>
<td>पश्चाक</td>
<td>श्त्रीलाल</td>
</tr>
<tr>
<td>तालिस</td>
<td>तामाल</td>
<td>शी</td>
<td>नल</td>
<td>सुधेला</td>
<td>खदास</td>
<td>कट्टी</td>
</tr>
<tr>
<td>लवंग</td>
<td>वरेस</td>
<td>दमन</td>
<td>मच्छ</td>
<td>अशोक</td>
<td>महातुमंग</td>
<td>चंदलकु</td>
</tr>
<tr>
<td>सीफ</td>
<td>गंगमुस्त</td>
<td>प्रियभु</td>
<td>लावलकु</td>
<td>एलावालु</td>
<td>परव</td>
<td></td>
</tr>
</tbody>
</table>
The foregoing tables with the exception of the last one are perhaps intended to help the actual manufacture of perfumes. They give at a glance the several aromatic ingredients and their suggested combinations. The elaborate table on folio 20b specifies the proportions of these ingredients. It is for the Indian manufacturers of perfumes to understand their exact significance and compare these proportions with those now in practice.

I now close this paper by noting below the names of materials mentioned in the Marathi commentary on the Gandhavāda:

Folio 27 — भ्रीवेद, अग्र, नक, जायपत्री, भोगी, शेलज, तालीलफन, वाल, भोल, पाथिच, श्रीव, नज, बेला, लवंग, कौय, लप, पुलाचा, वाल, दुधा, भ्रीगाँच.
2. "This (Buka powder) owes its origin to सिंचण", who is possibly the Yadava king Singhana (A.D. 1210-1247). The reference to सिंचण is also found in the text of Gandhariavada which reads— "सो बुधा सिंचणे निनाद्यो राजस्य कह मे हुगवायो." Evidently both the text of the Gandhariavada and its Marathi Commentary are later than A.D. 1300 or so.

In the Rasamketakaśika of Kāyastha Camunḍa (A.D. 1475—1509) a physician called मेरवानन्द is said to have administered करकुकर तो king Singha:-

"सिंचणेश्वरिनिपात भूमरिभविष्ये रसम।
देवभाग मेरवानन्दो भूरो आमात्रक हदी।"

The foregoing analysis of the Marathi commentary reveals in detail the variety of aromatic and other materials that were used in Medieval India for the manufacture of cosmetics and perfumery. Additional points furnished by this analysis are the following:—

(1) Sanskrit and other terms and their equivalents are recorded as follows:

“हेम म्हणून अग्र”, “किंमिजङ्गू म्हणून लाख”

(2) Bhojarāja mentioned on folio 38 in the expression “भोजराजाद्वियादि” is evidently King Bhoja of Dhara (c. A.D. 1050).

(3) Śinghāna referred to on folio 30 as the originator of बुक powder is possibly identical with the Yadava King विहुर (A.D. 1210—1247).

(4) It appears that glass-vessels were used in connection with the manufacture of perfumery. कांठकुंटिल or glass-bottle is mentioned on folio 34. कांठपांग or a glass-vessel is referred to on folios 39 and 40.

(5) A piece of woolen blanket was used as a strainer (“कोल्लेन गाळूनि थडले —” Folio 38).

(6) As regards the पालात्रय (Folios 40 and 45) and the नालकायत्र (Folio 45) referred to in the commentary please see plate IV (21 and 22) in the Short History of Aryan Medical Science, by Thakore Saheb of Gondal, London, 1896.

(7) There are references to Cinnamon as दार्चीनी (Folio 35) as दार्चीनी (Folio 36). Hobson-Jobson (By Yule and Burnell, 1903) states that Darcheenee is a Persian word meaning China-stick. It records usages of dar-chini, dated A.D. 1563 and 1621.

(7) There are references to the word “खोबरे” in the commentary (vide Folio 38 — “खोबरे जुने”) meaning “the dried kernel of the cocoanut” which is called in English Coprah (vide Hobson-Jobson, pp. 253-254, where we get dated usages of the word like Copra (A.D. 1563, 1578), Chopra (A.D. 1584, etc.).

In view of the data recorded above I am inclined to fix the date of the Gandharvāda and its Marathi commentary between A.D. 1530 and 1550 tentatively. This date is consistent with the reference to King Śinghāna (A.D. 1210-1247) and the old forms of the Marathi language, not to say the present condition of the MS and its script. I hope that the students of historical linguistics and the students of the history of Perfumery industry of medieval India will fully exploit the rich contents of these new sources for their study viz. the (1) Gandhasāra of Gangādhara and the (2) Gandharvāda with Marathi commentary.
6. Perfumes and Cosmetics in the Royal Bath*
c.A.D. 1130

Owing to early European interest in Indian Philosophy an impression has been created in European countries that ancient Indians were more concerned with the things of the spirit than with things of this mundane world, which contribute to the enjoyment of the pleasures of life. An English writer defined the ideal of happiness in his country as the possession of "a big boiler and a bull's neck." Though ancient Indians regarded spiritual values with utmost veneration and planned their lives on the basis of these values in accordance with a graded course of spiritual development, they gave due attention to the enjoyment of the pleasures of life so called, for which "a big boiler and a bull's neck" are, of course, necessary.

Gagabhat (c. 1650-1675), who presided over the coronation of the Maratha King Shivaji the Great in A.D. 1674, quotes a verse in one of his works defining eight bhogas (objects of enjoyment) viz., (1) Perfumes, (2) Women, (3) Garments, (4) Music, (5) Betel, (6) Dinners, (7) Bed and (8) Flowers. With the exception of betel, i.e., the areca-nut with betel-leaf, etc., chewed in India, Indonesia, Indo-China, etc., all other items in this list of eight objects of enjoyment are recognised pleasures of life of the normal variety all over the world.

Students of the history of Perfumes and Cosmetics in India and outside will find in the above list of bhogas the mention of Perfumes and Flowers as legitimate objects of enjoyment. Accordingly a royal author Someśvara of the 12th Century, who composed an encyclopaedic Sanskrit work called the Mānasollāsā¹ (c.A.D. 1130) devotes many chapters to the description of the enjoyment of the different bhogas or objects of enjoyment. Among these chapters we find four chapters which are concerned with Perfumes and Cosmetics to be used by the King.

In India the importance of daily bath for persons of all classes has been emphasised by Hindu religion. Indian medical texts contain detailed instructions about the daily bath both for bodily comfort and cleanliness. Accordingly King Someśvara lays down detailed instructions about the

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¹ Only Vols. I and II of Mānasollāsā have been published in the Gaikwad Oriental Series, Baroda. I am concerned in this paper with Vol. II (published in 1939), pp. 81-87.
royal bath in his work, viz., the Manasollasa (Vol. II, pp. 81-83). A brief summary of these instructions with special reference to the perfumes and cosmetics used for the royal bath may be recorded here:

The apartment for the royal bath should be in the north-east quarter of the palace. Its ceiling, pillars and walls should be beautifully decorated with variegated colours. The king should take his bath in this apartment. Athletes (mallas) well versed in the art of massaging should massage the king's person freely with the tender palms of their hands by the use of fragrant and medicinal oil, which should be applied to the king's person by young female attendants with their tender palms of hands having nails shining like the interior of a Ketaki bud and having the capacity to produce a feeling of ecstasy in the king's mind. The perfumed oil used for massage should be prepared as follows:

Take a quantity of the seeds of Sesame (tila) and perfume it with the strong odour of the flowers of Ketaki (Pandanus odoratissimus), Jati (Jasminum grandiflorum), Punnaga (Calophyllum inophyllum) and Champaka (Michelia champaca). The seeds so perfumed should be crushed in a crusher (yantra) and the oil extracted from them. This oil is rich in perfume of the particular flowers used in the process. After massaging the king's person with perfumed oil of the above type an unguent should be applied to it. The method of preparing this unguent is as follows:

Collect the roots of the following herbs:

1. Palaka (Spinach ?)
2. Tasa (Valerianella Wallichii ?)
3. Mamsi (Musk-root or Indian Spikenard)
5. Pushkara (Lotus or a kind of Costus)
6. Koshtha (= Kushta = Costus)
7. Patolaka (Snake gourd)
8. Musta (Nut-grass or Cyperus Rotundus)
9. Nisha-drayam (two kinds of Nisha viz., (i) Turmeric and (ii) Tree-turmeric or Indian barberry)
10. Granthi-parna (Artemesia Vulgaris)

All these roots should be dried up in shade and then blended together (by reducing them to powder). To this mixture should be added a paste made of the leaves of trees mentioned below:

1. Nimba (Neem or Margosa tree)
2. Rajavrksha (Cassia Fistula or Indian Laburnum)
3. Tulasi (Holy Basil)
4. Arjaka (Sweet Basil, Ocimum Basilicum)
To the above mixture add the pounded seeds of the following:—

1. *Ela* (Cardamom)
2. *Jāti* (Jasmine)
3. *Sarṣapa* (Mustard)
4. *Tīla* (Sesame)
5. *Kustumbara* (Coriander)
6. *Bākuci* (Veronia anthelmintica)
7. *Cakramarda* (Cassia Tora)

To this mixture add the powder of the following weeds:—

1. *Lavaṇga* (Clove)
2. *Pādmaka* (Prunus padum)
3. *Lodhra* (Syzgium racemosa)
4. *Śrīkhandā* (Sandal)
5. *Suradāru* (Fir tree)
6. *Agaru* (Agallochum)
7. *Sarala* (Long-leaved pine)

Flowers of the following plants should be thrown duly blended into the mixtures specified above:—

1. *Nāgakeśara* (Mesua ferrea)
2. *Punnāga* (Calophyllum inophyllum)
3. *Kanta* (Aglaia Roxburghiana)
4. *Kunkuma* (Saffron)
5. *Campaka* (Michelia Champaca)

Lastly the following materials should be pounded in water or rice-vinegar (*Kañjika*) and added to the above unguent:—

1. *Guggulu* (Bdellium)
2. *Saindhava* (Rock-salt)
3. *Bola* (Myrrh)
4. *Sarjarasa* (Yellow resin)

The person of the king should be rubbed and cleaned with the application of the above unguents prepared from many aromatic and medicinal ingredients.

For removing the grease from the king’s person a Cake (*Khali*) should be used. The composition of this cake or soap should be as follows:—

Take a quantity of very fine wheat flour. Mix it with fermented rice-gruel (*aranāla*) and powdered roots of *madana* (Emetic Nut, *Randia dumetorum*) and *piṣuna* (Saffron).
The king should then take his bath with the help of beautiful female attendants. The water used for the bath should contain clean waters brought from different holy places and capable of removing dirt. It should be agreeably warm and delightful to the touch. Such water duly perfumed should be kept in vessels of iron. The ladies in attendance should fill this water in shining pitchers of gold and silver and pour it on the king's person with their faces towards the king. An unguent made of the perfumed pulp of the fruits of *amalaka* (*Emblic Myrobalan*) should be applied by these ladies to the hair of the king, which should be later washed clean with agreeably warm holy waters from holy places in different parts of India. Scented turmeric (*haridra*) pulp should then be applied to the king's person by these ladies, who should wash it clean with slightly cool water and then dry it up. The king should then remove the wet garment from his body and wear a clean white garment. Thus comes to an end the elaborate process of the *royal bath*. 
7. Studies in the History of Indian Cosmetics and Perfumery — The campaka oil and its Manufacture* (Between A.D. 500 and 1850)

Recently I discovered two rare MSS of two treatises on Gandhaśāstra (Cosmetics and Perfumery) called (1) the Gandhasara of Gaṇgādhara and (2) Gandhavāda with Marathi commentary. I have prepared two papers on those MSS, giving their critical analysis, which shows that these treatises were composed sometime between A.D. 1300 and 1600. We can definitely assign the Gandhavāda and its Marathi commentary to the period—A.D. 1300-1550 but the chronology of the Gandhasara of Gaṇgādhara cannot be definitely assigned to any period, though its contents are analogous to those of the Gandhavāda. Unfortunately none of these treatises quotes any works or their authors. I have reason to believe that these treatises are based on earlier treatises on Gandhaśāstra as I have observed in my two papers under reference.

For an accurate history of Indian Cosmetics and Perfumery we must study the references to these preparations separately and reconstruct the history of each preparation from the technical and non-technical literature. I shall illustrate this method by recording in this paper some evidence about the antiquity of the fragrant oil and other preparations in which the Campaka¹ flower and its perfume were made use of by our ancestors. Such a study will possess both historical and cultural importance especially with reference to the refined taste of those who manufactured these preparations for the use of cultured ladies and gentlemen of antiquity.

The use of fragrant oil is referred to in the following Subhasitas²

*Bharatiya Vidya, Vol. VI, pp. 149-155.

1. Vide p. 7 of Flowering Plants of Western India by A. K. Nairne, London, 1894,—

    'Michelia Champaca—A fine tree with long, oval pointed, waved leaves, shining above; sepals and petals 15 to 20, flowers yellow, rosy, fragrant; carpels roundish, oval sessile, many together at the end of a swollen stalk. Pila Champaka, Champaka.

    Commonly cultivated. The flowers are used by women to ornament their hair, and are offered in temples.

    "The champak odours fail
    Like sweet thoughts in a dream"—Shelley.

    "The pale yellow flowers have the sweet oppressive perfume which is celebrated in the poetry of the Hindus. From the wood of the champak the images of Buddha are carved for the temples—Tennent's Ceylon."

with the practice of abhyanga (i.e., smearing the body with oil or unguent) adopted by Indian ladies:

"त्रयोपत्वियारो अन्यांकं वितत्वोश्यि।
लस्यख्रोशिचलवशिष्णं नातरायमीयाम।॥ २६॥
श्रावनं कषरं सिम्येशरं सम्मश्चतदेश व्रजस्यख्रयुमय।
काशी कारालम्बत्तत्त्पाला मद्यं समासदीति मुद्रं ताम।॥ २८॥
व्रजस्येशि मिथुं तथन्देश निचचेनाकुशनं सम्मं शाने:
कुला चम्पकतेलंसेकतालं संपीढं मद्यं शिरं।
पाणिभं सलकंशोत्सघशतंत्तुकारोत्तराभ्यं करो—
स्मयंशं परिपश्वत: सकुलं देशनं प्रेस:॥ २८॥"

Here we find the use of Campaka oil by ladies in their abhyanga. Sanskrit anthologies contain many anyoktit on the Campaka tree and its fragrant flower, which show the popularity of the flower in the ancient Indian plant lore. This flower had lent its aroma to Indian life and literature through centuries.


"तै वव cम्पकारोकानजैङकनं बकुलारस्तथा॥ ४४॥"

Other trees mentioned in this description are:

श्राव, श्रापरतक, नारिकेल, तिन्दुक, श्रातक, जीर, डरिड्र, जीयपुर, पनस, सिन्धुक, मोत, खजूर, ताम्रकेतिस, पापारत, चौट, नीप, बिन्न, कविश्च, जामू, काश्मीर, बदरी, बुद, उदम्बर, वद, अश्वम, भासक, बंसल, हरीस, कळीम, केल, गुमल, पुलाम, सोपरन, कारिकार, पटल, कुदुक, मन्दार, इन्द्रिय, पारिजात, कौंजियार, राधाकृष्ण, वासुदेव शाल, ताल, तमाल, धियाप, धालमली, तिन्दुक, शिपार, तरल, कुमुद, पुतडीक, कोणदोतल, कहीर, करल, तिल, सहार (and its महानी).

The description also contains names of beasts and birds of this forest such as गज, सिंह, क्षेपादित तथा शिलिविन, कोकिल, शारिका, चक्र, राजष्ठ, सारस, etc. Mineral products are also mentioned: हसिल, हिथुगल, मन:शिला, etc.

Regarding the antiquity of some of the plants mentioned in the Mahabharata reference is invited to the article on Vedic Plants by Dr. G. P. Majumdar in B. C. Law Volume Part I, pp. 645-668. Plants have proved friends of men from the remotest antiquity and Dr. Majumdar’s studies of Indian plants are bound to enhance our respect for these friends when we know their historical and cultural perspective.
The Gandhasāra of Gaṅgādhara contains the following references to Campaka:

Folio 5 (B. O. R. Institute MS)

“चंपकाकांवसानाती मिलतंतरस्मिन्वेदः ||
भस्मसर्वेको भागो द्वी भागी चैव कानत्या: || ६ ॥”

Folio 8

“जननरेणुकृतां शुगदनपत्तानामकत्वाधीन: ||
भूतुनाभीरत्ते फल तेल दु चंपकाकामोद्वं || २३ ॥
* संज्ञिण्य व्यापनलेख शुक्यः—
सकासुकुदं रसेन चूर्णः—
तैलेन तुकोर्ममयुत्तातः
करोति तत्वंपकंगंगांतलेन || २४ ॥”

Folio 10

“लक्षकुरवेणुलिङ्गकाशुकाकस्तगानवालकैस्तुलेन् ||
केसरपत्रविन्द्रियसिद्धितेषुबुद्धियोऽवश्यक्तानां ||
चन्द्रतालदलं चोरसुकलेश्लानंभिषितं
चंपकाकामदगंगावर्ण स्तानान्तानां संश्च: ||

Folio 18

“चंपकाकुलम् विकृष्ठ राशी धानमयं संद्रवयति
ष्टकस्तमुच्चववेतैः केतीहेः च शालच्छूकुलकेन।”

Folio 20

“भृति पमराजल कमलजपुरकला तेजबिनी नली गोपाः
चंपककुलसिद्धं गिरिलिङ्गमलदुर्गस्तालितगराः || १६ ॥”

Folio 22

“चंपक कांचनोर्मो दीर्घं शुकमारकः
शुभागतिः शुभाकामः कठिनम्ब || चंपकः ||”

* The Brhatasamhitā of Varahamihira contains a chapter (No. 77) on Gandhayuktī (37 Verses)—pp. 386-389 of the Calcutta (1865) Edition. Verses 5 and 6 of this chapter read as follows:

“लक्षकुरवेणुलिङ्गकाशुकाकस्तगानवालकैस्तुलेन्
केसरपत्रविन्द्रियायोऽवश्यक्तानां
नारसिद्धितेषु शिरस्तानाम् || ५ ॥
मकास्या व्यापनलेख शुक्यः
सकासुकुदं रसेन चूर्णः
तैलेन तुकोर्ममयुत्तातः
करोति तत्वंपकंगंगांतलेन || ६ ॥”

Evidently Gandhasāra has borrowed these verses from the Brhatasamhitā without mention. The author of the Gandhasāra bows to his predecessors (गंधागमसाशं, i.e. experts in गंधागम) in verse 3 at the beginning of his work:

“गंधागमसाशं निष्ठेन चोमचतुरेश्वर ससारं शुभागधारां”
The *Gandharvada* contains the following references to *Campaka*:

Folio 28 —“द्रवणा मह श्रेष्ठी च सेलारसुपुष्कुचुिः।”
करूः: चांपकलिकाः षुष्कोदिदशभामङ्किः।”
(Comm. “चांपकलिक पलें १२।”)
“चांपक ददशावाचकेनिकुपुष्कुचुिनाध्रुिः।”
(Comm. “चंपक भाग २।”)

Folio 29 —“बोलश्रीमलेदे उषरकलिकाः चंपकुचुिनाध्रुिः।”
(Comm. “चंपाय पल १, पुनायचा पल १।”)  

Folio 30-31 —“लंगगंगंगापणवस्त्री चंपकलिकांपुष्कुचुिनाध्रुिः। राणपुरुषको करोपिलायः।”
(Comm. “चंपाय टाक ६।”)  
“मुलागरचांपकमालतिः।”
(Comm. “चांपकलिक पल ।।।।”)  

Folio 35 —“चंपफुल टाक १।”, “चांपकली सेर ।।।।।”
Folio 36 —“चांपफुल सेर ३।”, “चांपकली टाक ६।”
“चंपाय सेर ।।।।।”, “चांपया टाक ६।”, “चांपया टाक ३।”
Folio 37 —“चांपया टाक ४।”, “चांपया टाक ६।”—“इति सुगंधतात्ते।”
Folio 39 —“चांपकली पल १।”
Folio 41 —“पलं चालायी चांपलेले गाँि बसुभरलं।”
(Comm. “चांपेल पल ४।”)  

Folio 43 —“चांपया सेर ।।।।।”, “चांपेल सेर ।।।।।”
Folio 45 —“चांपेल चब्बसत सेर ।।।।।”, “मेरुसही टाक १। चांपलेल थालिते।”
“चांपलेल टाक १२।”, “चांपकली सेर ।।।।।”

Folio 48 —“चांपफुल सेर १२।”

It appears from the above references that the *Campaka* exercised a dominating influence on the manufacture of cosmetics and perfumery in several forms such as perfumed oils, powders, incense etc. Accordingly we find in the two treatises on *Gandha-Sastra* the following materials used in this manufacture:

(1) चंपकलिकाः — Flower buds of *Campaka* used in certain proportions. These are called चांपेल in Marathi.

(2) चंपफळलिम (चंपफुल or चंफुल in Marathi). These are full-blown *Campaka* flowers as contrasted with the buds.

(3) चंपकमगनितैल or चांपल तैल (चांपेल in Marathi). This was oil of *Campaka*. It was mixed up with other ingredients for the manufacture of scented powders etc.
The two verses in the Gandhasara of Gaṅgādhara viz. (1) “मन्त्रिक्षया व्यापनेन इत्यादि,” and (2) लौकलुक्रेपणसामालिका” are found in the Brhatasanhita of Varāhamihira in the chapter dealing with Gandhayukti or preparation of perfumes. The Campaka oil (चंपकमंधलित) mentioned by Varāhamihira (c. 500 A.D.) had evidently an earlier tradition. We may, therefore, safely say that the Campaka oil has a clear antiquity of 1500 years. Its popularity has continued unabated to the present day. We must trace references to the Campaka preparations before A.D. 500 and determine the exact period of the history of Indian perfumery in which they became current in India.

In his chapter on Odes to Plants (Vṛksanyokti) based on the Subhāṣītas in Sanskrit anthologies Dr. G. P. Majumdar has culled out the following information about the Campaka plant:—

‘Campaka — six odes’ have been devoted to this plant, whose flowers are noted for their beautiful colour and fragrance.

It flourishes in a bad locality, full of sands. The poet wonders how it could be so fragrant! When planted in a village garden, the gardener does not water it when watering is needed and supplies it with plenty of water out of season. When, however, it blossoms it emits sweet fragrance, which ought to put the gardener to shame.

5. I note here the names of some of the aromatic ingredients mentioned in the Brhatasanhita (c. A.D. 500) in the Gandhayukti:

“The rumuvaal tanpay:”, बकुल, जतक, ताती, तवक, श्रीमुलक, कुसुमुख, श्रवणु, कुसुमुख, नार, नेपतु, गङ्गाल, गङ्गाल, वाल, लल, मुसा, मांजी, रवि, दीर्घसन्ध, बैल, दीर्घसन्ध, शोल, दीर्घसन्ध, शोल, दीर्घसन्ध, शोल, दीर्घसन्ध.

Almost all of these ingredients are mentioned in the Gandhasara and the Gandhavāda.


7. Vide Sāryagadharapaddhati (stanzas 1002-1003). Suduttikāryamāta, 58, 2, p. 267; Subhāṣītasāra (stanzas 1-5), pp. 245-246; Subhāṣītasāra (stanzas 301).

8. Francis Buchanan in his Patna-Gaya Report (Bihar and Orissa Res. Society) gives an account of Bihar and Patna in A.D. 1811-12. In his chapter on “Natural Productions: Plants” he observes on pp. 432-433:—

“The Campa of the Bhagalpur list (No. 86) is here known by the same name; nor is it common. One of the timbers in most request with the cabinet makers in Patna is called changb and they say that this name is different from that of the tree of which I am now treating; but the timber comes from Nepal and I know that there the timber of some spontaneous kinds of Michelia is in great request for the same purposes. The Michelia Champaka is everywhere in India an exotic and is only to be found planted about villages.”
Its sweet fragrance betrays it even when it flourishes in a Khadira forest; and when it blossoms in a dry region the poet is sorry that it cannot kiss the cheeks of beautiful women there which it is always accustomed to do. Its existence there is altogether useless."

The above information, however, does not refer to the use of the Campaka flower in the manufacture of cosmetics and perfumery.

As a means of economic production the Campaka has been mentioned by the Bhartsamhita (chapter 29)9. One can infer "Gold from the flowers of the Campaka (Michelia Champaka)" says the Bhartsamhita10.

The Amarakośa11 refers to the Campaka as Campeya as follows:—

"चाम्पेयः चम्पकः हेमुष्पकः एतस्य कलिका गन्धफली स्वात्"

Kṣirasvāmin explains:—

"चम्पेयः भद्रता चारमेयः। चम्पकः हेमुष्पकः। चम्पकः: कक्कुलोपि। भ्राह्च. (भ. ५०८४)। गन्धः: फलमस्त्र गन्धफली। प्रियस्य चम्पकलिका, चैति हस्ये गन्धफली (भ. ५०८४)।"

The references to the Campaka in the Amarakośa corroborate those in the Bhartsamhita (c. 500 A.D.). The name गन्धफली for the चम्पकलिका mentioned by Amara is also significant. We have already pointed out that the two treatises on Gandha-Śāstra (Gandhasāra and Gandhavāda) prescribe the use of चम्पकलिका (or चम्पकलिक) frequently in the manufacture of cosmetics and perfumery. If चम्पकलिका had assumed the name "गन्धफली" at the time of the Amarakośa (c. A.D. 500) we may infer that it may have been used in the preparation of perfumes even before the time of the Amarakośa. At any rate the Campaka flowers and the Campaka buds were aromatic ingredients of established reputation 1500 years ago, if not more.

The Varāṇa Carita12 of Jaṭāśimhanandi, a Jain Sanskrit poem of the

9. Dr. G. P. Majumdar has translated this chapter in his Vanaspatis. Calcutta, 1927, pp 130-34.
10. Ibid. p. 132. On p. 75 Dr. Majumdar refers to Chāmpēya as follows:—"Chāmpēya (Michelia sp.) indigenous of Champa-Bhagalpur."
11. Vide pp. 96-97 of Amarakośa ed. by Dr. H. D. Sharma and Dr. N. G. Sardesai, Poona, 1941.
12. Vide p. 227 of Varāṇa Carita ed. by Dr. A. N. Upadhye, Bombay, 1938. I note some references to perfumed products and ingredients from this poem:—

P. 7—"कालागोभिरत्सुपद्वधे गेहा!"; P. 23—"गन्धविभिषिकृतोऽवैः"; P. 4—"विषिता गन्धर्यः";
The Campaka Oil and its Manufacture (A.D. 500—1850) 63

7th Century A.D., refers to the perfume of Campaka and the garlands of Campaka flowers as follows:

"गन्धवाले श्रमस्कन्नागगच्छान मूखिः स्वरचैवशिरस्यशिरस्य तानं।
धृपदनि: कुलकेतवः स्वर्णोपिनि: स्वर्णेषुपिनि: || 58 ||"

Page 60 — "दुःखकालागच्छन्दनानं लक्ष्नकोलकककुड़ मानाम्।
एलातमालोपलचंमकानं गन्धवाला गच्छवेश विशेषणात् विशेषणात् || 61 ||"

Page 61 — "सुभाषितस्मुद्रस्मुद्रालीनं पुनर्ग जातुस्लकेत्रवीनाय।
पश्चिमकारा वन्नवच्चलामला महायज्ञं विशुजनयवं || 22 ||"

Page 219 — "विबधुगुरुशंकसकंकिष्ठकारे: पुनर्गगच्छन्दन्चंमक्ककानाम।
वाणो विरेरु: सविहारयोग्यता बहुः पदले सुभाषितमधस्य || 61 ||"

In the Kāraṇḍavyuha (Calcutta Edition), an early Sanskrit Buddhist text, the Campaka flower is included under कारणवाणी (p. 8) of the Jetavana. Campaka trees (मकरकृत्ति) are also mentioned (pp. 17-53).

Bana in his Kādambari (B. S. Series—Uttarabhāga) refers to garlands made of Campaka petals (p. 253—वमकदलमालिका) and Campaka trees (p. 256).

The Manasollasa of Someśvara (c. A. D. 1130) refers to the Campaka oil in the following verse (p. 81 of Vol. II of मानसोहत G. O. S., Baroda, 1939):

"पुनर्गच्छमककोलमान्तस्तवात्: विलेः।
बन्नसम्पीडितैः शैवालवेशमभारेत् ||"

This verse is important as it tells us how the Campaka oil was prepared. Seeds of Til (sesame) were perfumed with Campaka flowers and then pressed. The oil so produced was used for abhyanga.

Buchanan in his Patna-Gaya Report (A.D. 1811-12), Vol. II, pp. 633-34,
describes the preparation of Chambeli oil from Chambeli flower (Jasminum Grandiflorum T.) as follows:

"At the beginning of the flowering season they take 82 seers (about 169 lbs.) of the seed of sesameum (Til) and every fair day during the season add to one half of it as many flowers as they can collect... The seed is then squeezed in a common oil mill etc."

It will be seen from the description of the preparation of the Chambeli oil in A.D. 1811-12 that the process of preparing it is identical with that for the Campaka oil current in A.D. 1130.

The Mānasollāsa in its section on flower-garlands to be worn by the king mentions the Campaka flowers used in the preparation of garlands as follows: —

P. 9. — ( मानसोऽलस )—

" चम्पकं मलिकाकानुकं चम्पकानुलाले: गह || ४२ ||
      चम्पकं तुरभीशुष्कं चम्पकं पावलान्तितमः।"

For blending the perfumes of the Campaka flowers they were combined with other flowers for preparing the garlands.

The Rajavyavaharakaśa of Raghunātha Pandita prepared by the order of Shivaji the Great between A.D. 1650 and 1674 refers to the Campaka oil in the भोजपानम् as follows: —

" मलिकैलं मोरेलं कौलीजातितेलकम्।
      तथा चम्पकुश्कलं चम्पलमिति श्रीहितिम् || १४ ||"

The Suśrūtā Samhita14 (Sutrasthāna, chap. 46, पुष्पपानम् ) gives the properties of the Campaka as follows: —

" चम्पकं रक्षितं शीतोष्णं कफपौशनवर्यू".

In the Appendix to Aṣṭāṅgasaṃgraha (Sutrasthāna) edited by Pt. R. D. Kinjawadekar (Poona, 1940), some texts bearing on चम्पक are

13. In the Word-Index to the Arthavāstra of Kauṭilya there is no reference to चम्पक but in the Word-Index to Patañjali’s Vyākaraṇa Mahābhāṣya (c. 150 B.C.) “चम्पकपुष्प” is mentioned as follows: —

II. 1. 1 (p. 364 of Kielhorn’s Edition, Bombay, 1880)

"यथा तदहि मलिकाकाँपुष्प: चम्पकपुष्प: हि तितिक्षोऽसु श्रव्य सुषुमन:हि अन्त्वाद्रिद्रिशयं भवति अर्थं मलिकाकाँपुष्प: अर्थं चम्पकपुष्प: हि।” These are references to चम्पक and मलिका flowers.

recorded. In these texts there are references to the Campaka flowers:

P. 181—( पुष्पादिबधारणम् )
"पातलं च वृत्तपुंशं वकुलं चम्पकं तथा।
श्रीशंकं चैव गौरालं कस्तूरी तस्मात् भारेयत्। अ॥ २४॥"
"गौरालं चम्पकं पुष्पं वालकपेमधपरम्।"
"चम्पकं वातशायं चवसखं विषयं हुमम्।"
"चावमसु पातलं धारं चम्पकं शारदिः स्वस्तम्।"

P. 191—( गृहदिनिमाणिविधि: ). The Campaka tree is to be planted to the South-east quarter of the house:
"श्रावनेयं दिशि गृहतोडंदि चम्पकं वै"

Thakore Saheb of Gondal\(^{15}\) states Indian medical works recommend the use of twigs of several plants for cleansing the teeth. Wonderful properties are ascribed to these twigs. A tooth-brush made of Campaka twig (Michelia Champaka) improves the organs of speech and hearing.

The foregoing evidence about the antiquity of the Campaka tree and its flower as used in the preparation of the Campaka oil famous in Indian cosmetics and perfumery is by no means complete. I record below in a tabular form the chronology of the evidence as gathered by me from Sanskrit and other sources, technical and non-technical:

<table>
<thead>
<tr>
<th>Chronology</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>c. 150 B.C.</td>
<td>Patañjali refers to चम्पक and मङ्कळ फूल (II, 1, 1, महामाय्य)</td>
</tr>
<tr>
<td></td>
<td>Mahābhārata (Āranyaka parvan) mentions चम्पक trees growing in the गन्धमादन forest.</td>
</tr>
<tr>
<td></td>
<td>Suśruta Saṃhitā mentions the properties of the Campaka flower.</td>
</tr>
<tr>
<td></td>
<td>Kāraṇḍavyūha mentions Campaka trees and their flowers.</td>
</tr>
<tr>
<td>c. A.D. 500</td>
<td>Varāhamihira in his BrhatSaṃhitā refers to &quot;चम्पकमङ्कितवेल&quot; and &quot;चंपकमोदगंध&quot;</td>
</tr>
<tr>
<td>c. 500-800</td>
<td>Amarakośa refers to चम्पक and its bud called &quot;गन्धफली&quot;</td>
</tr>
<tr>
<td>c. A.D. 630</td>
<td>Bāna in his Kādambari refers to Campaka trees and &quot;चम्पकदलमलिका&quot;</td>
</tr>
</tbody>
</table>

15. Vide p. 59 of Aryan Medical Science, London, 1896,
<table>
<thead>
<tr>
<th>Chronology</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>7th Century A.D.</td>
<td><em>Varāṅga Carita</em> of Jātāsīmhanandi contains numerous references to the <strong>Campaka</strong> trees, flowers and perfumes.</td>
</tr>
<tr>
<td>c. A.D. 1130</td>
<td><em>Mānasollāsa</em> of Someśvara prescribes the use of <strong>Campaka</strong> oil for <em>abhyanga</em> and also states the mode of its preparation.</td>
</tr>
<tr>
<td>c. 1290 A.D.</td>
<td><em>Jñānesvari</em>, Chap. XVIII, 853—“ना ना जांप चापेल तेलीपूजिला” (चापेल—चम्फक and चम्फकलिका—चम्फककलिका)</td>
</tr>
<tr>
<td>c. 1300-1600 A.D.</td>
<td><em>Gandhasāra</em> of Gaṅgādhara and Gandhāvāda with Marathi commentary describe in detail the method of preparing <strong>चम्फककलिका</strong> and using it for several articles of perfumery. <strong>चम्फक कलिका</strong> and <strong>चम्फक flower</strong> were made use of in the manufacture of oils, powders etc.</td>
</tr>
<tr>
<td>A.D. 1650-1674</td>
<td><em>Rajavyavahārakosa</em> of Raghunātha Pandita mentions <strong>चम्फककलिका</strong> (or <strong>चापेल</strong> ) along with other fragrant oils such as <strong>मोगेल, चम्फकलित</strong> etc.</td>
</tr>
<tr>
<td>A.D. 1626-1678</td>
<td>Venābāi in her शीतास्वर (८. ७):—“क्लेशचापेलेघेवनी” (चापेल = चापेल)</td>
</tr>
<tr>
<td>A.D. 1811-12</td>
<td>Francis Buchanan in his <em>Patna-Gaya Report and Bhagalpur Report</em> describes Champa or <em>Michelia Champaka</em> in his list of Plants. He also describes the process of preparing <strong>Chambeli oil</strong>, which is exactly the same as mentioned in the <em>Mānasollāsa</em> (A.D. 1130) for the preparation of <strong>चम्फक तेल</strong></td>
</tr>
</tbody>
</table>

The *Upaniṣadvākyamahākośa* (by G. S. Sadhale, Bombay, 1940) *Purvārdha*, p. 180 quotes a sentence from गायक्रेषस्तोवरिनिम ष्ठा containing a reference to **Campaka**:

“चम्फककृती कुकुमपियेसलदलोल......वनवामसिनम गायक्राघ: प्रायद्रमनुस्तय etc.”

As the date of this *Upaniṣad* has not been fixed up this reference to **Campaka** renders no chronological help in our present study.
Brewer in his *Dictionary of Phrase and Fable* records the following note on *Campaka*:

P. 236—"Champak—An Indian tree (Michelia Champaca). The wood is sacred to Buddha and the strongly scented golden flowers are worn in the black hair of Indian women."

"The Champak odours fail"
—Shelley: *Lines to Indian Air.*

I hope the foregoing study of the antiquity of the *Champaka* tree referred to in the *Mahābhārata* and subsequent literature will be helpful to all students of ancient Indian plant lore and allied subjects. The antiquity of the *Campaka* tree prior to c. 500 B.C. needs to be established. The Word-Index to the *Atharvaveda* (by Vishvesvarananda and Nityananda, 1908) does not mention *Campaka*. In Dr. Majumdar's list of Vedic Plants in *B. C. Law Volume*, Part I, the *Campaka* is not mentioned.

The *Sanskrit-Worterbüch* by Böhtlingk and Roth (St. Petersburg, 1858) records references to *Campaka* flower and tree from the *Amarakośa, Trikandəśeṣa, Hemacandra's Abhidhāna—Cintāmani, Mahābhārata, Rāmayana* (1, 17, 35; 3, 17, 11), *Suśruta, Bhāgavata, Lalitavistara, Caurapañcāśikā, Brhatāraṇī, Rajatarangini*, and *Hitopadesa*.

The *Sabdakalpadruma* records the following verses about चंपक नन्दर्दशी when God Śiva is to be worshipped with *Campaka* flowers:

उत्तरकामाखशत्तन्त्र (11th Paṭala)—

"नन्दर्दशी च शुभायां जम्मे माषिमहेश्वरम्।
चंपकः पूजयेत्रकया शिवलोकमवानुयातु॥"

"Nandrardasi ch shubha samam ma-. dheeshvaram. chaapaka: pujayey tarakaya shivalokam vana.
8. Verses pertaining to Gandhayukti in the Agnipurāṇa (9th Century A.D.) and their relation to the topics dealt with in Garigādhara's Gandhasāra, Between A.D. 1300 and 1600.*

Recently I discovered two treatises¹ on Gandhasāstra (cosmetics and perfumery) viz. (1) the Gandhasāra of Garigādhara and (2) Gandhavāda with Marathi commentary. According to my evidence these treatises appear to have been composed between c. A.D. 1200 and 1600. Unfortunately the authors of both treatises, though they have drawn their materials from earlier texts, do not mention the works from which they have drawn these materials. In a paper² on the antiquity of the Campaka oil recently published by me I have proved that Garigādhara has borrowed two verses from the Gandhayukti chapter of the Brhat samhitā of Varāhamihira (c. A.D. 500) pertaining to the manufacture of the Campaka oil (चम्पकमलिङ्गित) To enable us to understand fully the historical back-ground of the two treatises on Gandhasāstra referred to above we must record and study the extracts in earlier texts pertaining to the Gandhasāstra. I record, therefore, in this paper some verses from the Agnipurāṇa³ pertaining to Gandhayukti or manufacture of cosmetics and perfumery. These verses are as follows:—

Agnipurāṇa (Veṅkatesśvara Steam Press, Bombay), chapter 224 (verses 19-42) dealing with राजधर्म (राजधर्मदिवकामाशाखा) :—

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1. I have published the following papers on these treatises:—
   (i) A Critical Analysis of a Rare MS of Gandhavāda, etc. (New Indian Antiquary, Vol. VII, pp. 185-193).
3. Dr. R. C. Hazra in his Purānic Records (Dacca, 1940) has discussed the date of the present Agnipurāṇa. I note some points from this discussion (Vide pp. 134 ff.):—
   (i) The present Agnipurāṇa (=AP) is a sort of cyclopaedia in miniature. Its contents are divided into पराविध्याय and अपराविध्याय. The अपराविध्याय division contains chapters on four Vedas, six Vedaṅgas, (शिल्प, कल्य, व्याकरण, निरुक्त, हस्तसार, and वेदोपदेश ), अभिधान, मीमांसा, धर्मशास्त्र, यज्ञसूत्र, न्याय, वैदिक, गान्धर्व, अनुशास्त्र, and अनुवाचन.
Verses pertaining to Gandhayukti in the Agnipurāṇa

“धृत्युरं सुगारुषभमं भवति दुर्योहः। द्वितीयत्थव च च।”
भोजस्वस्य कलम्बैव स्मृतत्वुक्तिः। प्रदर्श्यते॥१५॥
शौचमावनम् यात तधिन च विशेषास्त।
भावं हैव पाकशहा बोधनं धृतवं तथा॥२०॥
वासं हैव निर्दितं कर्मवितकं स्मृतम्॥
कामश्चित्त्वं हेवार्थवपरि विक्षमनि॥॥२१॥
कृष्णकोष्कं तु नर्तमेघं शीघ्रतं शोषणं तु वर्त।
तेशमावासे! शौचं हृ युगापूणमको भवेत॥॥२२॥
नर्तं कुछं धनं माँसी सूक्ष्मश्रीवेयगं जलम्।
त्वैव कुकुमम् लाद्धा सन्तनागुणीनीन्द्रम॥॥२३॥
सरलं देवकृतं च कुर्कुर कातयो सद।
वालं: कुकुमकृष्ण श्रुद्धु:। श्रीनिवासकरः॥॥२४॥
सह सङ्गादेवीं धृष्टद्वैवक्षित:।
धृष्टद्वैवशास्त्रदेवकृतविवाहये नाम॥॥२५॥
देवे देवे समादाय सर्जमागौरिनियोजये।
नलनिकह्याकलमहै:। संबौव्य महुना तथा॥॥२६॥
धृष्टद्वैवग मथव्यतिः स्वावलोकत्वे यथा।।
तवं नापी फलं तैलं कुकुमम्। अनिष्पर्यक्षम॥॥२७॥

(ii) According to Dr. Hazra “the date of compilation of the present AP is the same as that of the summaries and incorporations” — Dr. Hazra holds the view that “the present AP was compiled sometime during the ninth Century” (i.e. between A. D. 800 and 900).

4. It is clear from these lines that AP gives 8 processes (कर्मचार) in the manufacture of cosmetics viz., (1) शौच, (2) भ्राचमण, (3) वैभेचन, (4) माभ, (5) पाक, (6) शोषण, (7) धृतुर, (8) वासन. Gāndhārā in the परिमाण section of गान्धवार records, however, six processes: (1) माभ, (2) पाचन, (3) शोष, (4) वैभेच, (5) धृतुर and (6) वासन (“माभ, पाचन शोषो वैभेचो धृतुरवासन। एवं वशक कर्मचार्य द्वैवपुकारिण करिदेहः॥”).

Four processes are common to AP and Gānāvār.

5. The Gāndhārā records गान्धार of 5 sorts (पञ्चविचित्र).

7. Cf. GANVORSHAR has 24 verses on JALABHAS (folio 10 of B. O. R. I. MS). They deal with scents to be used in baths. Scents for the King’s bath are mentioned in the following verse:

"तक्कुक्कुदारुपुषुलामिकास्फूर्तिकाससंग्रामास्भूतास्वाथुलते:।
केसरप्रभावितविमौलपितायोम:। शिरशिरास्म॥"

8. Cf. GANVORSAAR contains 34 verses on the preparation of scented oils (GANVORSHAAN)- (folios 7-8 of B.O.R.I MS). The process of extracting these scented oils as given in the Agnivaran is described in detail in the GANVORSAAR as follows (folio 7):

"तिलान्स्त्रोक्षितानादी एनिद्रिय दुधालय कुड़के।
निलामिकाहय चमेंतानु शोषागमविमालास्तु:। ॥ ॥
वास्येक्वतयापर्श मंगुणं वितताननमु।
धूपमित्य तस्य तलमास्सिं रूपु:। शुमाई:। ॥ ॥
ताति प्रश्यादरकांगुलोसोप्यतितितः:। समामु।
पुन: प्रस्तुतिरास्तीर्य पुन: प्राशयदेष्टितः। ॥ ॥
इब्ब प्रयुतान्तिरनितितः: पार्थ प्रस्तुतामु।
पिन्धाप प्रायुमद्र वास्येक्वतयापर्श। ॥ ॥
तत: प्रभाते संशोधनं तिलान्स्त्रोक्षितारिणं संशोधन:।
पुन: पुन: वच्च पुन: तिलान्स्त्रोक्षितारिणं वास्येक्वत। ॥ ॥
वास्येक्वत: प्रथमात्रे कंडकः गंधार्देष्टित:।
तात्तुष्यं वास्येक्वत: यथेन निपाहितेऽत:। ॥ ॥
It will be seen from the footnotes to the above extract recorded by me that the topics in this extract have their parallels in the *Gandhasāra* of Gaṅgādhara. If the present *Agnipurāṇa* containing summaries and incorporations (including the गन्धुर्फङ्क verses) was compiled in the 9th century A. D. as observed by Dr. Hazra, we have to point out that the

9. Cf. गन्धसार—

   "पूर्णयुक्तः पारिजाता गुप्तिकः खिदरीयुङ्गः: ।"

10. Cf. गन्धसार—

   'वक्ष्णेष्कारसिद्धा शुद्धादास्योजनानात्।
   द्वान्तकाप वक्ष्णार्थ सदृशूमयोजने (तैः)।।
   गोमृते सालगायोईः द्वान्तकायानि सिद्धिपृष्टः।
   सतासाधयं कुलेशलावकारायःनदा श्रिवल्लोः: ॥"

गन्धुषुक्ति described in the above extract may be taken to represent briefly the Indian knowledge of the art and manufacture of cosmetics and perfumery as current in the 9th century. In fact this extract stands midway between the गन्धुषुक्ति chapter of Varāhamihira's Brhat Samhita (c.A.D. 500) on the one hand and the treatise of Gaṅgadhara viz., the Gandhasara (between 1200 and 1600) on the other. Varāhamihira does not record the process of preparing gandharvīla as described in brief in the Agnipurāṇa in verse 33 of the extract. This process has remained unaltered at least from the 9th century onwards as will be seen from the following table:

<table>
<thead>
<tr>
<th>A.D.</th>
<th>Source</th>
<th>Reference</th>
</tr>
</thead>
</table>
| Between 800–900 | Agnipurāṇa              | — "गन्धुषुक्ति च विशेष गन्धुषुक्ति विनं भवते शुभम्।
| c. 1130      | Manasollasa of Someśvara | तैलं निर्मित्ति राम, तिलैः पुष्पाचिबायिते॥" |
| Between 1300 and 1600 | Gandhasara of Gaṅgadhara | — "पुष्पाचिबायिते तिलैः।
| 1811–1812    | Buchanan's Patna-Gaya Report | युन्त्रस्मिन्निर्मित्तिस्तिलैः शूर्वत्वाद्यथर्मिन्नमाचरित्॥" |

— "At the beginning of the flowering season they take 82 seers (about 169 lbs.) of the seed of Sesamum (Til) and every fair day during the season add to one half of it as many flowers as they can collect ... ... The seed is then squeezed in a common oil-mill etc.

In the Cikitsasāthana of the Carakasamhita we find several medical oils prescribed such as मधुराचार्याविद्वार, मुद्रामार्काविद्वार, अमुदाचार्याविद्वार, महाप्रकाशकाविद्वार, खुद्रामार्काविद्वार, मुद्रामार्क, बलाविद्वार, रिक्षाविद्वार etc. against वातारक (chapter 29). Some of these oil-preparations were made of varied materials, among which we
notice some aromatic ingredients like चन्दन, उशीर, केशर, तागर, कुष्ठ, मधुब्रु, मंगली, कुकुकुम, पत्तीला, अगुरु, नार्ला, बालक etc. It is possible to presume that the preparation of scented oils (गन्धर्वतील) developed side by side with the preparation of medical oils. In fact some of the aromatic ingredients used in the Gandhasāstra had definite medical value. Though the Gandhasāstra may have originated from the early back-ground of the Ayurvedic manufacture of medicines it appears to have developed as a specialized art in course of time and consequently the Kamaśāstra of Vatsyāyana mentions गन्धर्वक or the art of preparing cosmetics and perfumes as one of the 64 arts in which the gentleman of the period was expected to be proficient. These arts are mentioned as the constituents of the Kamasutra (कामसूत्र स्वस्तिका:) by Vatsyāyana. With the development of Indian culture in a full-fledged manner specialization in different arts and professions must have come into being and the Gandhasāstra, which catered to the gay tendencies of ladies and gentlemen of antiquity, developed as both a science and an art, as it was useful both in secular and religious spheres of their activities. It was a science with a definite objective, so beautifully expressed by Gaṅgadhara at the beginning of his Gandhasāra in the following verse:

"देवताना सुभाषितमार्थिताणीणिष्ठारं

नृणां पुष्पिकर, त्रिवर्गकलद, स्वस्थ्यपलबमहीनं।

राजा तीव्र, विधायितानिविचारमोधमं

शाल्क सम्पन्नगच्छात्सनमोति दिनिमायबोध्यते।"

Verily, the Indian Gandhasāstra could not but prosper as it pleased Gods, contributed to the comforts of men, and delighted the hearts of kings and accomplished ladies, besides making its devotees prosperous—thus fulfilling the three ends of human life (Dharma, Artha and Kama). The early history of such a Gandhasāstra needs to be reconstructed systematically in the light of the two treatises recently discovered by me viz. the Gandhasāra of Gaṅgadhara and the Gandhayāda with a Marathi commentary.

12. Vide Kamasutra ed. by Pandit Kedarnath, N. S. Press, Bombay, 1900 (साहित्याला भाषाशास्त्राः—Chapter 3, p. 32)—The commentator यशोधर explains गन्धर्वक as follows:

"गन्धर्वकिरिति | स्वाभाविकिरितप्रत्येके प्रतीतप्रथोजनाः।"
9. The Gandhayukti Section of the Viṣṇudharmottara and its Relation to other Texts on the Gandhaśāstra*

In my Studies in the History of Indian Cosmetics and Perfumery (Gandhaśāstra) so far published, I have analysed and made use of the following Sanskrit texts on the Gandhaśāstra:

(1) Two special treatises on the Gandhaśātra (composed between c.A.D. 1300 and 1600) discovered by me, viz. (i) Gandhasāra of of Gangādhara and (ii) Gandhavada with Marathi Commentary.¹

(2) The chapter called "Gandhādhikāra" of a work on erotics called the Nāgarasarvasva by a Buddhist author Padmaśri (About A.D. 1000).²

(3) The Gandhayukti section of the Agnipurāṇa (Between A.D. 800 and 900).³

(4) The Gandhayukti section of the Brhat Samhitā of Varāhamihira (c. 500 A.D.).⁴

The above sources prove beyond challenge the history of the Gandhaśāstra literature for more than 1500 years, though unfortunately the texts on this subject which have come down to us are few and fragmentary. It should, therefore, be our endeavour to link up every new source with the texts referred to above to enable us to have a connected view of the history of the Gandhaśāstra from the remotest antiquity to the present day.

I propose here to deal with the Gandhayukti section of the Viṣṇudharmottara Purāṇa (Khaṇḍa II, chap. 64, pp. 220–221 of Venkatesvar Press Edition, Bombay). This section reads as follows:

"पुक्तरुवाच्

A 20 श्रोचने वासनेन चैव तथेष्व न बिच्छननम्

भाष्यनम् चैव पाकर्ष बोधनं धूपनं तथा

2. Ibid, pp. 51-52.
4. Bharatiya Vidya, July-August, 1945, pp. 149-156.
A 21  वासं चैत निरिदं व भावजावितं शुभम् ।
कैतिस्वरविव जम्बायक्षी जयं पल्लिवैः ॥ २ ॥

A 22  कुलोदकं तु यद्दर्तं शोभितं शोभितं तु तद् ।
तेषामाहिवे शौचं तु मृतशास्मिवा भवेत् ॥ ३ ॥
तद्भवने तु कर्त्यं तदा मुस्तामभस द्विन ।
शुष्कं शुष्कं पुनर्द्रव्यं पङ्क्षपल्लिवारिषाः ॥ ४ ॥
प्रचालितं चास्यमल्लितं तथ्यावितम् ।
पङ्क्षपल्लिवत्वादिन क्योविष्टाः पुनः पुनः ॥ ५ ॥

d्रव्यं संशोधितं कुला चौर्षिणी तत्र तु कार्येदु ।
हरीतकी तत्र: पिड्ठां पञ्चपल्लिवारिषा ॥ ६ ॥

5. Compare the Six processes of manufacturing cosmetics mentioned in the परिमापाप्रकारण of the गन्धवर्तक of भ्रजारो in the following verse :-

“भावनं पाचनं बोधो वेदो धूपनवल्लेने ।
एवं षडनज्यमयिणि द्रव्येष्वूपस्ताति कोवःः ॥ ६ ॥”

Here I shall compare the verses on गन्धकुद्धी in the विद्वधवासार with those found in the श्रिवन्धकुपा (Venkatesvar Press, Bombay). Chapter 224 (verses 19-42.) [A 20 = Agnipurāṇa Chap. 224 verse 20 and so on ]:

A 20 — शौचमाचमवम राम तथैव किरशेनम् ।
भावनं चैव पाकर्ष बोथचं धूपतनं तथा ॥ २० ॥

A 21 — वासनं चैव निरिदं क्षापश्वालं स्मृतम् ।
कार्यकलबलजंवालं प्रकरणवचलवैः ॥ २१ ॥

A 22 — कुलोदकं तु यद् द्रव्यं शोभितं शोभितं तु तद् ।
तेषामाहिवे शौचं तु मृतशास्मिवा भवेत् ॥ २२ ॥
6. The Gandhasāra mentions different varieties of पाक such as—(1) पुटपाक, (2) सर्पपाक, (3) केसुपाक, (4) दोलापाक, (5) लयपरपाक, (6) राजपुरपाक, (7) कालपाक

(See verses 8-17 of परभाषणक्रण of गन्धसार—B.O.R. Institute MS in the Raqiqi Collection)

The पुटपाक and सर्पपाक are described in the गन्धसार as follows:

“पुटपाक युद्धविन्द्र मूलिन्यर्थ चारुलोवर्तमान
पचेक्कारिजके वहिः पुटपाको उपयोगिता
गर्ते पाल्गंगमके कुलसपुर्ण मूद्रावितम
प्रचलितोभिन्नस्तुपरं पाकोके भवेद्रयम्.”

7. The aromatic ingredients (गन्धद्रव्य) mentioned by Varāhamihira in the गन्धसार section of the बुढङ्गसंहिता (c. A.D. 500) are:— "पुष्प तुलसी बालतमः," कबुल, चम्फ, जाल, लक्ष, वर्तिमक, कुस्मक, हलमुन, कुरुकुल, नल, मियकु, गुड़ख, गुप्तख, वालक, घाय, मुखा, मांचिक, चन्दु, भीत्र, शाक्षाप्रथम, शेक्क, शीताज, उपेयर, सुमेला, "शुभकुसी" कर्मणे, व्याप्तनव, ट्रका, अग्नि, दमक, ताग, चोर, मलय, कहलिका, शेल्लेय, जालस, जीववन, यस्ते, हिंदुस्त, केसर, राला, गंगा, जालिफ, तामखु, पुष्पखु, व खोळा, छालोकर।

I note here articles in the Hobson-Jobson (1903) on a few of the above ingredients. Pages 152-153—CAMPION—usages recorded are:— c. A.D. 540 (Caphura, c. A.D. 540—Camphares, A.D. 1298 [Camphor] etc.

Pages 913-914—TEMBOO—usages recorded are from A.D. 1298 (Tembel) onwards.

Pages 590—MUSK (मुख) usages:—c. A.D. 390 (muscus) mentioned by St. Jerome.

C.A.D. 515 (Musk animal) etc.

Pages 789-790—SANDAL (चंदन) usages:—Sandalwood (c. A.D. 545) onwards.

Page 499—LAC (लालच) usages:—Lac-dye (c. A.D. 80-90) mentioned in Periplus.
कर्माभिकर्षितं कत्वा वचों विष्णुविना तथा।
सुरं श्रीलेखणं वापि सेवनं वा द्विजस्वम || २३ ||
श्रीधरेद्रवृत्तिको विष्णुविष्णुकमं सेवयित।
निर्यासानं च पुष्पान्तं कर्माभिकर्षितं शुभमं || २४ ||
विद्यिनं नैव कर्त्तरं कार्यमयम् मार्गं।
श्रीगोपितस्य घूपः कार्यं द्वैतेवाविष्ठत। || २५ ||
श्रीत: परं हु ते योगानावनि चित्रविसामि तान्नुसृतं।

A 23  नवं कुंठें धर्मं मांशी युगलता श्रीलेखणं जलम् || २३ ||
तथैव कुंठं लाल्लं चादन्रासुरस्वर्गः नतम्।
A 24  सरला देवकार्णं च कर्पूरं कात्या यह || २४ ||
वीलं कन्दुसकर्षणं सुगुलं: श्रीनिवासकः।
A 25  वहस्तर्यसेनेन्यं पुष्पाद्विकविष्ठतं: || २५ ||
धूपदर्शणं ब्रम्हादेवकदिवसं दियनेचुरचु।
A 26  हैं हैं द्रव्यं समादयं सर्वमाणं नियोज्यविद || २६ ||
नवं निययावलये: संयोज्य मधुना तथा।
A 27  धूपयोगं मिष्टलीहं यथाकल्पवेचुंचुः कुता: || २७ ||
तत्त: जातीयं तेस्रं कुंठुकुमं प्रधर्षिणंक्रमं।
A 28  श्रीलेखं तागं कार्ण्यां ताम्बूलं तागं तथा || २८ ||
मांशी सराक्रुद्धं च सन्न्यासाण्यिनिदिष्टं।

8. The Gandhavada (folios 45-47 of P. O. R.I. MS) describes the manufacture of different kinds of धूप, with fanciful names such as श्रीनंगमुन्दरः, कौलाहलः, कुमार्गुलः, etc. The Ganihasara also describes the preparation of धूप, Vide folios 12-15 of B. O. R. I. MS of Gandhasara).
9. Compare the चम्पकानन्दिनीतेल, mentioned in the गन्धर्युक्त section of the Brhaśāṅkhita (c. A.D. 500) :

“मक्षिक्रथया व्याध्रधारेत दुःखरथा
वच भक्तेन जसेन जौगः।
तैलेन युधीर्मणमुयुक्ततः
करौति तच्चण्डकण्डिनिलम्। ॥ ६ ॥”

This verse has been incorporated in the Gandhasāra (Folio 8, verse 24 of B.O.I. MS).

As regards “मुग्दर्पयुतम स्तानान्”, mentioned in verse 27 of the बिन्धुमेहमाचर (बिन्धुमल्ल), compare the following verse of नागरसरस (नागराधिकार) :

“लम्गुनृद्वृक्षकत्तरग्नीग्राह्य प्राभद्रव्यकं कतः च।
कस्त्तुरीसंयुक्तं स्तनायं तत् प्रणालितं विद्धः। ॥ १२ ॥

—स्तनायस्नूपवनाशः।”

A 29 एतेवमेत समादिय द्रव्यमंथ्येच्छाया।
मुग्दर्पयुतं स्तानं कार्थ्य कन्दर्पयथ्यमू। ॥ २६ ॥

A 30 एकमुरानालदेस्वत्वैवेलिंकाश्चतेर्म्।
स्तननमुयुक्तमुन्युत्तमविषयसामुयते। ॥ ३० ॥

A 31 जातीपुष्पमुरुगिः स्तानाराप्प्यभोजितम।
सिात्वाचार्य स्याईकुलस्तुत्तमव्रिष्णुमोहन। ॥ ३१ ॥

A 32 जातीपुष्पमुरुगिः स्तानाराप्प्यभोजितम।
सिात्वाचार्य स्याईकुलस्तुत्तमव्रिष्णुमोहन। ॥ ३२ ॥

A 31 a जातीपुष्पमुरुगिः स्तानाराप्प्यभोजितम।
वाल्कान्तसंयुक्ताः पादलाकु समयते। ॥ २४ ॥

A 32 जातीपुष्पमुरुगिः स्तानाराप्प्यभोजितम।
गन्धर्युक्त च विन्याय गन्धर्युक्त ॥ ३१ ॥

—जातीपुष्पमुरुगिः स्तानाराप्प्यभोजितम।
गन्धर्युक्त च विन्याय गन्धर्युक्त ॥ ३२ ॥
10. Compare the following verses on मुक्तवार्ष in the गंभीरविकार of नागरकृष्ण (p. 12 of Tripathi's Edition, Bombay, 1921).

"जातीय फलिक्षूरीकृपरूप चूतवारि-सर्विधीतम ।
धृष्टिमुखक्रस्तगतमुखुदासितेवश मुक्तवारि: || ४ ||
A 35 कपूरूर कुकुम कारते मुगडूँ हरेरुकुम ||
ककोले्लालवभूँ जातीकोणज्ञकेव च || ३५ ||
A 36 लखपरूँ उमेदरूँ च लता कस्तुरिकां तथा ।
काटकानि लखपरूँ फलवेशच जातित: ||
A 37 केदरूँ च फले राम कर्णशाहां प्रकाशयते ।
तन्वूँ उर्वर सार द्राक्षचुलबुलासित: ह ।
A 38 सहस्रपरसेनस्य कर्तव्य गुरुका: शर्मा: || ४० ||
मुक्ते न्युता: सुगंधस्ता मुक्तोगिनिवासाना: ।
A 39 पूर्व प्रभालितं सम्मक्रपालर्कवारिश || ४२ ||
शकत्वा तु गुरुकाद्वैपिष्ठं मुक्तवासकम् || १०||

A 33 तैलं निषीदितं राम तिले: पुष्पाच्यवाहिते: || २२ ||
बालानु पुष्पसमयं गन्धन्ये तु भवेदुकुम ||
पूर्वानु चबुमिवथा तु सुसतं सेव्यं वचना निशानम् || ३३ ||
श्रीमीकन्यकालपं यथावत्र तुलेश्वते: ||
उद्दूक्ष्य चवर्तानादि च शोभनं वर्मनं तथा || ३४ ||
वज्ञितता सर्वं च श्रेष्ठप्रमाणे कारतेत ।
तद्भवती भृगक च वर्म्यमितिभयम || ३५ ||
पटवासानि कारण्यं चर्कर्म: शिलचन्द्रवर्षिते: ||
A 34 पलाबन्धकारकोलादीवलविनिशाकर: || ३६ ||
जातिभक्तिका साहू स्वतत्र जुक्तवासकम् ।
A 35 कपूरूर कुकुम कारते मुगडूँ हरेरुकुम || ३७ ||
ककोले्लालवभूँ जातीकोणज्ञकेव च ||
A 36 द्रुकपन जुरिमुस्त क लताकस्तुरिकं तथा || ३८ ||
काटकानि लखपरूँ फलवेशच जातित: ||
A 37 केदरूँ च फले राम कर्णशाहां प्रकाशयते ।
तन्वूँ उर्वर सार द्राक्षचुलबुलासित: ह ।
A 38 सहस्रपरसेनस्य कर्तव्य गुरुका: शर्मा: || ४० ||
मुक्ते न्युता: सुगंधस्ता मुक्तोगिनिवासाना: ।
A 39 पूर्व प्रभालितं सम्मक्रपालर्कवारिश || ४२ ||
शकत्वा तु गुरुकाद्वैपिष्ठं मुक्तवासकम् || १०||
Studies in Indian Cultural History

A 40 कटुक दस्तकाळे च गोमुखे वासिनुतो चेविहू || ४२ ||
कृतं च पूर्णनामः मुखीमन्त्रकारकरम्

A 41 लक्ष्मणयोगः संवाचसो क्रिञ्चाग्रविध्यं च || ४३ ||
नागालीलासमो भाटिः मुखवासी मनोहरः

cउटुक रत्नाकुलकु दिव्याविश्वी—
संलदनतसुसस्वस्रमुल्लभारादवानितानि

dिल्लिश्वरदक्तमात्राप्रतिकलोलसैरूः
शादिरसामोवें गन्धत्रं विद्याकातु || ४४ ||

पिक्कविमिदमन्त्रक भक्त्वरूः युवाः
शामष्टि विविधानि श्रोतालीगादनि

A 41 च यात्रकालाममोदमाचु भए

A 40 अमदलपलेन यथायेत वक्रभागः || ४५ ||

कमाविः भवेंला मांसी शल्याणु कुडुम चापि
पनखन्दन राजीत्रलाभक्षणकोऽपूर्णम् || ४६ ||

A 41 अराज्यशाखारे चारुकलिलमनिस्वायत्नक्षेरासहितम्

किल्ला सद्दरकसरे मुखवासी भूमिपालानानाम || ४७ ||

See also तामूबलोग ( p. 85 of मान्चोलि, Vol II, G.O.S., Baroda, 1939). Verses ५७४-५७६ refer to a गुटिका prepared of चूदरकायाचूरूं, कसूरिवृत्त, कर्जराजम्, श्रीलाहाक्के etc.

11. Compare the description of पूर्णाव मवे नागरासंवें (c. A.D. 1000)

“कुडुकाराजातीलकापांरलाभक्षेलाकलामि:
वर्तनु वासव शीश दुष्कुल भूमिपालानानाम् ॥ ४६ ॥"

The मुखवासी (सूत्रत्वां) (Chap. 46, verses 201-204) refers to पूर्णाव and its ingredients

(See p. 441 of Vol. I of Marathi Trans. by Krishnashastri Phadke, Bombay, 1921):—

“कृष्णाट्वां रूटूं वक्रश्लेष्टमालपावहम्
कापालीम्बवन्धुरं गीताच्युतानां बस्मम् || ५० ॥
जातीर्षीशेषयथ कर्पूरं जातीकुलकोऽस्मम्
कापालकं लबकां च तत्कांस्त कुट्ट करावपावहम् || ५१ ॥
लहू तुषा पावं वक्रश्लेष्टदीपयन्तानानानानाम्
सर्वज्ञ: शुभमः शीतः कर्पूरं लक्षुलेखन: || ५२ ॥
तुषा स्वातं मुखशरोऽवे जैसे चापि पुष्पितं: ॥”

A 40 कटुक दस्तकाळे च गोमुखे वासिनुतो चेविहू
कृतं च पूर्णनामः मुखीमन्त्रकारकरम् || ४६ ||

A 41 लक्ष्मणयोगः संवाचसो क्रिञ्चाग्रविध्यं च || ४७ ||

नागालीला समो भाटिः मुखवासी मनोहरः || ४८ ||
The above chapter is preceded by chapter 63 called "भौतिकलपनाकथानम्," and is followed by chapter 65 called "राजचम्पवर्णम्."
The above table gives an impression that the *Gandhayukti* verses of the *Agnipurāṇa*, which are about half of the *Gandhayukti* verses of the *Viṣṇudharmottara*, have been borrowed by the *Agnipurāṇa* from the *Viṣṇudharmottara*.

I cannot say if both these *Purānas* have borrowed their *Gandhayukti* verses from an earlier common source. We must hunt up the *Gandhayukti* texts in other *Purānas* and correlate them with those in the *Bṛhatśamhitā, Viṣṇudharmottara, Agnipurāṇa, Nāgarasavarvasva, Gandhāsāra, Gandhavāda* etc. In this way alone we can put the history of the *Gandhasāstra* on a secure basis.

Gaṅgādhara in his *Gandhasāra* tells us that the *Gandhasāstra* is helpful in the worship of gods (देवानां शुम्भपरिप्रणितशास्त्राचर्यापूर्वम्). This statement is corroborated by the references to perfumes prescribed for religious worship. I note below the following extracts from the *Kalikapurāṇa* (*Venkateswara Press, Bombay, śaka 1829—1907*) which describe the perfumes to be used for such worship:— Chapter 73 (folio 189)—

Description of गन्ध to be used for the worship of goddess —

"गन्धं च सम्बन्धः शूकुमलं गुणी वेतालमलेच्छि
चुरूङ्गितो वा घृंधो त्वा 'दाहकपित सत्वा वा' || ३७ ||
रसं समसं त्वा वानि महारमोक्षस्व एव वा ||
गन्धं पञ्चविंश: प्रकोतो देवानां प्रीतिदायक: || ३८ ||
गन्धेऽवृंचितं गन्धवर्तं चुरीं सुभास्त्रता:।
प्रशस्तगवाद्वृंचितां पत्रचूमानि यानि तु || ३६ ||
तानि गन्धवहानि स्थः स गन्ध: प्रथम: स्मर: ||
शुद्धो मल्याऽगमः स चूर्णिक्तमेवएव || ४० ||
अनुसारमूलिष्ठचापि यशवंफङ्क: प्रदीयते ||
गन्धो हुँघामवर्षोयं द्वितीयं: परिश्रितं: || ४१ ||
देवदारसाहिबः शाशारान्तवन्नन्दनः।
पियावीनासए दरो दशवा रसते दाहं वो रस: || ४२ ||
स दाहकपितो गन्धः वर्तीयं: परिश्रितं: ||
सुगन्धकर्षाविल्यगिणीनि तृणकं तथा || ४३ ||
प्रभृतीनां रो यो निःपीङ्गव परिश्रितं: ||
स समसंदेहानो गन्धः समस्तं हतीयते || ४४ ||
सुमगन्धभिनमुदभूत: तकोष्ठभूत: एव वा ||
गन्धः महाशाबः प्रकोतो मोदद: स्तरवासिनाम || ४५ ||
कुभृस्तासरापाः चोदे दुःश्चेव संसिद्धता:।
चन्द्रभागाद्यशापिः रसे पंक्तेः च संगमता: || ४६ ||
The foregoing description of the different गन्ध्रथ्यास and their application in the worship of deities is sufficiently informative. गन्ध्रथ्य is one of the five accessories of religious worship mentioned by the Kalikapurāṇa in the line "गन्ध्रथ्य पूण्य च धूरुस्य च दीय नैवेद्यकृति च" (chap. 73, verse, 101) and also described at length in the same context. Of the two items of religious worship (नैविद्य), viz., “गन्ध्रथ्य” mentioned by the Gandhasāra I have already recorded above the testimony of the Kalikapurāṇa about गन्ध्रथ्य. I shall now

12. Gaṅgādhara in his Gandhasāra calls the गन्ध्रथ्यास as नैविद्य i.e. fulfilling the three ends of human life viz. (1) धर्म, (2) धर्म and (3) काम. He also calls the गन्ध्रथ्यास as “देवानं...नैविद्यकृति च” i.e. useful for the worship of Gods. This statement corresponds to the statement of the Kalikapurāṇa गन्ध्रथ्यास नैविद्य: प्रतिपीत हि।

It will thus be seen that गन्ध्रथ्यास is useful for fulfilling the four ends of human life, viz., धर्म, धर्म, काम and मोह.
श्रीलक्ष्मी दास सरल लघुकोष से बालके।
मातीज्ञेश्वर मध्यमा के (रन) कस्तूरीपति जीके। ६५।।
श्यामानन्द कैलाशव वितामचूर्ति २४।।
समानेतानि च्वृंगानि व्रतद्रव्ये विद्याय २४।।
दिनां लघुकृपृणच्युर्यां२मुच्छाम।
एनायेयि हि सिलेश्वर मिश्रकेवमधुर्यकर्मविषया। १७०॥
गुडेन विषयेयप्रावात विषयुपूर्वो करो मत।
द्रव्यादयेतानि सोधेन विद्यानि मधुकरीपिया। २॥
वसिन्ध्यार्थ शुक्लानि वर्तिज्ञो माननि।
शीतक्षमणि वापि सुविकेर्षितंवद वा। ३॥
खागो बालपि मुङ्गो बालपिसरस्न। समुपालस्त्र।।
श्रासारगमिते (ति) विषयेनानितिसतूमुद्येंत।। ३॥
सुलदगाधिनसिरुद्धः। पिषयुपूर्वे २वः नम:।
श्रासारगमिते पात्रे चक्रदशेन संयुते। ४॥
विकृतेरुपसूचूः तदारां वारामिति कम:।
द्रव्येन रथवे रूलसे सुपारे सहसदुपे।। ५॥
यात्रेत ता समाहुक्ते धान्ये सुखिसंहुते।
सुखीकाश्रे विनितसिप्य वा तिर सूचूद्र वहिन्। ६॥
स्वामयेतम (भू) टेनाय रघुसूर्यो विनिसमरे।
करंदे द्राक्षसर्वसुस्तं वारसिनि परस्यायेत।। ७॥
श्रामोदपि सुखं कवापि रङ्गवीरसदनदे।
करंदक्रमदष्टे तु धूमर्वतिसमन्विताम।। ८॥
श्रामकृतं विषयेदापि स्थाप्ते वारपि विनिपित।
धूमेत्रधुंमा शास्त्र्यं वस्तनेताभुविहिताम।। ९॥
प्रजादेश्वराः विषयेडूरूपरेव।
यहं च विनितवात निरोधितवतमाचनकम।। १०॥
धूमेत्वरुपकृपः। विषयेक्षसमुदुप्ति।
विलासचुदार्पणां हि नूपापणां च विनिदिनाम।। ११॥
धूमोगोपरमाधायतः सोमेशवरमहीन्द्रज।
भूमीकमलादेववधूमोगोपस्मिरित।। १२॥
The Gandhasara of Gangaadhara states that the Gandhastra or science of cosmetics and perfumery contributes to the pleasures of kings (राजा तोषक्रमं). This remark is substantiated by the above section on धूपिन्द्रग समाज्ञाक प्रथम: which was composed by a king himself who expressly states that it is meant for royal use (विलासचन्द्रराखं न्द्र राणं व विनोदिनाम्। धूपीन्द्रग महान कल्पक: etc.).

While the sections on Gandhayukti in the Vishudharmottara and the Agnipurana describe the manufacture of cosmetics and perfumery, the extracts from the Kalikapurana and the Manasollasa (c. A.D. 1130) illustrate the use of perfumes in sacred and secular spheres of Hindu life in medieval India (between A.D. 600 and 1300). Before we attempt a treatise on the history of Indian Gandhastra it is necessary to exploit fully all available sources which contain references to the Gandhastra either on its technical or cultural side. My own studies in the history of the Gandhastra so far published have been designed with a view to providing enough material to other scholars who want to pursue this subject further on the strength of new sources, either Sanskrit or non-Sanskrit. The identification of the several aromatic ingredients mentioned in the texts on the Gandhastra will have to be studied both from the technical and historical points of view, but I must leave this subject to more competent students of this subject than myself. My own interest in this subject is purely historical and cultural.
10. Studies in the History of Indian Cosmetics and Perfumery

Some Recipes about Perfumes and Cosmetics in the Gandhavāda Section of the Rasaratnakara of Nityanātha Siddha (13th Century A. D.)*

During the last two years I have published some papers1 on the history of Gandhaśastra. In these papers I have made an attempt to collect together some texts pertaining to the use and manufacture of cosmetics and perfumes from different sources, early or late. I propose in this paper to add some new material on this subject to what I have already recorded in my papers. This new material is found in a work on alchemy (rasa-vidya) called the Rasaratnakara assigned by scholars to the 13th century A.D. My friend Rajavaidya J. K. Shastri published in 1940 an edition of the Vādi-khaṇḍa (also called वादिक्षिड़क्सपालनम्—“वादिक्षिड़क्सपालनम्”). Chapter 9 of this Khaṇḍa (pp. 159-171) deals with the manufacture of ratnas2 (jewels) and cosmetics (gandhavāda) as stated in the following opening verse of the chapter:

“संसारो सारस्वत वालसुवकर्ष सुमधूर धनं वे
तस्थाप्नां साधने के देवगुरुन्मुखविधिना वाइधेये तस्स मिलेये।
रत्नादीयां बिशेशाकारविशिष्ट शुभं गंधवादं सममं
शाला ततुस्विद्वं तस्मनवयं पावनं पंडितानाम् || 1 ||

Nityanātha, the author of the Rasaratnakara, tells us in the above

*Jour. Ganganath Jha Research Institute, pp. 203-209.


2. According to Triñotyakaparakāva, a work on astrology of the 13th Century by Hemaprabha Sūri, the Sun (भानुमान) is the presiding planet for ratnas and Jupiter (युधिष्ठिर) for cosmetics and perfumes:

—“मधुक्रस्ताशिब्रहमादीना नाथस्य मानुमान्।” verse 39

—“श्रीवल्लक्ष्मीकर्क्षलोमोदस्तुस्।”

स्वामी ब्रह्मस्त्वतिपेयो लाभत्वविद: पूनः ||” verse 40 (Vide p. 9 of तैलोककारण, ed. by R.S. Sharma, Lahore, 1946).
verse that plenty of wealth (dhana) is the essence of life as it bestows all happiness. For acquiring this wealth he is explaining in the present chapter the necessary means, viz., the knowledge of the manufacture of ratnas (jewels or precious stones) and cosmetics and perfumes (gandhavāda).—Verily these remarks are true for all times as the professions which deal with the sale and manufacture of these luxuries of human life have been most lucrative, as vouched by historical records. Articles of jewelry have a fabulous value, as also cosmetics and perfumery. The observation of the Pañcatantra viz.

"पपयानां मातिकर्न पवयं किमक्ये: काष्ठनादिधिम्: ||
तत्तै: दिनः य सशीलं तत्त्वः तर्किन्ते प्रदीर्भवे: ||" states that all trades the trade in perfumery is the best, because in it what one has purchased for one (rupee) can be sold for hundred (rupees).

The chapter then describes the processes of manufacturing such ratnas as प्राराग, इन्द्रलील, मरकतमाय, गोमेदमाय, पुपाराग, नीलभाजिक्य, मुक्ताभल, and प्रबाल, (verses 1—37). Subsequently verses 38—88 are devoted to the manufacture of हिंगुल, विनुर, हैंधव, सुवर्ण, हिंग, वंग, श्रम्बेतल, ग्री (ink) and वृत्त. Verses 89—131 deal with the preparation of cosmetics and perfumes. They are as follows:—

Page 167 (1) ब्रदनक्रसाम (Preparation of Sandal)

—"तत्त्व मूलिक बिंबल कुत्रोल्लिव नवम्पुर्दिम् || ५६ ||
पूर्यकथे काष्ठनेन बिंबल रस्वाथ लेष्येत ||
धिष्य मुखवन्येन शुरुक राजपुरे पन्चेत || ६० ||
स्वाभाविकतल्ल प्राक्क नमूलं ब्रदनं भेजते || ६२ ||

(2) कपुरक्रसाम (Preparation of Camphor)

—"पलाप्रयर पनेदुभक्ति सम्प्रभागान्तुलम्: ||
तदुभक्तिः श्रीलोकं कुलं गवा च चौरे: प्राकर: || ६२ ||
निधक्षमां च कपुरं विष्म्वा सरित्स्य वेलिते ||
शुकस्य वंशाणास्य श्वौत्स्य तेन चोरसं || ६३ ||

3. I have recorded this important recipe of ink (for writing on भुर्जा and palm-leaves) in my paper on the history of Ink-manufacture in India and other countries, like China, Japan, Egypt, Rome etc. (See Pracryacana Calcutta, Vol. III, October 1946).

4. कपुरस्य सरित्स्य is described on folio 32 b of the B. O. R. Institute MS of गंभराद with Marathi Commentary (in Raddi collection).
(3) जवादीनां कस्तूरीरकमुः

—"पनस्तनाध्यक्षस्य नीतजयेक्षस्य लघुयेत्।
नवभाषेषु विनिद्वियु निद्रां गुप्तापलं तथा ॥ ८७ ॥
वृन्धसित्वा विद्वेषतिसितं तत्तथं द्रव्यतं ब्रकेत्।
तेन दृष्टव्याविद्वेषतिसितं च पुष्करं च चतुर्दशम् ॥ ६५ ॥
मृदुव्यो प्रचुरपावताविद्वेषतं गतम्।
तत्र श्रीतलं काचपात्रे विहितवा तयोपपि विद्वेषत् ॥ ६६ ॥
चेष्टकं केतकी मल्ली जातीपुष्पाणि तदपि।
दिनं श्रुत्तपेतं बद्वा मुरं तस्येव रञ्जेत् ॥ २०० ॥
ततः पुष्पाणि संयंक्तं कस्तूरी मामप्राणकाम्।
मायाौं श्रुत्तत्तुरूः तपस्येव विनिद्वियु ॥ २०१ ॥

नितिसिद्विद्विशंदेव सन्मुखजाविद्वेषानि।
तत्तथं मृदुं पुश्च समुन्नाविद्वेषतं ॥ २० ॥
वेष्टितस्निला-पुष्करस्वदमां दिसक्षयाम्।
सम्प्रभवति जाविद्वेषा दिसक्षयाम्।

Page 168 (4) कस्तूरीरकमुः

—"मथुरकेशल तेलं वा तिलोपथं पत्तिपचकम्।
सुसूक्तदूर्वं दशापलं चकम्बकं चोचेत् ॥ २०४ ॥
मल्लिका, मल्ली, जाती, केत्ती, शरणविभक्त।
श्रुपाणि च सुगंधीनि पुष्पाणि तत्र निद्वियु ॥ २०५ ॥

5. See "जवादीनां करशी" on folio 32b of B. O. R. I. MS of the गणचार.  
7. See "कस्तूरीची करशी" on folios 31 and 32 of the MS of गणचार (B.O.R. Institute),
8. The three recipes for the preparation of Kunkuma are important as they show the ingredients from which Kunkuma (Marathi बृंकुर्कु) of reddish colour was prepared in the 13th century for the use of Hindu married women. Elsewhere I have not come across any recipes for Kunkuma used by married women in the form of red spot on their foreheads as a sign of Saubhāgya. I propose to write a paper on the history of Kunkuma-tilaka for which I have collected some material.


Page 169 (6) दिव्यधूपः (i)

—“कमात्तरसुः कुर्ष्यकस्तुरी शाशिः कुमुदम्।
नखमांथि सजरसं मुसता कुमुदपारुः सिता॥ १२०॥
चंदनं च दर्शति चूथितदरणिभिमिलयेत्।
चूथि तत्‌भृगुगुष्ठम् सवमेकत्‌ कुतकेत्।
स्वोकं स्तोकं विपेचेल शिलायां लोहकुणिना।
दिनमेकं प्रदत्तो वातिकं तेन करश्येत्।
देवानं दिव्यधूपपोषयं मंगारणं सापने हितं॥ १२२॥

—दिव्यधूपः (ii)

—“पायायमेव चृणं तु गुमुलं च पलं लल्म।
मांखी सुभास मनं गोविन्द चंदनागुष्ठचलकम्॥ १२४॥
लाक्षणमुः सर्वसं सिताकर्षणसंयुतम्।
प्रति निधकं चूथेर्वती कुर्ष्येत् कुतकं तथा॥ १२५॥
मायैकं विपेचतरिभं ववः कुत्याचुरुलस्य।
स्वोकेषल विपेचिकविलोकनं तद्‌ द्दम॥ १२६॥
वसैकं कुर्ष्यकस्तुरी द्विघो पूवम्। श्राद्धित।
देवादेवाके देव: पूवं वरदीक्षुप:।
सम्बीमार्याजकः स्वसम्मोहायकः॥ १२७॥”

Page 170 (7) पुष्पाङ्गति:

—“वसीचीरसं संसवेत शुरुं वर्षं पुनः। पुनः।
आयस्य शोभितं कुर्ष्यकस्तुरी दिनसप्तकम्॥ १२८॥
जातीपुषपलोकं तु निधकं चूथितवर्तकम्।
चौद्र निधकत्रयं श्रोत्यं सवमेकं लोलयेत॥ १२९॥”

9. See “पूवायुक्ति” on folios 45–47 of “गनपाद” (B.O.R.I. MS)
Verses 132 to 139 deal with धान्यादिक्रिक्रमाम् and धन्यादिक्रिक्रमाम. The concluding verse 140 reads as follows:—

Page 171 —“अर्धी सर्वदिशाङ्गेऽपि दमनं हत्ता गुरोऽसमुखात्
प्राप्ते भक्तिकलेन युक्तित्विभिन्ना सारात्मिकां महत्
तस्यां चन्द्रवर्षमेव निमन्तं भूषितामस्थव (१) वनचिर्
भूयामि विद्वायं महामहिमाति विद्वानः वेतसालेऽः || १४० ||”

The foregoing recipes of several cosmetic preparations described in detail are not imaginary, though they appear in a work on alchemy, which contains some mixture of fact and fiction. The experts in rasa-vidya in mediaeval times, known as Siddhas did possess a supernatural bent of mind. In spite of this bent they were deeply interested in experiments of all kind in their search for gold. The cosmetics described in the recipes of Nityanātha Siddha are real and not miraculous though we might notice in these descriptions a tendency to attach miraculous properties to actual preparations, which gave comfort to the users of these cosmetics on account of their aromatic ingredients. Those who are interested in the industrial side of these recipes may try them and see if they have any value to-day. Whatever be their present worth they really have a distinct place in the history of Indian Gandhaśāstra.

The term “गन्धवाद” used by Nityanātha in verse 1 (गन्धवाद समग्रः) and verse 131 (गन्धवादेऽपि योजनेवत्) is noteworthy. Of the two treatises on Gandhaśāstra discovered by me one is called “गन्धवाद” or a manual of Gandhaśāstra which records the several recipes for preparing cosmetics and perfumes.
11. Some Sanskrit Verses regarding the Manufacture of Rose-Water

Found in a Manuscript of the Bhojanakutūhala

Dated Śaka 1773 (= A.D. 1851)*

The Bhojana-Kutūhala\(^1\) of Raghunātha Ganeśa Navahasta (1st Paricchedā) contains a section on the properties of different waters. This is called भोजनकुटुहाल. There are 3 MSS of this 1st paricchedā before me for comparison viz. (1) MS belonging to Rajavaidya Jagtap of Kolhapur dated Śaka 1773 or A. D. 1851, (2) another MS from Jagtap collection belonging to Śamji Nayak Punde (c. A.D. 1680) and (3) a MS dated A.D. 1803 - No. 594 of 1899-1915 in the Govt. MSS Library at the B.O.R. Institute, Poona. The मानवाक्य referenced above is found in all these MSS, but the following extract called the "गुलाबोद्धः प्रकरणां च वृद्धं शालायानं विलंबं तत्त्वातिक्षितम्" or a section dealing with rose-water is found only in the first of the above copies of the work, dated A.D. 1851. Presumably this extract is a later addition to Raghunātha’s Bhojanakutūhala made by some one between A.D. 1803 and 1851.

The extract under reference is found on folio 57a inserted between the sections pertaining to "नाकिकेल गुलाबः" and "उक्तो-नामाविश्वासः". It reads as follows:

अयो गुलाबोद्धः प्रकरणां च वृद्धं शालायानं विलंबं तत्त्वाति क्षिप्तम्
जल समवालापात्र दीप्ति वर्ग समुख्तं ॥
तामरेऽवावध तत्त्वायां दीपायानं विनयिष्टेऽः


2. The word "गुलाब" means "rose-water". Raghunātha Pāḍitā in his राजावतहारकोष III, 14 refers to गुलाब as "सम्मलयो गुलाब: स्वातः". Evidently he understood "गुलाब" to mean "rose-water". In the extract quoted above the word "गुलाब" means the rose-flower and "गुलाबोद्धः" means "rose-water". Raghunātha Pāḍitā composed the above lexicon by order of Shivaji the Great about A.D. 1676.

3. For a picture of दीपालय च Vide Plate II (10)—page 144 of Aryan Medical Science by Thakore Sahib of Gondal, London. 1896.
When I found these verses in this MS of A.D. 1851 I was convinced of their interpolated character but as no such verses have been found in any medical or allied works I wanted to publish them after making inquiries of Vaidya Gangadhera Sastri Gune of Ahmednagar if he had come across similar verses on the manufacture of rose-water in texts early or late. Vaidya Gangadhar Sastri replied in the negative. I am, therefore, publishing these verses with a request to other scholars to publish any other verses of this type if they are discovered hereafter. It may turn out that these are the only verses on the manufacture of rose-water so far found and hence they have their place in a historical study of the rose-flower in India to which I intend to devote a special paper in the near future.

I am unable to determine the authorship of the extract pertaining to the manufacture of rose-water as found in a MS of A.D. 1851. It seems, however, that Vaidya Raghunathji Indraji alias Katabhar was acquainted with the above extract or a portion of it, as will be seen from the following passage on p. 452 of his निमंदु संग्रह published on 10th March 1893 at Junagadh:

4. Vide p. 181 (स्वस्थ्वत्वपरिशिष्ट) of Astanga Sangraha (Sutrasthana) ed. by R.D. Kinjavadekar, Poona, 1940. Here Pt. Kinjavadekar quotes some verses from the चेम्बुधुहल of चेमर्वर्ण (C.A.D. 1550) under पुष्पदिशारीणम् in which the word गोलालेश is used perhaps for rose-flower, verse 34 — "श्रीश्वरं चैव गोलालेश" and verse 39 — "गोलालेश नमयं पुष्पं वातश्लेष्महरे परम्".
The last verse of the above extract is identical with the last verse of the previous extract regarding rose-water. As Vaidya Katurbhut merely introduces it with the remark “प्रशंसिते” I am unable to state the source from which he has quoted it in his book published 42 years after the Jagatap MS of the भोजनकुदूल. Evidently the process of extracting rose-water given in the extract under reference shows that the author of the extract was thoroughly familiar with it. The rose-flower appears to have become popular in the Deccan during the Peshwa period of the Maratha history. In a poem composed by Bhagavantrao Yadava in praise of Nanasaheb Peshwa we find the following verse containing a reference to गुलाबः—

“श्रीमती फार गुलाब चंपक कहि अर्चिविधि श्रीमती”

In spite of the increasing acquaintance of the Poona court with the rose-flower in the 18th century it is doubtful if any quantity of rose-water was manufactured for court use in the first half of the 18th century.
century. In fact we find Raja Shahu writing to Kanhoji Angre on 13th April 1723 ordering him to supply candles and gulab (rose-water) for his own use. This reference seems to suggest that rose-water of local manufacture was not available at least in quantities sufficient to meet the court needs of Shahu who, having been brought up at the Mogul court, was fond of rose-water. The rose-water was a fashionable article of luxury at the Mogul court since Baber’s time and its importation by sea and land into India is often noticed in contemporary records of foreign traders in the 16th and 17th centuries. It is difficult to find references to the use of gulab and its products in Sanskrit works on Indian Materia Medica composed even after the Mogul advent in India. I may, however, note here some uses of the rose-flower and its products as found in a work on medicine represented by two MSS, one dated A.D. 1787 and the other dated A.D. 1824. This work is called

6. Vide letter No. 51 (Peshwa Daftar Selection No. 8) dated 13-4-1723—Shahu ordered Kanhoji Angre to procure for him (possibly from the British) 750 candles and gulab or rose-water in 20 bottles supplied to Kanhoji. The weight of the candles ordered was “स्वयं शात मण मंच पाँच सेर” as stated in this letter. In letter No. 52 (A.D. 1715 ?) Shahu ordered from Kanhoji 100 bottles of rose-water (१०० गुलाब सिंहे), 400 candles and तंबाकू or tobacco of Surat and Bagdad.

7. Vide p. 142 of Supplementary Calendar of Documents in the India Office (1600-1640) London, 1928—12th January 1639—The ship Diamond arrived from Persia with rose-water etc.

8. One of these MSS is deposited in the library of the Rajawade Samshodhan Mandir, Dhulia. It is described by Vaidya Bindu Madhava Pandit in the फुलविलास (September 1942) pp. 223-228.

This MS begins :

"श्रीगणेशपार लग्न : || श्रीसरस्वती लग्न : || रघु वेदसारण हकीम फस्तीले नाम वतवियत्ते बर्दक हुलपलारे नामह || रघु मिर्दित्वारा लिप्यते"

It ends :

"पृथ्वी वेदक कसमता संबंध मासे लिप्यत || लक्षे १३०० || माहे पौल || श्रीलक्ष्म प्रसाद संबंध साहे तीन हजार पत्र संख्या एकाधै एकुण इत्यादिपुरक || पुरूषक केसक वेदक संपूर्ण ||"

The subjects of the 13 Chapters are :

I—फुलविलास, मूलपिलास, नाथिपिलास; II—विनेचनकल्य; III—श्रास्व; IV—गुहिका; V—वर्क; VI—Uses of mixtures against diseases; VII—काप्ता; VIII—चौरी; IX—गुहिका (bigger type); X—चटनी and पाक; XI—सिंहवैल, लेडी etc.; XII—मल; XIII—रत्नावल.
Studies in Indian Cultural History

हकीम फारसिस्क and consists of 13 Chapters. In Chap. III, which deals with the आक्सीs i.e. decoctions or extracts, there is reference to the गुलाब flower. Again in Chap. V, which deals with श्रृंग, the गुलाब flower is referred to. It is also found in Chap. X dealing with चटनी and पाक.

I have taken the above references from the description of the Dhulītīa MS of the work as given by Vaidya Bindu Madhava Pandit of the Ayurvedāshram, Ahmednagar. According to Mr. Pandit the language of this work is a mixture of Sanskrit, Prakrit, Hindi, Urdu, Marwadi, Gujarati and other languages and dialects. Perhaps the MS would be useful for the students of the history of Indian linguistics as the MS is dated A.D. 1787, which suggests that the work was composed earlier than this date.

Another MS of the work has been recently acquired by the B. O. R. Institute. It is dated A.D. 1824. It contains the following references to गुलाब पूल and गुलाब ग्रातः:

Fol. 11a “लेना ता मै गुलाब का ग्रातः मासे ३”
Fol. 12a “गुलाब के पूल सेर पाच पूल नमि होइ
tौ चोली गुलाब के ग्रातः मासे ८ अ
“गुलाब पूल सेर १ वा ग्रातः मासे ६ अ”
Fol. 19a “गुलाब को पानी”
Fol. 21a “गुलाब पाच ग्रात”

9. This MS. is on paper (Size: —8”×4”) and contains 32 folios (about 11 lines per page and 44 letters each line). It begins:

“हकीम फारसिस्क नमः || लिखतं फिरंगी फारासीका हकीमी || ग्रातः बेलकरशाह रोमलपुरा (श) हे हकीम फारासीसने कही || माया बहुत बीचारी के के || प्रथम चारी ग्रात वर्षन || चौथे बेलकरशाह बहुत लाल पाताल स्वान” etc.

It ends:

“हकीम फारसिस्क ग्रांथे रोमलपुरा तीव्र हकीम फारसिस्क बिरंचते फिरंगी हकीम ग्रातः बेलकरशाह कनिवान हकीमी की गंगूरे || ग्रांथे १४५५ तारयात्रादात || पक्षे मार्गिषियं वन १० दशमी सबक्राहेरे हकीमी ग्रांथ समाप || ६ || ६ || ६ ||”

10. On 4th September 1754 “ग्रातः गुलाबी” was used to honour a descendant of the celebrated singer Tānsen (Vide p. 99 of Peshwa Dafter 22) while on 10th February 1768 Gopikābāi Peshwa sent some betel nuts to Daulatabad to get them scented with rose (Ibid, p. 114—“शुपान्तागुलाबी बबहार्या करसयाकरिता.”)
Fol. 22a  "गुलाब को हरर तोला 1"
Fol. 22a  "गुलाब पान कठार भोजरी के गुलाबकंठ को" etc.

(Fol. 25a—"कागदी नील")

A MS of the present work dated A.D. 1878 has been described on pp. 71 and 302 of the catalogue11 of Hindi MSS by S.S. Das who gives no information about the date of the work or its author.

We have noted in the foregoing discussion 4 MSS in all of the work हस्तिम फारसीस out of which three are dated A.D. 1787, 1824 and 1878 respectively. The Dhulia MS of the work is the earliest dated MS of the work so far discovered and hence important.

Another MS belonging to the B.O.R. Institute of a work called जुरृप्रसंवक्षण (प्रकरण) is dated A.D. 1849 (Samvat 1905, Śaka 1771). It refers to the preparation of gulkand by the use of sugar-candy, rose-flowers, saffron etc. as follows:—

Fol. 14b  "गुलकंद कर्षण || साकर लुबा 1 लिडीमिठी 1 गुलाब कुल व केसर || 6 || चुरूँ ||"

The foregoing references to the use of the gulab flower in the Indian materia medica though introduced very late show clearly its growing popularity in India.

I shall close this short paper on the Sanskrit verses regarding the manufacture of rose-water by the following usages of the term गुलाब in the sense of rose-water and rose-flower found in the work of the celebrated Hindi poet Bihāri (A.D. 1603-1663)12:—

Bihāri18 in his धिता refers to the use of rose-water in the following stanza:—


Page 70—"No. 166—फारसीस हस्तिम. Nothing could be known about this author of medical books. The following work of his has been discovered":—"ष्रीजुलिपुराण — A treatise on Hindu system of medicine. The MS is dated 1878 A.D."

Page 302—166 (a)—ष्रीजुलिपुराण by फारसीस हस्तिम 130 leaves"—belonging to Kash Prasad Saraf, Bijaipur. Another copy is with G. S. Kavi of Dattia.


13. Vide p. 51 of गाथाकला (Kavya Mala 21) edited by Bhaṭṭa Mathuranātha, N. S. Press, Bombay, 1933—The Sanskrit explanations of Bihārī’s stanzas are given by Bhaṭṭa Mathuranātha himself.
(विरहवण्य):—

"श्रीधारै शीती छु लपि बिरह वरी बिलालात।
बीच हि सूर्खी गुलाब गै छौटौ छु न गात॥"

Explanation:—

"विरहसंतापमवलीक शीतीकलर्णां शब्दवा बाबूदेव पाठ्वालासिकस्य (गुलाब जल) काच्चुरिका आवश्यकता तावदेव सर्वभेद जलं पशुपथ लुप्तमूत्र विन्दुरस्व पर तदाने नास्तुशात्॥
श्रीधो संताप:॥"

In the same poem Biharti refers to the uses of rose-flower as follows:—

( शारीरसीकृतां )—

(१) "भमकेत हिंदी गुलाब के भमा समालू घाइ।"

Explanation:—

"पाठ्वालासिकस्याच्छेन श्रीमाने शारीरसीकृताः।
शारीरसीकृतां श्रीमाने तर्कवहाराया ब्रम्हतत।"

(२) "पाँचै लोंगे गुलाब की परि है छांझ लरौं।"

Explanation:—

"पाठ्वालासिकाद्विधिः, चारावं तव गाणे विलेकतरं ज्वाले मार्गपचार तदाने भाजनमात्र ते मार्गपचार।"

It would be interesting to record some usages14 of the work गुलाब in other vernacular works of the 16th and 17th centuries in the manner of the Hindi poem of Biharti.

I close this paper with a request to the students of the history of Indian medicinal science and other scholars to publish any Sanskrit or vernacular texts pertaining to the manufacture of rose-water preferably prior to A. D. 1800.

14. Vide p. 1138 of Proceedings of Indian History Congress, Calcutta, 1939. Mr. N. L. Ahmad describes the rose-water festival (Eid-i-gulabi) at the Court of Shah Jahan (A. D. 1628-1658) as follows:—

"Eid-i-gulabi (rose-water festival) one of the daintiest of Court festivals, was celebrated with taste and elegance on the 13th of the Persian month Tir, which marked the commencement of the Rainy Season in India. The princes and the prominent nobles presented the Emperor with jewelled flasks containing rose-water, jujube tree flower juice and the aroma of orange flowers. The other courtiers made him offerings of enamelled, gold and silver flasks."

Evidently the rose-water used for the above festival was possibly that imported from Persia and other places outside India.
12. Recipes for Hair-dyes in the Nāvanītakā (c. 2nd Century A.D.) and their close Affinity with the Recipes for Ink-manufacture (after A.D. 1000)*

Recently I published a paper¹ on the History of Ink-manufacture in India, recording some recipes for ink-manufacture, the earliest of which belonged to the 13th Century A.D. In all these recipes I noticed the use of ingredients, herbal or metallic, used for giving the necessary colour to the ink. I now find that these recipes have a close affinity with the recipes for hair-dyes (Keśarāgāh) given in a text,² which is 1000 years earlier, if not more, than the Rasaratnakara of Nitya-Nātha-Siddha, who records the earliest recipe for ink, so far as I know. I propose, therefore, to record in this paper a brief analysis of the texts about hair-dyes of c. 2nd Century A.D. and compare it with that of the texts about ink-recipes (c. A.D. 1200 onwards) already recorded by me in my previous paper.

Chapter 10* of Nāvanītakā (Prakarana II) reads as follows:—

“[...कर] व [१] रक [ू] । तिबलिलेन पांचिकेतु ।
ना [ न ] र्वाम्यनात्योगोग [ू] सिद्द; विलितताश्च्: || १ ॥
प्र [ पु ] एड [ू] रीक [०] । ... || २ ॥
....

2. This text is Nāvanītakā edited by Kavirāj Balwant Singh Mohan (from the Editio Princps of the text by Dr. R. Hoernle), Lahore, 1925—Chapter X of Nāvanītakā deals with Hair-dyes (केशरागाह:) verses 1-27—On p. 9 of his Introduction the Editor observes:—

“...the Second Century A.D. may be taken provisionally as the time of the compilation of the Nāvanītakā.”

* I give below the English Translation of this Chapter from Dr. A. F. R. Hoernle’s Trans. of Bowser MS (Calcutta, 1893) pages 164-166:—

Tenth Chapter: Formulae for Hair Dyes

I

(Verse 891) Boil.....and oleander in sesame-oil. This, applied as an errhine or an Ointment is an approved remedy for turning grey hair into black.

II

(892 and 893a) A paste made of Prapauḍḍika and......(893a) and applied as a plaster, is a remedy for turning grey hair into black.
Studies in Indian Cultural History

III

(893b and 894a) Bamboo-manna, garden-nightshade Shatapushpā (Pencedanum graveolens), and sesame-seeds (894a) if applied to the hair, cause them to become as black as antimony.

VI

(894b and 895a) Indigo, rock-salt, and long pepper, made with water into a paste (895a) if applied to the hair, cause them to become as black as antimony.

V

(895b and 896) First let the head be washed with chebulic and emblic myrobalans; (896) then prepare a paste of Alambusha (Sphaerantus indicus) and indigo, and with it, while warm, anoint the head; then the hairs will not turn grey.

VI

(897 and 898) Sulphate of Copper, Musta (cyperus rotundus), sulphate of iron, bile of a turtle, powdered iron, Danti (Baliospermum montanum), Sahuḍeva (Sida rhomboidea), and Bhiṅgarāja (Eclipta alba), one part of each, (898) boiled with oil of beleric myrobalan, are a remedy for turning grey hair into black and if it is applied regularly as an ointment, it will prevent the hair from turning grey.

VII

(899 and 900) One prastha of the juice of Bhiṅgarāja (Eclipta alba), the same quantity of milk, and one pala of liquorice, boiled in one Kusa of oil, will make even a crane to turn black. (900) it will remove wrinkles and grey hair for twelve years within a week and for one hundred years, within a month if administered in the form of an errhine.

VIII

(901 and 902) Two pala of the roots of Rāmartara (Rosa alba) one pala of liquorice, half a pala of sāvaraka (Symposcos racemosus), and; ten pala of oil of beleric myrobalan, (902) boiled by the heat of the sun in an iron vessel for ten days, and administered as an errhine, make grey hairs to become of the same colour as the large black-bee.
IX

(903 and 904) One prastha of the juice of emblic myrobalan, the same quantity of clarified butter, and one pala of liquorice:—all this together should be boiled over a gentle fire. (904) Its application as an ointment will give sight to the blind, and black colour to grey hair; and if perseveringly administered as an errhine, it will even restore one's lost sight.

X

(905-909) Take equal parts of no more than one akṣa, of each of the three myrobalsans, indigo, and blue lotus; also of the fruit of Pīṇḍāraka (Vangueria spinosa), (906) sulphide of antimony, roots of long pepper and leaves of sahacara (Barleria cristata); add a decoction of Jāman, earth from the roots of the Jāman tree.

Twenty eighth Leaf: obverse

(907) Fruit of Kakubha (Terminalia arjuna), and two kuḍava of sesame-oil, and boil the whole in oil of beleric myrobalsans slowly over a gentle fire.

(908) Administer it now as an errhine for fifteen days; then on the sixteenth day the noble patient will have left no white hair, his scalp will be black, (909) his face and eyes will look well, and all his hair will be of a deep dark colour so says Agastya, the best of teachers.

XI

(910-916) Take the three myrobalsans, flowers of sahacara (Barleria cristata) Jāman, Karśmārya (Gmelina arborea), flowers of kakubha (Terminalia arjuna) kernel of the mango, and fruit of Pīṇḍāraka (Vangueria spinosa), (911) also sulphate of iron, flowers of Asana (Terminalia tomentosa), indigo, blue lotus, knots of the root-stalk of the lotus, sulphide of antimony, black mould, and powdered iron, (912) also both kaṭiakārakā, both Śvārīvā, Madayantī (Jasminum Sambac), Juice of Bhūtaṅgara (Eclipta alba) and oil of beleric myrobolan. (913) Mix the whole with a decoction of Asana (Terminalia tomentosa) and let it stand unboiled for ten days in a vessel of iron. Then boil it thoroughly over a gentle fire, (914) and add to it one half as much of sūkti, which had then kept placed in Mudga (Phascolus Mungo) and Māya (Phaseolus Roxburghii). Then on the completion of the half month, having kept it well protected in the mean time, administer this preparation. (915) Having prepared one's body with the three myrobalsans, and dieting on Khichari, one should use this oil as an errhine, in doses of one sūkti at a time, with care and in sheltered spot. (916) Whoever that has a white head, permits one prasthna of this oil to be given to him as an errhine, he will, after the administration of it, possess black hair,
The ingredients\(^1\) of the foregoing recipes for *Hair-dyes* which are supposed in the above verses to make the grey or white hair jet-black are as follows:

(1) तिलतैल = AHK = Sesame Oil.

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1. Almost all these ingredients are mentioned in the *Aṣṭaṅga-hṛdaya* of Vāgbhaṭa II (8th or 9th Cent. A.D.). They are, therefore, recorded and explained by K. M. Vaidya in his *Aṣṭaṅga-hṛdaya-kāraṇa*, Trichur, 1936. I have marked the ingredients in the above list with the abbreviation AHK to indicate that they are mentioned in the *Aṣṭaṅga-hṛdaya* and explained by K. M. Vaidya.
(2) रोँचा = गोरेचा (AHK) = Bezoar, Gall-Stone, Serpent-Stone.

(3) कार्माचारी = कार्माचारी (AHK) = Solanum nigrum (क्रांगोकणी)

* (3) नीलीका, नीलीका, नीली = Dyer's Indigo (AHK).

(4) पिपली = Long pepper (AHK), Marathi पिपली.

* (5) श्रेयोत दींकी (AHK) = Ink nut, Chebulic myrobalan.

* (6) श्रेयोलक = Emblic myrobalan (AHK), Marathi श्रेयोलक.

(7) दंतु = दंतु (AHK) = A kind of sensitive plant: Marathi लाजाळ मेद.

(8) दुम्ह = दुम्ह (AHK) = Calamine, Carbonate of Zinc ( Sulphate of Zinc = Mar. कलापाय)

(9) मुस्ताम = मुस्ताम (AHK) = Nutgrass, Cyperus rotundus, Marathi मुस्ताम.

* (10) कार्दीसम = Green Vitriol (AHK) = Iron Sulphate, Marathi हिराकस.

(11) कूँत्रिमण = कूँत्रिमण = कूँत्रिमण.

* (12) रोँची = रोँची (See No. 40 below), AHK mentions श्रोम and लोँक.

(13) दंती = Croton plant (AHK) = Jatropha montana, Marathi जामालमोट.

(14) सहीदा (Sida rhomboidea, according to Hoernle).

* (15) क्रिंद = क्रिंद (AHK) = Trailing eclipta, Marathi माका.

* (16) जिरासक = Beleric myrobalan (AHK), Marathi जिरासक.

(17) पक्षु = पक्षु (AHK) = Milk.

(18) मुरुङम = मुरुङम = मुरुङम (AHK), Sweet-wood, Liquorice, Marathi वेदेनीसम.

(19) रामताफ्या = AHK Mentions राम = श्रोम, Perhaps रामताफ्या may be a sprout of श्रोम tree.

(20) शालसक = शालसक (AHK) = Lodh tree (white variety).

(21) श्रोम = जिरासक (AHK) = Marathi जिरासक (See No. 16 above)

* (22) काण्यासक = Black iron (Cf. क्रुष्णालोहम) (AHK) = काण्यासक = Steel (क्रुष्णालोहम).

(23) सिप्पु = भूमम (Ghee) AHK.

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*This asterisk mark indicates that the ingredient is found in Ink-recipes (after c. A.D. 1000).
1. मदायती may mean मदायतिका, mentioned by Susrūta. Dallāpa (c. A.D. 1100) explains मदायतिका as मंदी (Henna), with the colour of which women paint their finger-nails. (See my paper on the History of Mendi (Henna) in the Annals (B. O. R. Institute, 1947), Vol. XXVIII, Parts I-II pp. 14-25). I may note here that Susrūta mentions मदायतिका as an ingredient in an ūṅga-rāga or unguent for royal use. In the Nāvantītaka मदायती is prescribed as an ingredient in a recipe for Hair-dye. Though it is difficult to prove Dallāpa’s equation of मदायतिका with मंदी (Henna) we must admit that मदायतिका of Susrūta and मदायती of the Nāvantītaka (2nd Cent. A.D.) were plants yielding a dye which was used in the preparation of cosmetics and hairdyes say before A.D. 400, the later terminus for the date of Susrūta.
*(44) श्रस्न-चक्राय: = Extract or decoction of श्रस्न (See No. 37 above).

*(45) कार्ष्णिक-कात्रमु = Black iron vessel.

(46) सुक्तलम् = सुक्तलम् (AHK) Vinegar.

Those who are interested in the chemistry of the recipes of Hair-dyes described in the Nāvanitaka may study the properties of the above ingredients and see how far the recipes are effective in making the grey or white hair black. Some of the ingredients in the above list are obviously used as dye-producing agents in these Hair-dyes. In the recipes for ink also I find similarly some dye-producing agents. I note below such of these agents as are common to the recipes for Hair-dyes and those for Ink-manufacture:

<table>
<thead>
<tr>
<th>Hair-dye Recipes in Nāvanitaka (c. 2nd cent. A.D.)</th>
<th>Ink-Recipes after c. A.D. 1200</th>
</tr>
</thead>
<tbody>
<tr>
<td>तिल्लिल्ला (No. 24)</td>
<td>Formula for Ink in Rasaratnākara (c. 13th Cent. A.D.):—</td>
</tr>
<tr>
<td>भृगर्ग: No. (15)</td>
<td>तिल्लिल्ला = No. 24</td>
</tr>
<tr>
<td>सह्स्र (No. 29) = Black कोरंटा</td>
<td>भृग = No. 15</td>
</tr>
<tr>
<td>चूतफल मध्यम (No. 36)</td>
<td>कोरंट = No. 29</td>
</tr>
<tr>
<td>ब्रह्मम् (No 27)</td>
<td>शीलाण = No. 36</td>
</tr>
<tr>
<td></td>
<td>भराण = Marking nut</td>
</tr>
<tr>
<td></td>
<td>कर्कोरक्रमु = Oleander (Mar. कर्साँर)</td>
</tr>
<tr>
<td></td>
<td>ताल्लरामु = Copper vessel</td>
</tr>
<tr>
<td></td>
<td>वेल = a kind of gum (Mar. वेल)</td>
</tr>
<tr>
<td>कार्ष्णिक (No 10) Green</td>
<td>कार्ष्णिक = No. 10</td>
</tr>
<tr>
<td>लोहचूर्ण (No 40) Vitriol</td>
<td>लोह = No. 40</td>
</tr>
</tbody>
</table>

Ink-recipes: verses about 300 years old recorded by Muni Punyavijayaji

सह्स्र = ? No. 29 (मद्रवर)

बुद्ध = No. 15

तिल्लिल्ला = No. 24
A glance at the above table will show that out of more than 40 ingredients of Hair-dyes-recipes recorded in the Navaavatika (about 2nd Century A.D.) about 10 ingredients are found in the recipes for Ink-manufacture that were current in India after c. A.D. 1000. These ink-recipes may have been current in India even before A.D. 1000 but we have not discovered any documentary evidence to prove their exact composition. It is, however, reasonable to suppose that the chemical properties of certain
ingredients, having once been recognized by ancient Indians, it was easy for them to use these very ingredients for the manufacture of different products for which they could be used with advantage. At any rate the Chemistry of Indian Ink-manufacture is closely related to the Chemistry of Hair-dyes. Whether the one has been evolved from the other it is difficult to say in the present stage of our investigation. To produce a deep black or blue black Hair-dye was the object of the Hair-dye recipes, while to produce an ink of these colours was also the object of the Ink-recipes. The fastness of these colours was also desired by the manufacturers of Hair-dye and Ink respectively.

Varāhamihira (c. A.D. 500) in his Brhat-Saṃhitā (Chapter 78—Gandhayukti) refers to the importance of Hair-dye and records a recipe for it as follows (pp. 419.420 of J. H. Athalye’s Edition, Ratnagiri, 1874):—

“सर्गांथ धूपाथ्रांसंधानां न शोभते शुक्लाशिरोघन | 
यमादत्तो सूर्यावर्गासया कुशीत्यवंशाणन्य सुप्रसानाम || 1 ||
लौगे पाणे तंहलानु कोहवाणामु 
शुक्ले पन्यांवोहवोहस्वोन सार्नम। 
विश्वाम वृत्तं मृदिनि शुक्लाश्वन्नाये 
दत्ता लिथेर्निश्चिवाक्ष्णे: || 2 ||
पत्रे त्रिपीये पाहेरे विकाय 
द्राहित्वारस्मक-प्रवेपमु। 
संवायनैः ब्रह्म द्रवेन 
प्रत्साः पाषाणयुवैती शोष्यसु || 3 ||
पश्चापिः: स्नातमुष्ठकालैः: 
कोहम्बरामान्ति दशसोपनीय। 
हृदेश गंडोरिकिष्ठा थूर्णि: 
प्रातःपुरे राजसूख्य मित्येवेभ || 4 ||”

The ingredients of the above recipe for a hair-dye are as follows:—

(1) लौंगाल्प्रांत्रै—Iron vessel and लोहवर्ष—Powdered Iron
(2) कोहरब्रह्मलोकः—Grain of Hirik (Marathi) or Paspalum Scrobiculatum
(3) श्रीमलचाः—Leaves of Madar (Marathi हड़) or Swallow-wort
(4) श्रमलक—Marathi ब्रांगळा, Emblic Myrobalan
Of the above four ingredients two have been mentioned both in the Nāvanītaka (c 2nd Century A.D.) and the Ink-recipes (after A.D. 1000). These two are (1) लोहचूर and (2) ग्रामलक (included in निफला). The remaining two ingredients viz. (1) कोदबसीहुल and (2) श्राकंवर are evidently an addition to the ingredients for Hair-dyes mentioned in the Nāvanītaka.
STUDIES IN THE
HISTORY OF TĀMBŪLA
13. References to Tambula in Indian Inscriptions between A.D. 473 and 1800

Though the history of the betel-chewing habit of the Aryans in India for about 2000 years can be easily established on the strength of literary sources, it is difficult to get any references to this habit in inscriptions especially prior to A.D. 1000. It is, therefore, necessary to record whatever references one can gather in inscriptions in respect of Tambula or betel with its ingredients like the Chunam, Catechu etc. In continuation of my studies in the history of Tambula and its ingredients, I record below some references to Tambula in inscriptions with a view to providing to my historical study a steel frame of inscriptive data, the chronology of which is more definite than that of literary sources on which I have depended for the history of the cultural aspects of Tambula.

The earliest reference to Tambula occurs in an inscription of A.D. 473. In 1939, I made inquiries with my esteemed and learned friend Dr. H. N. Randle, Librarian, India Office Library, London, about references to Tambula if any, in Greek and Roman sources. Dr. Randle replied to me seven years after my inquiry. It is very rarely that scholars who are engrossed in their own work, remember inquiries from brother-scholars for a long time and send helpful replies to such inquiries. I, therefore, reproduce below Dr. Randle's reply dated 28th September, 1946 with my grateful thanks to him not only for this reply but for his scholarly co-operation with me for more than twenty years as the Librarian of the India Office Library.

*Sanjya Bharati* (Hoshiarpur, 1954), pp. 208-215

1. I am thankful to my friend Dr. Lokesh Chandra of Nagpur for drawing my attention to a botanical study of the ingredients of Tambula, viz. 'The story of Pan-Chewing in India' by M. Gowda, Deputy Superintendent, Govt. Gardens, Lal Bagh, Bangalore (Botanical Museum Leaflets, Harvard University, Vol. 14, No. 8, (15-1-1951), pages 181-214). The economic importance of the betel-nut palm is very great. About 8/10 million dollars worth of betel-nuts are used annually in India. Over 56,000 tons of betel-nuts are imported into India annually. All the surplus betel-nut production of Ceylon, Straits Settlements, Indonesia etc., is absorbed by India. The acreage of betel-palm cultivation is as follows:— Bombay State (22,700 acres), Madras (108, 600), Mysore (34, 500), Burma (30, 750), Bengal and Assam (greater acreage than any other State).

2. This reference has been mentioned by my friends Shri R. N. Saletoore and Shri A. N. Gulati in their recent publications noted below:—

(1) *Life in the Gupta Age*.
(2) *Patolu in Gujarāt*. 
The para pertaining to Tambula in Dr. Randle's letter referred to above reads as follows:—

'I have had in mind since 1939 an inquiry which you then made as to references in Greek and Roman authors to betel. Schoff in his translation of the Periplus says that McCrindle was mistaken in finding a reference to betel there. The reference is to trade in cassia-leaves. Certainly malabathron represents tamāla-patra and one does not see any reason why betel-leaf should have been exported. I think the result is negative, i.e. there is no reference in Greek and Latin.

I shall be interested to learn how far back you have traced reference, to betel in Sanskrit works. I remember a reference in the Mandasar Silk Weavers' inscription of 473 A. D. (Fleet's Gupta Inscriptions No. 18) lines 11-12 (of the inscription): —

"ताम्बुल-पुष्पविधिना समलक्तकोदि "

"ताम्बुल-पुष्पविधिना समलक्तकोदि.

ताम्बुल-पुष्पविधिना समलक्तकोदि।"

I took this to mean:—

'Now women-folk may be young and lovely, and they may have the customary garland and pān and flowers to hand, but they will never go to meet a lover in the trysting place unless they have first put on their two-piece garment of silk'.

The stanza quoted above from a silk-weavers' inscription of A. D. 473 would serve as a good advertisement for any silk-manufacturing modern mill as it advertises silk garments in quite a modern fashion. In fact the ancient Indian silk weavers rightly claimed the credit of providing an added charm by their silk garments to young and beautiful ladies bedecked with gold necklaces and flowers and with their lips reddened by the use of Tambula. This make-up of ancient Indian damsels remains almost unchanged during the last 1500 years, with the only exception of the lip-stick which is now used for giving colour to the lips instead of the use of Tambula for the same purpose. But the use of the lip-stick has not spread to the country side, where the use of Tambula is very common as an aid to beauty.

3. Fleet's translation of the verse is as follows:—

Page 85—'(Just as) a woman, though endowed with youth and beauty (and) adorned with the arrangement of golden necklaces and betel leaves and flowers, goes not to meet (her) lover in a secret place, until she has put on a pair of coloured silken cloths,—(so) etc.'

[The correct text of line 3 in the verse quoted above is as follows:—]
The reference to Tambula in a Gupta inscription of A.D. 473 supports the present belief of some scholars that Tambula was introduced into India from the South Sea Islands like Java, Sumatra etc. during the early Gupta period as a result of the increased maritime contact of India with these islands. The references to Tambula and its ingredients found in Kālidāsa’s works, and the early medical texts like the Caraka Samhita, Kaśyapa Samhita, Suśruta Samhita etc. are in harmony with this inscriptive reference of A.D. 473, which further confirms the verses about Tambula in the section on Cosmetics and Perfumery (Gandhayukti, chapter 77) in the Brhat-Samhita of the celebrated astronomer Varāhamihira, who was born about A.D. 490 according to S. B. Dikshit.¹

In the Nagar inscription of Dhanika dated (Vikrama) Samvat 741 (= A.D. 685) edited by S. S. Guleri in the Bhārata-kaumudi (Dr. R. K. Mookerji Commemoration Volume), Allahabad, Part I, 1945, we find references to karpura (camphor) and Tambula in the following extract:—

Page 274—lines 8 and 9 on the inscription;—

“वववं जनानिभं ललाटनलके न्यस्त लक्ष्योचन्ति |
दत्तक्ष्र (क्रेम) पि जलादिग्रं तुवृटे कर्पुर-पूलीशरा |
भृंगवतिभया तथापि न हुतो य(कोष) तामोन्धम् || १० ||
भ्यालोलोलो बन बलवतिलालिताः तानिनि |
लम्बलालार्थी ललितसिंवर्षकाराति || २२ ||”

The foregoing extract gives us a description of the sorry plight of the wives of the enemies as a result of the exploits of the king, whose wrath brought tears to the eyes of these wives and removed the smiles on their faces and the red colour⁶ of Tambula on their lower lips.

The following references to betel-nuts and Tambula in old Kannada

5. The first Western mention of camphor (caphura) occurs in the Greek Medical writer Aëtius (c. A.D. 540) but it probably came through the Arabs (vide article on Camphor, in Hobson-Jobson by Yule and Burnell, London, 1903, p. 151). It has been suggested that the word for camphor was originally Javanese in which language kapur appears to mean both lime and camphor.
6. The mention of the colour produced by Tambula chewing presumably the use of two main ingredients viz. Chunam and Catechu, the antiquity of which has been established by me for about 2000 years (see my article in this volume).
inscriptions in South Kanara and the Bellary District of the Madras Province are noteworthy as they show the production of the betel-nuts and betel-leaves between A. D. 750 and 962 in South India. South Kanara is still famous for its betel-nuts as it appears to have been more than 1200 years ago. The Kannada inscriptions under reference are as follows:

(1) Inscription of A. D. 750-70 (South Kanara of Madras Province) refers to the word 'adakeya' meaning 'of areca-nuts' (vide p. 115 of 'Historical Grammar of Old Kannada' by G. S. Gai, Deccan College Research Institute, Poona, 1946).

The word 'adake' means 'areca-nut.' The word for nut-cracker viz. 'adkitta' current in the Marathi language for more than 400 years is of Kannada origin as I have proved in my paper on the Indian Nut-cracker.

(2) Inscription of A. D. 962 (Bellary District of Madras Province) refers to 'Tambulam' (areca-nuts, leaves etc., vide p. 163 of G. S. Gai's Grammar of Old Kannada referred to above.

The production of betel-nuts on a large scale in the districts of the Bombay Presidency including the Karnataka and South Indian districts from A.D. 1000 onwards is amply vouched by the following inscriptions:


A.D. 1061—Ibid., Inscription No. 96 (Dharwar District) records the gift of one pana and 100 areca-nuts on every areca-palm garden to 400 mahajans of Brahmapuri.

A.D. 1050—Inscription No. 107 (page 82 of South Indian Inscriptions, Vol. IX, Part I, Madras, 1939) records the gift of land with some rows of areca-nut trees, a flower-garden and an oil-mill to Vidyānīdhi Panḍita for the service of God.

A.D. 1079—Ibid., Inscription No. 141 records the grant of land for the service of God Rāmeśvara. The five-hundred merchants of the place made a gift of kāni per load of betel-leaves.
A.D. 1135—Ibid., Inscription No. 232 records the ‘gift of 500 leaves for the service of the God Jakkesvara.’ This is a gift by some Settis of place.

A.D. 1142—Ibid., Inscription No. 238—An officer under Virapandavadeva and other persons made a grant of the toll on three lacs of areca-nuts for the service of the God Gavaresvaradeva.

A.D. 1292—Ibid., Inscription No. 344—Merchants of various countries are said to have granted one tara of betel-leaves out of every nana for the service of God.

A.D. 1147—Inscription No. 8 in the volume on Kolhapur Inscriptions (by K.G. Kundangar, 1939) refers to one Bammanayya the Prime Minister, the head of the betel-leaf department (lines 33-34 of the Inscription on p. 82.)


A.D. 1166—Inscription No. 13 of Kolhapur Inscriptions refers to grant of land for the ‘betel-leaves of God Cenna Keśava’ (lines 66-69 on p. 112).

A.D. 1176—Inscription No. 14 (Kolhapur Inscriptions) refers to taxes on imported articles like pepper, sugar, jaggery and betel-nuts. It further refers to an assembly of oilmen granting one spoon of oil on each extraction from each shop every year for the betel-leaf of God (line 52, p. 120).

A.D. 1193—Inscription No. 2033 of Malaya Simha of Tripuri refers to Harisimha, son of Jagatsimha, who was betel-nut distributor (vide p. 282 of D. R. Bhandarkar’s List of Northern Inscriptions and Epigraphia Indica, Vol XIX, pp. 296 ff).

A.D. 1235—Inscription No. 18 (Kolhapur Inscriptions by K. G. Kundangar, 1939) of the Yadava king Singhanaadeva refers to the grant ‘for the betel-leaves of God Bhavaśuddhadeva’ (line 64, p. 153).

8. In the encyclopaedic work ‘Manasollasa’ (G. O. Series, Baroda, Vol. II) composed by the Calukya King Somesvara about A. D. 1130, there is a chapter on Tambulabhoga, which describes in detail the different ingredients of Tambula and their use. The names of places which produced the best kinds of betel-leaves and betel-nuts have been mentioned in this chapter, which is perhaps the earliest medieval special account of Tambula as used at the royal court.
A.D. 118:—Inscription No. 15 (Kolhapur Inscriptions) refers to betel-leaves sellers' making a grant of 100 betel-leaves on one load for the maintenance of the betel-leaves of God Habbeśvara (lines 88-90, p. 137).

At present the use of betel-nut and cocoanut on all auspicious and religious functions is very common in India among the Hindus. It is worth while undertaking an investigation into the origin and history of this use. For this purpose it is desirable to record the different words for the betel-nut and the cocoanut recorded in literary and inscriptive sources. The lexicon Amarakośa (between c. A.D. 500 and 800) records the synonyms for the betel-nut and the cocoanut as follows:—


Cocoanut—'नालिकेश्वर लाड़ली || १६७ ||'

Bhānuji Diksita (c.A.D. 1630) says that नालिकेर and लाड़ली are two synonyms for नारिकेल or cocoanut.

Betel-nut—'डेष्टा गुपुर: क्रमको गुवाकः।१० गुपुरः || १६५ ||'

Bhānuji Diksita says that these are five synonyms for पूणुक्ष commonly known as ‘सोपारी’ (‘पूणुक्ष बूणुक्ष’ ‘सोपारी’ इस्ती बूणुक्ष).

The Bengal Inscriptions edited by Mujumdar refer frequently to नारिकेल (cocoanut) and गुवाक (betel-nut) plantation on the lands donated11 to certain persons by the kings of Bengal as will be seen from the following references:—

9. With the acquisition of the betel-chewing habit by the Aryans in India, there arose a class of traders in Tambula called tambulika class, which later became a caste with the name Tamboli. At present the Teli (oilman) and Tamboli (seller of Tambula) are regular castes in the Indian caste-system. The history of the Tamboli caste is worthy of a careful study.

10. Wilson, H. H., in his *Sanskrit Eng. Dicitionary* p. 306, explains the word 'гуवाक' as follows:—

'гуवाक म(कः). The betel-nut-tree (Areca fausel or Catechu)

E. गु to stool, affix श्राक and उ converted to श्रव irregularly'.

It is worth-while tracing the history of the word 'гуवाक' in sources earlier than Amarakośa with a view to determining its exact etymology. It is for linguists to say if this word is really a Sanskrit word.

11. Paul, P. L., in his *Early History of Bengal*, Calcutta, 1939, p. 131, describes the Administrative system and the regular taxes revealed by the grants of the Pala kings. In this connection he observes:—

'It is interesting to note that in the land grants it is specially said that the donee is to have the privilege of the enjoyment of madhuka, mango, jack-fruit, betel-nut, and cocoanut trees. This goes to show that the king had some share from their income. This is further confirmed by the fact that in the Sāhitya Parishā grant of Visvarūpāśena the income derived from the betel-leaf plantations is to be enjoyed by the donee'.

'

Line 45—Mention is made of ‘वर्तम’ in the sense of Betel-leaf plantation in which sense this word is used in Bengal.

Line 50—‘गुवाहात’ = 100 betel-nut trees.

Line 53—‘गुवाहात मूलसमेत’ = together with price of betel nuts.

Line 54—‘गुवाहात, स्थः’ = land in which grow betel-nut trees.

Line 60—‘समुग्राकाराकिला दुःधिष्ठि’ = land in which are growing betel-nut trees and cocoanut trees.

Line 61—‘समुग्राकाराकिला लम्बगाविला’ = causing plantation of betel-nut trees and cocoanut trees.


Page 171—‘समुग्राकाराकिला दुःधिष्ठि’

Page 425—Plate of Kesavasena

Line 51—‘समुग्राकाराकिला (सुभिन्न)’

Page 112—Plate of Laks̄manasena—‘समुग्राकाराकिला’

Page 102—(Plate of Laks̄manasena)

Line 39—‘समुग्राकाराकिला’

Pages 93 and 97—‘वलिभा लक्ष्मीम’

(3) Copper-plate (Dacca Dist.) of Bhojavarmman (about A. D. 1100) (Bengal Inscriptions, Vol. III).

Page 24—‘धान्यनशा समुग्राकाराकिला’

Page 8—Copper-plate of Śrī Candra—‘समुग्राकाराकिला’

(4) Ānuta Copper-plate of Laks̄manasena—(Inscriptions of Bengal, Vol. III, Varendra Research Society, Rajashahi, Bengal, 1929)

Page 87—‘कलकत्रैत ...... सुवाहक-नारिकेल’

(‘a plot of land with betel-nut and cocoanut trees’—p. 90).

We have recorded above a few references to betel-nut plantations in Bengal from the inscriptions of Bengal kings whose chronology is as follows:

12. Dālimba (Dālima), i.e. the pomegranate tree was transplanted according to Sino-Iranica by Laufer, 1919, pp. 285-86, into India from Iranian regions in the first centuries of the Christian Era. This tree is not mentioned in Vedic, Pali or early Sanskrit literature. The word dālima, dājima etc. is traceable to Iranian dōrum, reconstructed on the basis of Chinese transcription.

1. Laksmaṇasena (27 years) — c. A.D. 1178-1205
2. Viśvarūpasena (14 years, son of Laksmaṇasena)
3. Bhojāvarman14 (about A.D. 1100)

In the light of the above chronology we are warranted in concluding that the betel-nut plantations were a regular feature of agriculture and economics of Bengal between c. A.D. 1100 and 1300.

It is possible to find references to Tambūla in inscriptions of Northern and Southern India posterior to A.D. 1300. I hope some expert in the study of inscriptions would collect and record such references with a view to reconstructing the economic history of the Areca-nut and allied products in mediaeval India.

I conclude this short record of references to Tambūla in inscriptions from A.D. 473 onwards by adding the following late references to Tambūla to the present study:

(1) Dr. B. A. Saletore in his Social and Political Life of Vijayanagar Vol. II, p. 180, mentions an inscription of A.D. 1422 which describes the conquest of a Jain general. In this connection the inscription mentions the women of the conquered people as follows:

‘By their bimba-like lips, deprived of the redness (caused) by the betel’.

(2) In the Journal of the Annamalai University (March 1941, p. 318) an inscription of the time of the Nayaks of Tanjore from Pattiswaram (No. 257 of 1927) refers to a dispute regarding the procedure in the receipt of betel-leaves and areca-nuts during marriages.

14. Ibid., pp. 79-80. Bhojavarman was the last known Varman King. He was the son of Sāmalavarman by Traṭokyaśundarī. Sāmalavarman was the son of Jāṭavarman, a contemporary of Vigrahapañā III (c. A.D. 1045-1072). The Varmans were most probably ousted by Vijayasena (c. A.D. 1097-1159).
14. Studies in the History of Tāmbūla—Use of Tāmbūla outside India between A. D. 650 and 1900.*

In the series of papers projected by me on the history of Tāmbūla (use of betel-nut and betel-leaf for chewing purposes) in India, I have so far published two papers, one on the history of Indian Nut-cracker\(^1\) and the other on the history of the use of Lime and Catechu in Tāmbūla\(^2\). In the latter paper I have recorded some evidence about the currency and antiquity of Tāmbūla in Indo-China. In this connection it may be worthwhile recording some evidence about the existence of the use of Tāmbūla in countries adjacent to India or otherwise. The following notes collected at random during the course of my cultural studies may be helpful to other scholars to record similar notes from sources not available to me.

1. Arthur A. Perera in his article on Glimpses of Singhalese Social Life, (Indian Antiquary 1904) records the following interesting story about the Cocoanut and the Areca tree:

Page 237—“An astrologer of the Beravāyā caste once told a King that a particular day and hour was so auspicious that anything planted then would become a useful tree. Thereupon the King directed the astrologer’s head to be severed and planted, and this grew into the crooked cocoanut tree. The King was so pleased with it that he got his own head planted and it became the straight areca tree.”


1. Vide pp. 8-14 of B. I. S. Mandal Quarterly (Poona, 1948). In this paper I have established the use of the betel-nut-cracker (āḍkitta) up to about 1300 A. D. The Marathi word āḍkitta is derived from a Canarese word for this instrument current in the 14th century A. D. A Marathi word, viz., Pōphal-phoḍa for nut-cracker was current in the Deccan about 1250 A. D. as it is found in a Marathi Mahāmābhāva work Līlācarītrā (uttarārdha). Details of these references will be found in my paper on Tāmbūla published in the Volume mentioned in foot-notes below. As regards the use of nutcrackers in Europe, vide Bulletin of the Museum of Fine Arts, Boston, December, 1949, No. 270, pp. 76-77, where a bronze object (figure 6) of 6 inches in length (of the shape of scissors) has been identified as a nut-cracker. It was found at Lille and most probably it originated in Northern France or Franco-Flemish centre in the 14th century A. D.

2. Contributed to the 150 Anniversary Volume of the Asiatic Society of Bombay.
The story explains in a funny manner the contrast of *crooked cocoanut* plantations with the *straight areca* plantations in Ceylon.  

2. In an *Account of the Kingdom of Nepal* (Book the Fourth, Chapter II of the *Travel of Ippolito Desideri of Fistoia S. J.* (A. D. 1712–1727)—Broadway Travellers, London, 1932, pp. 313–314) we find a reference to the use of betel and pan in the following extract:—

"......Now by Nepalese law, persons living in the royal palace, even any who touched the walls with their hands, enjoyed the right of sanctuary and absolute immunity from any danger; nevertheless the Neuars killed, almost in the presence of the prince, several foreigners and Muhammedans. Another time they sent a deadly poison wrapped in certain aromatic and tonic leaves much used in certain parts of India, where they are called betel, in Mogol their name is pan. The Muhammedans exposed the treachery and the king sent for a goat, which fell dead after eating a few leaves. The miscreants were punished, but far too leniently, with perpetual banishment. At last the successive rebellions of the Neuars so afflicted the young and robust king, that he died of anxiety and worry."

3. According to Thomas Green "*Areca Catechu*" is "*a native of the East Indies and of Cochin-China*". This statement is in harmony with the antiquity of *Tambula* in Indo-China referred to by me already in this paper.

4. In the *History of Sumatra* by William Mardsden (2nd Edition, London, 1784) we get an exhaustive account of the Betel-nut plantations and the custom of chewing betel-nut as current in Sumatra in the latter part of the 18th century. I give below the pertinent extracts which would enable the readers to understand fully the cultural back-ground of *Tambula* in Sumatra more than 160 years ago:—

Page 74 —Betel-nut and other vegetables of domestic life.

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3. The history of Tambula in Ceylon needs to be reconstructed on the basis of Singhalese literary sources with which I am not familiar.

4. The history of Tambula in Nepal needs to be investigated. From Apolito’s remarks it appears that Tambula may have been current at the court of Nepal prior to A. D. 1712.

5. Vide p. 118 of *The Universal Herbal or Botanical, Medical and Agricultural Dictionary containing an account of all the known plants in the World* by Thomas Green, Vol. I (Fisher, Son and Co. 1823, London, Paris, New York). See also Page 336 of Vol. II of this Herbal where Areca Catechu is described as "Native of the East-Indias".
"Of the *Penang* or Betel-nut tree, which in growth and appearance is not unlike the cocoanut, the natives make *large plantations*, as well as of the *Seree*, a creeping plant, whose leaf, of a strong aromatic flavour, they eat with betel-nut and other additions, a practice which I shall hereafter describe."

Page 127—"The *Penang* or Betel-nut, before mentioned, is a considerable article of traffic to the coast of Coromandel or Telinga particularly from Acheen."

Page 242—Custom of chewing Betel - Emblematic presents etc.

"Whether to blunt the edge of painful reflection or owing to an aversion our natures have from total inaction, most nations have been addicted to the practice of enjoying by mastication, or otherwise, the flavour of substances possessing an inebriating quality. The South Americans chew the *cocoa* and *mambee* and the Eastern people, the *betel* and *areca* or as they are called in the Malay language, *Seeree* and *penang*. This custom has been accurately described by various writers and therefore it is almost superfluous to say more on the subject, than that *Sumatrans universally use it*, carry the ingredients constantly about them and serve it to their guests on all occasions, the prince in a *gold stand* and the poor man in a *brass box* or *mat bag*. The *betel stands* of the better rank of people are usually of *silver*, embossed with *rude figures*. The Sultan of Moco was presented with one by the India Company with their arms on it; and he possesses besides another of gold filagree. The form of the stand is the frustum of an hexagonal pyramid reversed; about six or eight inches in diameter. It contains many smaller vessels, fitted to the angles for holding

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6. Owing to the continuous commercial contact of India with Sumatra the traffic in betel-nut (penang) with South Indian ports must have been constant since the first contact of India with Sumatra and other islands in Southern Seas.

7. I propose to record in a special paper notices of *Tambula* in India by foreign observers.

8. In the Deccan the poor men addicted to *Tambula* carry with them a cloth wallet called "*Cañci"*, which contains pockets for keeping the betel-nuts, betel-leaves, tin boxes containing *churnam* and other ingredients, as also the nut-cracker. The wallet is rolled up and carried in a pocket of the jacket, shirt or coat.

9. If this silver stand could be traced now it would be worthy of being preserved in a museum. My friend Mr. D. G. Kelkar of Poona has collected a large number of nut-crackers, *churnam* boxes and betel stands of the 17th century and the 18th century from some parts of India. He should try to collect specimens of these items from Java, Sumatra, Indo-china etc., where *Tambula* has been current for hundreds of years as proved by this paper.
the nut-leaf and chunam, which is quicklime from calcine shells; with places for the instruments\textsuperscript{10} employed for cutting the first; (cacheep) and spatulas for spreading the last.

When the first salutation is over, which consists in bending the body and the inferior's putting his joined hands between those of his superior and then lifting them to his forehead, the betel is presented as a token of hospitality\textsuperscript{11} and an act of politeness. To omit it on the one hand, or to reject it on the other, were an affront as it would be likewise in a person of the subordinate rank to address a great man, without the precaution of chewing it before he spoke. All the preparation consists in spreading on the Seeree leaf a small quantity of Chunam and folding it up with a slice of penang nut some mix with these gambeer, which is a substance prepared from the leaves of a tree of that name by boiling their juices to a consistance and made up into little balls or square* (* A particular detail of the cultivation and manufacture of the Gambeer is given in the second volume of the trans. of the Batavia Society, I, i. 2). Tobacco\textsuperscript{12} is likewise added, which is shred fine for the purpose, and carried between the lip and upper row of teeth. From the mastication of the first three proceeds a juice, which tinges the saliva of a bright red and which the leaf and nut without the Chunam will not yield. This hue\textsuperscript{13}

\textsuperscript{10} Capt. Edward Moor (A. D. 1794) refers to the nut-cracker used in India in his Narrative etc. (vide my paper on Indian Nut-cracker).

\textsuperscript{11} Offering Tamba\textsubscript{a} as a sign of hospitality is mentioned in the Kamasutra (N. S. Press, Bombay, 1900) p. 314—

\textbf{ताम्बूलानि सञ्चाग्न ये वहेन्द्रम्।}

\textbf{श्रागुस्तादिरसेतू धीर्या कलागोश्रीश्च ये नवेत्।}

and p. 239.—

\textbf{नायकीमित्रायां दत्ताय पुजनं उपाय।}

\textsuperscript{12} Asad Beg saw tobacco at Bijapur in A. D. 1604-1605 and introduced it to Akbar (vide p. 925 of Hobson Jobson, 1503).

\textsuperscript{13} Sanskrit literature is full of references to the hue or red colour imparted to the mouth by tambula as will be seen from the following extracts:—

\[(Bhāmatā)\]

\textbf{ताम्बूलानि रक्त इत्यदन्दिशिति ।}

\textbf{इन्द्राकशस्वः तदेव बदनं तव।}

(See p. 808 of Kayyanadura ed. by R. Raddi, B.S.S. 1938).

(Ṣṭāgāra-tilaka)

\textbf{रागो न स्वलस्वतान्तरण्येते ताम्बूलसंवाचिति।}
being communicated to the mouth and lips is esteemed ornamental and an agreeable flavour is imparted to the breath. The juice is usually, though not always, swallowed by the chewers of betel. We might reasonably suppose that its active qualities would injure the coats of stomach but experience seems to disprove such a consequence. It is common to see the teeth of elderly persons stand loose in the gums, which is probably the effect of this custom, but I do not think that it affects the soundness of the teeth themselves. Children begin to chew betel very young and yet their teeth are always beautifully white, till pains are taken to disfigure them, by filing and staining them black. To persons who are not habituated to the composition, it causes a strong giddiness, astringens and excoriates the tongue and fauces and destroys for a time the faculty of taste. During the *pooaso* or fast of Ramzan the Mahomedans among them abstain from the use of betel while the sun continues above the horizon, but, excepting at this season, it is the constant luxury of both sexes from an early period of childhood till, becoming toothless, they are reduced to the necessity of having the ingredients previously reduced to a paste for them, so that without further effort the betel may dissolve in the mouth. Along with the betel and generally in the *Chunam* is the mode of conveying philtres or love charms. How far they prove effectual I cannot take upon me to say, but suppose they are of the nature of our stimulant medicines, and that the direction of the passion is of course indiscriminate. The practice of administering poison in this manner is not followed in latter times but the idea is not so far eradicated as entirely to prevent suspicion, appears from this circumstance, that the guest though taking a leaf from the betel service of his entertainer not unfrequently applies it to his own *Chunam* and never omits to pass the former between his thumb and forefinger, in order to wipe off any extraneous matter. This mistrustful procedure is so common as not to give offence.

**Tobacco:** Besides the mode mentioned before of enjoying the flavour of tobacco it is also smoked by the natives, and for this use, after

14. *Nagarasvarasva* (Ed by Tripathi, Bombay, 1921, pp. 21-22) a work on erotics by Padmasri (c. A. D. 1000) describes five kinds of *Tambila* used in love affairs:

"ताम्बिलवटकः पत्रः कोकिला नरपुःकः।
कौशलाङ्गां नरपुःकः च चूर्णकः॥" etc.
shredding it fine, while green, and drying it well, it is rolled up in leaves of the Neepah tree (a species of palm) and it is in that form called roko. The rokos are carried in the betel box or more commonly under the daytar or handkerchief, which in imitation of turban surrounds the head. Much tobacco is likewise imported from China and sells at a high price. It seems to possess a greater pungency than Sumatran plant."

In the above account of Tambula in Sumatra in the latter part of the 18th century the oral use of tobacco along with Tambula is noteworthy. Such oral use of tobacco with Tambula is widely current at present in India.

5. The use of Tambula in Arabia at Dhofar at the extremity of Yemen is vouched by Batutta in his Travels (ed. By H. A. R. Gibb, London, 1929—Broadway Travellers). Batutta tells us that the inhabitants of Dhofar resemble the people of North-West Africa in their customs and that the cultivated "betel trees" by which he means the betel vines and used the leaf of these creepers along with areca-nuts and chalk. According to Gibb (Note 13 to Chap. III of Travels) Dhofar contains tropical vegetation and its population is not Arab but of Sudanic type.

Page 114 — "They (inhabitants of Dhofar) grow betel trees and coco-palms which are found only in India. They have no fruit and are grown only for their leaves. The Indians have a high opinion of betel, and if a man visits a friend and the latter gives him five leaves of it, you would think he had given him the world, especially if he is a prince or notable. A gift of betel is an honour far greater than that of gold or silver. It is used in this way. First one takes areca nuts, which are like nutmegs, crushes them into small bits and chews them, then the betel leaves are taken, a little chalk is put on them, and they are chewed with the areca nuts. They sweeten the breath and aid digestion, prevent the disagreeable effects of drinking water on the empty stomach and stimulate the faculties."

Page 110 — Batutta goes to Maqda Shaw (Mogdishu).

Page 111 — "The Sultan (of Mogdishu) whose name is Abu Bakr, is of Berberah origin, and he talks in Maqdishi language, though he knows Arabic. When we reached the palace and news of my arrival was sent in, a eunuch came out with a plate containing
betel leaves and arecanuts. He gave me ten leaves and a few nuts, the same to the qadi and the rest to my companions and the qadi’s students and then said “Our master commands that he be lodged in the Students’ house.”

Page 241 — Batutta went to Maldive islands. At the island of Mahal, the seat of the Sultana and her husband, he was honoured. “They brought out betel and rose-water to us, this being their mark of honour.” (p. 246). Batutta married the daughter of the Wazier Sulayman, who “gave his consent and sent the customary betel and sandalwood” (p. 249).

Page 272 — Batutta at Barahanakär (probably Arakan in Burma). “This tribe is a rabble...........They live in reed huts roofed with grasses on the sea-shore and have abundant banana, areca and betel trees.”

Page 273 — Batutta at Jawa (Sumatra).

“The commonest trees there are the coco-palm, areca, clove, Indian aloe, jack-tree, mango, jamun, sweet orange and camphor cane.”

The foregoing references to the use of Tāmbūla in Arabia, Maldive Islands, Sumatra, Java, Burma etc., in Batutta’s Travels (A. D. 1325-1354) clearly prove the currency of the Tāmbūla habit outside India in the first half of the 14th century.

6. The Italian traveller Tavernier in his Travels (Trans. by V. Ball, London, 1889, Vol. II ) describes the use of Tāmbūla by the King of Bantam, (situated at the western end of Java) as follows:—

Page 354—“On his right side there was an old black woman who held in her hand a small mortar and a pestle of gold in which she crushed the betel leaves with which she mixed arecanuts and dissolved seed pearls. When she saw that the whole was well pounded she placed her hands on the King’s back who at once opened his mouth and she put the betel in with her fingers as women do who give pap to their infants because the king had

15. The Smrtyarthaśāra of Gṛidhara (A. D. 1150-1200) also refers to the practice of effecting a marriage by giving Tumbila alone as a sign of consent:—

“अष्टमेंद्र (v. I. अश्मुरादि) बिरवाहेतु ताम्बूलमुदोदनम्”

(p. 17 of Anandasrama Ed. Poona. 1912 )

16. “Araque in the original” — Editor.

17. “I recently saw the famous hairy woman of Mandalay being supplied with betel by her Burmese attendant in much the same way; being blind the packet had to be prepared for her and placed in the mouth” — Editor.
no teeth; for he had eaten so much tobacco that his teeth had fallen out."

The above extract proves the use of Tāmbūla in Java in the middle of the 17th century.

7. The Italian traveller Manucci in his Storia do Mogor (or Mogul India) Trans. by William Irvine, London, 1918 (John Murray, 4 vols.) makes mention of betel leaves sent to the Indian envoy while in Persia and further observes that these leaves were not available in Persia as will be seen from the following extract:

Vol. II, p. 128—"The ambassador (sent to Persia by Aurangzeb) arranged matters so that on his arrival in Isfahan he received there fresh betel, a leaf that on mastication gives an agreeable odour to the stomach. I spoke of it in the First part of my History (I, 39) upon my arrival in Surat. They have none of this leaf in Persia."

It is noteworthy how Aurangzeb's Muslim ambassador, addicted to Tāmbūla in India, arranged for its supply in Persia, where it was not current in his time as expressly stated by Manucci. It is curious that the betel leaves which were cultivated in Yemen and chewed by the Arabs in the middle of the 14th century should not be current in Persia in the middle of the 17th century.

8. The Chinese traveller I-tsing in his Travels (or a Record of the Buddhist Religion as practised in India and Malay Archipelago)—(A.D. 671—695) Trans by Takakusu, Oxford, 1896—refers to the use of betel-nut in the ten islands of the Southern Sea and the betel-nut forest in the country of the Naked people (Nicobar island) in the following extracts:

Page XXX (General Introduction)—"I sailed to Eastern India. Going towards the North from Ka-Cha after more than ten days sail we came to the country of the Naked people (Insulae Nudorum). Looking towards the east we saw the shore for an extent of one or two Chinese miles with nothing but cocoa-nut trees and betel-nut forest, luxuriant and pleasant."

Page 45 — Rules about Upavasatha day.
"In the ten islands of the Southern Sea...........

Then the priests are laid outside the house to wash their hands and rinse their mouths and after this sugar-water and Pin-lang

18. "It is called Pin-lang, from the Malay Pinang, which is the fruit of Areca Catechu Sanskrit Pīgga"—Editor.
(i.e., betel nuts) are offered to them in sufficient quantities, then they withdraw from the house.

"On the first day the host prepares a Pin-lang nut, fragrant oil\(^9\) prepared from mustaka and a small quantity of crushed rice placed on a leaf in a plate etc."

Page 48 — "After the priests have finished eating...Next some Pin-lang fruit (betel nuts) and nutmegs mixed with cloves and Baros Camphor\(^60\) are distributed. In eating these they get the mouth fragrant, the food digested and the phlegm removed. These fragrant medicinal things and the others are given to the Priests after they have been washed with pure water and rapped in leaves."

In the foregoing scanty notes I have tried to record documentary evidence about the use of Tāmbūla outside India from c. A.D. 650 onwards in Sumatra, Java, Maldive Islands, Nicobar Islands, South Arabia etc. This evidence is in harmony with the view of MM. Dr. P.V. Kane in his History of Dharmasāstra (B.O.R. Inst., Poona, 1941) Vol. II, p. 734:—

"Tāmbūla was probably introduced sometime before or about the beginning of the Christian era in South India and then spread northwards."

Dr. Kane states that Tāmbūla is not mentioned in ancient Gṛhyasūtras (p. 734), though there are references to Tāmbūla in Laghuḥārita Laghuśvalayana, Varahamihira, Auśanasā, Raghuvanśa, (VI. 64) Kāmasūtra 1.4.16, etc. (p. 734).

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19. The use of fragrant oil in serving the guests after tāmbūla is given to them after dinner is very common in Mahāraṣṭra today. The currency of this custom in the islands of the Southern Sea in the 7th century A.D. is note worthy.

20. The use of camphor in Tāmbūla is mentioned in the drama Mrccchhāñ̤ika (ed. by H. M. Sastri, N. S. Press, Bombay 1910):—

Page 105 (Act IV)—

"विपक्षः—दीयते गरिष्ठकामुक्षोः सक्रृद्धोऽताम्बूलम्।"

The Nandipurāya refers to camphor-boxes and Tāmbūla boxes:—

"कर्पुरादेश मायावनि ताम्बूलायतनं तथा।"

See 1547 of the Nīrṇayaśindhu, Chowkhamba Series, Benares, 1897, where Nandipurāya is quoted).

The Saundaryaalahari of Śaṅkarācārya (c. A.D. 800) (ed. Adyar, 1937, p. 198) refers to Tāmbūla and camphor (karpūra) as follows:—

"विशाल्यं देवपृथ्वी: शाश्विन्धकूलशक्तसः
बिलीयते मातस्तव बदन्ताम्बूलकलः।"

(V. 65).
My friend Dr. V. S. Agrawala thinks that "Tambula came into vogue somewhere about the early Gupta period. As a result of India's cultural contact with the Eastern Islands we came to be acquainted with the Tambula leaf."

These remarks also get supported by the evidence collected by me so far.

21. The first colonisation of the Hindus in Malaysia goes back to the 1st or 2nd century A. D. and reaches its high water mark of glory and splendour towards the end of the 7th century A. D. (vide p. 138 of Vol. II of R. C. Majumdar's Suvarnadvipa, Dacca, 1937). Speaking of the Hindu civilization in Suvarnadvipa during this period of 500/600 years, Dr. Majumdar refers to the use of betel as a custom of Ka-la (Kedah) :-

"The following customs of Ka-la referred to by the Chinese are also Indian in origin (See page 122 of Notes on Malay Archipelago and Malacca compiled from Chinese Sources by W. F. Groeneveldt, V. B. G Vol. XXXIX, Part I (Batavia, 1877). When they marry they give no other presents than arecanuts sometimes as many as two hundred trays" etc.
15. The Attitude of Hindu Dharmaśāstra towards Tambula-Bhoga
(Enjoyment of Betel)*

Having published several papers on the history of tambūla (betel-chewing) in India I developed a desire to study the attitude of Hindu religion towards this habit of betel-chewing now current in several parts of India. As a result of my study I have collected some evidence bearing on this attitude. This evidence shows clearly that tambūla was recognised as an object of enjoyment for a lay person but its use was forbidden in the case of persons who adopted a religious mode of life or observed certain religious vows as a permanent or temporary measure.

According to a verse quoted by the celebrated Gāgabhaṭṭa (c. A.D. 1620-1685) tambūla is one of the eight bhogas (objects of enjoyment) viz. (1) perfumes, (2) woman, (3) clothes, (4) music, (5) tambūla, (6) dinner, (7) bed, (8) flowers. That tambūla is a bhoga (object of enjoyment) was recognised hundreds of years before Gāgabhaṭṭa. In the encyclopaedic work Manasollāsa composed by the Calukya King Somesvara about A.D. 1130 we get regular chapters on the different bhogas mentioned in the verse about eight bhogas quoted by Gāgabhaṭṭa. These chapters are as follows:—

(1) Vilepanabhoga (pp. 85-87 of Manasollāsa, Vol. II (1939—G. O. Series, Baroda) deals with vilepanas or unguents to be used by the King for different seasons. The vilepana called Sandhya removes the smell of


1. This verse reads as follows:—

"सुर्खावान्नितावस्थां गीताताम्बूलमोजनम्।
श्रव्यं जुँकुट्रमैव भोगशङ्कुद्रानुप्रातम्॥"

(vide page 3 of Kayasthadharmapradīpa by Gāgabhaṭṭa—Appendix A to "Rajavakāṇḍa Nāmaśāstra" published by K. T. Gupate, Poona, 1919)

Gāgabhaṭṭa refers to the Tambuli Caste in the following extracts:—

Page 9 — "स हीतं: प्रदाधः पर्यावरण्याभायः।
तामबूलवलीवथुतं द्रव्यं तस्केष जीवनम्॥
अयमतुलोमतामयीं इति मध्येदेशभागाविषयः॥"

Pages 25 — "अदित्यादु शाक्रकथांभुवयोऽनं प्रजायते।
सारादितिकन्यायाः शुचिनामस्वलिपिकः॥"

Page 27 — "श्रव्यं जुँकुट्रमैव भोगशङ्कुरानुप्रातमं।
सारादितिकन्यायाः शुचिनामस्वलिपिकः॥"
perspiration. The lehana called pullinga is prescribed for the cold season (Hemanta and Sisira). The colour of the vilepana should harmonise with the dress, which was changed according to seasons.

2. Dhūpaabhoga (Pages 144-145) deals with the ingredients of different dhūpas (incenses) such as (1) Čurnadhūpa, (2) Pindadhūpa, and (3) Vartidhūpa, which was placed before the King and queens and also kept before the Sāris of the queens or their hair. Different kinds of incense-holders of gold or silver, with many holes and of the sizes of birds or beasts are mentioned in this chapter.

These two chapters (Vilepanabhoga and Dhūpaabhoga) correspond to the Sugandhabhoga of the verse about 8 bhogas mentioned above.

3. Yośidbhoga (pages 145-154) deals with the enjoyment of women. It mentions the qualification of women, whom a King should marry.

This chapter corresponds to vanitabhoga of the verse about 8 bhogas.

4. Vastropabhoga (pages 88-90) deals with the enjoyment of garments. The King should consider auspicious and inauspicious moments for putting on new dress. After applying the vilepana to the body the King should call the officer-in-charge of the royal ward-robe and order him to bring excellent clothes of cotton or silk, woven with silver or golden threads of various kinds and colours brought from different countries and wear them. The scheme of clothes recommended for different seasons is as follows:

- (1) Spring:—Thin and charming silk or cotton clothes.
- (2) Summer:—Clothes of white colour. If woolen clothes are worn in summer they should be white, thin, soft and beautiful.
- (3) Rainy Season:—Red, pink, reddish and dark-red clothes made in an attractive style.
- (4) Autumn:—Thin clothes dyed with Safflower or lac.
- (5) Cold Season.—Woolen clothes of various kinds

The clothes worn by the King should suit his own complexion.

5. Saṅgita-vinoda:— This chapter on music forms part of the third and last volume of the Mānasollāsa. It is the longest chapter as the author had the greatest interest in the art and science of music. This chapter corresponds to the Gitabhoga of the verse about 8 bhogas.

6. Tāmbulabhoga (pp. 83-85 of Vol. II of Mānasollāsa) describes the use of tāmbula by the King. Betel-nuts for this purpose are to be obtained by the officer-in-charge of tāmbula from places like Vanavāsi. Slices
from the tops of these nuts are removed and then they are dried in the shade. One-fourth of a nut is used in preparing tāmbūla for the royal use. This tāmbūla consists of 52 yellowish betel-leaves with their ends removed and other ingredients, like pearl-oyster, Ṫāvāsa camphor, Kastūrti (musk) and other sweet-smelling things.

This chapter corresponds to the tāmbūлabhogā of the verse about 8 bhogas.

7. Śayyābhoga (pp. 142-144) deals with seven kinds of royal beds, and eight kinds of bed-steads. Toyāsavyā (water-bed) to be used in summer was made of leather with water inside. Ḥamsajāsavyā was a bed prepared from the feathers of Ḥamsa and used in the spring. A bed of flowers and tender foliage was made for temporary enjoyment. Cotton-bed was to be used in hot season and water-bed at noon time. In Hemanta, Śisira and rainy season also cotton bed was used. In the autumn the King is advised to use Dolāmaṅcā or swinging bed with lotus-filaments inside for the sake of enjoyment.

This chapter corresponds to the Śayyābhoga of the verse about 8 bhogas.

8. Annabhoga (pp. 115-136) deals in detail with the vegetarian and non-vegetarian articles of food and the methods of preparing several dishes suitable for different seasons. This chapter has a definite place in the history of Indian diet when it comes to be written.

This chapter corresponds to Bhojanabhoga of the verse about 8 bhogas.

9. Mālyopabhoga (pp 90-91) deals with the enjoyment of garlands of flowers by the King. These flowers were to be gathered from trees and creepers. Their names are:— Campaka, Mallika, Utpala, Pāta, Bakula, Surabhi, Karavira, Śatapatra, Mālati, Yūṭhi, Varnapuṣpa, Iruvaiti, Nevali, etc. Some of these flowers were used for preparing perfumed oil in ancient India as they are used today by Indian perfumers. Floral perfumes are appreciated more in India than the synthetic foreign perfumes sold in the Indian market.

This chapter corresponds to the Kusumabhoga of the verse about 8 bhogas quoted by Gāgābhaṭṭa.

A glance at the contents of the Mānasollasa, a veritable cultural encyclopædia of the 12th century, will convince any one that Indians of ancient and mediæval times had interest par excellence in material cultural advancement as much as they had in spiritual development, which was of
course the coping stone of Indian Civilization. It is no wonder, therefore, that the habit of using tāmbūla, which the Indian Āryans acquired about 2000 years ago from the people of South Sea islands, acquired the status of a bhoga (object of enjoyment) in the Indian scheme of bhogas (material enjoyment) normally allowed to a house-holder (grhastha) according to Hindu dharmaśāstra.

The use of tāmbūla was forbidden in the case of a yati (ascetic) and it would be improper to depict in literature a yati chewing tāmbūla. Jagannātha Pāṇḍitarāja, the protégé of Shah Jahan (A.D. 1628-1658) in his treatise on poetics called the Rasagaṅgādhara (N. S. Press, Bombay, page 51) illustrates anaucitya (impropriety) in literature. The study of nīgama (Veda) by a Śudra, possession of a wife by a brahmaacarīn (student) and chewing of tāmbūla by a yati - all these are cases of anaucitya (“शौद्रस्य निगमार्ध्यवसयम् / ब्राह्मचारिणी यस्य ताम्बूलचय्योगम् / दारोपसंग्रहः...”).

According to Śivapurāṇa (Section on brahmaacarya) quoted in the Praśastisamgraha by K. Bhujabali Shastri (Jain Antiquary, Vol. VI, No. 2, June 1940) a student (brahmaacarīn) is prohibited to use a comfortable seat and bed and garment, tāmbūla, decoration after bath, tooth-stick, perfumes, etc. (page 169-“शुक्लायुष्यस्त्रयं बाह्रेऽसैन्य ताम्बूलस्य स्त्रायुष्यस्य | विन्दुकान्ते सुगन्धेऽ ग्राह्मचारिणेऽवदास्य | ”). Evidently a student is to lead a life of hard discipline and concentrate only on his studies. No luxury was allowed to him. “Plain living and high thinking” must be his motto.

According to Agnipurāṇa (Chapter 175, folio 123 of Venkaṭeśwar Press Edition, Bombay) a person observing upavāsa (religious fast) is forbidden to use tāmbūla. He should not drink water repeatedly and indulge in sleep by day and sexual intercourse (“श्रस्त्रकुञ्जलनाथ ताम्बूलस्य न मभक्षात् / उपा-त: प्रदुष्येऽऽय दिनायायमादै शैवनात् ||”). Even today persons observing upavāsa do not use supāri (betel nut).

Haribhāskara Agnihotri (c. A.D. 1675) has recorded some observations on the use of tāmbūla in his work on Dharmaśāstra called the Smytivraṅa (MS No. 161 of Viś. I in the Government MSS library at the B. O. R. Institute, Poona). He quotes in this connection Mārkandeyapūraṇa, Jyotirnibandha, and authors of some Smytis like Vasiṣṭha and Āśvalayana. According to Āśvalayana a person desirous of study should not use tāmbula frequently by night. Excessive use of tāmbula leads to paleness, weakness of teeth, diseases of the eye and mouth, and loss of vigour. (“विषाधार्माङ्गाङ्गो राजी ताम्बूलस्य न तु महापति / तस्य—पाशुवः दंडेऽबल्मार्चोरैं बल्मायः / करोति दुष्करोगाय ताम्बूलमार्चोदिअस्त्यायः ||”). According to Vasiṣṭha the use of any ingredient of tāmbula singly or in combination (i.e. betel nut, betel leaf
etc.) by an ascetic, a student, a widow, and a woman in menses is tantamount to the use of flesh and wine which is prohibited by dharmasāstra “प्रशोंक मांसन्न्य प्रशोंक सामसेलि सुस्वय समयम्। हति” Haribhaskara explains “कमुकादि: प्रशोंक मांसन्य माससमिति सुस्वय समासम्। हति।”

According to Itihāsopaniṣad (Sadhale’s Upaniṣadvyayakośa, Vol. I, 1940, page 290) a person who offers funeral oblations to his ancestors on specific days should avoid the use of tooth-stick, and tāmbūla. He should not shave, anoint his body with oil and take food in his own house or in another person’s house. He should not use any medicine likely to simulate sexual tendencies (“दंतायन्ततमस्तूल्य चौराम्यम्रमोजनम्। रस्योष्णि परार्त्त च आवेगान्तो विमथैते।” — Itihās ४०)

Lakṣmānabhatṭa (between A.D. 1580 and 1640 according to Dr. P. V. Kane) has quoted some authors and works in his observations on tāmbūla in the Section called bhajanakirana of his work “Acararatna (MS in the Limaye Collection, B. O. R. Institute, Poona). These works and authors are:— (1) माराक्रेयः, (2) माराव्येके वसिष्ठः, (3) मदनसन्नाते वसिष्ठः, (4) भायकाराण (5) भायकाराणी (6) तेस्तिद्वृत्तमीलि: (7) तुर्नवाराविव (8) विपुरस्त्रलि: (9) दक्षः, (10) आपावेंद्र (see folio 1656 of the MS). According to Jabali quoted by Hemadri (c. A.D. 1260) tāmbūla is forbidden for one who performs Śraddha (funeral oblations) in the following verse which is identical with the verse quoted above from Itihāsopaniṣad:—

“दंतायन्ततमस्तूल्य चौराम्यम्रम (जन ?) मोजनम्। रस्योष्णि परार्त्त च आवेगान्तो विमथैत्।”

According to Asvalayana quoted in the Acararatna tāmbūla is forbidden to (1) an ascetic, (2) a widow, (3) a dīkṣita (one initiated for a religious ceremony) and (4) a bāṣu (a young brahmaśarīr).

Maithuna (Sexual intercourse) is specially forbidden in the case of these persons. A person desiring to study should not chew tāmbūla frequently by night. The pertinent lines are:—

“वेदोऽर्थ विस्तारायधी दीक्षितब्ये वेदोऽर्थ। ताम्सूल्यवर्य मांसन्यं व विमथैत॥ विचारमोक्षिणि राजेन ताम्सूले न दु मच्छेत॥”

1. Verthema [in his Travels (itinerary), Argonaut Press, London, 1928, p. 58, [A.D. 1502-1508] makes some remarks about the King of Calicut. When a near relative of the King died, “As an act of devotion the King does not sleep with a woman or eat betel for a whole year.”
According to Kṣṇabhaṭṭiya quoted in the Ācāraratna there is no objection to the chewing of tāmbūla by a person performing three kinds of Śrāddha viz. (1) nitya-śrāddha (daily and necessary Śrāddha), (2) ama śrāddha (Śrāddha performed on the new-moon day, and (3) aparā-pāksika-Śrāddha (Śrāddha performed in the second or dark half of the month). This is the view expressed by Satatapa ("नित्यश्राद्धं समाश्राद्धं पाकश्राद्धं दस्मिनं नेति शाखात्योऽनुजीत।")

According to Bhānārādiya quoted in the Ācāraratna a person of great renown (mahāyaṣṭāḥ) should avoid the use of perfumes, tāmbūla and flowers for three days commencing with dasami (10th day of a lunar fortnight). He should also avoid sexual intercourse during these days. ("द्वाराधिः महायास्तः निदिन्न निरित्वते दशमिः | गन्धां तंत्रो अपयक्षाय श्रीसंभोगः महायाशाः।")

According to Viṣṇurahasya quoted in the Ācāraratna a person observing a vrata (a religious vow) should entirely avoid the use of tāmbūla and the use of oily substances for besmearing the head or other parts of the body, as also the use of unguents for the body ("माश्रामस्य शिरोऽयं तांत्रुः चातुर्वासम् | करतंयो वर्जयते वर्जनयाय निराकृते।")

The attitude of the Hindu dharmāstāra towards the use of tāmbūla will be sufficiently clear from the evidence of texts quoted above. This evidence can be supplemented by observations on tāmbūla from the numerous texts on dharmāstāra. I hope some close study of these observations will be carried out by experts in this field before long. For the present I close this paper by recording some references to the use of tāmbūla in a work on dharmāstāra called the Smṛtyarthasāra by Śrīdhara, who flourished between A.D. 1150 and 1200 according to Dr. P. V. Kane. This work has been published in the Anandaśrama Sanskrit series No. 70, Poona, 1912. The following references are taken from this edition:

(1) Page 6 — Rules about the conduct of a Brahmacārin are mentioned in the following extract:

‘उपास्कर्तां संध्विः वेदोपिधवतिः | तत्र ब्रह्मयुक्तानांसिद्धाऽपुर्वभित्तिमात्रत्वं
ञ्चत्थावनासमाचारिकासारंहुव्रुहुकाग्निक्षमायंवतिन्त्रुलेष्यस्ततः जलकिर्तिदा चूतुमस्वीतिवाचालज्ञानयोगियो विलापितादीनाः श्रामायानविक्रीयेत्।’

During the period of study a student should avoid women, tāmbūla, sleep by day, perfumes, unguents, sporting in water, gambling, dancing.
vocal or instrumental music, slander, stale and used food, umbrella, sandals, tooth-stick, cloth girt round legs and knees while in a sitting posture, etc.

Evidently the above extract enjoins the student to be very serious and stoic during the period of his study. No modern student would like to undergo such stoic discipline.

Page 17 — Writing about vinahā (marriage) Śrīdhara says that in the case of marriage of the asura type the offering of betel is sufficient to effect the marriage ("āraśuṣvadāṇitvāहेतु
ताम्भूलमुलमोदनम्").

Page 48 — In his remarks on pīṭṛyajña (offering libations of water daily to ancestors) Śrīdhara states that one can perform all acts connected with this yajña such as bath, gifts etc. even after chewing tāmbūla and drinking water, milk and medicine, as also after eating sugar-cane, fruits and roots ("इचूँहेतोऽहेतो दुःशत-मृत-पूज-पुष्प-पत-नमः तत्:
मन्त्विभाविद्यः करःस्मितः
स्मानदानात्मदिकः कियाः ||
"").

Page 55 — Among things to be offered to the pīṇḍas (rice-balls) for the Manes of ancestors Śrīdhara includes tāmbūla, flowers, incense perfume, etc. ("तत्: पिएदेशः श्रधत-मांस-पुष्प-पुष्प-दीप-नमः
tāmbūla तथा
"").

Page 70 — In his remarks on śayana-vidhi (use of bed by a householder) Śrīdhara says that the house-holder should go to bed with his wife after enjoying perfumes and tāmbūla ("तत्: राजीधिः सह सुमांसलेष्टाम्भूलातः स्वप्नाभावः स्वप्नाभावः
"").

It would be seen from the above extracts that the use of tāmbūla was allowed to a house-holder whose life was given to bhoga (material enjoyment) within certain limits. There was no laxity, however, in the rules for the life of the brahmacārin (unmarried students) which was designed to be austere in every respect, free from the temptations for material enjoyment including the use of tāmbūla.

Page 65 — In his remarks about the rules to be followed by a person observing the Ekaḍāśī fast (i.e. the religious fast on the 11th day of a fortnight of a lunar month) Śrīdhara states that such a person should avoid (1) sleep by day, (2) sexual intercourse, (3) tāmbūla, (4) frequent drinking of water, (5) speaking with persons of low castes etc.

("दिनाशयां श्रधतमाभूलानित्वं श्रधत-मृत-पूज-पुष्प-पत-नमः
...
"")
The evidence recorded in this paper gives a fair idea about the attitude of the Hindu dharmaśāstra towards tāmbūlabhoga (enjoyment of tāmbula). This evidence can be further clarified by observations on tāmbula from other texts on dharmaśāstra early or late. Some of the late works like the Nirnayasindhu (A. D. 1612) by Kamalākarabhaṭṭa quote many early authorities with regard to the use of tāmbula. These quotations need to be traced to their sources with a view to studying the attitude of the Hindu dharmaśātra towards tāmbula in its domestic, social and religious perspective. Topics like the use of tāmbula in religious worship as also the gift of tāmbula and daksinā to Brahmins need to be studied historically.
16. Studies in the History of Tāmbūla: Some Beliefs about the Number of Ingredients in a Tāmbūla.*

I have so far published a few papers on different topics connected with the history of Tāmbūla, such as (1) the history of the Indian Nut-Cracker,* (2) the history of Tāmbūla outside India, (3) the Antiquity of the use of Chunam and Catechu in Tāmbūla, etc. As a result of the interest created by these studies I have received several queries from my friends. One of these friends has asked me to record some evidence about the number of betel-leaves used in a tāmbūla and the beliefs associated with such use. I propose in this paper to satisfy the curiosity of my friend by recording the following notes bearing on the topic suggested by him:—

(1) At present it is customary in Māhārāṣṭra to use two betel-leaves at all Pān-Supāri ceremonies on the occasions of marriages, muṇja ceremonies, social functions, religious festivals, etc. It is worthwhile investigating if the use of two betel-leaves (with a betel-nut or its cuttings) is customary in other provinces of India in the North and the South. Such regional study would be highly entertaining to the students of Indian Culture and Sociology.

(2) A work on Dharmaśāstra called the Jyotirnibandha, which is earlier than A. D. 1524, contains 24 stanzas dealing with tāmbūla. The contents of these stanzas, being of great cultural value, may be briefly indicated below:—

Stanzas 1 & 2 — The auspicious time for chewing tāmbūla is explained in detail according to astrological beliefs.

*Journal of the University of Gauhati. Vol II, No. 1, pp. 73-78.
2. Journal of the Travancore University Manuscript Library, (Trivandrum).
5. Ibid., p. 235, “Athā Tāmbūḷam—Hastatraye Doitidvandve......Sarvādā Budhaḥ” According to S. B. Dikṣitā (History of Indian Astronomy in Marathi, Poona, 1896, p. 476), the author of Jyotirnibandha is Śīvardāja. This work is mentioned in Pṛtāmbhara’s commentary on Vīcāraṇaṭalā. It is, therefore, earlier than saka 1446 (A. D. 1524). Dikṣitā describes this work as “Dharmaśatraṇāra-muḥurtagranthā”, dealing with auspicious times according to Dharmasamāśastra.
Stanza 3 — A mouth devoid of the Veda, the juice of tambūla and witty sayings is said to be a mere hole (bila).

Stanza 4 — One should chew tambūla oneself after giving a tambūla to the best of Brahmins. Such tambūla should be made of good nuts, good leaves and chunam.

Stanza 5 — A man who makes a gift of a good tambūla, especially to a Brahmin, becomes as beautiful as the God of Love and attains freedom from disease.

Stanza 6 — The gift of tambūla is ever-lasting (in merit). The betel nut pleases God Brahmā, the betel-leaves please God Viṣṇu and the chunam pleases God Īśa (Śiva).

Stanza 7 — Tambūla being of the nature of Brahmā, Viṣṇu and Śiva, brings prosperity and good fortune. Let all our desires be fulfilled by making a gift of tambūla.

Stanza 8 — A tambūla with one nut is the best, that with two nuts bears no fruit, while that with three nuts is exceedingly best. The use of tambūla with more than three nuts, has not been noticed.

Stanza 9 — A tambūla with thirty-two betel leaves should be given to the king. It is laid down that a tambūla to be offered to a tributary prince should contain twenty-four betel-leaves.

Stanza 10 — A tambūla to be given especially to a son-in-law should contain eighteen betel-leaves. A learned man should be given a tambūla with twelve betel-leaves while a bride should be given a tambūla with ten betel-leaves.

Stanza 11 — To all others a tambūla of eight betel-leaves should be given. The tambūla to be given to ordinary persons should be of four betel-leaves only.

Stanza 12-13 — A tambūla to be given to enemies in particular should contain six betel-leaves only. A gift of betel-nuts bears fruit in the following order:

One betel-nut — Profit
Two betel-nuts — Loss

1. Vide Diary of Peshwa Bajirao II, (ed. by Lād, 1908), p. 43—Among entries about the menu at the festivals in honour of Gods Çanapatni and Veṅkaṭes'a we find the following entry about a tambūla with ten betel-leaves — A. D. 1807-1808—“Kulaṉi Viḍa consisting of 10 ripe betel leaves, 2 cloves, 2 cardamoms, 2 catechu pills, chunam and betel-nut as usual". (Trans. of Marathi extract).
Three betel-nuts — Pleasure or Happiness
Four betel-nuts — Pain or Misery
Five betel-nuts — Long Life
Six betel-nuts — Death

The stem of a betel-leaf is associated with disease, while the end of the leaf is associated with sin.

Stanza 14 — The betel-leaf, which is crumpled, destroys human life, while the veins of the leaf destroy intellect. The roll of a tāmbūla should be held with its point in an upward position. A single betel-leaf should also be held with its end up.

Stanzas 15-16 — Chewing a tāmbūla with chunam applied to it with one's thumb brings wealth. The eating of the end and stem of a betel-leaf, as also two betel-leaves with chunam and the eating of a betel-nut without putting a betel-leaf in the mouth produce poverty for seven births and prevent the realisation of God Viṣṇu after death.

Stanza 17 — One should not chew tāmbūla without taking chunam with one's fore-finger; if one does so out of ignorance, one goes to the Raurava hell.

Stanza 18 — Sorrow, loss, death, want of prosperity and long life are associated respectively with the little finger, the ring-finger, the middle finger, the fore-finger and the thumb.

Stanza 19 — If one chews tāmbūla by taking it with his left hand or from the hand of a woman out of ignorance, his wealth comes to an end.

Stanza 20 — The application of chunam with the thumb contributes to success in all directions as it undoubtedly leads to victory, acquisition of a woman and garment.

Stanza 21 — The chewing of tāmbūla with the essence of catechu by day is quite becoming. The use of catechu for the same purpose at night will destroy the glory of even God Indra.

Stanza 22 — The thirteen qualities\(^1\) of tāmbūla, which are unobtainable even in heaven, are its pungency, bitterness, heat, sweetness, saltiness, astringent flavour, capacity to remove vāta (wind as one of the three humours of the body), its antiseptic character, its capacity to remove phlegm, its capacity to stimulate passion and its capacity to lend beauty to the mouth, to purify it and to remove all bad odour from it.

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1. See my paper on the history of the belief about the 13 qualities of tāmbūla in which I have traced the history of this belief up to A. D. 1200.
Stanza 23—One, who chews tāmbula with preponderance of betel-nut, in the morning, preponderance of chunam at midday and preponderance of betel-leaves at night, attains increasing prosperity.

Stanza 24—A wise man should always use three parts of betel-nut, two parts of betel-leaf and one part of catechu (in the preparation of tāmbula).

The foregoing verses are important for the history of tāmbula as they are a detailed record of the beliefs about the use of the different ingredients of tāmbula and the medical properties attached to them. It is possible to trace some of these beliefs in sources earlier than A. D. 1524, which is the later limit to the date of Jyotirnibandha. As regards the history of the number of each of these ingredients and the beliefs associated with it as given in the above verses, the following table may be recorded to enable scholars to reconstruct such history from sources earlier or later than A. D. 1524:

<table>
<thead>
<tr>
<th>Ingredient of Tāmbula</th>
<th>Number</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Betel-nut</td>
<td>1</td>
<td>Best</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Bears no fruit</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Exceedingly best</td>
</tr>
<tr>
<td>Betel-leaves</td>
<td>32</td>
<td>For the king</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>For a tributary prince</td>
</tr>
<tr>
<td></td>
<td>18</td>
<td>For son-in-law</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>For a learned man</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>For a bride</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>For all (respectable) persons</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>For ordinary persons</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>For enemies</td>
</tr>
<tr>
<td>Betel-nut</td>
<td></td>
<td>For enemies</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Bears fruit</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Brings loss</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Produces happiness</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Causes pain or misery</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Brings long life</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Causes death</td>
</tr>
</tbody>
</table>

**Best Tāmbula**
**Nut—3 parts**
**Leaf—2 parts**
**Catechu—1 part**
and **Chunam**, etc.

Produce the following qualities:

1. Pungency,
2. Bitterness,
3. Heat,
4. Sweetness,
5. Saltiness,
6. Astringency,
7. Power to remove *vata*,
8. Antiseptic character,
9. Power to remove phlegm,
10. Power to excite passion,
11. Power to beautify the mouth,
12. Power to purify the mouth,
13. Power to remove all bad odour from the mouth.
(3) A tambula with 32 betel-leaves prescribed for the king in the Jyotirnibandha is referred to in a Marathi folk song, in which God Krśna is described as sporting among 16000 women with a tambula of 32 betel-leaves in his mouth as follows:—

Solasaahasra nari Krśna ghalito dhingana, 1
Battis-panaca vida mukhata ranjana II

(Vide p. 16 of Mahāraṣṭra Sāhitya Patrika, Poona, July 1941—article on Jānapada Ori by Anasuyā Bhāgavat). Verily Tambula has been a gay associate of gods and men in India for about 2000 years.

(4) The medical treatise Aṣṭanga-Samgraha by Vagbhata (c.A.D. 625 or about A.D. 850) prescribes the use of tambula after getting up from sleep, after meals, after bath, after vomiting, etc. This tambula should consist of 2 betel-leaves, one betel-nut, chunam and catechu. Vide p. 15 of Sūtrasthāna, ed. by R. D. Kinjavagekar, Poona, 1940, Chap. III, verses 37-38:—

"Pathyam suptotthite bhukte snāte vānte ca mānave || 37 ||
Dvipatramekam pūgam ca sacūna khadiram ca tat"1

(5) In the History of Suklayajurvediya Brahmanas (in Marathi by N. V. Vaidya Purandare, Bombay, 1884) there are several appendices recorded as sources of evidence. One of these appendices marked "Ū" is a Persian farman dated Hijri 819 (Śaka 1338), A.D. 1416. A translation of this farman was made into English by S. A. F. Moulvi of the Elphinston High School, Bombay, on 6th October 1883 and submitted to the Court in a case described in the above book. In this farman we get the following references to tambula and its ingredients used as a mark of honour under the orders of a Government Officer:—

A.D. 1416 — 'Shahaj Khān, the Subhā, orders:—

(1) One bira (vida=tambula) (parcel of the betel-nut leaves, consisting of 16 leaves and 5 nuts) from every village to be given annually to the said Brahmin (Puruṣottama Rao, Rajaigar, Kāvale, Paitānkar).

(3) If any one were to perform ceremony of betrothing one's child, one should send with music publicly a bira (vida) consisting of 50 leaves and 10 betel-nuts (as a token of Brahmin's honour) expressive of an invitation.

1. These lines have been quoted by Hemādri (c A.D. 1260) in his commentary on the Aṣṭāṅgahrdaya (vide pages 25-26 of the edition by Hari Shastri Paradkar, N. S. Press, Bombay, 1938—Sūtrasthāna, Chap. II dealing with dinacarya or daily life of an individual).
(7) *Tila* and *bira* (*vinda*) i.e. a mark of red powder on the forehead and a parcel of betel-nut and leaves as a token of respect.

The above extract of A.D. 1416 shows forcibly the practice of offering *tāmbūla* with specific ingredients as a *mark of honour* and as a *sign of betrothal*, as current in the Thana District (of the Bombay Presidency) where the family of the Rajaguru Purusottama Rao Kavajë resided.

I conclude these notes with a request to scholars in different parts of India to record the beliefs current in different regions about the number of ingredients in a *tāmbūla*. Side by side with my study of the *history of tambula* in India I intend to record the *history of regional beliefs about tambula*, but such reconstruction of the regional history of *tambula* is almost impossible without a close co-operation of brother-workers interested in the history of Indian Culture.
17. Studies in the History of Tāmbūla—
History of the verse about the Thirteen Qualities
of Tāmbūla—Between A.D. 1200 and 1900*

During the course of my study of the history of tāmbūla I have often been told by ladies and gentlemen about a tāmbūla with 13 guṇas or qualities. I propose in this article to record literary evidence about such a tāmbūla with 13 qualities in particular.

(1) The belief in the numerous good qualities of tāmbūla is reflected in the following subhāṣita1 which actually refers to 1000 qualities of tāmbula in a hyperbolical style:—

“तांबुलस्य गुणाः: संति सले शतसहस्राणाः।
एकोपिच महान्द्रोपो यथा दानाधिकर्षणम्॥ ७ ॥”

Translation:—“O friend, there are a thousand good qualities of a tāmbūla; there is, however, one great bad quality associated with it viz. the sending away (of guests) after its bestowal.”

(2) The anonymous medical compendium called the Yogaratnakara (Ānandāśrama, Poona, 1900) composed before A.D. 1746 contains the following verse mentioning the 13 qualities of tāmbūla:—

Page 35—“तांबुलस्य कदा कुस्मुक्तमुलां चारं कपावासितं
वातमुल कृमिनाशनं कफहरं दुःशिरिस्योणम्।
वक्षश्याभरणं विषुचिकरणं कामावृत्तिस्वरूपम्
तांबुलस्य सले ब्रमोदिगुणाः: स्ववंस्यपि ते हरलभा:॥ ६२ ॥”

In view of this verse the belief about the 13 qualities of tāmbūla appears to have been current in India more than 250 years ago. We must, therefore, try to trace the above verse in sources earlier than A.D. 1700.

(3) In a MS of a work called Prastāvratnakara (No. 320 of 1884-86 in the Govt. MSS Library at the B. O. R. Institute, Poona) the above verse is quoted on folio 7a as follows:—

1. See p. 242 of Subhāṣita-Ratnakara (Collection of Witty and Epigrammatic Sayings in Sanskrit) ed. by Krishna Shastrī Bhatawadekar, Bombay, 1872. The Index of the first lines of verses given at the end of this book indicates, wherever possible, the sources from which the verses have been taken. The verse about tāmbūla is, however, indicated in the Index as a miscellaneous verse (without a definite source),
The Prastavaratnākara is a poem treating of various subjects. It was composed by Haridāsa, son of Puruṣottama in A. D. 1557 (see Cata. Catalogorum by Aufrecht, Part I, p. 360).

It is clear from the above evidence that the verse about the 13 qualities of tambula is earlier than A. D. 1557.

(4) In a MS of Dhanvantari Nighantu (No. 923 of 1884-87) in the Govt. MSS Library at the B. O. R. Institute the verse about the 13 qualities of tambula reads as follows:—

Folio 28—" vraṇāt kāntikaṇḍamānavaṁ ārya kṛpaṇaṁvīṁ
tāṁbūlaṁ gaciṣṭā suvaṁ: svanāśpi te dhūlīnī: ||

This MS is dated Śaka 1605 (= A. D. 1683). It contains the text of the Dravyavali or the Dhanvantari Nighantu followed by the text of the Rājanighantu. This verse is found in the text of the Rājanighantu, which is called in the colophon as "Nighantaśāstra".

(5) The Rājanighantu of Narahari (c. A. D. 1450) as printed by the Ānandaśrama, Poona, 1896, also contains the verse in question. It reads as follows:—

Page 131—"tāmābūlaṁ kṛta kāntikaṇḍamānavaṁ ārya kṛpaṇaṁvīṁ
tāṁbūlaṁ gaciṣṭā suvaṁ: svanāśpi te dhūlīnī: ||

It would be clear from this quotation that the verse about the 13 qualities of tambula is earlier than about A. D. 1450.

(6) A work on dharmaśāstra called the Jyotirnibandha by Śivarāja or Śivadāsa, published by Ānandaśrama, Poona, 1919, also contains the verse under reference among the 24 verses on tambula recorded in this work, which is earlier than A. D. 1524 according to S. B. Dikshit (vide p. 476 of History of Indian Astronomy, Poona, 1896). The verse reads as follows in this work:—
This evidence corroborates the quotation of the verse in the Rājanighantu (c. A.D. 1450).

(7) The Sanskrit anthology called the Sūktimuktāvalī by Jalhana was composed in A.D. 1258 for Kṛṣṇa, the Yadava King of Devagiri (Vide p. 12 of Introduction to Sūktimuktāvalī, Gaikwar Ori. Series, Baroda, 1938). In this anthology some verses are recorded under the topic bhojana (dinner). Among these verses we find two verses on tāmbūla from Varāhamihira (c. A.D. 500) and three anonymous verses on tāmbūla including the verse about the 13 qualities of tāmbūla which reads as follows:—

Page 402 —“ताम्बुः कुट्तिकदुध्यमभुरुः चार्यं कपायास्वितं
बाततनं कप्रमाणाशं कुमिहरुं दुरान्तिनिविन्दारः
स्त्रीसंभाषाभूषणं शब्धिकर्षं शोकस्य विच्छेदकं
ताम्बूलस्य सलेन चेरदशुगुणं: स्वमेवं ते दुक्हमाणं || १२२ ||”

The text of the verse shows some variations in this anthology. The expression “कामाप्रियं दीपिनं” in line 2 is dropped altogether and in its place the expression “कुमिहरुं दुरान्तिनिविन्दारः” from line 3 is pushed up. The 3rd line viz. “स्त्रीसंभाषाभूषणं शब्धिकर्षं शोकस्य विच्छेदकं” is altogether new, outing out the two epithets of tāmbūla viz. “कविःस्य, विनिन्दारणं” occurring in subsequent quotations of this verse. Perhaps the text of the verse as quoted by Jalhana is in the oldest form.

It would appear from the evidence recorded so far that the idea about the 13 qualities of tāmbūla was current in India about A.D. 1200, if not earlier. At this stage of my inquiry about the history of the verse under reference I may raise the following questions for investigation:—

(1) Is Jalhana the author of the verse?
(2) Can we trace the verse in sources earlier than A.D. 1200?
(3) What other texts, excluding those recorded in this paper, quote the verse subsequent to A.D. 1200?

In the Subhaṣitaratnabhaṅgāgāram (N. S. Press, Bombay, 1911) I find the following anonymous verses about snāna and tāmbūla—
Page 150 — षानम् (Bath)

"षानम् नाम मनःधर्मदर्शनं सुग्रामनिश्चयं
शीशस्मानं मलापहरूं संवर्धनं तेरसः।
सुद्रोपालकं मदवसमं कामसिंधुदीपं
नारीणां च मनोहरं श्रमिहरं खाने दरिये गुणाः। || १०२ || "

ताम्बूलम् — " ताम्बूलं मुखरेमापालिः निपुणं संवर्धनं तेरसः
मिलं जान्तस्विद्विजजनं दुर्गंधोदयावहम्।
वक्तालंकारं प्रहर्षजनं विद्युक्ताणां रघों
कामप्रायत्नं शुभकर्करं लक्षणं: मुख्यारादम् ||१०४|| "

The verse about tambula in the above extract is similar to the verse about the 13 qualities of tambula which I have traced back upto about A.D. 1250.

In the Triennial Report (for 1893-94) by Sheshgiri Shastri MS No. 51 is called चारुचार्य which is ascribed to Bhojarāja. The following lines giving the qualities of tambula are found in this MS :

"तेकुं चारुचार्यान।
मनोहरम् हर्षाग्रेरं सदिदं मदधार्षणम्।
मुखोन्नती हर्षाय दीपानं विशिष्ठोद्धनम्।
मुखशुद्धि हर्महरं ताम्बूलं श्रीकरं परसि। "

One of the best and perhaps the earliest stanza describing the good qualities of tambula is the following, found among the three stanzas on tambula in chapter 77 of the Brhatsamhitā of Varāhamihira (c. A.D. 500) which describes the preparation of perfumes (gandha-yukti):

"कामं प्रदीप्यते रुपप्रभावनकति
सौभाग्यशास्त्रित वक्तुसूम्धिता ।
उच्चं कबोति कपं जाय नित्यिति रोगान्।
ताम्बूलमेधसमकं गुणानुः क्रोधी ||३५|| "

V. Subrahmanya Sastri in his edition of the Brhatsamhitā (Bangalore, 1947) Vol. II, p. 612 translates the above stanza as follows :

"Betel stimulates love, sets off the physical charm, creates popularity, gives good smell to the mouth, strengthens the body and dispels diseases arising from the phlegm. It also bestows many other benefits "—Śloka 35.

The above verse contains a major number of the good qualities of tambula out of the number recorded in the verse about 13 qualities of tambula. I cannot, however, say if the verse of Varāhamihira about tambula quoted above has influenced subsequent verses about the gunas of tambula, some of which have been recorded by me in this paper.
As a result of my studies in the history of Tambula I have been led to study some of the customs associated with it such as exchange of tambula as a sign of betrothal or marriage, and tambula as a token of honour, as a token of a vow or pledge, as a token of love etc. In Maharastra a peculiar custom has been current in connection with marriage ceremonies. At marriage dinners the bride and bridegroom are made to sit, facing each other. A small roll of betel-leaves called vidī (Sanskrit vītikā) is then given to the bride, who holds one end of it fast by the front teeth. The relatives and guests assembled, all in a jovial mood, give a signal to the bride and bridegroom to snap asunder the roll or vidī by a simultaneous downward jerk of their mouths. No sooner is the signal given than the vidī is cut asunder, much to the inward but suppressed joy of the bride and the bridegroom and the hilarious merriment of the young and old relatives and guests, who watch the fun with great satisfaction and approval. The performance is repeated a few times by the bride and the bridegroom in response to the demand of the spectators. When the dinner begins the guests insist on another performance viz. the putting of a morsel of food by the bridegroom into the mouth of the bride.

In cutting the vidī (betel-leaf roll) the faces of the bride and the bridegroom come into close contact, which is the nearest approach to a kiss before the public, otherwise prohibited in Hindu society.

The Marathi Dictionary called the Sabdakosa (by Y. R. Date and C. G. Karve, Poona, Vol. VI (1938) p. 2827) records the word vidī in the sense of tambula. The usages of this word given by the authors of this Dictionary are as follows:—

(1) “विडी कहनि समार्थ महासति”
—Narahari, Danavrata 17

(2) “राव होता मुखवर्ती | विडिया देते मोहिनी ||”
—Kathakalpataru by Krṣṇayājñavalki 2. 9. 93

(3) “वरा शांतता वार्षिका विडी।”
—Lavnya (Ballads) by Honaji Bal (Poona, 1924)—No. 83

*Poona Orientalist, Vol. XIV, Nos. 1-4, pp. 78-84.
This Dictionary also refers to the matrimonial custom of "Cutting the vidi or vidi" as follows:

लक्ष्मार्ग भार्मण अध्रूव तोड़कायाशाही देवापाण देवाशी पानाची संध्या, लवच चोक्याशाही कालंकी आदि.

(A roll of betel-leaf, a clove, a slice of copra etc. given to the bride and the bridegroom for cutting by the teeth at marriage ceremonies)

No documentary reference to this matrimonial custom is given in this Dictionary. It is for scholars in the field of Marathi literature to record at least a few references to this custom from sources early or late.

The Marathi—English Dictionary by Molesworth and Candy (Bombay, 1857) p. 757, refers to the custom of "Cutting the vidi" as follows:

"विदी—At weddings. A roll of the leaf of piper-betel or a piece of coconut, or a clove put into the mouth of the bride or bridegroom, for him or her to tear it out with the teeth."

This reference to the custom of "cutting the vidi" at weddings needs to be supported by references to this custom in Marathi sources prior to 1857. We must also investigate and record any references to this custom by foreign travellers in their travel-books or other records, so far known or published.

The Bombay Gazetteer, (Vol. XVIII, Part I (Poona), Bombay, 1885, p. 213, describes the marriage ceremonies of the Patane Prabhu Caste. In the description of the dinner after a wedding we find a reference to the custom of "Cutting the vidi in the following extract:

Page 213—"In the after-noon the bride and bride-groom eat from the same leaf-plate, feeding one another in the presence of the women and children of the house. When the meal is over small round betel-leaf parcels are given to the boy and girl. The bride holds one end of the rolled leaf in her teeth and the bride-groom bites off the other end."

The origin of the custom of "Cutting the vidi" and its history cannot be traced on the strength of documentary evidence in the present state of my inquiry. I shall, however, try in this paper to paint the romantic back-ground of the use of tambula between lovers or between

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1. Cutting a clove by mouths facing each other, though a difficult operation, is perhaps more enjoyable to the bride and the bridegroom as it brings their mouths in close contact, which is virtually a kiss.
husband and wife, the history of which can be established for about 2000 years. Perhaps "Cutting the vidi" is the first step in the use of tambūla authorized by society between the husband and wife in the amatory way. The capacity of tambūla to stimulate passion has been expressly recognized by the celebrated Indian astronomer Varāhamihira (c. A.D. 500) in the following stanza in Chapter 77 of his Byhatsamhitā:—

"कामं प्रदीपयति हथयमिथ्यमनिकिं
सीमायमावहितं वक्तसमिधितं च।
ऊं करोति करनांं निहति रोगानां
ताम्बूलमेकमपरां गुणानं करोति।" ॥६॥

(Betel stimulates love, sets off the physical charm, creates popularity, gives good smell to the mouth, strengthens the body and dispels diseases arising from the phlegm. It also bestows many other benefits).

The amatory property of tambūla, is one of the 13 recognized qualities of tambūla, the history of which I have proved in a special paper.²

Venkataṇātha in his Saccaritravakṣa (edited by Śrīnivasācārya svāmi, Venkatesvara Press, Bombay, 1909, p. 96) records the following quotation from a work called Viṣṇuattra (yogapāda) antima paṭala:—

"श्रुपपुक्तक प्रकाशित न्यायस्थितवदिर्भिः:
दुधान्तं बलु काब्धुपति ताम्भूलं तस्तीमसुखाँ॥

Śeṣa-bhukti" (eating the leavings or remainder) is praised by sages (as it is a token of extreme affection); young men have a longing for tambūla from the mouths of young damsels. In this passage we have by way of example a reference to the practice of eating tambūla in its amatory perspective.

Vatsyayana in his Kāmasūtra (chapter XXIV—Paradārika Adhikaraṇa, p. 266 of N. S. Press Edition, Bombay, 1900) describes in detail the technique to be followed by a lover in his advances to a married woman. In this connection he observes as follows:—

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2. Vide Annals (B. O. R. Institute, Poona, 1951) Vol XXXI, pp. 138-142. The verse about the 13 qualities of tambūla as found in Jyotirnibandha of Śivadāsa (before A. D. 1524) reads as follows:—

"ताम्भूलं कठं विकम्पृथं चारं कथितान्वितं
वातं विमानान्वं कफहरं कामान्वितं विङ्ग।
बलस्यान्वं विगुणिर्भक्तं कुमारिचन्द्रयमानं
ताम्भूलं सले नामिनिर्भगुणयः स्वर्गवर्ष्टि ते दुःल्यमाः॥"
'He should kiss and hug a child as a symbol of the woman; put betel (tambula) in its mouth with the help of his tongue etc.'

('शालचुषणमालिक्ष्यं च, निध्वया चास्य ताम्बूलवाचं' etc.)

This is perhaps the earliest prescription of tambula for amatory purposes by an authority on the art of love. Our matrimonial custom of "Cutting the betel-leaf roll" by the bride and the bridegroom with their mouths close to each other is an authorised step in the technique of love-making after marriage. Unlike Vatsyayana’s prescription it is considered perfectly moral and decent as it is within the sacred enclosure of matrimony.

Dāmodara Gupta (A.D. 755-786) in his didactic poem Kuṭṭaninmata (ed. by T. M. Tripathi, Bombay, 1924) describes the life of the courtesan Mālatī living in Benares. In the following verse 549 (page 163) this courtesan refers to the use of chewed tambula put by the lover into the mouth of the beloved in an amatory way.

"लाम: स एव परम: पय्यात्ति केन तृत्तादिसि।
विनरैश्य बधुस्कृते निम्निपति मुच्चे मुखे ताम्बूलम्।। ५४६।।"

The learned editor Mr. T. M. Tripathi in his Sanskrit commentary on the above stanza observes:

"शाचर्चितं ताम्बूले मामें स्मायिलः समुदभोगाभ मम मुखे महास्वर्ते तेनालं सन्तःस्वादिसि,
ब्रिम्सुकदेशं ध्रायया समेत मुखे ध्राययसाद हि। तथा चोर्क — "उक्तासाहीमाहि पवित्रापादः।"

(Vikramāndevacarita of Bilhana—c.A.D. 1050—Sarga X, verse 38)

The poet Śrīharṣa in his Naiśadhacarita of 12th Cent. A.D. (English Trans. by K. K. Handiqui, Lahore, 1834) describes in Chapter XX Nala’s jesting with Damayanti, recalling various experiences of their conjugal love. In this connection Nala says:

3. Tripathi quotes the following stanza bearing on the importance of tambula:

"तिकु ताम्बूलविक्षानमनविष्क मित्रयुपाधी सुद्ध
विच्छवदेशं किविचारितं च रसानां, विविधासिमक्ष्यंदं
विक्रमं च तमोमध्येश्च विक्रमाश्रीमादनमेव
विक्षवकं वृत्तिश्रितं, विक्रमालास्यं च शास्त्राश्च।।"

"Pie upon the mouth-hole without tambula, a face without the fore-head mark, a tongue devoid of the recitation of the Veda, a hand that does not give gold, a village without a river, an assembly without a learned man, a dinner without ghee, and a bed without a woman!"
Chap. XX, verse 82 —

"जागति तना संस्कारः स्वसुदात्रथवदाननें।
निनिश्चिपार्नि यता स्वायास्मात्मात्माकालिका:॥ ५२ ॥"

Page 292 — ("Dost thou recollect, after passing bits of betel from my mouth into thine, I justly demanded them back ").

Tripathi quotes the following anonymous stanza in his commentary on verse 549 of Kuṭṭāṇimata (Bombay, 1924, p. 163) :-

A lover addresses his beloved and asks for tāmbūla from her mouth as follows :-

"तालाकङ्रम्योऽधरे तनुमुखस्तन्त्राधिकारिः
तात्ममत्स्मलये तद्विस्मलये
तनोनं मरमालापिनि।
ताता कु मन्तस्मात्मसिन्यगे तनविष्म तापद्रोहे
तातानायनिन्याथने तथ मुखात्मूलात्मादृश्यसः॥"

Other verses quoted by Tripathi in the same context are noteworthy. They are as follows :-

A gallant asks his lady-love for tāmbūla :-

"तनोनान्त्रिकात्मात्माध्यायितपदं ततात्ममत्स्मिना
गणि, तनदुकामनमस्मुव्यायापरिलोकसदम्।
तस्यते पदम्यायामाणं, स्वभूतितकामसदम्
स्वादिष्टे तच्चत्वात्वत्, तत्सि मे ताम्बूलस्मादीवयसः॥"

The following stanza states that a man who does not chew tāmbūla early in the morning, at dinner-time, in the company of a woman and in the assembly of learned men at the royal court, is a veritable beast :-

"प्रत्युनपि द्रुतसमये दुधलिनां चैव संगमे विह्रये।
विद्यालोकायायं ताम्बूले यो न स्वादेषस्पष्टः॥"

The Śrīgāmarūntalahari refers in the following stanza to a lover putting a vīti (=tāmbūla) into the mouth of his beloved :-

"अन्याला: सलिलोपितं सहवरं लाबकलोकसः
सेवाभि: प्रत्युनपितम्यतुरुग्रं दारिते।
प्रामांके दु समौरस्त विलंतु चेलाचलोंदमरः
वीटीमानसवधे विद्युत वन्यपदं निरक्षेः॥"

"अन्याला: सलिलोपितं सहवरं लाबकलोकसः
सेवाभि: प्रत्युनपितम्यतुरुग्रं दारिते।
प्रामांके दु समौरस्त विलंतु चेलाचलोंदमरः
वीटीमानसवधे विद्युत वन्यपदं निरक्षेः॥"

"अन्याला: सलिलोपितं सहवरं लाबकलोकसः
सेवाभि: प्रत्युनपितम्यतुरुग्रं दारिते।
प्रामांके दु समौरस्त विलंतु चेलाचलोंदमरः
वीटीमानसवधे विद्युत वन्यपदं निरक्षेः॥"

"अन्याला: सलिलोपितं सहवरं लाबकलोकसः
सेवाभि: प्रत्युनपितम्यतुरुग्रं दारिते।
प्रामांके दु समौरस्त विलंतु चेलाचलोंदमरः
वीटीमानसवधे विद्युत वन्यपदं निरक्षेः॥"

"अन्याला: सलिलोपितं सहवरं लाबकलोकसः
सेवाभि: प्रत्युनपितम्यतुरुग्रं दारिते।
प्रामांके दु समौरस्त विलंतु चेलाचलोंदमरः
वी�ीमानसवधे विद्युत वन्यपदं निरक्षेः॥"
The betel-chewing has been a gay associate of the Aryans in India for about 2000 years as proved by the evidence recorded by me in the present paper. This evidence needs to be increased on the strength of the varied sources of Sanskrit poetry and rhetoric, which are likely to yield charming material bearing on the amatory aspects of tambūla. At present the three Ts of Indian social life are: (1) Tea, (2) Tobacco and Tambūla, of which tea and tobacco entered India after A.D. 1600 while Tambūla entered India during the early Gupta period and completely naturalised itself in Indian life and culture to such an extent that its foreign origin was entirely forgotten.
19. Studies in the History of Tāmbūla — Use of Lime (Cūṇa) and Catechu (Khadiro) in Tāmbūla and its Antiquity — c.A.D. 100-1900*

After my paper¹ on the history of Indian Nut-Cracker (A.D. 1300-1800) was published, a friend of mine suggested that I should write a paper on the history of the lime-pot used for keeping lime or chunam by persons who eat tāmbūla, a combination of the betel-nut, betel-leaf, catechu and other spicy ingredients. I agreed to this suggestion and began to hunt up references to lime-pot in literary sources known to me. Unfortunately, in the material about tāmbūla collected by me I could not locate any definite references to the lime-pot as such though we have reason to believe in the existence of some lime-pot since our ancestors began to use chunam or lime as an ingredient of tāmbūla. It is, therefore, necessary to prove the antiquity of lime (= cūṇa in Sanskrit) as used in tāmbūla as also of catechu (= Kāt in Marathi) as the combination of the chunam and catechu in the mouth reddens the mouth of the person chewing tāmbūla.²

(1) Raghunātha Panḍita in his Rājavyayahāromakośa (c.A.D. 1676) refers to lime as चूण ("चूण नामः भवेच्चूणयाम्") and lime-pot as उनाल ("उनालः स्यावः चूणयात्रम्") as I have already pointed out in my paper on the Nut-Cracker referred to above.

(2) The Marathi Dictionary called the Śabdakośa (by Y. R. Date and C. G. Karve, Vol. III, p. 1210) records the following words for lime-pot:

"उनाला, उनाली, उनाली" and derives them from Sanskrit चूण + श्रालक ( = चूणालय ) = चूणाश्रालक of the

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²2. Cakrapāṅgingha in his Bhāvopahāra (Kashmir Sanskrit Series. No. 14. Srinagar, 1918, pages 56-37) refers to tāmbūla in the following stanza 39:

"स्वसविनश्चन्दनप्राण राजस्वदलोस्त्रलयः
शुक्लस्य स्युमेश्वरि ताम्बूलं ते निधेशवते || १६ ||
"
The commentary of Ramyadeva Bhaṭṭa on this stanza explains tāmbūla as "ताम्बूलस्यम्, अल्पमम्पतत्वम्." This etymology of tāmbūla needs to be examined. It is indeed highly imaginative.
Rajavyavahārakośa. So far I have not traced any usages of the चूर्णग्रह or चूर्णालय in the Sanskrit sources.

The Śabdakośa does not record any usages for the words about lime-pot referred to above.

(3) The habit of chewing the tāmbūla is current in Indo-China. This habit has a great antiquity as I am informed by my friends at Hanoi, one of whom has sent me a version of a story about its origin which I am appending to this article. Consistent with this tradition is the discovery of a lime-pot at Thanh-hoa (in Northern Annam) by O.R.T. Janse, who led an expedition to Indo-China and the Philippines and published his report on it in the Harvard Journal of Asiatic Studies (June 1941). A photograph of this lime-pot will be found on Plate XXV. This lime-pot is one of the articles of the Sung and Ming dynasties discovered by Janse. Prof. P. K. Mukherji in his Indian Literature in China and the Far East, Calcutta, 1931, records the following chronology of the Sung and Ming dynasties in his list of the Translators of the Chinese Tripitaka—(Pages 3-4)—Later (Northern) Sung dynasty A.D. 960-1127 K’ai-fung (Honan)—Southern Sung dynasty—A.D. 1127-1280—Ming dynasty—A.D. 1368-1644. It is not clear from Janse’s Report whether the lime-pot belongs to the Sung or the Ming dynasty. We may, however, conclude that it belongs to the period A.D. 960-1644 and hence cannot prove the use of lime in tāmbūla in Indo-China prior to A.D. 960.

(4) In the article on Chunam in the Hobson-Jobson (by Yule and Burnell, London, 1903, pp. 218-219) we get the following dated references to the use of lime in tāmbūla:

A.D. 1510—"And they also eat with the said leaves (betel) a certain lime made from oyster shells, which they call cionama."

—Varthema, 144

A.D. 1563—"...So that all the names you meet with that are not Portuguese are Malabar, such as betre (betel), chuna, which is lime....."

—Garcia, fol. 37g

A.D. 1610—"Chunan"—Pyrard de Laval, ii, 84 (Hak. Soc. ii, 135).

A.D. 1614—"Having burnt the great idol into Chunah he mixed the powdered lime with pān leaves and gave it to the Rajputs that they might eat the object of their worship."

—Ferishta, quoted by Quartremère Not et Ext XIV 510

A.D. 1673—"The natives chew it (betel) with Chinam (lime of Calcind Oyster Shells)."

—Fryer, 40
A.D. 1689 — “Chinam is Lime made of Cockle-Shells or Limestone; and Pawn is the leaf of a Tree.”

—Ovington, 123

These references clearly prove the use of lime in tambula and in particular of the lime prepared from Oyster Shells or Cockle-Shells, which is even now used in some parts of India.

(5) From the reference to the use of lime from Oyster Shells in tambula made by Varthema in A.D. 1510 we now turn to the section on tambula (tambulabhoga) of the Manasollasa (c.A.D. 1130) of king Somesvara. In this section the lime from pearl-oysters is prescribed for use in tambula or vihaka (Marathi vida) as follows:—

“मुकामयितम चूँक वीठेशु निधातित्वम्”

[See p. 84 of Manasollasa, Vol. II (G. O. Series, Baroda, 1939)]

The use of lime in tambula is thus clearly established from c.A.D. 1100 up to the present day.

(6) In The Tantriya treatise on Yoga called the Siva-Samhita (3rd Edition, Pāṇini office, Allahabad, 1942) we find the following references to tambula including a reference to “Carna” or lime:—Page 32 — The Yogi should try to attain success in Yoga by the following means:—

“He should use clarified butter, milk, food, and betel without lime, camphor, husked sweet grains, pleasant monastery or retired cell, having a small door etc.”

“पृत्ते ह्ये त पित्रत्र च मिष्णेन तम्बूलं चूचूतिविनिः सिंहम्”

On p. 58, however, tambula has been definitely mentioned among the impediments of Yoga as follows:—

“नाटूर शह्यासम वस्त्रो वैनमविहारम्”

Tambula, मद्रयावनासिक रश्रीवच्च: च”

Trans.—“Women, beds, seats, dresses and riches are obstacles to Yoga. Betels, dainty dishes, carriages, kingdoms, lordliness and powers etc.”......

These are the obstacles which arise from Bhoga (enjoyment) etc.”

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3. Bernier’s reference (c.A.D. 1660) to tambula may be added to the references from the Hobson-Jobson. It is as follows:—

“Betel is a small parcel made of aromatic leaves and other ingredients mixed up with a little of the lime made from sea-shells, this colours the lips and mouth red and agreeably perfumes the breath.” (pp. 13-14 of Travels, London, 1891).
Narayana Tirtha in his commentary Yogasiddhanta-candrika (Chowkhamba Sans. Series, Benares, 1910, p. 100) refers to tambūla without lime in the following verse:

"कपूरे मधुरे स्निग्ध गय्यं ताम्बूलमेव च ।
चूर्णेन चारण्यं चारण्यं योगिनां शुभम् ॥ ॥"

(7) The earliest datable reference to the use of curna or lime or chunam in tambūla so far traced by me is found in the section on Perfumes (Gandhayukti of the Brhatasamhita (c.A.D. 500) of Varahamihira (Chap. 77, Verses, 35 36, 37 dealing with tambūla — pages 612-613 of the Edition with Eng. Trans. by V. Subrahmanya Sastri, Bangalore, 1947). This reference is as follows:

"युक्तं चूर्णं करोति राघवे ।
रागब्रह्मं गृङ्खलाहिरिकम् ।
चूर्णांशिकं वर्णकवियंधकारि
प्रत्यापिकं साधू करोति गाधम् ॥ २५ ॥"

Translation — "A moderate dose of lime used with betel-leaves gives good colour; an extra quantity of areca nut spoils the colour; excessive lime produces bad smell in the mouth, but an extra quantity of betel-leaf pleasant smell." Lime by itself with betel-leaf may not produce red colour in tambūla when chewed. At present deep red colour is obtained by the combination of lime and catechu (Marathi Kat) in the tambūla. We must, therefore, record evidence about the use of catechu in tambūla from Sanskrit and non-Sanskrit sources.

(8) The Suśrutasamhita (N. S. Press, Bombay, 1938) mentions the use of curna or lime in tambūla, in the following verse 21 of Chap. 24 of Cikitsāsthana:—

"कपूरे जालीयं कडकलब्रह्मकाव्य: ॥
स्निग्ध पसी ताम्बूलमेव शुभम् ॥ २१ ॥"

Tambūla is also mentioned in the following verses of Chap. 46 of the Sūstrasthana:—

4. Rājaṇghāṭu of Narahari (c.A.D. 1450) refers to the dye-producing properties of Khadira (Khadira sūra) or extract from the Khadira tree (Catechu) in the following verse (p. 13, Anandasrama Edition, Poona, 1896):—

"ख़ादिर: खदिरसारः तत्सहायः रञ्ज: स्मृत: ।
हेय: खदिरसारः तत्सहायः रञ्ज: गाहियः ॥ ४१ ॥"

"Khādīr: Khadira-tattvāde rāj: smṛta: |
heya: Khadira-sāra tvat rāj: gāhaya: ॥ ४१ ॥"
There is no reference to *cūrna* or lime in the above ingredients of *tambūla* mentioned in the early medical text of the *Carakasamhitā*. We must go through the whole text of this work and see if *cūrna* as an ingredient of *tambūla* has been mentioned in some other context.

(10) The *Rājanighantu* of Narakāhari (c. A.D. 1450) records the following verses about *cūrna* on p. 132 of the *Anandāśrama* (Poona, 1896), Edition of this work:—

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गुप्त:—“चूर्णः चार्जुनचुर्रजः कफहर्ष गुल्ममकांक्षाम ।
शोषणे कुत्रजः कर्जननिन बाताप्ते प्रचन्द ।
पिचचर्य जले वलाकिरिकविद्य शैलाहर्ये पिचचर्यः ।
स्वादिकर्ति हड्डादसिद्धक मण्डलश्च शुक्लावर्धिजः रक्षद । १० ॥
ताम्बूलन्तप्यम्—
पराणिकं दीप्यं रक्षदाती
चूर्णाभिकयेत रक्षायं कष्ट्राती ।
साराणिकं खादिरे शोषदाती।
चूर्णाभिकयेत पिठकपुष्पिन्यम् ॥ २१ ॥
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**Verse 20** in the above extract mentions the properties of *cūrna* from the *Arjuna* tree, *Kuṭāja* plant etc. The *cūrna* from *ṣūkti* (pearl-oyster) mentioned last in this verse is identical with the *lime* from oyster-shells used in *tambūla*. **Verse 21** definitely deals with *cūrna* or *lime* and its use as also the use of *Khādirasāra* or *catechu* in *tambūla*. This verse may be compared with verse 36 in the *Gandha-yuktī* section of the *Bṛhatasamhitā* quoted above.

(11) The *Āṣṭāṅgasamgraha* (c.A.D. 925 according to Hoernle, or 8th-9th cent. A.D. according to Prof. Dineshchandra Bhattacharya) of
Vāgbhaṭa definitely refers to ġūra (lime) and Khadīrā (catechu) in tambula in the following verses (34-38) of Chap. 3 of Śūrasthāna (ed. by R. D. Kiṃjawadekar, Poona, 1940, p. 15):

"वनवैशालीगत्यांनुसार बुकेरे महर्षे || जातीलवर्क्कूर्या रक्षा करुणे || सह ष ॥ १५ ॥
तांतुलानां क्रिसम्य उसर्य धूर्य पुराणमालिन्यांमहे ||
रक्षितरुतुलीमहारुक्षरुकिपतिचलुभाम || ३६ ॥
विसम्भां गारांगां शोभियां न तत्तम ||
पार्श्व नामहस्ते भुके माते वान्ते न माते || ३७ ॥
धृपरमेके पूर्ण च सचरूणांवधरे न तत्तम ||"

(12) The importance of the medical properties of the Khadīrā (Acacia Catechu) and its products was recognized more than 2000 years ago as will be seen from the references to Khadīrā by Caraka, Suśruta, Vāgbhaṭa, Ḥarīta, Cakradatta, Dhanvantari-Nighantu, Vṛṇḍa, Śodhala, Bhavamisra (Bhavanprakāśa) etc. collected by my friend Vaidya B. G. Shah (Pages 452-458 of the Nighantu Ādarśa, Part I, Ahmedabad, 1927). R. N. Khorv in his Materia Medica. II, 184, records the Actions and use of catechu as follows:—

"Powerful astringent, stronger than Kino, anti-periodic and digestive. Its action is due to the tannic acid it contains. It is a powerful astringent to the mucous membranes, given in dyspepsia attended with pyrosis, and also diarrhoea in children; given in disentercy, intermittent fevers and scurry; as a gargle in hoarseness of voice and sore throat. Locally as a dusting powder, hypertrophied relaxed tonsils, ulcerated and spongy gums and to control passive haemorrhages.

(13) The combination of the decoction of the khadīrā (Catechu) and Kramuka (betel-nut) is prescribed in urinary troubles by the Suśrutasaṃhitā (N. S. Press, Bombay, 1933, p. 452)—Cikitsāsthaṇa, Chap. 11, Section 9 as follows:—

"वृद्धेनिं कदर-क्रामुक-कर्पायः पावकेत् || ४ ॥"
(variant "वृद्धर् क्रामुक कर्पाय"")

Kadara is explained as white catechu by the lexicons Vaijayanti (c. A. D. 1050)—"विद्यु त तस्मिन् कदरः" and Medini (c. A.D. 1200-1275)—"कदर: लिदरे श्वेते"
In the tambūla also there is a combination of kramaaka (betel nut) and khadira (catechu).

(14) The Carakasaṃhitā (N. S. Press, Bombay, 1941) gives recipes of (1) a pill (guṭika) of Catechu (Khadira-sāra) and (2) oil from Catechu in the Cikitsāsthāna, Chap. 26, verses 206-214 (p. 609). These recipes are prescribed for persons suffering from mukharoga (diseases of the mouth). The recipe of the Khadira-guṭika contains numerous ingredients like chand (sandal), līlā (clove), kākol, jalakroṣa (nutmeg or its outer covering), mātikā, kātakī, ēla (cardamom) etc. Some of these ingredients are used at present in tambūla. The verses referred to above begin with "cūlō खदिरासरसम्" and end with "खदिरासिद्धिकेवं तेल च खदिरादिर्कम्." In this Khadira-Guṭika of Caraka we have the ancestor of our modern scented Kat-goli or Catechu pill used in Tambūla.

(15) The definite Catechu pill (Kat-goli) used in tambūla is described in detail by Someśvara in his Mānasollāsa (Section on Tambūla called tambūla-bhoga) — Vol. II (G. O. Series, Baroda, 1939), p. 85:—

(खदिरासिद्धिका)—“खदिराकाथ चूर्णं त कस्तरीप्ययोगिनिशितम् || ६७४ ||
श्रीविधोषकसक्पणकरुरजसारसिद्धिम्.
मेलपिवि समाधिगृहिको तिलियता शुभम् || ६७५ ||
बिद्रोपशामनी कश्चन दस्तानां च बलाका."

(खदिरासारमुखराग्नम्) — अत्र खदिरासारसरस चूर्णं कोषालसंतुतम् || ६७६ ||
जातिकरणो चूर्णं भक्तिविशिर सुकुमरानम्.
जातीज्ञान्ययोग्य लियता समानितम् || ६७७ ||
कुरुपशतां खादेच्छन्ति तदनन्तु कुष्मांकानितम्।"

The catechu-pill for king's tambūla contained musk (Kasturi), Sandal (Śrīkhandā), camphor (Karpūra), while the catechu-powder, used with tambūla contained powder of nutmeg (jātīphala), camphor (Karpūra) etc.

(16) In the light of the history of Catechu in tambūla recorded above the following notes from the article on Catechu in the Hobson-Jobson (London, 1903, pp. 173-174) would be found interesting:

5. In the Bodhīyamālyāpīthasattā (Mysore, 1920, P. 371—Prasna V, Chap. 7—Vanaspati-homa: worship of kuru (betel-nut tree) is prescribed ("क्रमुक्रमसरसात्मकार्योपयोग ay "). This text possibly belongs to 3rd or 4th Century A.D. (See p. XXIV of P. Harting's Edition of Selections from this text).
CATECHU also CUTC! and CAUT — An astringent extract from the wood of several species of Acacia (Acacia Catechu (the Khair, and Acacia Suma, Kurz, A C. Sundra D.C. and probably more. The extract is called in H. Kaṭh (Skt. kvath ‘to decoct’) but the two first commercial names which we have given are doubtless taken from the southern forms of the word e.g. Can. Kachu, Tam. Kasu, Malay. Kachu. De orra, whose judgments are always worthy of respect, considered it to be the lycium of the ancients and always applied that name to it; but Dr. Royle has shown that lycium was an extract from certain species of berberis, known in the bazars as rasot. Cutch is first mentioned by Barbosa among the drugs imported into Malacca. But it remained unknown in Europe till brought from Japan about the middle of the 17th Century.

A.D. 1554 — “... Cate ... (at Ormauz) they call Cacho” — A. Nunes, 22.
A.D. 1563 — “… the wood vulgarly called Cate” — Garcia f. 125.
A.D. 1578 — “The Indians use this Cate mixt with Areca and with Betel and by itself without other mixture” — Acosta Tract, 150.
A.D. 1585 — “Sassetti mentions Catu as derived from the Khadira tree i.e. in modern Hindi Khair (Skt. Khadira).
A.D. 1616 — “Catcha”
— Foster, Letters, 127.
A.D. 1617 — “Cacha” (drug)
— Cook’s Diary, i. 294.
A.D. 1759 — “Hortal and Cotch, Earth-oil and wood oil.
C.A.D. 1760 — “To these three articles (betel, areca and Chunam) is often added for luxury what they call Cachoonda, a Japan-earth which from perfumes and other mixtures, chiefly manufactured at Goa, receives such improvement as to be sold to advantage when reimported to Japan... Another addition too they use of what they call Catchoo, being a blackish granulated perfumed composition.”
— Grose, i, 238.

A.D. 1813 — The peasants manufacture Catechu or terra Japonica from the Keiri (Khair) tree (Mimosa Catechu) which
grows wild on the hills of Konkana but in no other part of the Indian Peninsula” (erroneous)
—Forbes Or. Mem. i. 303 (2nd Ed. i. 193).

(17) The Khadira plant has a great antiquity and sanctity. In the Rgveda (Book III, Hymn 53) Indra is invoked as follows:


Griffith’s Note:—“Khayar-timber”: the hard wood of Khadira, or Acacia Catechu of which the pin of the axle was made. Simşapā: Dalbergia Sisu, also a common timber tree.

It would require a special monograph to trace the history of the Khadira tree from the time of the Rgveda up to the present day. This tree had great sanctity in ancient Indian sacrificial ritual as the sacrificial post was made of Khadira (Khadira-yūpa). Kautilya in his Arthasastra (Chap. XVII of Book II on Superintendent of Forest Produce, p 107 of Eng. trans. by Shamashastry) mentions among forest products (1) Khadira (Mimosa Catechu) and (2) Somavalka which is white Khadira (see p. 625 of Aṣṭāṅgahṛdaya-kosā by K. M. Vaidya, 1936 — article on Somavalka mentioned in the Sūtras of the Aṣṭāṅgahṛdaya). The history of the economic products of India on the strength of Indian sources has not yet been studied systematically. Such history will have a respectable place in any comprehensive history of Indian Culture when it comes to be written. For this purpose each of these products must be studied separately from the historical and cultural point of view.

(18) Berthold Laufer in his Sino-Iranica (Chicago, 1919, p. 481) refers incidentally to Catechu as follows:

"It is not intelligible to me why Hirth says that in the Ming dynasty (A.D. 1368-1644)6 lu-weǐ was, as it is now, Catechu a product of the Acacia Catechu (Sanskrit Khadira)." No authority for this theory is cited; but this is quite impossible as Catechu or Cutch was well known to the Chinese under the names er-Ca or hai'r-Ca." See Stuart, Chinese Materia Medica, p. 2; and Laufer, Loan Words in Tibetan, (No. 107, where the history of these words is traced).

6. See list of Chinese dynasties with dates at the end of Indian Literature in China and the Far East by P. K. Mukerji, Calcutta, 1931 (p. 4 of the list).
In Section 13 of Chap. 11 of the Cikitsāsthāna of the Suśrutaśāstra (N. S. Press, Bombay, 1938, p. 450) the author describes the method of gathering the juice of Khadira (Acacia Catechu) directly from the tree as follows:—

"अन्त: खदिर्विद्यामुदयदयायम्—प्रमाणेदशाताम् श्रुतपुत्रां महामयसः स्कन्दिरर परित: खानविल्बा तस्य मध्यम मूल छिल्ला यायोमय कुम्भें तामिस्नु श्रन्ते निद्रिधात् यथा रक्षाग्रहणसाधिः महाति, तत: तं गोमयमुद्रा अन्वकित्वि अन्वकीविर्य इन्थने: गोमयमिल्ले: अन्वदीप्यक्ता यथा अन्व वहामानसरसः सत्ववी अन्ववतात्, ततो यदा जानीयात् पूर्ण महानम् इति, अन्य इति उद्दह विनिसाध्यरस्तु अन्यस्मिन्स्वते निधिशय अन्तपुत्र निद्रिधात् etc."

The Khadira-vidhāna or the method of gathering juice of Catechu prescribed above was as follows:— A Khadira tree growing on good ground and of middle age was selected and ground about its bottom was dug out. A cut was then made in its central root and a pitcher of iron or bronze (ayās) was so placed underneath as to admit the exuding juice. The pitcher was then besmeared with a mixture of cow-dung and earth and later kept in the midst of fire produced from (dried) cow-dung and other fuel. When the juice had boiled over, the pitcher was lifted up and the juice poured in a separate pot and kept properly covered.

The above method of gathering the juice from a Khadira tree so graphically described by Suśruta gives us a good glimpse of the processes employed by ancient Indians in the manufacture of herbal medicines.

(20) The Yogaratnakara (Anandāśrama Sanskrit Series, Poona, 1900) is a voluminous medical compendium compiled between c. A.D. 1650 and 1725 as I have proved in my article on its date (Pages 154-156 of the Bharatiya Vidya, Bombay, 1943, Vol. IV.). It contains a long extract of about 20 verses on tambūla (Verses 58-79 on page 35). The ingredients of tambūla mentioned in these verses are as follows:—(1) पूर्ण (betel-nut), (2) कपूर (camphor), (3) कस्तूरी (musk), (4) लब्ज (clove), (5) नुमन (nutmeg), (6) ताम्रलप्त or पूर्ण (betel-leaf), which should be बादाम (whitish yellow), the betel leaf from Vangadeśa (Bengal) was the best (बादामदेह्ये रूपसः पूर्ण परं कुदरसं सरस”), (7) Catechu (Khadira), (8) lime or chunam (Cūna). The verses pertaining to Cūna and Khadira are as follows:—

"खदिर: कपित्वारुपायेः वातचककायुर् ||
संध्योतिजदिवयां समस्येत्य करोति च || ७१ ||
पुष्पाचिकं प्रमाणे स्वाश्चधयाः खदिरचिक्कम् ||
चूनाचिकं निशाचार्रे हि ताम्रलप्त महाप्रस्थद् || ७२ ||"
The properties of tobacco (तमाळ) are recorded in 7 verses on pp. 17-18. At present some people chew tobacco powder along with tambūla or separately. Verse 4 tells us that the use of tobacco is a remedy against diseases of the teeth (द्वारा विद्यमान) and that it is a germicide (किमिकक्षाधारिण्य).

The foregoing notes are sufficient to prove conclusively the use of Ċūna (lime) and Catechu (Khadirā) as essential ingredients of tāmbūla for about 2000 years say from the first century of the Christian era up to the present day. Further evidence on this topic has been gathered by me and I hope to record it in a subsequent paper.

Appendix

The history of the use of tambūla in countries outside India must be studied critically with a view to understanding the spread of its use in India many years before c. A.D. 400. In this connection I made inquiries of my friend Mademoiselle S. Karpeles, Secretary of Ecole Francaise d’Extréme-orient at Hanoi (Indo-China) and sent to her my paper on Indian Nut-Cracker. She replied promptly in her letter of 16th March 1949 as follows:

"Here is the name of the Nut-Cracker":

Laotian — "MITSÁNÁK"
Vietnamese — "DAO DÀU"
Cambodian — "PRÁNÁK"

The habit of chewing betel is very ancient and current throughout the whole Peninsula and herewith a story about its origin found in old Vietnamese books translated into French. It is Monsieur TRAN HAM TAN, who took the trouble to find it out."

On getting the above story about the origin of tāmbūla I got it translated into English by my friend Dr. R. G. Harshe, Registrar, Deccan College Research Institute, Poona. This English translation is given below. I take this opportunity of recording my best thanks to Miss Karpeles, Mr. Tran Ham Tan and Dr. Harshe for their hearty cooperation with me in the present inquiry about the history of tambūla in Greater India.

7. Prof. R. M. Bhusari has drawn my attention to a genuine Marathi word for the Nut-Cracker viz. पोषयक्रे (Pophal-bhooda) mentioned in a Mahānubhāva Marathi text of the 13th Century viz. श्रीगुरुपिणि (Edited by H. N. Nene—उपराध, p. 100).
The Life-story of Tan and Lang
(by Mr. Tran Ham Tan, Hanoi)

Formerly there lived a Prince, Quan-lang, who had an imposing stature. He received the title of "Marquis of Cao" as title of nobility. Since then he took Cao as the family name. His two sons Tan and Lang resembled each other so much that one could not distinguish the elder from the younger. At the age of 17 or 18 they became orphans and went together to seek a preceptor for teaching them religion and philosophy. The daughter of their preceptor Lùn Huyễn was also of 17 or 18 years of age. When she saw the two brothers she fell in love with them. Wishing to marry one of them she did not know as to who was the elder and who the younger of the two. She gave both of them a single cup of meat-soup and only one pair of sticks in order to know the elder and the younger. The junior passed all these things immediately to the senior. She then requested her parents to marry her to the elder one. The couple sometimes lived away from their little brother. The younger brother felt it very much and saying to himself that his elder brother being in love with his wife had forgotten his brother on that account and without informing his elder brother he returned to the paternal house. Coming to a deep stream at which there was no ferry he sat all alone and wept grievously and died; then his dead-body was transformed into a tree: the areca.

When the elder one did not see any longer his younger brother he abandoned his wife in order to go in pursuit of him; coming to the place where his younger brother had died, he threw himself on the tree (i.e. areca) and died; his dead body was transformed into a huge stone, attached to the trunk of this tree. When the young wife marked the disappearance of her husband, she went in his pursuit; coming to the place she learnt that her husband was already dead, whereupon she threw herself on the stone and embraced it till her death. She was transformed into a Creeping stock which braided over the tree and the stone and from which were produced the odoriferous (sweet-smelling) leaves. They were the leaves of the betel.

Their parents (relatives) came there very much distressed and built a temple in their honour. At the temple, the passers by offered to them the incense sticks, praised their brotherly love and the conjugal duty of the victims.

In the month of autumn the king Hung made a journey to this place. Seeing this temple with the tree surrounded by the creeping stalks he asked for its reason and being supplied with the information made the
fruit and the leaf to be brought to him. He chewed them and spat its juice on the stone which was of a red colour and which emitted a good smell. The king returned taking with him a fruit of areca and a leaf of betel prepared with a little lime he chewed the betel and the areca-nut. He even ordered that these newly discovered plants be planted in his kingdom and declared that at marriages and feasts one ought to prepare a present consisting of the betel leaves and the nuts of areca.

[This took place under the dynasty of the Hung-Vuong—(2880-258 B.C.)]
20. The Tambulakalpasamgraha of Nrsimhabhatta and its date —
Later than c. A. D. 1350*

My friend Shri J. S. Pade has recently published in the Journal of the Oriental Institute, Baroda, the text of a work on Tambula called the Tambulamañjari¹, which contains a collection of varied verses about Tambula from numerous texts, which reveal the social, religious and cultural history of the habit of chewing Tambula (betel-leaf and nut etc.) acquired by the Aryans in India about 2000 years ago. According to Shri Pade the Tambulamañjari is a very late work as it quotes from the Saubhâgya-Kalpadruma of Acyutarâya Modak (A. D. 1778-1833)².

Texts mainly devoted to a study of Tambula are very rare. Consequently all lovers of the history of Tambula like myself were rejoiced to read the text of the Tambulamañjari as edited by Shri Pade on the basis of a rare MS in the library of the Oriental Institute, Baroda. While reading this text, I was reminded of another text on Tambula, a MS of which is available in the library of the Asiatic Society of Bengal, Calcutta. This text is called the Tambula-Kalpa-Samgraha by Nrsimhabhatta. The MS of this text is in the Govt. collection of the Asiatic Society (No. 8238). I acquired a copy of this MS for the B. O. R. Institute in 1945. The MS begins as follows:

"स्मारकोपेश्वर नमः अथ तांबूलकल्पसंग्रहं लिख्यते ।
यन्मुखं वेदविभागं तांबूलसख्यितं ।
सुभाषिकपरिवर्तं तन्मुखं बिलमुख्यते ॥ " etc.

The MS ends as follows:

"इति श्रीमन्युक्तमसूत्रितिचितस्तांबूलकल्पसंग्रहं समासः । "

No information about the author of the work viz. Nrsimhabhatta, mentioned in the colophon, is given in the body of the text.

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2. See p. 6 of Madhyayugina Caritra-Kosa by S. Chitrav Shastri, Poona, 1937.
References to earlier authors and works given in this work are as follows:

(1) मार्क्देयपुराणे — fol. 1 ("भृगुपतिचारणे कल्लप्ये etc." हित विशिष्ट:)
(2) विशिष्ट: — fol. 1 ("दातप्त्यप्रज्ञसंवामाह विशिष्ट:"
(3) सम्भवितम ज्ञानम् — fol. 2 ("पुराणप्रामणा"
(4) विशिष्ट: — fol. 2 ("श्रीत्रायण सुधे पर्वम etc.")
(5) भर्गोत्र: — fol. 4 ("कुतुम्बक्षेत्रमधुत्त: etc.")
(6) विशिष्ट: — fol. 4 ("पत्निमूले मथेव स्थापि: etc.")
(7) वैद्य: — fol. 5 ("श्रीत: आयुष्योऽमृते etc.") — verse about the 13
gunas of तांबुल: — "तांबुल कुद्रीसः...स्वर्गीति ते हुलामात:"
(8) वैद्य — fol. 5 ("तांबुलपात्रि विदिति सरलम् etc.")
(9) भ्रात्रलायनाचारण: — fol. 6 ("विवाहाकोमिनशिं राजी etc.")
(10) वैद्य: — fol. 5 ("तांबुलस्तम्भपात्रि etc.")
(11) विशिष्ट: — fol. 6 ("पाणि च भ्रात्रचारी च etc.")
(12) भ्रात्रलायनाचारण: — fol. 7 ("सकेत विवाहाराण etc.")
(13) वैद्य: — fol. 7 ("समासादितताबुलो etc.")
(14) दत्त: — fol. 9 ("सुक्तणा हु मुक्मास्तयम् etc.")
(15) श्रीत्रि: — fol. 9 ("इतिहासपुराणानि etc.")
(16) व्यास: — fol. 9 ("इतिहासपुराणायम् etc.")
(17) विश्वासेन्द्रीरे — fol. 9 ("धर्मं श्रं समादीत etc.")
(18) सम्भवितचरिक्रायं कालयाय: — fol. 10 ("सायं भ्रात्रचारी देव: etc.")
(19) हेमान्ति — fol. 10 ("राजी दिया कल्लप्यम् etc.")
(20) देवरि: — fol. 10 ("राहुद्धुर्तिं सर्वानि etc.")
(21) दुर्विशिष्ट: — fol. 10 ("अहयोद्धरसंकांति etc.")
(22) संत्रि: — fol. 11 ("हुलामि बंदित्युष: etc.")
(23) वैद्य: — fol. 11 ("भ्रातराशीत्वजीवि: etc.")
(24) शासानप: — fol. 12 ("राजी धानादिति: सक्तुना etc.")

The only reference of chronological value in the above list of references is No. 19—Hemādri. The quotation is possibly taken from Hemādri's Caturvarṣa—Cintāmani. As Hemādri, who was the minister of the Yadava Kings of Devagiri, flourished between c. A. D. 1260 and 1275, we may fix the date of the Tambūla-Kalpa-Samgraha of Nṛśimhabhaṭṭa to a period later than c. A. D. 1350. The references to सम्भवितचरिक्रा (No. 18) and the सम्भवितमंजरि (No. 3) are difficult to be indentified as there are many works of these titles recorded by Dr. P. V. Kane in his list of works on Dharmaśāstra in Vol. I of his History of DharmaśāstraPoona, (1930). It
is also difficult to identify the references to "वैष्ठ" in the present work as the particular work on medicine, from which quotations are given under this reference, is not specified. The reference to विज्ञानेश्वरिन (No. 17) is evidently to a work of विज्ञानेश्वर, the author of the Mitaksara commentary on the Yajnavalkyasmi, who flourished between c. A. D. 1070 and 1100. This reference, however, does not enable us to push forward the earlier limit of c. A. D. 1350 fixed by me for the Tāmbūla-Kalpa-Saṃgraha. The references to the Smṛtis of बशिष्ठ, भरत्राज etc. are not also of any chronological value. As no quotations from very late works are given by Nṛśimhabhaṭṭa I am inclined to believe that the Tāmbūla-Kalpa-Saṃgraha is earlier than the Tāmbūlamāṇjari (later than A. D. 1819) edited by Shri J. S. Pade.
21. Indian Nut-Cracker
—A. D. 1300-1800

Some time ago I had occasion to see many old nut-crackers, presumably of the Peshwa period, displayed at an exhibition arranged by the Bharata Itihāsa Samshodhaka Mandala, Poona. These nut-crackers roused my curiosity as I have been collecting references from varied sources, bearing on the history of Tāmbāla, for the last few years. In India we use the term "nut-cracker" for the instrument used for breaking betel-nuts. Though we can establish the antiquity of the betel-nut for about 2000 years on the strength of Sanskrit sources we have no evidence to prove the antiquity of the nut-cracker for such a long period. In fact I have not come across any reference to nut-cracker in the Sanskrit references or even in non-Sanskrit references gathered by me. It is, therefore, necessary to collect and record references to the nut-cracker in literary sources with a view to establishing its history on the basis of datable evidence.

In the Shorter Oxford English Dictionary (p. 1346) we find the word "nut-crack" (A. D. 1570) and the word "nut-cracker" (A.D. 1548) explained as "An instrument for breaking the shells of nuts." The "nuts" referred to here do not mean the betel-nuts as the habit of chewing betel-nuts was current only in India and some adjacent countries at this time, but not in England.

At present the term for the "Nut Cracker" used for cutting betel nuts is "Adkita" (अदकिता). In the Marathi dictionary Sabdakosa (by Date and Karve) p. 34, the word अदकिता is recorded and explained as the instrument for cutting slices of betel-nuts but no usages of the word have been recorded. This dictionary derives the word from the Canarese word अदकेशु (अदकेशु = betel-nut and केशु = cutting or chopping off). It is, there-

*B. I. S. Mandal Quarterly, 1948, pp. 8-14

1. These Nut-Crackers belonged to Mr. Kelkar of Poona, who has made a nice collection of antiquarian objects. One type of these nut-crackers displayed at the exhibition was termed Mithuna as one arm of the nut-cracker had the shape of a man, while the other arm had the shape of a woman. When these two arms were brought together, they represented the pair embracing each other. [This romantic Nut-Cracker must have been once very common in the Deccan]. The Tāmbāla has been a gay associate of the Aryans in India for about 2000 years and this romantic nut-cracker, obviously a drawing-room companion, appears to me to be the crowning glory of this gay association.
fore, possible to get some references to गडकोट्य or nut-cracker in Canarese sources and I request Canarese scholars to record these references with their chronology. I shall here record some references which I recently came across:— Mention of गडकिता

c. A. D. 1676 

by Raghunātha Pandita in his Rajavevaharakaṣa composed by the order of Shivaji the great, in the following extract:—

भोम्यवर्ग ( p. 152 of शिवचरित्रप्रदीप, B. I. S. Mandala, Poona, 1925 ).

प्रत्येक स्थानतंत्रिकृत: सैव वर्ग इतिहास || ॥ वै ||

तन्नूलहर: परमेश: करण: परिकृतिः: ||

चुनाल: शाल्व्वाणिपारत पूर्णस्तयी तयावरङ्किता || ॥ ६६ ॥

चुरा¹ नाम भवेल्चूरन सूरत: शाल्व्वनिवेषनम् ||

In the पुष्पवर्ग (p. 174) we get a reference to the seller of betel-nuts as follows:—

“ताम्बुलिकाद्व तांबोडी”

It is clear from the above reference to गडकिता (explained by the newly coined Sanskrit word पूर्णस्तयी) that the term गडकिता for nut-cracker was current in the Marathi language in the 17th century.

Capt. Edward Moor in his Narrative (London, 1894) records an elaborate note (pp. 373-378) on the Indian habit of eating betel. In this note he twice refers to गडकिता (without mentioning this Canarese term as follows:—

1. Vide Hobson-Jobson by Yule and Burnell, London, 1903, p. 218—“CHUNAM. s. Prepared lime; also specially used for fine polished plaster. Forms of this word occur both in Dravidian languages and Hindi. In the latter Chuna is from Skt. Chirrpa powder; in the former it is some-what uncertain, whether the word is or is not, an old derivative from the Sanskrit. In the first of the following quotations the word seems taken from the Malayal ‘Chumpanba’; Tam. Simpanbu’.

Usages:—A.D. 1510 (Cionam) see Verteima, 144, 1565 (Chuna). c. 1610 (Chumam), 1614 (Chunak), 1673 (Chinam), 1687 (Chenam), 1689 (Chinam), 1750-1760 (Chunam), 1763 (Chinam), 1809 (Chunam).

2. Moor mentions following items in his note on betel:—

(1) Atr (ब्रह्म), (2) Areka tree (in Malabar tongue), (3) Burnt and pulverized betel-nuts, much esteemed as tooth-powder, (4) Pándán (भान्दन) made of gold, (5) Tavernier’s mention of a Pándán worth Rs. 40,000. (6) Vessel full of gul-ul, rosewater for sprinkling over guests (Atr of roses गुलाबी अत्र presented to guests), (7) Børeris, (बिण्डा), (8) Spoon for taking atr out of a pot, (9) Chinese custom of using opium and betel-nut, (10) a city in India with 30,000 shops of betel-sellers, (11) Account of Abbé Raynal about Betel (History of East and West Indies, Vol. I, p. 166).
Page 372 — "The beeree (बिडी or बिड़ा) is composed of the Soopaaree commonly called betel,⁴ cut by an instrument for the purpose into thin slices, two or three of which with a cardamom, and a every small quantity of chuna is enclosed in a paan or leaf, and fastened by a clove in a triangular form."

Page 375 — The utensil (पानदान) thus described is placed on a salver, which also contains the leaf, the nuts whole, and the instrument slicing them.

The Hobson-Jobson (pp. 913-914) contains the following short article on ताम्बूल:—

"TEMBOOL, Betel-leaf, skt. tāmbūla adopted in Pers. as tāmbūla and in Ar. al tāmbūl [It gives its name to the Tambolisi⁶ or Tamolis, sellers of betel in N. Indian bazars.]

1298 — "All the people of this city, as well as the rest of India have a custom of perpetually keeping in the mouth a certain leaf called Tembul."

Marco Polo. ii, 358.

1498 — And he held in his left hand a very great cup of gold as high as a half almude pot......into which he spat a certain herb which the men of this country chew for solace, and which herb they call atambhor."

—Roteiro de V. da Gama, 59

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4. Masudi the Arab geographer (c. A.D. 943) mentions betel-nuts in the following extract (Page 277 of Hobson-Jobson):—

"The territories of this Prince (The Maharaja of the Iles) produce all sorts of spices and aromatics......The exports are camphor, lign-aloes, clove, sandal-wood, Betel-nut, nutmeg, cardamom, cubeb,—Masudi, i 341 seq.

5. The Tambol or ताम्बूलिक is mentioned in the Kamasutra of Vatsyayana:—

"रक्क-मालिक, मालाकार-मालिक-मालिक, भूत-गोपालक-ताम्बूलिक-सौंदर्यिक-पीठम्बर-तिना-तिना कदाय: निर्माणार्ग?"

(See p. 72 of Kamasutra, ed. by Kedarnatha, N. S. Press, 1900, Adhikaranya 1, Chap. 5)

"Friendship may be formed with washermen, barbers, florists, perfumers, publicans, mendicants, cowherds, betel and chewing material sellers, gold-smiths, pitamardas, hitas and professional jesters or Vidushakas. (Vide p. 46 of Eng. trans. of the Kamasutra by Basu and Ghosh, Calcutta, 1945).

There are numerous references to ताम्बूल in the Kamasutra. They show that the habit of chewing ताम्बूल was an established feature of the culture of the period. The date of the Kamasutra is c. A.D. 700 (according to Bhandarkar) and c. A.D. 500 (according to Keith). The poet Bapa (A.D. 300) had a ताम्बूलदातक among his early companions.
"Only you should know that Avicenna calls the betre (betel) 
embul, which seems a word somewhat corrupted, since every 
body pronounces it as tambul, and not tembul." —Garcia. P 37h.

In the above quotations about tambula we do not find any reference 
to the adkitta or nut-cracker.

As regards the habit of chewing Tambula adopted by foreigners who 
settled in India I may quote here the following remarks of Dr. A. B. M. 
Habibullah in his Foundation of Muslim Rule in India (A. D. 1200-
1290), Lahore, 1945:—

Page 289 — "But to escape the environmental influence was equally 
difficult; the Indian Turk was not even circumstantially 
equipped to attempt it . . . . . . . . Chewing the betel leaf, a 
peculiarly Indian habit found its way early among the nobles 
and Barani notes the excessive addiction to it of Balban's ariz. 
Under the Tughluqs Ibn Battuta noticed another Indian 
Custom of offering the bira of pan to the bride as a part of 
the marriage ceremony."

Curiously enough the Europeans settling in India have not adopted 
the habit of eating Tambula owing to their insular attitude. On the 
contrary every European who travelled in India and has left a record of 
his travel, has wondered at this peculiar habit and has made a note of it 
with sometimes elaborate descriptions. I shall deal with all these 
descriptions in some subsequent paper.

In concluding this short paper on the Nut-Cracker I have to request 
brother-scholars to publish references to it in Indian or Foreign sources 
before or after A.D. 1600.

P.S.—Since the above paper was drafted I have received the 
following information about the Nut-Cracker from my scholar-friends. 
I have great pleasure in recording it below most gratefully:—

6 Habibullah notes further the following points with regard to the Indian influence on 
the Turks: (1) Adoption by even high-born Muslims of Turkish descent of Indian names 
such as Chajju, Kachchhan, Hamidrajja etc. (2) Use of Indian terms (in daily conversation) 
e.g. Barani uses the term barsh Kal (रविकला) the rainy season; (3) Dowries paid to Muslim 
girls by Firoz Tughluq: this was purely a Hindu inspired custom as "Muslim law knows of 
no money payable by the bride"; (4) Employment of professional courtisans for musical and 
dancing performances. This was inspired by the Indian practice; for in Central Asia and in 
Arabian countries, free-born professional musician of the female sex was a rare social 
phenomenon.
(1) Diwan Bahadur K. M. Jhaveri, M.A. LL.B., J. P., Bombay, writes on 5-12-1946:—

"Nut-Crackers (ordinary i.e. small ones) we call चूंकी in Gujarat. The big ones, which professional Panvalas use, we call चूंके."

(2) Principal K. K. Handiqui, M.A. of the Jorhat College, Jorhat (Assam) writes on 24-12-1946:—

"There is no Assamese word for nut-cracker." It is called in Bengali Yanti (যাতি). This is the information given by one of our Professors of Sanskrit, who is a Bengali. We call a mill stone যাত in Assamese, pronouncing it as jat. It is called গাতা in Bengal. All these words come from Sanskrit कन्न.

There is a word for "nut-cracker" prevalent in Assam. It is Carota but must be a corruption or variation of some non-Assamese word. The fact is that nut-crackers are not in use among the Assamese. We use the green and ripe varieties7 of betel, slicing them with knives. The nut-cracker is required only for dried betel ((Supāri), which is not in favour in Assamese homes."

(3) Mr. M.P. Wali, M.A. of Belgaum writes on 23-11-1946:—

"As regards the word अडकिळिा I may say that it is a pure Kannāḍa word and has crept in Marathi language in a corrupt form. The word is formed of two words Aḍaki (= areca nut) and Ottu (= lit. to press or crack). The correct pronunciation is Aḍakottu. I can very safely say that the Marathi language has no word for it. It is taken from Kannada and is being used in a corrupt form as अडकिळिा. Another synonym in Kannada for this word is Aḍake gatti which is also formed of two words, Aḍake8 (= areca nut) and Katti (a knife).

The earliest reference to the words अडकोकि and अडक्केकृत्ति occurs in the middle Halagannada work, Basavapuruṇa of Bhima-Kavi, composed in 1369 A.D."

7. In some parts of the Konkan, where betel-nut gardens are grown people use green and ripe betel, which is available easily. These nut-crackers are made of steel sometimes by local black-smiths. In the Poona market we find brass nut-crackers with steel-blades as also those of steel.

8. The word "aḍakeya" (of areca nuts) is found in old Kannada inscription of A.D. 750-70 (Epi. Ind. IX, 22) at Udiyavara in South Kanara Dist. Madras Province. (Vide p. 116 of Historical Grammar of Old Kannada by C. S. Gai, Poona, 1946 (Deccan College Series)
In view of the above evidence the history of the nut-cracker is definitely established for about 600 years (A.D. 1350-1947). I have, therefore, to thank Mr. Wali especially for the above reference, which takes back the history of the nut-cracker from the 17th century to the 14th century. I await still earlier references to the nut-cracker from any sources whatsoever, Sanskrit or non-Sanskrit.

(4) Prof. B. D. Verma of the Fergusson College, who hails from the U. P. informs me that the name for nut-cracker current there is "Sarauta" (सरोता). I wonder if "Sarauta" of U. P. has any connection with "Carota" of Assam mentioned by Prin. Handiqui.
22. Some Words for the Nut-Cracker*

I have been studying the history of the use of *tambūla* (betel-nut, betel-leaves, Catechu and Chunam etc.) in India and have published a few papers on this history. The references to *tambūla* in Sanskrit works are found in plenty but unfortunately there is no mention in these references of the instrument used for cutting or breaking the betel-nut before it was used for chewing purposes with or without the other ingredients. We, therefore, fail to understand the exact nature of the instrument used by our ancestors and the word or words for this instrument, Sanskrit or non-Sanskrit, current in India since the use of *tambūla* was introduced into India about 2000 years ago as proved by the literary sources studied by me.

In my paper on the Indian Nut-Cracker I have recorded the following words for the Nut-Cracker from datable and non-datable literary sources:

1. *adkittā*—This is a word for Nut-Cracker in Marathi at present. It is recorded accordingly in the *Śabdakoṣa* by Y. R. Date and C. G. Karve, who state that it is derived from the Canarese word "adkottu".

2. *adikita* or *adikitta* = *pūga-sphoṭi* or nut-breaker according to the *Rajavyavaharakoṣa* of Raghunātha Pāndita (c. A. D. 1676). Evidently this glossary or lexicon of Non-Marathi words current in the Marathi language in the 17th century treats the word *adikita* as a non-Marathi word and explains it by a happy coinage as "pūga-sphoṭi" (nut-breaker). I have not come across the word "pūga-sphoṭi" in any Sanskrit work, ancient or modern, in the sense of nut-cracker or otherwise.

3. *pophal-phodna* = nut-breaker. This purely Marathi word was current in the Marathi language in the 13th Century A. D. It is found in the *Lilācaritra* (c. A. D. 1250) *Uttarārdha*, a *Mahānubhāva* Marathi work, edited by Nene and Bhavalkar. My attention was drawn to it by Prof. Bhusari of the Osmania University, Hyderabad (Deccan). I wonder how

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1. These papers deal with the History of *tambūla* outside India (Jour. of Transascan University MSS Library, Jan.–April 1950, pp. 1-14). History of Lime and Catechu in *tambūla* (Sārthavatātabdi Volume, Asiatic Society, Bombay, 1958). Beliefs associated with the number of ingredients in *tambūla* (Journal of the Gauhati University). History of *tambūla* with thirteen qualities (Annals, B. O. R. Institute).

this purely Marathi word, which corresponds to "puga-sphoṭṭ" in meaning, disappeared from Marathi and its place was taken up by the Canarese word "ḍakitā" or "ḍakāttā", which has been current in Marathi for more than 350 years.

(4) The word ḍakāttā is a pure Kannada word, which has crept in the Marathi language in a corrupt form. The word is formed of two words (1) ḍakī (≡ areca nut) and (2) ᪚ttu (≡ to press or crack). The correct pronunciation of the word is ḍakottu. Another synonym in Kannada language for this word is ḍakake-gattī. This word also is formed of two words, (1) ḍakke (= areca-nut) and (2) Katti (= a knife). The earliest references to ḍakottu and ḍakakegattī occur in the middle Halagannada work, called the Basavapurāṇa of Bhima Kavi, composed in A. D. 1369.

(5) Small nut-crackers are called "Suḍī" in Gujarat. Big ones used by professional pānvalās (sellers of betel-nut and betel-leaf) are called "Suḍo."

(6) There is no Assamese word for nut-cracker. The Bengali word for nut-cracker is vanti (বাটী). A mill-stone is called vāt in Assamese. Vât is pronounced as jat. It is called vāta in Bengali. All these words are supposed to have been derived from Sanskrit "yantra." The word "Carota" for nut-cracker is prevalent in Assam. It may be a corruption or variation of some non-Assamese word. Nut-crackers are not in general use among the Assamese, who use green and ripe varieties of the betel-nut, slicing them with knives. The nut-cracker is required only for dried betel (Supārī) which is not in favour in Assamese homes.

(7) It may be worthwhile studying the words for the nut-cracker current in Indo-China where the habit of chewing betel is very ancient and current to-day. Miss S. Karpeles of Hanoi in her letter to me dated 16th March 1949 reported to me the following words for the nut-cracker:

(1) Laotian—"MIT SĀNAK"
(2) Vietnamese—"DAO ĐÀU"
(3) Cambodian—"PRĀNAK"

The antiquity of these words needs to be studied from the literary sources concerned.

(8) Apte in his English-Sanskrit Dictionary gives Saṃdaśaka as the equivalent of a nut-cracker but in his Sanskrit-English Dictionary he equates Saṃdaśa or Saṃdaśaka with a pair of tongs. I have found no usage of Saṃdaśaka or Saṃdaśa in the sense of nut-cracker. On the contrary the following reference to Saṃdaśa in the sense of a pair of tongs used for extracting foreign particles from a body is perfectly clear:
Some Words for the Nut-Cracker

179

\[ ॥ तत्तत्त्विन्यानः सदामादाय इदत्योदरः ॥
नानाधिरमार्गर्वशल्योदरः कृष्टो मथा ॥१॥ \]

(Vide p. 46 of Astavakraighita ed. by H. R. Bhagawat, Poona, 1913—
Chap. 19, verse 1).

(9) Bhatṭojī Dīksita (c. A. D. 1550-1620) in his comment on Pāṇini’s
Sūtra 692 (‘पृथिवी तत्त्वातिथिं गृहवर्णनेन ॥१॥१॥३’') mentions 3 “श्रेणुकलाॅकऽ” and
explains it as “श्रेणुकलास्वास्तः: श्रेणुकलाकऽः.” My friend Dr. V. S. Agrawala
informs me that the Sanskrit word for the nut-cracker seems to be श्रेणुकला and
the earliest reference to it is in Patañjali’s Mahabhaśya (Kielhorn’s
informs me that Oriental Pandits always tell their pupils to take
“श्रेणुकला” in the Mahabhaśya in the sense of “nut-cracker.”

The antiquity of betel-chewing in India is about 2000 years old but it
is doubtful if betel-chewing was current at the time of Patañjali (c. B. C.
150). We must, therefore, see if there is any evidence to support the
Oriental Pandits in their equation “श्रेणुकला=nut-cracker.” Recently I
have sent for publication a paper 4 on Vidyavilasa commentary by Śivarāma
Tripāthin on the Siddhanta-kaumudi. In the MS of this Commentary
available in the Sanskrit Pathashala, Rajapur (Shevade Collection) folio
16a, Śivarāma (c. A. D. 1700-1750) explains “श्रेणुकला” as follows:—

“श्रेणुकला किमुकादिभेदनसाधनं” (Śankula is an instrument for breaking
betel-nut etc.) This statement definitely proves that at least 250 years ago
the word “श्रेणुकला” was understood by Pandits in the sense of betel-nut
cracker. The present Pandits are evidently following this tradition in
equating “श्रेणुकला” with “nut-cracker” as reported by Dr. Agrawala.

(10) In the absence of any pictorial representations of “Śankula” we
are unable to determine the exact form of this instrument for cutting or
breaking used in the time of Patañjali (c. B. C. 150). As a result of my
discussion in this matter with my friends at Nagpur I have received the
following reply from my linguist friend Dr. Siddheshwar Varma dated
30th November 1950:—

“Reference—Patañjali on Śankula. We have compared both the
passages concerned. The internal evidence from both these passages does

comment on “श्रेणुकला” is taken from the Mahabhaśya of Patañjali (c. B. C. 150). The Index to
Mahabhaśya (B. O. R. Institute edition) p. 1012, records the words “श्रेणुकला” and “श्रेणुकला लकः”.
4. This paper will appear in the Adyar Library Bulletin.
make it clear that Sāṅkula is definitely a cutting instrument, but not an all-purpose one, for its inferiority to Musala in certain cases is pointed out. So, being sure that Sāṅkula, as a cutting instrument, is not Musala, the question may arise whether it could be rendered as "Scissors." But as "Kartari" is a specific term for "Scissorses" widely used by authorities like Caraka, Sūrūta, etc., scissors could not be denoted by "Sāṅkula," and being thus definitely a separate tool, Sāṅkula seems to mean a nut-cracker here. The above conclusion, as kindly communicated to me by Shri K. N. Daveji is further corroborated by his reference to Sabda Kalpadruma, which renders Sāṅkula as utpala-patrika, while Monier Williams also renders both these words as "a broad-bladed knife or lancet." Now a nut-cracker has a broad blade, jointed with a bent bar, with a pin (Sāṅku) at one end. This cutting blade can well be described as a Sāṅkula, and in this sense a nut-cracker can certainly be called a Sāṅkula—a pair of nippers. In this connection Hindi Sarautā (nut-cracker), which may be derived from Sārapatraka, may be noted. The Sanskrit etymology of the latter has been correctly given by Ganaratnamahodadhi sub voce (p. 228). Monier Williams has rendered it erroneously as an adjective only.

There are several other interesting items in connection with this item, but I hope the above lines have made it sufficiently clear that the passages do imply nut-cracker as the sense of Sāṅkula. Dr. Raghu Vir says that Sāṅkula should not be called nut-cracker but nut-cutter for "nut-cracker nowhere exists in India."

While thanking Dr. Varma and other friends who have helped me in this inquiry I have to request them as also those who are interested in this problem to record the usages of the word "Sāṅkula" with a view to clarifying its meaning more decisively than what has been done in this paper.
23. **History of the Spittoon in India**

While studying the history of Tambula in India, I thought it necessary to trace the history of the different accessories generally used at present by habitual chewers of betel in India. Accordingly I published a paper on the Indian Nut-cracker¹, the history of which was traced by me up to about A.D. 1300. Another accessory of Tambula is the Spittoon or Pidani which is used by habitual chewers of Tambula owing to the necessity of maintaining cleanliness in the home, which in the absence of a spittoon would be converted into a veritable spittoon owing to the excessive salivation in the mouth caused by the ingredients of Tambula such as the betel-leaf, cloves, nutmeg, chunam, catechu etc. The advocates of social hygiene in India have always deplored the pernicious habit of spitting on the street-pavements resorted to by the chewers of Tambula. A glance at the grounds in front of the shops of Tambula sellers will bear out the truth of this criticism as there is no shop of this kind in front of which you will not find the grounds disfigured by the red spittings of the chewers of Tambula. It was perhaps on this account that the chewing of Tambula in a public street was considered as a duracara (bad habit) in all provinces of India² as recorded by a writer of the seventeenth century. The use of the spittoon in domestic life certainly shows a high sense of hygiene and the history of this use has a distinct place in the history of sanitation in India. We must, therefore, investigate and find out whether the use of the spittoon was introduced into Indian life and culture simultaneously with the introduction of Tambula³ or somewhat earlier than such introduction.

² Vide pp. 8-14 of *Bharata Itihasa Samshodhan Mandal Quarterly*, 1943.
³ Vide p. 25 of Vol. VI, No. 2 (Feb. 1945) *Bharatiya Vidya*.

3. In connection with my study of the history of Tambula I made inquiries with several friends about exhaustive and critical literature on the custom of betel-chewing. Among these friends Dr. A. N. Upadhye of Rajaram College, Kolhapur, was the only friend who drew my attention to the very important article on "Romance of Betel-chewing" (Appendix II to C. H. Tawney’s translation of *Kathasaritsagar*., Vol. VIII, pages 237—319) by N. M. Penzer. I am thankful to Dr. Upadhye for drawing my attention to this elaborate article of 82 pages in which Penzer has collected useful data about the extent of the custom of betel-chewing, its exact nature, the numerous ceremonies in which betel plays a part and the significance of the custom from a linguistic and anthropological point of view.
In studying the history of the appliances of Betel-chewing we must
take note of such appliances as are now deposited in our museums.
Penzer in his article on the "Romance of Betel-chewing" devotes some
pages to the description of such appliances (pp. 249-254 of Vol. VIII of
Tawney's Trans. of Kāthasarītṛāgāra). I note some items from this
description:—

Victoria and Albert Museum (London)—Room 8 (metal work)—
Case 5 —Brass "sireh"—boxes from Sumatra. Some with svastika
designs carved on their sides.
Case 13 —Brass comb and areca-nut cutter combined (from Tanjore).
The portion forming the cutter represents a map and a
diminutive woman.
—Pestle and mortar of brass.
Cases 14 and 17 —Singhalese cutters and lime-boxes.
Cutters of steel (4½ to 11½ inches), inlaid with silver and
encrusted with brass.—One cutter of the shape of a dragon
with the head of a bird.
—Chunam cases of the size of old English watch-cases with
chains.
—Spatula with a flat head ½ inch in breadth.
Wall cases 25 and 27 —Nut cutters inlaid with coloured glass, with
handles of ivory, bone or pearl. Some with the shape of
animals like horse, peacock etc.

Descriptions of appliances for betel-chewing in modern books:—
(1) Mediaeval Sinhalese Art by A. K. Coomaraswamy.
—Plate XLVI (illustrations of smaller specimens with
descriptions on pp. 336-337).
—Pages 238-239—excellent description of a Betel-bag
—Plates XXX-XXXIII—illustrations of betel-bags, large and
small, with hidden pockets, and embroidered in silk, having
oval and square sizes.
—Betel-boxes of solid gold mentioned in Malayan fairy stories.

According to Przyluski the word Tambūla consists of the root-word bula and tam, which
is a prefix. Bula corresponds to Austro-Asiatic (i.e. non-Indo-Aryan) bala and means
"something that is rolled"; see for further details Przyluski’s paper "Emprunts Anaryens en
Indo-Aryan" in Bulletin de la Soc. de Linguistique de Paris, Vol. XXIV. 3rd Fasc. (No. 75),
1924, pages 255-58.
—Every Malay house has a betel box or betel tray fitted with requisites for chewing viz. cardamoms, cloves, catechu, lime and tobacco — a small case to hold betel-leaves, a metal spatula for spreading lime on these leaves and curiously shaped scissors for cutting areca-nuts.

—Many illustrations of bowls to hold areca-nuts, lime-boxes (Bekas Kapor) areca-nut boxes (chimbul) and betel-leaf holders (Bekas sirih).


—Several illustrations of betel-chewing accessories like spatulæ from the Anchorite Islands, off the North Coast of New Guinea, some shaped like the tale of a lizard — examples from (south east) New Guinea Archipelago (p. 121) with designs of human figures and crocodiles.

—Illustrations of betel-chewing apparatus from Ceylon.

In the above account of the appliances for betel-chewing I don’t find any references to the spattoons with the history of which I am concerned in the present paper.


1. While discussing the history of the spittoon in India with my friend Prof. D. D. Kosambi I came to know from him that the ancient Romans used some bowls in which they used to vomit after heavy banquets. In this connection I read Daily Life in Ancient Rome by Jérôme Carcopino (Trans. E. O. Lorimer, London, 1916) Chapter IX—“Afternoon and evening.” While describing the gluttony of the Romans the author observes:

Pages 271-272—“Martial tells of more than one who simply clicked his fingers for a slave to bring him “a necessary vessel” into which he “remesured with accuracy the wine he had drunk from it”, while the slave “guides his rusty master’s drunken person.” Finally it was not infrequent during the cena to see priceless marble mosaics of the floor defiled with spitting”. As compared with this disgusting gluttony of the wealthy Rome which drained the resources of the Roman Empire and defiled the marble mosaics of the floor the Indian habit of spitting in the streets after chewing betel dwindles into insignificance.
The usages of some of these words recorded in this Dictionary are as follows:

(1) पिकदान — Spittoon
   "पिकदानो ऊँचामुळे \\
   तांबूलप्रेते भ्रातिमुळे ॥ ॥"
   —Harivijaya 34.158

(2) पिकधर्षी — Spittoon (A.D. 1608-1649)
   "तांबूलाची पिकधर्षी!
   ते मी ग्रासे मुख पकडली ॥ ॥"
   —Tukārāma's Gatha, 1746

(3) पिकप्रत्र — Spittoon (A.D. 1599 — c. 1649)
   "मूटकवाय चोटिगोळे
   पिकप्रत्र भलकली ॥ ॥"
   —Mukteśvara, Āadīparva, 48.17

In the first two usages recorded above the spittoon is associated with Tāmbula. Saint Tukārāma and the poet Mukteśvara of Mahāraṣṭra lived in the first half of the 17th century.

(2) In the lexicon of non-Sanskrit terms called the Rajavyavaharakoṣa (Poona, 1880) composed by Raghunatha Pandita by the order of Shivaji the Great about A.D. 1676 we find the words “pikadāṇ” (पिकदाणी) and “tasta” (तस्ता) mentioned in the following extract:

Page 3 (Rajavarga) verses 26-27:
"... ... तस्ता गान्धुशपात्रकम् ॥ २६ ॥ गान्धुशापात्रकम् भैरवस्थ ग्लासाचे ॥"

Here pikadāṇ is explained by the Sanskrit word patadgraha (spittoon) and tasta is explained as gandaṇuṣapatraka (a tray for washing the mouth in).

(3) In the lexicon of Persian terms called the Parasibhaṣānusāsana (edited by Dr. Banarsidas Jain, Lahore, 1945) composed before Samvat 1600 (A.D. 1544) we find the word “तस्तरी” (tastari) in the sense of “hasta-prakṣalaka” i.e. wash-hand-basin in the following extract:

Page 9—Chap. I, verse 79—
"... ... तस्तरी शोका इस्तप्रक्षालकस्था ॥ ७९ ॥"

It is clear from the foregoing references that the non-Sanskrit terms, pikdāṇi, tasta (or tastari) were current in India in the 17th century or even earlier in the sense of spittoon and wash-hand-basin respectively.
(4) The *Hobson-Jobson* by Yule and Burnell (London, 1903) contains the following article on *pigdaun* (spittoon):

> Page 709 — "PIGDAUN, S. a Spittoon. Hind-vida. Pik is properly the expectorated juice of chewed betel.

> c. A. D. 1665 — "Servants" to carry the *Picquedant* or Spittoon—Bernier, ed. Constable, 214. In 213 *Piquedans*.

> A. D. 1673 — "The Rooms are spread with carpets as in India, and they have *Pigdans* or spitting pots of the Earth of this place, which is valued next to that of China, to void their spittle in"—Fryer 223.

> A.D. 1684 —Hedges speaks of purchasing "Spitting cup"

> —*Diary*, Hak. Soc. i, 149.

(5) The lexicon *Amarakośa* (ed. N. S. Press, Bombay, 1905) by *Amarasimha* (between A. D. 500 and 800) contains two words for the spittoon in the following extracts:

> Page 286 —Kanda II (*Brahmavarga* 7) verse 139:

> "******�ः िः पतुःः"

> Bhānuji Dīksita (c. A. D. 1630) comments:

> "पत्तोः सः || बैं पीकडानी इति स्वाभावः ||"

> Page 526 —Kanda III (*Lingadisaṃgrahavarga* 5, verse 21),

> "स्वातः िः पतुःः || २१||"

> Bhānuji comments:

> "पत्तः तामूलादे: सः || पीकडान इति स्वाभावः"

It is clear from Bhānuji’s comments that the terms पीकडानी and पीकडान were current at Benares where he lived in the first half of the 17th century and that they meant *spittoon* used by the chewers of *tambala* like the Rajas described by Bernier as conveyed in palanquins and spitting chewed betel into *spittoons* held by servants on one side of these palanquins.

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1. The use of *spittoons* mentioned by Bernier was confined to the *Omrahs* and *Rajas* especially at Delhi and Agra. Many of them were "conveyed on the shoulders of six men, in rich *Palakys*, leaning against a thick cushion of brocade and chewing their *bet-là* for the double purpose of sweetening their breath and reddening their lips. On one side of every *palak* is seen a servant bearing the *piquedans* or *spittoon of porcelain or Silver etc.* (Bernier, p. 283).

Where were the *porcelain Spittoons* manufactured? *Ain-i-Akbari* (A. D. 1590) mentions "dishes of ... *China*" used at Akbar’s table / pp. 50-51 of Vol. I of *Ain-i-Akbari*, Trans. by F. Gladwin, Calcutta, 1897).
Studies in Indian Cultural History

(6) Sarvānanda (A. D. 1159) in commenting upon the words प्रतिग्रह and पतदग्रह mentioned by the Amarakośa for spitoon also connects the use of the spitoon with tāmbūla as will be seen from the following extract: — Page 390 of Nāmaśeśuṣasana of Amara ed. by T. Ganapati Śastri, Trivandrum, 1914.

—“प्रतिग्रहांहर्ष्यं प्रतिग्रह प्रति स्थापो यथा। विभाषांम् हर्षं। (३. १. १४३) इति कर्तरी शः। प्रतिग्रह। इति पद्माकर्ष्यं पतदग्रह पूर्वकां प्रति इति पददग्रह। पतदग्रह।”

It would be worthwhile finding out whether any other commentators of the Amarakośa associate the words1 pratigraha and padadgraha for spitoon with tāmbūla.

(7) Some friends tell me that the custom of presenting a spitoon (pikāmā) as a marriage present along with other useful articles from the father-in-law to the son-in-law is now current in the Deccan and perhaps elsewhere in India. This custom appears to be old as the poet Śrīharṣa (c. A. D. 1175) refers to it in his Naiṣadhiyacarita (canto XVI, verses 27-28—p. 228 of Eng. Translation by K. K. Handiqui, Lahore, 1934). On the occasion of Damayanti’s marriage with king Nala, her father king Bhima gave some marriage gifts to his son-in-law. Among these gifts we find a Spitoon पतदग्रह described by the poet in the following verses 27, 28 of canto XVI of the poem:—

""दिवस्यनिवृत्तदेहजनीदरार्द्धै। यस्ता प्रति स्थापिताभिमंगुष्य। |
तेमेकमाणिक्यम् महोदयस्य पतददग्रहाप्राणितावरज्जलसः। ||२७||
नलेन ताम्बूलविलासिनविभक्तेतिशुक्लस्य येऽपुरुषोश्चतो न वा। |
इति संयोजित स्वमुगुमाग्रदिक्षाणुकिण्याप्राणिताभिमंगुष्य। ||२८||"

Translation:—

"27. King Bhima gave to Nala a spitoon which was very high and entirely made of rubies. Viśvakarman had cordially presented it to king Bhima, perceiving Indra’s esteem for him.

1. My friend Dr. M. M. Patkar of the Sanskrit Dictionary, Department of the Deccan College Research Institute, Poona, informs me in his letter of 5th May 1950 that the word पतदग्रह is recorded in Naiṣadhiyacarita (XVI. 27), Harsacarita (p. 237, line 2) and Eng. Trans. by Cowell & Thomas, 1897, p. 208) and Vaijayantil Kosa, (p. 171 line 319), Śabdaratna Sāmanvaya (p. 344) Medini Kosa (p. 193), Nanarthaśaṅgraha of Ajaya p. 57) Anekaratnd saṅgraha (p. 123) of Hemacandra Parisīkṣoparvaon of Hemacandra (p. 581 of Monier Williams’ Dictionary). Among these references, the reference to padadgraha in the Harsacarita was unknown to me, though Prof. Jagan Nath of Jullundar had a vague memory of it as he wrote to me. I am thankful to Dr. Patkar and Prof. Jagan Nath for the troubles taken by them in this matter.
28. On account of its halo of rays, beautiful as the rising high ascending sun, the people long thought: "It is full of the remains of chewed betel, thrown out by Nala, who is fond of betel."

The bright red ruby spittoon, though empty, seemed to be full of the scarlet remains of betel.\(^1\)

Analogous to the custom of presenting a spittoon as a marriage gift we find its use as a general presentation article in the 17th century. In a list of things to be presented to the Faujdar of Hugli, dated 3rd April 1682 we find "one Hoocka, one vigdan (spittoon)"—(Factory Records, Hugli, No. 3 quoted in foot-note 2 on page 96 of Thomas Bowrey's account of countries round the Bay of Bengal (1666-1679) Hak. Soc., Cambridge, 1905).

(8) At the present stage of my inquiry I may raise the question: What nations of antiquity used the spittoon? Though I cannot answer this question owing to my limited knowledge of the history of non-Indian cultures I may here record the use of the spittoon current among the Tartars in the 13th century as vouched by Marco Polo (A. D. 1298):—

Page 236 (Travels, ed. by W. Wright, London, 1901)—chapter XXVI dealing with Religion of Tartars etc.

"Every man of rank carries with him a small vessel, into which he spits, so long as he continues in the hall of audience, no one daring to spit on the floor, and this being done he replaces the cover, and makes a salutation."

The Editor (Wright) observes on the above custom:—

(foot note 3)—"This kind of utensil (spittoon) is common in many parts of the East Indies where it is commonly termed, from the Portuguese, a cuspidor. It might be inferred from hence that the practice then prevailed of masticating something of the nature of betel."

(9) The Chinese traveller Fa hsien in his Travels in India (399-414 A. D.) describes the country of Kashgar (pp. 7-8 of Travels, trans. by H. A. Giles, Cambridge, 1923). In this description we find a reference to a stone spittoon used by Buddha as follows:—

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\(^1\) The use of spicy ingredients in the betel is nicely mentioned in the following verse 110 of Canto XVI:—

"The followers of Nala, after putting the betel in their mouth, throw away the betel-leaf when they saw a scorpion made of spices, put inside the betel-roll by Dama. Struck with terror, they made every one laugh at their mistake."
Page 8—"This country (Kashgar) has a spitoon which belonged to
Buddha; it is made of stone and of the same colour as his alms-
bowl."

Evidently this stone spitoon was shown to this Chinese traveller as a
relic of Buddha’s belongings. It is mentioned along with "one of Buddha’s
teeth, for which the people have raised a pagoda."

This reference to Buddha’s spitoon is in harmony with the reference
to a spitoon (patiggaha) found in the Mahāvagga of the Vinayapitaka
noted below.

(10) In the Mahāvagga of the Vinayapitakam (ed. by H. Oldenberg,
London, 1879, Vol. I—Mahāvagga, p. 271) we get the word "patiggaha"
for the spitoon. In Khandhaka VIII, 1, 11 of this canonical text we get
an account of the cure effected by the celebrated physician Jivaka
Komārabhacca. He treated a Sethti’s wife at Sāketa, who was suffering
from a disease in the head for seven years. He put some medicated ghee
in her nose and it came out through the mouth. "And the Sethti’s wife
spat it out in the spitoon (patiggaha) and told the maid servant—"come my
girl, take this up with a piece of cotton". Jivaka got perplexed at this
niggardly conduct of the house-wive, who, however, assured the great
physician that his fee for the treatment will be duly paid. The Sethti’s
wife in giving this assurance observed:—

"House-holders like us, doctor, know why to economise thus; this
ghee will do for the servants or workmen to anoint their feet with or it
can be poured into the lamp. Be not perplexed, doctor, you will not lose
your fee." (Page 178 of the English Trans. of Mahāvagga—S. B. E.

The above reference to spitoon as a domestic sanitary appliance is
the earliest so far discovered by me and it is more than two thousand years
old.

(11) The Carakasamhita, one of the earliest medical texts, contains
the following reference to the spitoon (pratigraha):—

Page 93 (N. S. Press, Bombay, 1941)—Sūstrāsthāna (chap. 15, para 7)
mentions the accessories of the sickroom, among which we find the spitoon
(pratigraha):—

"उपवयत्समीपप्रतितिमहाशिष्य...उपालयेत्।"

Page 94 (chap. 15, para 11)—"प्रतिमहाशिष्य उपवय रेतेः।" The commentator
Cakrapāṇidatta (c. A. D. 1040) explains pratigraha to mean
patadgraha ("प्रतिमहाशिष्य: पतद्ग्रहः: "). Caraka also mentions
"बालाटपतिमहः" in the same context and describes it as "आनपतिमहः"
which is explained by Cakrapāṇidatta as "शलाघिनिः", लालाटपुःgdh mentioned by Caraka was perhaps a special tray in which the forehead (लालाट) or face was washed and consequently it was considered decent (शलाघिनि) as compared with the spittoon proper. If this explanation is accepted we can easily infer that in Caraka's time different types of trays were in use for cleaning different parts of the body somewhat like the sanitary ware in our modern hospitals.

(12) The earliest reference to the association of the spittoon (patadgraha) with betel-chewing is that found in the Kamasūtra of Vātsyāyana (page 55 of N. S. Press Edition, Bombay, 1891) — Sadhārana Adhikarana I, chapter 4. Describing the life of a citizen Vātsyāyana mentions his bed-room and its accessories as follows:—

"बध्रेण च वाससहेष्ठिते ... ..., राज्येश् मनुशेष्ठिते मार्गी विक्ष्रेष्ठानस्तिकं सौगतिकं पुरुषग मातृकहस्त्वचः: ताम्बूलिनि न्यु: मृतमयः॥"  

Translation (p. 36 of Eng. Trans. by Dr. B. N. Basu, Calcutta, 1945):—

"This outer room should contain a bed ... ... On this table the following articles required for the night's enjoyment should be arranged: balms and perfumed unguents, garlands, coloured waxen vessels, pots for holding perfumes, pomegranate rinds and prepared betels. There should be a spittoon on the floor near the bed ..."

The commentator Yaśodhara definitely connects the use of the spittoon (patadgraha) mentioned in the Kamasūtra with the chewing of tāmbūla by the citizen (nāgaraka) as will be seen from the following extract:—

"ताम्बूलानि च मनुष्यानि राज्यिविभेदाय न्यु: मृतमयः। न च वदिकायाम्। प्रवेशादिव व्यवहारे। चतुर्वेद च नायकेन उपयुक्तान्वितादि निश्चिते पतदूरुप्पासः  

It is clear from these remarks that the spittoon was kept in the bed-room on the ground near the bed at a convenient place where it could catch the spittle thrown out at night by the citizen after using the tāmbūla at intervals.

(13) The poet Bāṇa (c. A. D. 630) in his Harṣacarita refers to royal spittoons carried by hired porters along with other articles for royal use during king Harṣa's expedition described in picturesque detail by the poet. The pertinent extract reads as follows:—

Harṣacarita (B. S. series, Bombay, 1909, Page 285).

Ucchvāsa VII — "हस्यकास्तिनिकर्कगुलिस्युः: याहैतिविद्वानपाभिपिण्डकमस्करमूलानवनः 

pratikāsaḥ: etc."
Translation by Cowell and Thomas (London, 1909, Page 208):

"Here swiftly running in a line........were the king’s hired porters, carrying black hard clubs as heavy as trunks of trees, bearing golden foot-stools, water-pots, cups, spittoons and baths etc."

(The commentator Śaṅkara explains the word "patadgṛha" as "niṣṭhiva-pātra" (spittoon) and the word "Karāṅka" in the extract as "tāmbūla-ādhāra" (betel-box). Evidently in this context also the spitoon follows the betel-box. There are numerous references to betel-chewing in Bāṇa’s Kādambari and Harṣavardana but the references to the spitoon are rare).

(14) There may be references to the spitoon in Sanskrit or Prakrit poetic imagery but I have not come across these references except the following reference from Bhartṛhari’s Śyāvāraśataka which I owe to my obliging friend Prof. D. D. Kosambi:

"कशुर्वति कुलपुर्वी वेशाशरपल्लव समोक्षमयि।
चारमभोगर्वेदकानिन्दीवनश्राब्धम्।"

Here spitoon is called "निष्ठिवन-राशा" and the mouth of a prostitute is compared to a spitoon which is indiscriminately used by all classes of degraded human beings.

From the evidence recorded so far I may tentatively draw the following conclusions:

(1) The spitoon was in existence in India at the time when the Buddhist canonical text Mahavagga was composed about 300-250 B.C. It may have been in use in the time of Gautama Buddha (c. B.C. 563-490) and even earlier.

(2) The use of the spitoon in India was first confined to domestic life especially for sick persons but with the introduction of tāmbūla into India in the early centuries of the Christian era it came to be used by the well-to-do class of people addicted to tāmbūla, which caused excessive salivation in the mouth with the consequent need of frequent spitting.

(3) The use of the spitoon in the sick-room as prescribed by Caraka clearly shows that Indian doctors recognised the need of sanitary appliances like the spitoon more than 2000 years ago. A detailed study of such appliances on the strength of medical and non-medical literary sources should be undertaken by scholars interested in the history of Indian sanitation. Some of the texts on Hindu Dharmasāstra contain ample material for a systematic study of the development of sanitation in India.
STUDIES IN THE
HISTORY OF INDIAN PLANTS
Stories in the History of Indian Plants
24. Studies in the History of Indian Plants —
Some Notes on the History of Canaka
(Cicer Arietinum) — Between
500 B.C and A.D. 1820*

In my paper¹ on the “History of Canaka (gram) as food for Horses” I suggested that the practice of feeding the horses with Canaka (= C) is later than its use for human consumption at least in India. Though C as horse-gram² for Indian horses has a history of about 1000 years as proved by me it appears to have been used in India first by men and not by horses. From Vedic times onwards the Yava (= Y) was prominent in the regimen of men first and later of horses. In fact Kautilya in his Arathaśatra has included Y in the regimen of horses but there is no reference to C in this work either for human or animal consumption, so far as my study goes. Accordingly Hemacandra in his Abhidhanacintamani (c. A.D. 1140) calls Y as Haya-priya or the favourite of horses. He also mentions C but does not call it haya-priya or by any such adjective. In the two treatises on horses by Jayadatta and Nakula viz. (1) Aśvavaidyaka and Aśvacikitṣita respectively, which are not much removed from Hemacandra in their chronology, we are told that Y is the best food for horses but in case Y is not available C is the second best food for them. This statement clearly shows the transitional stage of Indian horse-regimen in which we note the regard for Y as the great horse-food of antiquity. Though much revered by Jayadatta and Nakula it was falling into background and C had come to the fore and was probably produced in plenty to take its honoured place in the regimen of Indian horses, perhaps after the Muslim advent in India say about A.D. 700.

I propose in this paper to put on record some references to C as food for men. These references will also show the antiquity of C on

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2. Edward Moor in his Narrative etc. London, 1794, makes some interesting remarks on the Mahrattas as horsemen and farriers — (pp. 89-95). He says that the Mahrattas breed a great many horses and procure others from Arabia, Persia, Candahār and the northern parts of Hindustan. Speaking of horse-food he states: —

“Gram and Coolty are the grain on which horses are fed throughout the Maratha Country” (p. 96).
Indian soil for about 2000 years as vouched by the evidence of Sanskrit and non-Sanskrit sources.

(1) The lexicon *Amarakośa* refers to *C* as follows:

"चरणको हरिमन्नकः || २६ ||" (Kanda II - वैश्वनाग, see p. 354 of N.S. Press Edition, Bombay, 1905).

Bhanaúji Dikṣita comments¹ on the above reference as follows:

"चरणक " i.e., चरणक and हरिमन्नक are synonyms. The date of the Amarakośa lies between say A.D. 500 and 800.

(2) In the Carakasaṃhitā, one of the earliest medical texts, we get some references² to *C*. In the शामीचार्य वर्ग Caraka gives the properties of *C* as follows:

"चरणकाः मसुराः कालिकः: सहरस्कः || लकः: शौचमुत्रः: सक्षाया विरूद्धयाः: || २६ ||" (Sūtrasthāna, ch. 27, p. 155 of N.S. Press, Edition of Carakasaṃhitā, Bombay, 1941).

Cakrapāṇidatta (c. A.D. 1060) commenting on the above verse does not explain the word चरणक. He merely states that *C* is well-known ("चरणकः प्रसिदः").

(3) The Suṣrutasaṃhitā, another earliest medical text, refers to both the synonyms of *C* given in the Amarakośa viz. चरणक and हरिमन्नक in the following extracts:

(i) In the कुष्ठायनवर्ग we get *C* mentioned in the following extract:

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¹ Bhanaúji Dikṣita (c. A.D. 1630) quotes the derivation of हरिमन्नक given by Rāyamukuta (A.D. 1431) viz. "हरीमन्नकः मसुर जनतायिः" but does not accept it. He observes "इति श्रुये इति हरिमन्नकः हर भगवान् मथोः" He gives his own derivation: "हरिमन्नकः मसुर जनतायिः (भाषा, प. ले.) etc." These derivations remain to be verified historically as both Rāyamukuta and Bhanaúji lived in the 15th and 17th centuries respectively when हरिमन्नक was a recognised food for horses. Did Amara know *C* as food for horses?

² In the Carakasaṃhitā Cikitsasthāna, chapter 29, verse 51 contains a reference to चरणक as follows:

P. 630 "श्रावकां चरणकां सूद्धा मसुरः समकुस्कः || यूपायेः बहुवर्णिकः प्रशस्तः वातशोषितः || ४. १ ||" Cakrapāṇidatta does not comment on the word चरणक in this verse.
Some Notes on the History of Canaka

“मुद्रा—चन्द्रमुद्रा—कलाय—मुक्त—सूर—मक्खल्य—चच्चक—सती—चिपुषक—हरेशु—श्राद्धकी—मन्त्रतः: वैदला: || २० ||”

(Vide Sūtrasthāna, Ch. 46 of Suṣrutasamhitā, N. S. P. 1938, p. 216).

Dallana (c. A. D. 1100) commenting on the word चच्चक in the above extract says 'चच्चक: प्रसिद्ध:' just like Cakrapanidatta of c. 1060 A. D. It is, however, clear that C was a grain of established reputation in the 11th century as also in the 12th century.

(ii) In the शाकवर्ण the Suṣrutasamhitā refers to चच्चक as a शाक or vegetable and records its properties as follows:

“स्वाकुपाकसं शाकं दुषरं ह्रिस्म्रगम्यं”

(Sūtrasthāna, Ch. 46, verse 277, p. 234).

Dallana explains:—“ह्रिस्म्र: चच्चक:” (compare Amarakośa’s statement—“चच्चको ह्रिस्म्रयः”).

It is clear from the above references that both the words for C given by Amarakośa viz. चच्चक and ह्रिस्म्र or ह्रिस्म्रय were known as early as the time of the Suṣrutasamhitā as we have them today. Whether the word ह्रिस्म्र has any allusion to horses (ह्रिस्म्र: स्त्रोते) as observed by Bhānuji c. A. D. 1630 will have to be investigated.

(4) In the Mānasollāsa of the Calukya king Someśvara (c. A. D 1130) there are various references to C such as (1) the use of C flour—balls as a bait to fish in angling, (2) the use of C as food for buffaloes used for buffalo-fights, (3) use of C grains for tempting the boars before hunting them in forest-ground and (4) the use of C in cooking. I have already recorded the first three uses in my paper on "Canaka as food for horses etc." already referred to in this paper.

1. On p. 217 of the सुगुत्तसंहिता (1938) the properties of चच्चक are given in the following lines:

“वालला: मतिमुद्रा: सकपाया विशृ दिया: ||
कुष्टशिमितपितवभास्माकी: पुस्तकायामानानां: ||
त एव घृतस्तु काव्याकिरियाकिनां: परं: ”

See also p. 683—“मुद्रां महाराज चच्चकां कलायां समकुष्टकां: राजाकां तृप्तितं धरितां प्रदापयेत्: ”

The uses of C in cookery as mentioned in the Manasollasa are as follows:

In the chapter on अर्थमोहः the author describes several dishes, both vegetable and non-vegetable (pp. 115-136).

(i) Canaka (gram) is to be ground in a वर्त (grinding-stone) and then its pulse is to be cooked with spices. This is called विकल्पक (pp. 116-117).

(ii) पूरिकाः prepared from चाणकविड़ (or gram-flour) and boiled in oil are mentioned by our author (p. 119).

(iii) The preparation of शिक्षिता and धोसकक्र is described in the following verses (p. 119):

"हरिस्मृत्य विदलं हिंदुस्त पीड़कमिश्रितम्।
लिङ्गेन च श्रंतकमाणि कान्ति सम्बन्धितम्॥६ ४॥
ब्रह्मधिता गोलकेन ब्रह्म कर्ये पन्ने।
विदलं चाणकस्यायं पूर्वसंभासंक्षिप्तम्॥६ ५॥
ताप्यां तैले(ल)विलितायं धोसकार्यिन्यप्रेषितुः।
मागस्य राजमाधवस्य द्वारा गाण्यं च धोसकान्॥६ ६॥
अर्थनेत्र प्रकारेण तिपन्नलक्षत्वचिदः।"

It would appear from the verses that the author asks us to use the pulse of हरिस्मृत्य in the preparation of शिक्षिता, while in the preparation धोसकक्र he prescribes the use of the चाणक pulse (along with the pulse of साध, राजमाधव and द्वारा). We shall have to see if he drew any distinction between हरिस्मृत्य and चाणक, which are given as synonyms of gram by the Amarakośa.

(iv) The use of चाणक and हरित चाणक in non-vegetarian dishes is prescribed by Somaśvara (p. 124).

(v) In the chapter on वास्तुस्मासन, चाणकोदन is mentioned along with पूर्णदन, सुदृढदन, मासोदन, दध्योदन among the offerings to the deity (pp. 10-11).

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1. Prof. R. D. Karve, M.A., who has written a book on Dietetics in Marathi (आहारशास्त्र) informs me in a letter dated 7-11-1945:— "About gram, I find in an American dictionary that it belongs to the East Indies. An ounce of gram (dry weight) contains 5.70 grammes of protein, 130 of fat and 15.30 of Carbohydrates giving 96 calories. It also contains Vitamins A and B to an appreciable extent, but not the other vitamins."
These references to C and its various preparations in c. A. D. 1130 show how this कुषाण्य of Suśruta's time had attained wide celebrity and popularity within say a period of 1000 years from Suśruta as proved by its use as food for gods, men, and animals described by Someśvara.

(5) The use of C in Brahmanical worship in connection with वासुदेवस्मन referred to above has its parallel in the references to its use in Jain ritual as well. In a book on the Jain ritual called विगमिन्य by Jinaprabhasūri composed in Samvat 1363 (= A.D. 1307)⁵ at Kosalānagara we find the following references to C:—

(i) Page 101 — In section 106 called प्रतिलोकपरम्परा संप्रदाय, चन्द्र is mentioned among the seven धन्याय as follows:—

“सात धन्य:—सप्त नोख, कुल, मधुर, वक्क, चन्द्र, श्रेष्ठ, चन्द्र।”

(ii) Page 101 — The use of चन्द्र for प्रतिद्वायिचि is referred to as follows:—

“तत्तो गन्धपुष्पकपतचायतनपमानमडलिचि: ||
तन्नदयस्मालि—ज्वल—मोक्ष—शुद्ध—वक्क—चन्द्र—चन्द्र।—हे।”

Jinaprabha's Vidhiśrupsa, though mainly Prākrit, contains some portions in Sanskrit. He uses both the names of C — (1) Prākrit चन्द्र and (2) Sanskrit चन्द्र.

(6) In the अष्टंगसांग्रहाण of Vāgbhaṭa I (c. A.D. 625) we get the following verse under शिर्मिवायाक्य of ch. 7 (जन्तुप्रतिद्वायानाय) of सुत्रस्थान्त:—

Page 44—“शिर्मिवायासंग्रहनसुंदरसंग्रहकः: || 21 ||
मधुरचन्द्रलालकामकाश्च प्रचरिष्ठचि: ||
कपालस्वायुधपोऽविन्यायामकारिष्ठ: || 22 ||”

The commentator Indu makes no remarks on चन्द्र in the above extract.

1. Ed. by Muni Jinavijayaji. N. S. Press, Bombay, 1941 जिनदसीरि प्राचीन शुद्धकोशार फल नो 44.
2. Vide 16 of Biographical account of Jinaprabhasūri by Agarehand Nahta given in the above edition. Mr. Nahta has given here a list of Jinaprabha's works in which I find the following entry:—

“विगमिन्य, ॥ ३९, ६५५२, सं. १६५२ विवधवार, कोशालानगर्”

3. Other materials mentioned under section 106 include दात, ज्ञ, कंप, माथ, सत्य, गोपूर, ज्ञान, etc. ज्ञान or ज्ञान is obviously ज्ञान (Holcus Sorghum)—(vidy my paper on the History of Jondhala in B. C. Law Vol. I, 1945, pp. 142-158).
(7) In the शिसिप्राचार्यम् in chap. 6 (स्त्रवस्त्रप्रविष्यासीम) of the सृष्टान्तग्रहद्वाम of वागभट्ट II (8th or 9th century A. D.) we find the following verse:—

Page 87—“सुद्द्राणोपमाणिदिशिमीनायिन्यायनिविनिविचित।
कवाद्य स्वातू समाहि कहुपांक हिंस लघु || ६७ ||”

Here there is no direct¹ mention of C by वागभट्ट II but अरुणदत्त (A. D. 1220) says that चाक is implied by the word आदि (मसूरातीत्र रव रावधार्ष्येन मद्दृशबंध्यकानीय छह्स्यम). तेमद्रिव (A. D. 1260) also takes the same view when he says in his comment on the above verse:—

“आदि शवदात संस्कृत: (४. १६) —“शिसिप्राचार्यमांगुल्यकन्थसुद्द्राणिका।
सादस्याल्य्य्यकन्यका प्राविन्य: , इति”

(8) Dr. G. P. Mujumdar in his article on Vedic Plants (B. C. Law Volume, Part I, 1945, p. 652) makes the following entry about a plant of the name खलवः:—

| "55. Khalva" | Phaseolus radiatus | A. D. ii, 1; V. 23, 8; \*Vāj. Satk. xviii, 12 |
| Cypera | Cicer arietinum | मङ्घीपर गोल्सित्व चाक (Chick pea) |
| Nisava | Vigra catjang | Brhad. Up. VI, 3, 32 — साव्याद गोल्सित्व |

In foot-note 4 on p. 87 Paradkar Shastri states:—“अस्याद्—

“अस्वाद् पिन्चहि रूद्रो वाललामक्ष्यम्: स्मृत ” इतिविक: पाठः (in ग्र. Ms)

2. The word निपाव occurs in the Carakasamskirta (Sāstrāntan, ch. 26) as follows:—

“तथा चाकूनकमकुषाकंकल्यामानिस्थित: पयत् सह विनिविच: ||”

Cakrapāyitattata (c. A. D. 1060) does not comment on निपाव in this line.—निपाव is mentioned in the शामीप्राचार्यम् by चाक as follows:—

“अल्लुंय: नाडग्गो, निपावा बांतमितुल्: ||”

Cakrapāyitattata explains:—“निपावा वचः.”

In the शामीप्राचार्यम् itself Caraka gives the properties of चाक separately as—“चाकूकाथिः सदृश्या इत्याद्” etc.” It is, therefore, clear that he regarded चाक and निपाव as different.

(continued on the next page)
I cannot say how for Mahidhara's identification of खल्व plant (mentioned in the Atharvaveda, the Vajasaneya Samhita with चक्र is correct, as Mahidhara lived between A.D. 1550 and 1620. Similarly Sayana's explanation of खल्व as "निपाव" is also suspicious. The names चक्र and हरिमन्त, both found in the Amarakośa and Suśrutasaṃhitā are not found in the list of Vedic plants recorded by Dr. Majumdar.

For identifying खल्व with either चक्र or निपाव we must have some testimony of the earlier texts rather than that of the commentators of the 14th and 16th centuries viz. Sayana and Mahidhara respectively.

(9) In the धातुहरिद्यक by K. M. Vaidya, Trichur, 1936, the following extracts have been recorded under चक्र:—

P. 212—(1) c. A.D. 1450—राजनिष्ट्र of नरहरी gives the synonyms for चक्र:—

"चक्रस्तु हरिमन्त: स्वातु सुमन्त: कुशक्त्तुः।
बालमोहिणो वाजिमश्चक्त्तुः कलुकी न स: ||"

(2) भावप्रकाश of भावभिषिक्त (c. A.D. 1550) gives the properties of चक्र:— "चक्र: शीतलं रुचिः etc." He also mentions different properties for चक्र when it is अंगार-हुः (fried on burning coal), नारीस्तर (fried when green) अंगारहुः, (fried in oil), रुचिस्तर (fried when dry) etc. Mr. Vaidya records further the properties of black Canaka (कुशक्त्तु चक्र) as follows:—

"कुशक्त्तु चक्रस्तु शीतलं मधुरं रसायन:।
बल्कूल-चक्रकास्माः पितालीसारापिच्छा ||"

This verse is taken from "नि. र. " (= निघण्डपुरस्ताकर ?) a late medical work.

(10) The बस्तिपुराण (Venkateshvara Press, Pothi Edition) contains the following references to चक्र:—

(continued from the previous pages)

The धातुसंग्रह contains several references to निपाव as follows:—

(1) सूत्रो Chap. 7—"निपावस्तु स्वरुचिः:" The commentator हनु �explains:—

निपावस्तु राजशिविक: "

—"चित्तीलस्त्रावित निपाव:" हनु explains: — "नि. राजशिविक"

Chap. 8—"स्वरुचिः स्वातु सुमन्त:। निपावास्त्रावित: "—हनु explains "निपाव: खिंचविश्वासा पातरिक:"

Chap. 9—"कुशक्त्तुः निपावस्तु: "—Here हनु does not explain the word निपाव:

The भावप्रकाश (c. A.D. 1550) repeats Indu's identification of निपाव as follows:—

"निपावस्तु राजशिविक: स्वातु बल्कूल: खेतशिविक: "
(i) Chap. 175 (folio 123) — चणक is forbidden in the observance of a
fast:

"उपवासः क निषेधः सर्वभोगविवर्जितः।
कार्यः मांसः मधुः च चणकः कीर्तिककः॥ ६ ॥
शालकः मधुः परान्तः च लघुवेदवस्मृतिमुः॥ ६॥"

(ii) Chap. 279 (folio 199) सिद्धांतपानि

"सुदर्गः मधुराख्यातिकः कुलतात्विकः मनुष्यः॥ ६ ॥"

"मनुष्यांशः खुदर्गः मधुः मधुरः गोधूः महामिता:॥ ६ ॥"

(iii) Chap. 289 (folio 199) अष्टक्षणापिष्किषकः — Here चणक is pre-
scribed as food for horses.

"निरुपाणां प्रदातव्य चवानां चतुराक्षकः।
चणकः प्रतिहितमीत्वं किलां बालिः दापेतु॥ ५० ॥"

When this section of the Agnipurāṇa was composed, the practice of
using चणक as food for horses as an alternative to खव was getting into vogue.
According to Dr. Hazra the present Agnipurāṇa incorporating summaries
of works on the different branches of learning was “compiled sometimes
during the 9th century” (Vide p. 138 of Purānic Records, Dacca, 1940).
We may, therefore regard the above reference to चणक as food for horses
along with खव, as belonging to the period A. D. 800-900.

(11) In the ब्रह्मसंहिता of Varāhamihira (c. A. D. 500) I have found the
following references to चणक:

(i) Chap. 15 — verse 14 (P. 96 of Calcutta Edition, 1865)

"इद्रायां दैवते अनुः
पुष्करिणी शालिनि: सविलमुद्रा:।
कार्यां मांस चारण:॥
पुरन्दरं हुताशं मनकाधि॥"

(ii) Chap. 16 — verse 34 (P. 105)

"कुत्तिकं रसायनो विषयं
योधिको मुजगत्वमस्मदिष्ठ:।
स्वकर्मचारणकवातुः
निम्नावः चारणपुनस्य॥ ३४ ॥"

(12) In the Bower Ms — Part II (ed. by Hoernle) p. 56 the reading
"चणकः" has been restored by the editor but it cannot be relied on for
evidential purposes.

(13) In the Jaina Prākṛit work Pauma-Cariya (Ed. by Profs. N. A.
Gore and R. D. Laddu, Poona, 1941) canto 33, verse 16 (p. 6) we get a reference to चण्डक (= चण्डक) as follows:—

“चण्डक तिल सुगामाला
विनिधिया तन्दुला य शेगविहरा।
दीनदिति चहुँदेसे
जिवशाये य जरमानो पदिया || १६ ||”

This is a description of the country of Avantis (अवानितिविसंय). Translation:—“There are seen scattered grams, sesameum, mug, beans and rice of many species as well as old bulls lying down in many places.”

(14) The पद्मपुराण (पद्मपुराण) N. S. Press, 1902, refers to चण्डक and the practice of frying it as follows:—

Page 23 — “उपलक्षे परिप द्विचण्डकः
शक: कि भाष्ट्रक मंकुम || १४३ ||”

(15) The कल्प हुमकोश (A. D. 1660) edited in G. O. Series (Baroda, 1928, p. 159) refers to fried and salted (gram) pulse as follows:—

“दाँलिः स्थिया पूनित भोजो दाँली स्वादिशपाविष्टेः”

(16) The राजनिष्ठन of Narahari (c. A. D. 1450) which is later than मदनविनोद (A. D. 1374) defines दाँलिः as follows:—

“स्फोटस्तु चण्डकादानां दाँलिति परिक्षितिः”


(17) The श्रीवस्तमचालन (G. O. S. Baroda) which Dr. Benoytosh Bhattacharya assigns to 3rd Century A. D. (see Intro. p. XXIX) contains references to चण्डक in the following extracts:—

Page 53—“दूषकार शुद्धिका ध्यात्रा चण्डकसिद्धिप्रमाणं: ||
मथ्ये स्वदेवतादिविवे सुलेख सिद्धत्वात् रिमानेयेत् उ ||”

(the expression “चण्डकसिद्धिप्रमाणं: is repeated thrice on this page). —

Page 25—“चण्डकासिद्धिप्रमाणं च अद्यतने नानिकाञ्चे विनिधितेः
चण्डकसिद्धिप्रमाणं च अद्यतने नानिकाञ्चे सक्षेपे स ||
नानिकाञ्चे हर्द्य स्पष्ट्य मानेयेत् वैपीत्र्यकेषाः ||”

(18) The वाणिज्यमैत्रेयकल्प (B. O. R. Institute, Ms No. 43 of 1925-26) mentions the materials to be kept in store (वस्तुसमहलकल्प). Referring to the granary it observes:—

“श्रीमानीयोभुमकष्टकमदगामिनापनविदक्षमः
धान्यवाणु च संग्रह धान्यकोपेक्षेपु निविदते ||”

This work appears to have been composed between A. D. 1500 and 1700.
(19) The Hobson-Jobson (London, 1903) in the article on Kitchery (खिचड़ी) refers to the use of "pease" as food for horses in the following extract:

c. 1475 — "Horses are fed on pease, also on Kichiris, boiled with sugar and oil etc." — Athan Nikitin.

Possibly "pease" here are equal to "Chick-peas".

(20) Even though गणक appears to have come into use as food for horses from the time of the Agnipurana (9th century A. D.) the reputation of व्र as food for horses remained unattainished as will be seen from the following references:

(i) King Bhoja in his युक्तिकल्पतंत्र (Calcutta, 1917) (c. A. D. 1050) has a section on अश्वामुक्तिस्य in which he prescribes व्र as food for horses:

P. 193 — "यवानव्य पक्तला नितेषु विषिष्टः || २५ ||"

P. 194 — "शिषिरे . . . . .
तत्रतु प्रतां मोचिते वराण्या
सर्वसंपीत्वात् तथामार्पयम् || २६ ||"

(ii) The शाक्किरपतिकल्पिति (c. A. D. 1325) B. S. S. Edition, p. 262, verse 1711, prescribes व्र for horses:

— "दूरौ दूरौ यवानीरं शिषिरं सर्वं श्रमम्"

(21) Nakula in his अश्वामुक्तिकल्पित (Bib. Indica, Calcutta, 1887, p. 39) prescribes गणक moistened with water for horses in the absence of व्र:

— "यवामालेश चणकान्त दयादानेवरान ग्रह।"

The practice of feeding horses on गणक moistened in water referred to by Jayadatta is corroborated by Tavernier (A. D. 1641-1668) who observes in his Travels (Vol. I, pp. 102-3) as follows:

They receive a measure of Chick-peas which the groom has crushed between two stones and steeped in water. It is these which take the place of hay and oats."

1. King Bhoja refers to गणक in the following verse of the अश्वामुक्तिस्य (section on अश्वामुक्तिस्य p. 189 of युक्तिकल्पतंत्र, 1917).

"रक्षे चूँम्यत्रिभिमोरीष्ट्रिभिस्यति सिध्यः ||६.१ ||
प्रशुभिर्मिलयोऽय प्रशुभिर्मत्सबधाति ||
सामिन्ति पत्रलकारं चणकान्ते तवार्धः ||६.२ ||"
The Vijayanagar horses in the 16th century were fed on *vemen*. Barbosa (A.D. 1500) says:

"The food is rice boiled with Chick-peas and other pulse and each man comes to draw the ration for his horse or elephant" (Vide pp. 130-131 of *Third Dynasty* by Venkataramanayya, Madras).

Prof. Dalgado (p. 172 of *Portuguese Vocables*, G. O. S. Baroda, 1936) has recorded some information about चक्क (gram) as follows:

"GRAO - Konk, graniy, the chick-peas, Cicer arietinum — Lunn ... ... The Portuguese formerly called the above vetch gravo de cavallo ('vetch for horses') and not merely grao; it is smaller than the kind grown in the Iberic Peninsula. At the time when the Portuguese took Goa they found that mungo (Hindustani mung was used there as horse-food).

The word चक्क (or its synonym हरिमन्य or हरिमन्यक) is not found in the काल्याणवार्तिक, अश्वायायी, महामाया and धातुपाल (see Word-Indices to these works published by the B. O. R. Institute Poona). In the word-index to गणपाल it is recorded by Pt. Chitrav Shastri as "चक्क, ४१, ७२" but the commentary कालिका (c. A.D. 651) has different variants for this चक्क viz. चक्क, वणी. As the गणपाल appears to have been considerably tampered with since Pāṇini's times this reference to चक्क in the गणपाल is not reliable. I hope that the specialists in Sanskrit grammar will examine this point more closely and see if my statement is correct.

The *Arthaśāstra* of Kauṭilya (or Kauṭalya) as its word-index shows, does not contain the words चक्क or हरिमन्य.

The वृद्धिकार्यसूत्र (Ms No. 542 of 1895-1902 dated Samvat 1881, A.D. 1825) contains a chapter on तुलाकोष in which there is reference to चक्क and other grains as will be seen from the following stanzas on folio 192 of the Ms:

"शालीन ओहिन्यवक्ष्य गोधूर्मायक्तिलंक ||
केशवांश ग्रिब्यंगुर्मुद्गांमायानां सत्यपालनां ||
चक्कान्तहितिबालानां कुरलालानां वारेश्रुकानां ||
हामामयातानि कुला तु दुलाबारिङ्गाभारंदेषु ||"

In the *हस्तमुण्ड* of *पालकाया* (*Anandaśrama Sans. Series*, Poona, 1894, p. 646), a big treatise on the care and medical treatment of

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1. This reference was kindly supplied to me by Mr. S. N. Savadi, B.A. (Hons.), my Senior Cataloguing Assistant in the Manuscript Department of the B. O. R. Institute, Poona.
elephants I have traced the following verse containing a reference to the use of चाणक in the diet of the elephant along with यव, गोपूम, कलाग्नि etc.:

"तदाहि यवगोपूमा: कलाग्नि अवंकतयथा।
ववसाहै प्रसरतेन शालयनं चेव भोजनम्। || ५६ ||"

(28) The commentators चीरस्वामिनि (c. A. D. 1050) and बन्धुर्धार्य सर्वाच्चर्य (A. D. 1159) comment on the line in the Amarakośa “चाणको हरिरस्तत्वः” as follows:

“चाणको देहि ते चाणकः।
हरिरस्तत्वः हर्मस्थः। ||”

“चाणकदेहि चाणकः। चन्च च नोच्चयो।
हर्मस्तादु वागौरेयादि कक्कुना धातुप्रदेशिपानी।
चन्चः सापित:। चाणकक्षु विनयः।
हरिमश्चेके स्वाधीकः। कः। ||”

But these commentators lived in times, when चाणक as horse-food was quite current in India.¹

(29) Hemacandra in his देशीनामपाल्य (c. A. D. 1140) explains the word हरिमन्थ for चाणक as follows:

“हरिमन्थः चाणकः। हीरो सृष्टिमुखाभावादानि चः।
वज्ञानकृष्टि हीरश्च: संस्कृत सम:। हर्मचकक्षु।
हर्मचकक्षु। केनिन्द्र हीर शात्रे भरस्तया भ्रमणपानि प्रयुक्ते।”

(see p. 343 of देशीनामपाल्य, B. S. Series, B. O. R. Institute, Poona, chapter VIII, 70).

We have now the three variants of the synonym for चाणक viz. हरिमन्थ, हरिमाध्यक and हरिमन्थ.

(30) The use of चाणक in worship is found recorded in the following verse of Bharata’s नाथयासार (Vol. I, ed. by M. R. Kavi, G. O. Series, Baroda, 1926, page 77) chap. III, verse 40:

“अर्चनेरेभूतस्वाधि चाणकः पलललालुङ्गैः। || ४० ||”

Mr. Kavi records the following variants for the above reference to चाणक:

“केलूरुहलल्लालुङ्गैः (श)” and “पलललालुङ्गैः (ज)”

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¹ See my papers on this subject viz.

(1) “Role of Yava and Capaka in the Regimen of Indian Horses as disclosed in the Astvâyurveda of Vâgbhaṭa, son of Vikrama” in Dr. A. B. Dhruva Volume.

(2) “Use of Capaka as horse-food, vouched by Five Sanskrit Treatises on the Astvâstra” in the Pracyjavâsh, Calcutta, 1946.
We may compare the above use of चणक in worship with the use of चणकोदन as an offering to deity mentioned in वर्तमानम in the मानसोहास (A.D. 1130) and the use of चणक in Jaina ritual as laid down in the विविधप्रण (A.D. 1307)—(see references Nos. 4 and 5 given above).


This omission of चणक in the ration of horses, given by कौटिल्य in a detailed manner, is significant. चणक as horse-food appears to have been adopted much later than the time of the अर्थशास्त्र.

(32) In the medical compendium कारक्यसंहिता which was discovered some years ago by Rajaguru Pandit Hemaraj of Nepal and subsequently edited by him (N. S. Press, Bombay) चणक is referred to in the following stanza on p. 171 :-

"तैलानि कड़वाकानी याकाय: सूक्तिनि कन्द्रकाकास: कलायः।』

This compendium is one of the earliest medical texts like the चक्रसंहिता, the मुद्रसंहिता, the बेहसंहिता and others.

(33) The बेहसंहिता, Ed. by Asutosh Mukerji, Calcutta, refers to चणक in the following lines on p. 46 :-

"मुद्गान् मद्यकस्मकाः कुक्कुल्याङ्क तलिलकाः।"

(34) सिवादस्सेन in his commentary on the इव्यगुणसंमह of चक्रपाणिदत्त c. A. D. 1060) quotes the verse on चणक from the Carakasamhita as follows :-

"तुद्रूते चरके—‘चणकाकाश मद्यस्तम्भ चविहृदीका: सह रेत:।
पित्तलेष्मिनि शरीरस्य' तत:।"
(Vide p. 30 of इव्यगुणसंमह ed. by Kailasa Chandra Sen, Calcutta, 1874).

(35) चक्रपाणिदत्त records the properties of चणक in his इव्यगुणसंमह (p. 29) as follows :-

"चणको वातकः शोधः ककाशः पित्तलेष्मिनि। रेतः।"

¹. Cf. the daily ration of a horse recorded in Peshwa's Diaries about A. D. 1760 (P. S. No. 22—Document No. 172) :-

"वातको प्रामाणिया खारक १। पाणिया हरमे (gram) ; १ दसौ फूट (flour) ; अर्का दसौ दूध (ghee) ; पावस्वर सालक (sugar) ; २ टाक कले निर (black Pepper)."
(36) The Prakrit-Hindi Dictionary पाषाण-संहिृ-माथाणवो (प्राकृत-शब्द-महालगू) by Har Govindadas (1923-28) records the following words about चणक:—

P. 399 — चणक = नरी [ चणकिंका ] = मासुर ; अन्नविशेष
(Usages) — राजनीतिक (५, ३) आ. समिति (१९१८, Bombay)
चन्द (See चन्द)

P. 398 — चणक and चण — [ चणक ] = चना ; अन्नविशेष
(Usages) — जंगलीयमक्कत (D. L. P. Fund, Bombay, 1920)
—दुर्गापाण्डित्य (B. S. S. 1900)
—गांगातांसती (Ed. by Weber, Leipzig, 1881, and N. S. Press, Bombay, 1911) ५५७
(c. A. D. 1140) — देवीसागराण्या, १, ३३ (B. S. S. 1880)

P. 399 — चण = (चणक)

Usages A. D. 1143: — सुप्रसादरिविक्षि ६३१ (Benares, 1918)
about (A. D. 1100) — सुकुंदरिरिविक्षि ३, १८० (Benares, 1916)
— चणागाम ( = चणकाग्राम ) — भाषाविशेष , गीतदेशका एक समा
— चणागुपुर-नगरविशेष ; राजगृह — नगर का प्राचीन नाम.

It will be seen from the above references that चणक is represented in Prakrit texts also from very early times.

(37) In the Mahānubhāva text of c. A. D. 1250 called the कीचालविरित्र (Ed. by H. N. Nene, Nagpur, 1936, 1937) the Marathi word कोण (gram) for चणक is found in the following line:—

Part IV, p. 51—‘गठु : चण्रें : जोध्वे : ऐसे होते : तेवा भक्षनाचा ताहे उपासक केला”

Here the use of घ्रण (चण्रे) along with गठु (wheat) and जोध्व (Jawar, Holcus Sorghum) as food current in the Maratha country is distinctly mentioned.

(38) शृङ्गावर्त (c. A. D. 1050) the commentator of the Amarakośa specifies in the following lines 17 edible grains in which चणक (gram) is mentioned:—

1. Compare the derivation of the word चणक as son of चणक श्रवणी by Hemacandra in his lexicon अविनाशितकालमिति (३ मोर्कामकां, वर्ष ५१७) as follows:—

“वायुविन्यसे भव्यलिपि कोटिलवध अपयुक्तार्जुः।”

Hemacandra explains:—“चणकहृदे श्रवणकामनाः कहकरसंस्कारम् , नायनोपधि”—
I cannot say if this derivation is historically correct.
Some Notes on the History of Canaka

"[Saï-devîyô Mûsûri Gômbhîrî Mûnîmânapîlîchêqakā]\nShyapratiprav意味着âkâm Āsîqîvam (Shâtîjîvam):\nDëe Ñ Cûlîyakûlalî Shavyô-çandashedî Shavamîñā"

(See p. 203 of Amarakôsa, ed. by H. D. Sharma and N. G. Sardesai, Poona, 1941).

On p. 204, Shërîsâmî explains चणक as "चणवते श्रीयते चणक:"

(39) The Kashmir poet Damodara Gupta in his Sanskrit work कुटâniîmat (A. D. 755-786) refers to चण (चणak) in the following stanza:

"युध्माण्डबिद्रिकां न कलम-कुलाधि-चण-मसूरादि।
एकीसुङ्कुळके चुङवृपलोधणोऽभैः ॥ २२१ ॥"

(Vide p. 52 of कुटानिमत ed. by Tripâthi, Bombay, 1924). Here चण (gram) is mentioned along with कलम, कुलाधि, मसूर etc. gathered by a wandering beggar for his food from hundred different houses. चणक or चण was obviously grown in plenty in Kashmir or imported there from other provinces in the 8th century A.D. so as to be available for distribution as alms to beggars as shown by the above stanza.

(40) In the medical compendium called the शाक्यचरितमिहा (ed. by P. L. Vaidya, Poona, 1917) चणक is referred to in the following verses:

Khaîda 3, chap. 2 — Page 8 (संहितानविवि)

"रूखण्ड स्टेमण स्नेहसिंगहवस्य रूखण्डम्।
शामाकचरितकामक्षरः तत्कहर्यात्पालिम्: ॥ ३१ ॥"

This treatise mentions अज्जने (Opium) on pages 165, 75 etc. According to Pt. D. K. Shastri शाक्य शास्त्र (son of शास्त्र) the author of the शाक्यचरितमिहा “definitely lived in the 14th century” (Vide his article on Medical Science in Gujarat in Journal of Gujarat Research Society, April-July 1945, p. 84).

(41) The lexicon वैज्ञानिक (c. A. D. 1055) refers to चणक in the भूमिकाण्ड (वैश्वास) as चण:

"वाचुकक्षण:“ (Vide 126 of Oppert’s Edition).

(42) In the Hobson-Jobson (By Yule and Burnell, London, 1903) there is an article on GRAM (=चणक) in which references to Gram as horse-food are recorded from A.D. 1513 onwards (vide pp. 392-393 of Hobson-Jobson).

(43) In his रिपटी on the अटाांकस्थान (Poona, 1940—सूत्रवण) Pt. R. D. Kinjavadekar quotes the following verses containing a reference to चणक:—
"निरुपीभविषयकैपूतिर्स्वतिष्ठनियममचर्याल:कृता:।
कयः:शाक्राकारागमिःकृताभिसापैदाता:।
शुक्लालघटोषोवलयाःशोतास्तुतिनिर्धिर्वता:॥"

No source, from which this extract is taken, is indicated by Pt. Kinjavadekar.

(44) In the Marathi Dictionary called the शब्दकोष, Poona, 1934, the equivalents of चणक are recorded as follows:

*Page 1134 — चणक = हरभरा (मेक्या द्रष्याचा)
Usage: — "वानरांचे देवोऽ। गाळफडा मराठे चण"

This usage shows the fondness of monkeys for चणक.

*Page 3175 — हर(भ)स = चण (सं. हर = घोडा or हर=शिव + भक). I cannot say how far this etymology of हरभरा is correct. I may, however, compare the word हरभरा for चणक with हरिमण्डल or हरिमण्डक its synonym recorded in the Amarakosa and the Suṣrutaśāmhitā. In the absence of a systematic record of usages of words any imaginary derivations of words are inconclusive, if not at times ridiculous.

(45) In the treatise on horses by ब्राह्मण, son of विक्रम, called the अश्वायुष्ट (Ms No. 581 of 1899-1915 in the Govt. Mss Library at the B. O. R. Institute, Poona) there are two small sections called the चणकविषि and चणकविषि dealing with the praise of चण and चणक respectively as food for horses (folios 55-56). This Ms is dated (Sanvatsar 1707 = A.D. 1651). I have sent for publication a paper on these sections to the Dr. A. B. Dhruva Commemoration Volume. I may, however, note here the following important verses from the चणकविषि which tell us that चण was the principal horse-food in the region between the Himalayas and the Vindhya mountains, while to the south of the Vindhyas चणक was favoured as horse-food; in the western regions मकुटक was the principal horse-food.

"हिमालयाहिमायुष्टम्रवणवरमणाचा वर्णमाणे मेक्या नियमसेविका प्रभाविलोक्षणप्रसादमाणे मकुटकः
दिव्यविवेकायां चणकः प्रसादलोक्षणमकुटकः पक्षास्मृमितमाणे मकुटकः
"

"चणकः दक्षिणे विन्यादो उपरेषु विवाहित:"

The date of this अश्वायुष्ट is not fixed. It appears to be earlier than about A.D. 1000. In the 54 breeds of horses mentioned in this work no reference is made to the Persian and Arabian horses which are mentioned by जयद्रतान and मकुट in their treatises on the horses.

(46) In another treatise on horses called the सासुराय (Ms No. 119 of 1866-68 in the Govt. Mss Library at the B. O. R. Institute, Poona) by one कल्यण, son of विक्रम, there are references to चणक as horse-food on folios 10 and 11 as follows:
Some Notes on the History of Canaka

Page 252 — "वेरीयिहितसंसारोंसूचंध्वमुच्‌कथायाचा ||
सम्प्रदायितात्तुसँगः: श्रायामके: संप्रदाये: ||"

According to Dr. Chaudhuri the गङङावाक्यावली was composed by विद्वाश्वदेवी, the wife of प्राराण्ण, the King of Mithila. After the death of प्राराण्ण, विद्वाश्वदेवी came to the throne. विद्वाश्वनि was a senior contemporary of विद्वाश्वदेवी who flourished in the 15th century A. D.

(48) The Prakrit-Hindi Dictionary पाहस सहंगव (पाराण्ण सहंगव) by Har Govindadasa makes the following entries about हरिमान्य (हङ्गकः):

Page 1186 — हरिमान्य (हङ्गकः) काला चना; अवस्थित

Usages: — आ १९ (अद्याग्रिमकामणि, द. ब. प. फंड, बॉम्बे, 1919).

— प्रवाह (प्रवाहसंसारे दो) ed. B. Manek,)
— संबोध ४३ (संबोध प्रकरण, अहमदाबाद, 1916)
— हें ५, ७० दि (हेंदिनामामा B. S. S. से हरिमान्य)

In Reference No. 29 above I have already quoted the remarks of Hemacandra on हरिमान्य. The word हरिमान्य (or हरिमान्य) has been evidently treated as a देवसी word in the पा. स. सहंगव, though the आमराकोश records it as a synonym of चंक. We have also seen that the सुसत्संहिता records the word हरिमान्य (see Reference No. 3 (ii) above). In connection with these usages of the word हरिमान्य, or हरिमान्य we must also investigate the relation, if any, of the Marathi word हरबारा or हरबारा with हरिमान्य.

(49) In the ज्ञानीशिल्स (ed. by Jivananda Vidyasagara. Calcutta, 1882) we find the following verse containing a reference to यव and चानक as the best horse-food. Page 480 (Chapter IV, 7th prakarana, verse 143):—
"यवाच्छि चणकं भेदा मध्या माया मकुटकक्रः।
नीचा मसूरा मद्याभिषिक्तमण्यं तु वाकिनः। || १४३ ||
"

Here यव and चणक have been given equal status as food for horses, somewhat like the statement of the अनात्युतेद्वरि of वालभट, son of विक्रम. However, while the अनात्युतेद्वरि allocates the superiority of यव, चणक, and मकुटक to the regions between the Himalayas and Vindyahas, the region to the south of Vindyahas and the western region, respectively, the चणकनाथिरि merely states that यव and चणक are the best horse-food, माया and मकुटक are of middle quality and मसूर and मुद्र of the lowest quality as horse-food. Judging by this verse we may infer that this verse was composed at a time when चणक had attained a superior status as horse-food but यव had not been superseded by it.

(50) In his *Patna-Gaya Report* (A. D. 1811-1812) Francis Buchanan deals with leguminous plants. About चणक he observes:

*Pages 499-500—"..... the But or Cicer Arietinum is the most important leguminous crop.....It is chiefly reared near the Son and in the Southern parts of Sheykpurah, where the system of agriculture is very bad.....The variety called Kabali—*but, which has a white flower and is most commonly called Chana."

(51) विज्ञानिनः (A. D. 1070-1100) the author of the *सिंहासन* commentary on the याजवलक्यः रस्म्यति mentions the following articles as fit for अत्यन्तनः (oblation at a Śraddha) :—

मीठ, शाळी, यव, गोभु, मुद्र, माया, सुन्तरा, कलशाक, महाशलक, एला, शुष्क, बुध, हिष्य, रुड, शाक्षार, कर्क, बैंथ, सांभर, पनस, मालीकेर, कदली, बुद्र, मन्दिपर, दंि, वृत, पायस, मसू, मां, etc.

He proscribes the use of the following articles on the authority of श्रीतिस at a Śraddha ceremony:—

कोट्र, मरु, चणक, कुलित, पुलाक, निपास, राजमार, कुमाराक, वानी, बुढ़लीह, उडेकरी; वेंशकुर, विपपली, वचन, रवायण, उपर, निदाल, लक्ष, माहित, चामर चीर, दंि, वृत, पायस.

It is clear from the above statement that चणक had not attained the sanctity attached to यव and other grains at the time, when the सिंहासन was composed.

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1. Cf. Parched and salted gram called काबली sold in Poona streets every Friday (The कोश calls this gram as पाँदरे काबली हताः).
(52) In his *History of Dharmaśāstra* (Vol. II. p. 784) Prof. P. V. Kane records the following quotation from the शास्त्रिकसिद्धान्त (in the आधिकारिकांस्त, pp. 394 and 404) which allows the employment in offering to gods of all cereals except कोट्ठ, चणक (gram), मास, मसूर, कुलक्ष्य and उदालकः:-

"अधिकारिकः—अविभोज्यः, प्रतिनिधित्वानमोनोपनिधिः
कोट्ठ-चणक-ग्राम-मसूर-कुलक्ष्य-उदालकः विसंयितयम् ||"

This reference to चणक as forbidden food is in harmony with the remarks of विशेषकर about चणक as a cereal proscribed for use in a Sāḍḍha ceremony.

(53) In the medical glossary चन्द्रनारिनिविध्य suposed to be earlier than the Amarakośa चणक is mentioned in the following line:—

"(क) काल्पक्षित पुंस्लबा श्रेष्ठका चातो लिमा !"

(See folio 36 of Ms No. 924 of 1884-87-चन्द्रनारिनिविध्य dated Sāñvat 1698 (= A. D. 1642).)

In Ms No. 923 of 1884-87 of चन्द्रनारिनिविध्य dated Śaka 1605 (= A. D. 1683) I could not trace the above line in the चात्वारी (folios 66-68). There is, however, in this चात्वारी another line which describes the properties of चणक as follows (folio 67):—

"चणकापुराणः! चणकी वातलो रक्तिः पिवद्यो पुस्तनाराणः!
र कवायो लघुः भीत: पिवालकर्त्ताणाणः:"

In the printed text of the चन्द्रनारिनिविध्य (Anandashram Sans. Series, Poona, 1896) p. 6, we find the following line about चणक and its properties:—

"चणकाचतुः प्रोक्ता चातो रक्तिन्हा!"

In spite of the textual variations the reference to चणक and its properties has continued to exist in the extracts given above.

(54) Dhundirāja in his *Girvānapadamānjarī* (C. A. D. 1690-1700) mentions चणक as the product of Bengal along with मास, मसूर, बालकी (of two kinds), मसूर, मसूर, राजमार, कुलस्त्र, दंका, लिख, लक्ष्य, भियंग, पणव, नीतार, द्यामाक,

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1. Prof. Kane records the following verse from ब्रह्मसूत्र (quoted in गृह. र. and आधिक प्रकाश) which forbids the use of cereals such as राजमार, कुलसूत्र (= मृदी according to Prof. Kane) etc.:—

"राजमारा श्रेष्ठमुद्कृतस्तया वृप्तवालस्यीः
मसूरः यातवृष्ट्यमुद्मुद्मुद्मुद्मुद्मुद् श्रीनिप्रेषतमः ||
सिद्धान्तविद्यायांश्च नं च देवानि कस्यचिदृः"

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With a view to give the reader an idea about the antiquity of *Canaka* and its history as disclosed by the foregoing evidence I record below the chronology of the references so far collected by me:

<table>
<thead>
<tr>
<th>Chronology</th>
<th>Reference C = Canaka (Cicer Arietinum)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between B.C. 200</td>
<td>C mentioned in the <em>śākhāpaniṣhita</em></td>
</tr>
<tr>
<td>and A.D. 300</td>
<td>C mentioned in the <em>kāśyapapaniṣhita</em>.</td>
</tr>
<tr>
<td>A.D. 100-200</td>
<td>C mentioned in the <em>nāyikābhūta</em> of Bhārat for use in worship.</td>
</tr>
<tr>
<td>Before A.D. 300</td>
<td>C mentioned in the <em>vatsarājaṇī.</em></td>
</tr>
<tr>
<td>Between B.C. 200</td>
<td>C mentioned in the <em>vayupaniṣhita</em> as <em>kauśalya</em>; <em>herīmānayā</em> <em>shāk</em> is also mentioned in this work.</td>
</tr>
<tr>
<td>and A.D. 300</td>
<td>C mentioned in the Jain Prakrit work <em>Pauma Carīya</em> as <em>chāṇya</em> growing in the <em>Avanti</em> country.</td>
</tr>
<tr>
<td>A.D. 200-300</td>
<td>C mentioned in the <em>vāyusamajyantra.</em></td>
</tr>
<tr>
<td>A.D. 500</td>
<td>C mentioned in the <em>vaiśnavabhūta</em> of <em>bhārata.</em></td>
</tr>
<tr>
<td>C ( = chāṇya ) mentioned in the <em>chāja</em> of its practice of frying it.</td>
<td></td>
</tr>
<tr>
<td>Before A.D. 500</td>
<td>C mentioned in <em>nāṃgakūra</em> of Jain canon (as <em>chāṇya</em>).</td>
</tr>
<tr>
<td>Between A.D. 500</td>
<td>C mentioned in the <em>āṣamakāṇḍa</em> along with its synonym <em>herīmānayā</em>.</td>
</tr>
<tr>
<td>and 800</td>
<td>C mentioned in the <em>vāyaṅkavāya</em> of <em>vāgbhaṭa I.</em></td>
</tr>
<tr>
<td>c.A.D. 625</td>
<td>C ( = chāṇya ) mentioned by <em>dāmīāṛrāyā</em> of Kashmir in his <em>kṣṬrīmāñī.</em></td>
</tr>
<tr>
<td>A.D. 755 - 786</td>
<td>C mentioned in the <em>vāyaṅkavāya</em> of <em>vāgbhaṭa II.</em></td>
</tr>
<tr>
<td>A.D. 700 - 900</td>
<td>C and its properties mentioned in the <em>cāṇḍaṇāntarṇītinaṇḍa.</em></td>
</tr>
<tr>
<td>Before A.D. 800</td>
<td>C mentioned in the <em>āśmīnāpanī</em>—It is forbidden in religious fasts but recommended as food for horses.</td>
</tr>
<tr>
<td>A.D. 800 - 900</td>
<td></td>
</tr>
</tbody>
</table>

1. See also my article on "Glimpses into the Economic, Industrial and Social Life of Bengal as given by a Mahārāṣṭra Brahman of the Seventeenth Century" in *Indian Culture*, Vol. XII, No. 2 (October-December, 1945) pp. 47-56.
<table>
<thead>
<tr>
<th>Chronology</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before A.D. 1000</td>
<td><em>C</em> recommended for horses in the अक्षाचिकिसित of नकुल.</td>
</tr>
<tr>
<td></td>
<td><em>C</em> used as food for elephants according to हस्तीयालयेंद्र of पालकाप.</td>
</tr>
<tr>
<td>Before A.D. 1000</td>
<td><em>C</em> as food for Horses mentioned in अक्षालयेंद्र of बामद (son of विक्रम).</td>
</tr>
<tr>
<td>c.A.D. 1050</td>
<td><em>C</em> (चण) mentioned in the वैजनन्तीlexicon of यात्राभकाश.</td>
</tr>
<tr>
<td>c.A.D. 1050</td>
<td><em>C</em> mentioned by श्रीरबावासिनी on Amarakośa, among 17 edible grains.</td>
</tr>
<tr>
<td>A.D. 1060</td>
<td><em>C</em> mentioned by चक्रवर्तित in his दृष्टिगणनमान.</td>
</tr>
<tr>
<td>A.D. 1100</td>
<td><em>C</em> mentioned in सुरसरीचिरिव.</td>
</tr>
<tr>
<td>A.D. 1130</td>
<td><em>C</em> mentioned in the मानाभाग्य of समेतवर as food for men, pigs and fish.</td>
</tr>
<tr>
<td>A.D. 1143</td>
<td><em>C</em> (चण) mentioned in सुपासनाहस्विति.</td>
</tr>
<tr>
<td>A.D. 1159</td>
<td><em>C</em> mentioned by मञ्जरिवन्द्र on Amarakośa.</td>
</tr>
<tr>
<td>A.D. 1070-1100</td>
<td><em>C</em> prohibited at a शाह by विज्ञानंदेश्वर in his भिन्नघर.</td>
</tr>
<tr>
<td>A.D. 1088-1172</td>
<td><em>C</em> and its synonym विरिमिन्य mentioned in the वैद्यगममिन्य of हेमचन्द्र.</td>
</tr>
<tr>
<td>c.A.D. 1250</td>
<td><em>C</em> (चण) mentioned in the Marāthi Mahānubhāva text कीन्याचिरिव.</td>
</tr>
<tr>
<td>A.D. 1307</td>
<td><em>C</em> used in Jaina ritual according to विश्वमायण of जिज्ञायमभूरि.</td>
</tr>
<tr>
<td>Between A.D. 800 and 1300</td>
<td><em>C</em> mentioned in the युक्तीगतिसार as best horse-food like ब्र.</td>
</tr>
<tr>
<td>c.A.D. 1450</td>
<td><em>C</em> mentioned by विनयान्तित in her गाजीकायकावली among grains to be offered by a pilgrim for a शाह.</td>
</tr>
<tr>
<td>c.A.D. 1450</td>
<td><em>C</em> mentioned in the राजविनियण of नरहर्ष (in Kashmir). The pulse of चण is called दाळी.</td>
</tr>
<tr>
<td>A.D. 1475</td>
<td><em>C</em> (चण) used for preparing Kichiri or लिच्चव्य) — see Hobson-Jobson.</td>
</tr>
<tr>
<td>c.A.D. 1550</td>
<td><em>C</em> mentioned in the भावान्ताक of माणिकय.</td>
</tr>
<tr>
<td>A.D. 1500-1650</td>
<td><em>C</em> mentioned in the भाकाशमेसरवकल्य as being stored in a चन्द्रहान्त or granary.</td>
</tr>
<tr>
<td>A.D. 1500</td>
<td><em>C</em> (चण) as food for Horses of Vijayanagar according to Barbosa.</td>
</tr>
<tr>
<td>A.D. 1513 onwards</td>
<td><em>C</em> (चण) references in Hobson-Jobson.</td>
</tr>
<tr>
<td>A.D. 1660</td>
<td><em>C</em> and its pulse दाळी mentioned in the कल्पदुकोश.</td>
</tr>
<tr>
<td>A.D. 1641-1668</td>
<td><em>C</em> used for Horses according to Tavernier's Travels.</td>
</tr>
</tbody>
</table>
The cumulative effect of the evidence recorded in this paper proves the history of Canaka for about 2000 years on Indian soil. Some features of this history are as follows:

1. Some of the earliest medical texts like those of चरक, सुवर्त, वेक and कायमप्रेक्ष्य record the properties of चणक and their statements are more or less repeated in later medical texts.

2. The synonym हनिमन्त्र for चणक used by सुवर्त is mentioned by वास्ति and repeated by subsequent lexicons.

3. सुवर्त calls चणक as a कृत्यान्त. Its use at a शारद ceremony was prohibited by Smritis as stated by विवर्णनाथ (c. A.D. 1100). In the 15th century, however, we find it as fit for a शारद at a holy place according to ग्रामावलमकविष्य of विभादेव.

4. चणक is not mentioned as food for horses by the अवैशाल्य of कौटिल्य, in which चण is prescribed as part of horse regimen. Some time after about A.D. 500 चणक began to be produced in large quantities and was adopted as horse-food as vouched by the horse-treatises of जयसेन, वज्र, वामम (son of विभ्रम) and others. As expressly stated by वामम in his अत्याधुष्टेध (चणकविविध) चणक was used as horse-food below the Vindhya mountains, while अव is used for the horses between the Himalayas and the Vindhyanas in his time.

5. चणक is mentioned in the Jain Canonical works like the नारायणसूत्र and the सुश्रुस्त्रप्रवचनिष्ट as also in later Jaina works in Prakrit like the नारायणसूत्रसरस्वती and the सुपातालानहि वरिष्ट of the 12th century and in the विभिन्नप्रणालि of ज्ञानभ (A.D. 1307).

6. After about 1000 A.D. अव fell into back-ground and चणक took its place both as food for horses and men along with wheat and other grains of antiquity.

In view of the above history of चणक for a period of about 2000 years from Sanskrit and Prakrit sources we are tempted to inquire if चणक was indigenous to India prior to the Christian Era. In this connection I record the following history of चणक (Cicer Arietinum) as given
Some Notes on the History of Canaka


Habitat — Extensively cultivated as a rabi crop, throughout India, especially in the Northern Provinces.

This is Cicer of the Romans, and the parched seed as an article of food with the poor is alluded to by Horace¹ (Cicer Fructum). It is also the Erebinthos² of Dioscorides.³ The botanical specific name owes its origin to a not altogether fanciful resemblance of the seed, when first forming in the pod to a ram's head (the Krios of the Greeks). The English name "gram" is applied to a totally different product in the Madras Presidency, where it denotes the seed of the plant known in the other provinces as Kurti (Dolichos biflorus)⁴ (Duthie and Fuller, Field and Garden Crops, I, 33). In Madras D. Biflorus is more correctly horse-gram, two forms of Phaseolus Mungo being known as "black and green gram" and Cicer as "Bengal gram." These terms are, however, unknown in other provinces.

History — The Chick-pea was thus known to the Greeks in Homer's time⁴ under the name Erebinthos and to the Romans as Cicer; and the existence of other widely different names shows that it was early known and perhaps indigenous to the South-east of Europe. It is supposed that the Chick-pea has been cultivated in Egypt from the very earliest times of the Christian era and was perhaps considered common or unclean like the bean and lentil. But it is most likely that the pea was introduced into Egypt as well as among the Jews from Greece or Italy. Its Introduction into India is of more early date for there is a Sanskrit name and several other names in modern Indian languages. "The Western Aryans (Pelasgians, Hellenes) perhaps introduced the plant into Southern Europe, where, however, there is some probability that it was also indigenous. The Western Aryans carried it into India. Its area may have extended from Persia to Greece and the species now exists only in

¹ Horace, the Roman poet was born on 8th December, B. C. 65 and died on 17th November, B. C. 8. (Vide pp. 270-271 of Smaller Classical Dictionary—Home University Library, London, 1913).

² Has the Greek word Erebinthos for चाक any connection with (हरिमन्दिन्ना) used by सुमुष्ठ as a synonym for चाक?

³ Dioscorides, a Greek physician of the 2nd century A. D., author of an extant work on Materia Medica, which for many ages was received as a standard production. (Sm. Clas. Dict. p. 197).

⁴ Homer's date is about 850 B. C. see p. 268 of Sm. Clas. Dict.).
cultivated ground, where we do not know whether it springs from a stock originally wild or from cultivated plants” (Dc. Orig. Cult. Pl.).

On the strength of the above remarks we can represent the chronology of चणक or हरिमन्य prior to the Christian era as follows:—

B. C. 1000-800 — चणक or हरिमन्य (Greek, Erebinthos) in time of Homer.

B. C. 521-485 — Darius I ruled Persia—His wars against Greece—
“The direct acquaintance of the western nations with India dates from the reign of Darius” (Smith: Sm. Clas. Dict. p. 280).

B. C. 326 — Expedition of Alexander the Great against India.

B. C. 305 — Invasion of Seleukos Nikator against Candragupta Maurya and conclusion of a humiliating peace with Candragupta in B. C. 303.

B. C. 298-273 — Indian Emperor Bindusāra (father of Asoka the Great) corresponds with Antiochus Soter of Syria and gets figs and raisin wine.

B. C. 190 - c. A. D. 20 — Greek occupation of Panjab.

B. C. 65-8 — The Roman poet Horace refers to Cicer (चणक) as an article of food with the poor.

B. C. 100 - A. D. 300 — References to चणक in earliest Indian medical texts in Sanskrit of भें, चरक, सुचुंत and काल्यण as also in the Jaina Canonical and other Prakrit texts.

Presuming that Southern Europe comprising Greece and Italy was the native habitat of चणक, from which it was taken to Egypt in the earliest times of the Christian era, and further that चणक was taken to India by the Western Aryan (Hellenes) as observed by De Candolle, we may tentatively draw the following conclusions:—

(1) If चणक was introduced into India during the reign of Darius I of Persia (B. C. 521-485) this introduction must have been possibly through Persia on account of the constant military contact of Persia with Greece at this time.

If चणक was introduced into India after the invasion of Alexander the Great in B. C. 326, it would be reasonable to suppose that it was introduced most probably during the Greek occupation of Panjab (B. C. 190 - c. A. D. 20). This conclusion is in harmony with the references to चणक in the earliest medical texts of भें, चरक, सुचुंत and काल्यण, which appear to
have been composed between c. B. C. 200 and A. D. 300. Foreigners staying in India for more than two centuries may have introduced some plants of their home land into India. Such of these plants as found congenial soil in India became naturalised while others dropped out of Indian cultivation.

(3) It is for Greek and Latin scholars to say if the use of चणक as horse-food was current in Greece and Italy say between B. C. 1000 and A. D. 300. If no evidence can prove this point we may reasonably infer that the use of चणक as horse-food was evolved by Indians some time after about A. D. 500.
25. Studies in the History of Indian Plants

History of Canaka (Gram) as food for Horses

Between c. A.D. 800 and 1870 together with some notes on the import of foreign horses into India in ancient and Mediaeval Times*

A friend of mine in the Bombay Agricultural Department, who was interested in the history of several Indian crops, once asked me if I could study the history of Canaka or gram used by men and horses in India to-day. I promised him to write some paper on Canaka and its antiquity on the strength of Indian sources. I put a counter-question to my friend: Can you tell me when Canaka or gram came to be used as food for horses? My friend could not answer this question for want of evidence. I, therefore, propose to record in this paper some evidence which throws some light on this question from the Sanskrit and non-Sanskrit sources available to me.

Yule and Burnell have recorded some useful information on Gram or Canaka in the Hobson-Jobson, London, 1903, pp. 392-393 as follows:—

GRAM s. — This word is properly the Portuguese grão i.e. 'grain' but it has been specially appropriated to that kind of vetch (cicer arietinum, L.) which is the most general grain — (rather pulse —) food for horses all over India, called in H. Chana. It is the Ital. cece, Fr. pois chiché, Eng. chick-pea or Egypt. pea much used in France and S. Europe. This specific application of grão is also Portuguese as appears from Bluteau. The word gram is in some parts of India applied to other kinds of pulse, and then this application of it is recognized by qualifying it as Bengal gram. (See remarks under CALAVANCE). The plant exudes oxalate of potash, and to walk through a gram-field in a wet morning is destructive to shoe-leather. The natives collect the acid."

The following dated usages of the word GRAM are then recorded in the Hobson-Jobson:—

A.D. 1513 — “And for the food of these horses (exported from the Persian Gulf) the factor supplied grāos”

— Albuquerque, Cartas p. 200
Letter of December 4.

A. D. 1554 — (Describing Vijayanagar) — “There the food of horses and elephants consists of grãos, rice and other vegetables cooked with jagra, which is palm-tree sugar, as there is no barley in that country”
— Castanheda, Bk. ii, Ch. 16

C. A. D. 1610 — “They give them also a certain grain like lentils”

A. D. 1702 — “...the confessing before us that their allowance three times a week is but a quart of rice and gram together for five men a day, but promises that for the future it shall be rectified”
— In Wheeler, ii, 10.

A. D. 1776 — “...Lentils...gram...mustard seed”
— Halhed’s Code, p. 8 (Pt. ii).

A. D. 1789 — “gram, a small kind of pulse, universally used instead of oats”
— Munroe’s Narrative, 85.

A. D. 1793 — “...gram which it is not customary to give to bullocks in the Carnatic”
— Dirrom’s Narrative, 97.

A. D. 1804 — “The gram alone for the four regiments with me has in some months cost 50,000 pagodas”
— Wellington, iii, 71.

A. D. 1865 — “But they had come at a wrong season, gram was dear, and prices low and the sale concluded in a dead loss”
— Palgrave’s Arabia, 290.

Gram-fed — adj. Properly the distinctive description of mutton and beef fattened upon gram which used to be the pride of Bengal. But applied figuratively to any ‘pampered creature.’

In the article on CALAVANCE (Hobson-Jobson, p. 145) we are told that the word Calavance comes from the Span. grabanzos, which De Candolle mentions as Castilian for ‘pois chiche’ or cicer arietinum (= gram).

The above usages of gram as food for horses and men, take its history upto A. D. 1513. I shall now trace this history backward from A. D. 1513.

Narahari in his medical glossary called the Rajanighantu1 composed

in Kashmir c. A.D. 1450 refers to चनक or gram as “वाजिमक” (food for horses) in the following verse:

“चनकक र्हियस्त्र्य स्यातु सुवाक्षः क्रपायक्तवमुकः।
बालभोज्यो वाजिमकाक्शाकः कल्पुत्री च सः ||”

In the two special treatises on horses, which are definitely earlier than Narahari’s Rajanighantu we get some references to Canaka as food for horses. These treatises are (1) अरभैषारक of महासामान्य जयद्रत्त and (2) अर्धचिकिस्तिन of मुकुट.

References to चनक in the अरभैषारक of जयद्रत्त are as as follows:—

Page 106 (chap. 11 — दस्तवात्रय विवरणम्)

“चनकाक्षवे मायाण्य चाराये श्रीहरितमायः
यवराज्ञेव प्रवेदन्य वेस्तम्याये चाहि || ॥

Here चनक or gram is definitely prescribed for the regimen of horses along with यव, मायः, and श्रीहरि. The editor in explaining the above observes:—

“वाजिमकाभोजनां स्वादीयं एवं मायः; एवदिने यवस्य चाराक-चलुतवः। चनकभरोहल्लीयामायां चाराक्तवः मायः। सुदुःखस्य च प्रतेद्वतः। यव यव भोजने स्वेक्षणस्य यववेद्म तैःस्वयं कुलवत्तं लवणस्य कुलवत्तं देयः।”

Then the editor quotes the following verse from आदिपुराणः:—

“चनकभरोहल्लीयामायां कलायं वापि दाएदेतुः।
आदित्यविधायामायां च चलुतस्य दुःखस्य दशः ||
आदित्य शुक्लस्य दाएदेत्ताक्षरोऽस्य मायस्य दुःखस्य बाः।”

हर्षित आदिपुराणः। एवं मायभोजनेणपि मायस्य ॥ प्रस्थः तैःक्लस्य ॥ हर्षितः। लवणस्य च कुलवत्तः।”

1. Hobson-Jobson (p. 476) refers to Kitchery (किचरी) as food for horses:— “c. 1475 Horses are fed on pease; also on Kichiris, boiled with sugar and oil etc.” — Abdurrazak in India in 15th Century, p. 10 — Does “pease” here mean chick-peas or चनक? 2. Edited by Umesa Chandra Gupta in Bibliotheca Indica, Calcutta, 1886, pages 335. A Glossary of Indian Drugs mentioned by Jayadatta, together with their Bengali, Hindi and Latin synonyms, is given by the Editor at the end of this edition. In this glossary अरभैषारक or opium is mentioned on p. 3.

3. Edited by Umesa Chandra Gupta, Bib. Indica, 1887, pages 63.

4. हैमक (A.D. 1088-1172) in his lexicon अस्तिमानित तालिका (शूक्लकाव्य, 286) mentions चनक as the favourite of horses:— “यवो हुर्गिरिः” (Comm. “हुणों द्रिया हुर्गिरिः”।) He refers to चनक in verse 237 as “चनकी हरिमकाक्श” and explains “चनकी देशमान: चनक:” and “हरिमका मध्य्ये हरिमकावः” Amarakosha mentions पारसी मक्स्को चन्द्रकाव ||
Chapter 13 deals with the treatment of horses in different seasons (सत्रोत्सव-उपचार). Special attention is given to the food of the horses in these seasons. Among articles of food for the autumn (शरवन) we find मांसगुल्ल (meat-broth) and for the winter (हेमन्त) some wine (वालशी) also. Wine (मत्सर) is also prescribed for the spring (वसन्त). In chapter 22 dealing with treatment of horses for removing fatigue (अन्तर्गोचर) मांससंसा flesh juice is prescribed along with वान (barley). In chapter 40 dealing with the treatment of horses in fever (वज्रविवर्तन) मांससंसा ब्रोच्च or rice boiled with flesh juice is prescribed. Chapter 66 (स्मोैनकशाल) prescribes the several uses of garlic in 22 verses. Garlic is said to be specially beneficial to old horses (चुटकी च विद्वेश रसों वात्र प्रदावपेत). References to चव्णक as food for horses in the अथविकिसित of नकुल are as follows:

Page 39 — chapter 11 (अतुचच्च) prescribes the use of gram (चव्णक) in the absence of वान in the following verse:

"वनायम ववसं दवायमविवशवस्यानि न।
वनायमविवशवस्यानि दवायमविवशवस्यानि सदा || १० ||

नकुल praises very much the use of वान for feeding the horses as follows:

"देवतानां यथा विपुर्ववन्हां वेदविवं ववसः।
नदीनाथ्य वान गहना तथा अवत्र वान हसे || १४ ||

वान had been the sustainer of the Aryans from Vedic times and consequently नकुल lavishes so much praise on it. The Vedic Aryans  may have used वान for their horses. नकुल and जवसव �prescribe वान as food for horses. ववस is prescribed by नकुल for horses. Keith in his Vedic Index (Vol. II, p. 117) states that "ववस in the Rgveda and later denotes the ‘grass’ on which animals feed and which is burnt by the forest fire."

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"For the best horse (the diet shall be) two drops of any one of the grains, rice (वानी, शालि), barley (वान), panic seeds (वाराण्यस) soaked or cooked, mudga (Phaseolus Mungo), or Moja (Phaseolus Radiatus; one prastha of oil, 5 palas of salt, 50 palas of flesh, one adhaka of broth (rava), or two adhakas of curds, 5 palas of sugar (Ksara), to make their diet relishing, one prastha of suri liquor or two prasthas of milk.”

There is no reference to चव्णक in the Word-Index to the Arthasastra,
Page 42 — नकुल continues his praise of यव in the following lines;—

"परीक्षामार्ग यथा हृद्रः स्वरस्य च प्रतिकिर्तियः।
हयजीवस्य तद्रूच्य परीत्र च वर्मस्ये || ३२ ||
यथा सांवाणिकः परं गतो चैवेऽ संस्थान्त ब्रह्मुल ||
तदन्त यवाशास्त्रीयशः सुदान्देहा हर्षोऽस्माः || ३२ ||"

Page 43 — When नकुल wrote his treatise चणक had attained quite an important status in the regimen of the horses. In fact it was considered as the second best grain for horses (next to यव) as will be seen from the following verses:—

"यवासादाय चणकः वायुस्यन्यतमं परम्।
"एते पुष्यन्त: प्रोक्ताश्रणकाव्राः जाहै हृदे।""

In the detailed regimen of horses Kauṭilya mentions numerous items except चणक. I am, therefore, inclined to suggest that चणक was not used as food for horses in Kauṭilya's time. The question now arises as regards the exact time when चणक came to be used as food for horses or "वायुस्यन्यतम।" It appears that when नकुल wrote his treatise the use of चणक was getting into vogue as food for horses. We must now find references to चणक as food for horses in sources earlier than the time of जयद्वत्त्र and नकुल the authors of अद्वन्याक and अद्वन्याचरिकस्त respectively. But what is the time of जयद्वत्त्र and नकुल? In connection with this question the following data may be recorded:—

(1) In the Vedic times "Horses from the Indus were of special value as also horses from Sarasvati (see p. 43 of Vedic Index (Keith and Macdonell)).

(2) The Arthaśāstra of Kauṭilya (p. 148 of Eng. Trans., 1929) mentions the following varieties of horses:—

(i) Kamboja, (ii) Sindhu, (iii) Araṭṭa and (iv) Vanāyu—These are the best breeds and (v) Bahlīka, (vi) Pāpeya, (vii) Sauvira and (viii) Taitala are breeds of middle quality.

(3) जयद्वत्त्र in chap. VI of his अद्वन्याचर mentions the following kinds of horses:—

Best kinds:—(1) तालिक Arabian horses)
(2) पारसिक (Persian)
(3) केद्राण्य or कोड्राण

other kinds are (4) दुरो जाता: or तुरुस्कः: (5) कौरः: (6) सुरस्यः: (7) भाष्ट्रः: (8) पार्ब्बिता: (9) सैन्धवः: (10) सारस्वतः: (11) सम्भवः: (12) कड़भः (13) जटेद्रशोजः (14) प्राणः (15) पकड़ेशोजः (16) द्वारिणाय (17) एक्षेद्रेशसुभः etc.
History of Canaka (gram) etc.

(4) नक़्कुल in chap. II of his अश्वविनिर्विकलित mentions the following kinds of horses:

**Best kinds:**
(1) ताज़िक़ा: (Arabian)
(2) खुरबाणा: (Khorāsān)
(3) उद्भारा: (variant उद्धारा)

**Other kinds:**
(4) गोज़ीक़ाणा: (variant गोज़ीक़ाणा:)
(5) केक़ाणा: (variant बोज़ीक़ाणा:)
(6) भारुळङ्छ: (8) रज़्जुळङ्छ: (9) गोझ़ाणा: (10) शालङ्छ: (11) तिन्नुळङ्छ.

The above list of numerous kinds of horses known to Indians in the time of जव्वळ and नक़्कुल contains a eulogy of ताज़िक़ (Arabian), वारसिक (Persian) and some other foreign breeds of horses like तुर्क़ (Turkish) and खुरबाणा (Khorāsān) varieties. This popularity of Persian, Turkish, Khorāsān, Arabian and other foreign breeds clearly shows that the importation of foreign horses into India was an established feature of foreign commerce with India at the time when जव्वळ and नक़्कुल composed their treatises on horses.

(5) Marco Polo in his Travels¹ (A.D. 1298) records some references to horses of different countries as follows:

**Page 28 — Horses in Turkomania.** Marco Polo observes:

"There is here an excellent breed of horses which has the appellation of Turki and fine mules which are sold at high prices." The Turki breed of horses is esteemed throughout the East for spirit and hardiness. (Compare तुर्क़ horses mentioned by जव्वळ).

**Page 50 — Horses in Persia**

"The country is distinguished for its excellent breed of horses many of which are carried for sale to India and bring high prices not less in general than two hundred livres tournois."³

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2. "Turkomania" then comprised the possessions of the great Seljuk dynasty in Asia Minor, says the Editor, Mr. Wright.
3. Wright observes:—The excellence of the Persian horses for which they may perhaps be indebted to the mixture of the Arabian and Turki breed, is well known. A detailed account of their qualities is given by Chardin (tom ii, chap. viii, p. 25, 4 to); and also by Malcolm (Hist. of Persia Vol. ii, p. 516). As the livres tournois, in the 14th cent. was at the proportionate value of 25 to 1 livre of the present times, it follows that the price at which the Persian horses were sold in India was from 1500 to 2000 rupees.

Cf. Vincent Smith (History of India, Oxford, 1914, p. 426)—King Pulakesin II of the Deccan sent an embassy to Khusru II of Persia in A.D. 625. Khusru sent a return embassy to Pulakesin. A picture of this return embassy is found on an Ajanta fresco painting in Cave No. 1.
"The traders of these parts convey the horses to Kisi, to Ormus, and to other places on the coast of the Indian sea, where they are purchased by those who carry them to India. In consequence, however, of the greater heat of that country, they do not last many years, being natives of a temperate climate."

Page 134 — Horses of Tartars fed on grass alone.

The Tartars "are capable of supporting every kind of privation, and when there is a necessity for it can live for a month on the milk of their mares and upon such wild animals as they may chance to catch. Their horses are fed upon grass alone and do not require barley or other grain. (Contrast the Indian regimen for horses consisting of चर, चणक and मृंगयुष mentioned in the अर्धवैद्यक and अस्त्रचिकित्सित of जयदत्त and नकुल and the rich diet for horses given by the आर्थशास्त्र in its chapter on अर्धवैद्यक).

"The men are habituated to remain on horse-back during two days and two nights, without dismounting, sleeping in that situation whilst their horses graze."

Page 262 — Horses bred in Karaian

"The best horses are bred in this province," (Wright observes:— "This is probably the same breed as the tangun or tanyan horses of lower Tibet, carried from thence for sale to Hindustan. The people of Butan informed Major Rennell that they brought their tanyans thirty-five days journey to the frontier" (Cf. जयदत्त mentions ठाकुर breed:— "बलुहूकृष्णपि हस्तव्र ठाकुर: परिकीतित:"

Page 266 — Horses bred in Karazan

"In this province the horses are of a large size and whilst young are carried for sale to India. It is the practice to deprive them of one joint of the tail, in order to prevent them from lashing it from side to side, and to occasion its remaining pendant, as the whisking it about, in riding, appears to them a vile habit." 

1. Wright states that Karaian is generally understood to be north-western part of जन-नन. Dr. F. Buchanan (Asiatic Researches, Vol. iv, p. 238) writes this word as Karayy. He also speaks of Ka-Kiayn a wild people on the frontiers of China. जयदत्त mentions a breed of horses of the name कैकयन (variants कैलान, कैकन, केकन). नकुल also mentions the कैकयन breed. Has कैकन or its phonetic variants any connection with Ka-Kiayn people on the frontiers of China, mentioned by Buchanan?

2. Wright states that Karazan is another province of Yun-nan—It appears that the practice of docking the tails of horses by separating one or more of the vertebrae, which has become so common in England existed many hundred years ago amongst the people of Yun-nan, ni the remotest part of China—Chinese pronunciation of Karazan would be Ka-la-Shan.
Page 386 — No horses are bred in Mabbar but they are imported from Arabia.

—“No horses being bred in this country the king and his three royal brothers expend large sums of money annually in the purchase of them from merchants of Ormus, Diufar, Pecher and Aden etc.”

—“The climate of the province is unfavourable to the race of horses.”

—“For food they give them flesh dressed with rice, and other prepared meats, the country not producing any grain besides rice.”

Page 420 — Horses exported to India from Kanan or Tana.

—“They likewise take on board a number of horses to be carried for sale to different parts of India.”

Page 439 — Horses from Aden exported to India.

“In this port of Aden, likewise, the merchants ship a greater number of Arabian horses, which they carry for sale to all the kingdoms and islands of India, obtaining high prices for them and making large profits” (cf. the statement of ज्यादत्र व नहँ च, that ताजिक or Arabian horse belongs to the best class of horses.)

Page 443 — Horses exported to India from Kalyati or Kalatu.

“Its harbour is good, and many trading ships arrive there from India............ These likewise carry away freights of horses, which they sell advantageously in India.”

It is clear from the foregoing references of A. D. 1298 about the importation of Persian, Arabian, Turkish and other breeds of horses to India that these horses enjoyed a wide popularity in Indian kingdoms and that this Indo—foreign trade in horses was already an established feature

1. Wright observes:—“Even at the present day there is no breed of horses in the Southern part of the peninsula, and all the cavalry employed there are foreign.” ज्यादत्र also considers the horses bred in the Eastern and Southern country as अथम or of low quality:

“अभमाध्यः सारः इव अद्वितियोद्वाहः.
“द्वारिषास्यो भवेदुप्स्तिको योजनयः सर्वं सार्वचिनिनाम् ॥ १६ ॥
जवहिना महादुधोः, तूवेदेशामुद्वरः ।”

2. Wright observes:—“Horses were carried from the Red Sea, Persian Gulf, and places in their vicinity to the northern parts of India, from whence their breed was exported to the southern provinces. Such at least appears to have been the course of the traffic before it was disturbed by European influence.”

3. Kalyati is Kathai, on the Coast of Oman, not far to the southward of Muscat.
of the commercial relations of India with other countries. It is on this account that we find a definite mention of पारसीक, तुरुष्क and वालजी horses in the treatises on horses by जयदुरूत and नक्श.

(6) The Western Calukya King सोमेश्वर composed his encyclopaedic Sanskrit work अमलकृष्ण ¹ about A.D. 1130 i.e. about 168 years earlier than Marco Polo’s Travels. In this work there is a chapter on वारिवा वारिवा-विनोद or the game of Indian Polo.² The king should understand the kinds of the best horses for this game brought before him by his officers (तेवां जाति: परीचित देशनामविषेध, श्रीवाजी). Someśvara then names the following classes of horses.

**Best Horses** — (1) काजो, (2) व्यक्त, (3) तेजी, (4) वालजी, (5) अतिन, (6) तालूकारक, (7) केकक्षा, (8) गीतार, (9) काम्प्रेय, (10) श्रीयो, (11) वाजमुक, (12) वनाकुव, (13) पारसीक.

**Middle Breeds** — (14) तैलिक, (15) कस, (16) काम्प्रेय, (17) वानेज, (18) तैन्नक, (19) वारिवा, (20) पाशेय, (21) काम्प्रेय, (22) वारिवा, (23) तेजी, (24) कुलक, (25) नीतार, (26) शास्त्रिय, (27) तुरुष्क.

**Inferior Breeds** — (28) देवक, (29) अतिन, (30) श्रीवाजी, (31) गीतार, (32) राजस, (33) श्रीवाजी, (34) श्रीवाजी, (35) श्रीवाजी, (36) श्रीवाजी, (37) दुर्गम, (38) श्रीवाजी etc.

It will be seen from the above list that many foreign breeds of horses such as पारसीक, तुरुष्क, तालूकारक, केकक्षा, वालजी, तेजी etc. were considered best horses about A.D. 1130, when Someśvara ruled in the Deccan. The question of the identification of all these breeds of horses mentioned by सोमेश्वर, as also those mentioned in other works will have to be considered separately as such identification has a direct bearing on the history of foreign commerce with India.

In the वारिवा वारिवा (Indian Polo) chapter referred to above there is no occasion for Someśvara to mention the food for the horses. Accordingly there is no mention of चक or gram in it.³

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² Ibid, pp. 211—224 — वारिवा वारिवा विनोद. It is worth while comparing the horse-lore in this chapter with that in the horse-treatises of जयदुरूत and नक्श. See also Mr. G. K. Shrigondekar’s paper on “Indian Polo” in the Proceedings of the Indian Ori. Conference, Allahabad, 1926.
³ I note here some references to चक and its uses found in the मानलिंगस Vol. II (Baroda) 1939.

P. 10 — चकका (rice boiled with gram) used for वाशुप्रसाद.

P. 115 — Chapter on चक का विनोद: चक to be used in cookery after grinding it in a घाउँ—हरिजिय (चकका) pulse fried with spices (p. 119).

(continued on the next page)
History of Caṇaka (gram) etc.

(7) The lexicon Amarakoṣa mentions चन्द्र as the name of a horse (see चन्द्रचार्य of Kaṇḍa II of Amarakoṣa, ed. by N.G. Sardesai and H.D. Sharma). It mentions also four breeds of horses as follows:—

P. 185 —“८६—चन्द्रचार्य: पारसीकी: कांब्रोज, बाल्किका हिया.” The commentator चीरसबामिन्न explains :—“देवे जाता: हरिण्विषेया: एवं तुल्सारादेखोपिय”

The Amarakoṣa (between A.D. 500 and 800) refers to the पारसीक or Persian horses. This reference is important as it is one of the earliest references to पारसीक horses we have so far recorded. चीरसबामिन्न adds the तुल्सार breed to the four breeds mentioned by Amara. The date of चीरसबामिन्न is about A.D. 1050.

(8) The Brhatasamhita of Varahamihira (c. A. 500) contains a small section on अस्त्रव्रतम (chap. 66 in 5 verses) but it mentions no breeds of horses in it though it mentions चणक.

(9) Narahari in his medical glossary called रजनिवधाम of c.A.D. 1450 refers to the following breeds¹ of horses:—

(1) अरदू, (2) सिन्धु, (3) बनालू, (4) पारसीक, (5) कांब्रोज, (6) बाल्किक, (7) सत्राण, (8) चेफळ.

(10) During the Polonnaruva period of the history of Ceylon (A.D. 1017-1235) horses, chariots and elephants were used at times in warfare but an army of which they formed part was rather the exception than the rule because there were no convenient routes to follow in a thickly wooded country like Ceylon. The soldiers as a rule travelled on foot and the generals were carried in palanquins with parasols held over them as a sign of their authority.² Ceylon’s trade with the West began very

(continued from the previous page)

P. 261—Chapter on सिन्धु बिनोद—चणक pulse to be given to the buffaloes used for fight.
P. 273—Chapter on सत्राण बिनोद (Angling)—Balls of चणक पिंड or gram flour with boiled rice to be used for feeding fishes.

Pages 283-286—Boar-hunt (वाराहंय) is described. Boars are very fond of चणक (सुकृता चणकोपसपुत्रा)—several uses of चणक for tempting the boars before the king hunted them are described.

The foregoing references clearly prove that in A. D. 1130 the use of चणक or ग्राम for feeding buffaloes and boars was an established practice.

1. Vide p. 35 of ब्राह्मणदोषकोष by K. M. Vaidya, Trichur, 1936—रजनिवधाम is quoted here as follows:—

“श्रावसविन्यासमनाविनासपवसीक—
कांब्रोजबाल्किकमुला बिसग्राहयुगर्गाः.
सत्राणकांब्रोजमुला श्रावै देशातः सु:”

2. Vide p. 91 of Early History of Ceylon, by G. C. Mendis, 1938,
early. It is not certain whether the Arabs had dealings with Ceylon before the Christian Era. From the 2nd century A.D to the early part of the 3rd century Greek traders came to Ceylon. There was a revival of trade after Constantine (A.D. 323-337) who made Byzantium the capital of the Roman Empire. Persians, who were Christians of the Nestorian sect also traded with the South-west of India and Ceylon but their trade ceased in the 7th century when Persia was captured by the Muslims. The conquest of Alexandria by the Caliphs in A.D 638 stopped Ceylon's direct trade with Byzantine Empire. Before the end of the 10th century the Arabs established a trading settlement in Colombo. In view of these circumstances it is doubtful if any foreign breeds of horses were imported to Ceylon as they were imported to India from Persia and Arabia say from A.D. 800 onwards.

(11) We have already seen that जयद्रथ and नक्षत्र have stated that the breeds of horses from the दक्षिणात्य and पूर्व (Southern and Eastern) countries or provinces were of the most inferior quality (अचर). During the rule of the Pāla dynasty in Bengal (A.D. 750-1200) cavalry was not neglected because they had to fight with Pratihāras who were strong in cavalry. Bengal had no good breed of horses. Horses were imported from foreign countries. It is said in the Mongyr plate of Devapāla (A.D. 810-850) that the horses met their old mares in the Kāmboja country. Kāmboja was reputed for the finest breed in ancient times.

(12) Dr. B.C. Law in his learned article on “Animals in Early Jain and Buddhist Literature” recently published, records the following interesting information about horses gathered from the Jātakas:

“Horses — Sindh horses are milk-white and thorough-bred (Jātaka Nos. 22, 23, 160, 211, 529, 547, 538). They are white as lilies, swift as the wind and well trained (Ibid, Nos. 544, 266, 547). Horses like to eat pear (Ibid, 176). Thorough-bred horses are fed on parched rice drippings broken

1. Ibid, pp. 73-74.
4. Dr. A. D. Pusalker has drawn my attention to the following references to Horses in Dr. B. C. Law’s Tribes in Ancient India (B. O. R. Institute, 1944) — “Horse-dealers figure prominently amongst the Gāndhāra trades and we learn from the बायबुस्तुल that the Gāndhāra horses were considered the best of all (ch. 99) (Page 17) — “Horse dealers from northern districts used to bring horses to Benares for sale (Jātaka II p. 287). Sindh horses were available in Benares and were used as the royal horses of ceremony (Jātaka II p. 338) Law p. 112.
meats and grass and red rice-powder (Ibid No. 254). There are big chestnut horses (Suhana Jataka No. 158). Horses are fierce (Ibid No. 115). When they become rogue they bite quiet horses, but when two rogues meet they lick each other's body (Ibid No. 158). The horse can also imitate men. A horse watching its tame trainer as he trampled on and on in front imitated him and limped too (Giridanta Jataka No. 184.) A thorough-bred war-horse will not bathe in the same place where an ordinary horse took its bath (Ibid No. 25). Horses were employed for drawing state-chariots (Ibid No 22) and cars (Ibid No. 211). Thorough-bred Sindh horses sheathed in mail were used for war purposes (Ibid, No. 23; cf. Ibid, No. 547). The Valaha and Sindhu are the horses of superior breed (Barhut, III, Pl. XXVI, fig. 136).

There was a trade in horses (Jataka Nos. 4 and 5). There were valuers employed by kings to fix the proper price of horses, elephants and the like (Ibid, No. 5). Good horses used to fetch high prices. A high-bred foal was sold at Benares at a high price, separate price was paid for the foal's four feet, for its tail, for its head — six purses of a thousand pieces of money, one for each (Ibid, No. 254). This horse could run at such a high speed that nobody could see it at all. It could run over a pond without getting its hoofs wet, and gallop over lotus leaves without even pushing one of them under water (Ibid, No. 254) — There was a flying horse, white all over and beaked like a crow, with hair like muniya grass, possessed of supernatural power, able to fly through the air. From Himalaya it flew through the air until it came to Ceylon. It carried 250 men at a time (Valahassa Jataka No. 196)."

There is no reference to चाँक or gram as food for horses in the above account of ancient Indian horses, though it refers to rice, meat and grass as food for horses. The breeds of horses mentioned in this account are Valaha and Sindhu only. The reference to trade in horses is in harmony with the references to such trade recorded by me already in this paper.

(13) In view of the Indo-foreign horse-trade referred to in the Indian and Foreign sources of history the following remarks of Geoffrey

1. Geoffrey Brooke in his book "The Way of a Man with a horse" (London, 1929) has dealt with the question of feeding of sick horses. He prescribes eggs, milk, bread, biscuits, beer and wine for supplying nourishment in a concentrated form. Beer, Stout and Wines are to be given chiefly to stimulate appetite. A quart of Beer or Stout and a bottle of wine are to be usually given (P. 101). "A horse that does not appear to be thriving may be given a wine-glassful of Cod-liver oil in thrice the amount in treacle mixed in his feed once a day."
Brooke in his book, "The Way of a Man with a Horse" (London, 1929) on the history of the Horse and Horsemanship will be read with peculiar interest:

Chap I — The Horse.

"Throughout the past ages to the present day we find the horse's many qualities appreciated and turned to the use of man. His courage and endurance have repeatedly been recognized as dominant factors in war and his original use for this purpose dates back to pre-historic times. Archaeological evidence proves this to have been the case in India, Persia, Assyria, and Egypt, where the horse was bred and trained as a means of conveyance. In 2737 B.C. the Chinese are known to have made use of cavalry. Amongst other places in the Bible we find in the Book of Kings, reference made to Solomon's captains, rulers of his chariots and his horsemen. The cavalry of Alexander the Great was famous in their days throughout his many campaigns. We know too that the ancient Greeks were highly skilled horsemen and devoted much of their time in equitation. There is both sound advice and practical knowledge to be derived from Xenophon's treatise on horsemanship. It is interesting to note that Herodotus in his book Thalia refers to Darius sustaining an accident when hunting on horse-back. We know of course that the Egyptians, Phoenicians and Romans employed horses in chariots in addition to normal cavalry of those times.

Throughout past centuries to this day the Arabs have been recognized as a nation of horsemen and it is to these people and their particular breed of horse that we owe the wonderful Thorough bred of modern times.

1. Vide "Ceremonial Usages of the Chinese, B.C. 1121, Translated by W.W. Gingell, London, 1872—This Chinese classic (3000 years old) refers to royal chariots and banners (pp. 18-26). It describes how men of the Chow Dynasty (1121 B.C.) paid particular regard to carriages and then records in detail the principles of carriage building. It refers to military carriages, small carriages with one pole and a pair of horses on each side of the pole and large carriages with two shafts and an ox between them. The small carriages were used for hunting and war purposes. There were also "plain carriages" used as vehicles, drawn by ox or horse—This book then lays down the "regulations by which the people bred horses." Horses were of six kinds:—(1) thorough-bred, (2) Charger, (3) horse of colour, (4) roadster, (5) hunter, and (6) common-bred. There were officers to look after the Castration of horses, and officers to supervise the harnessing and unharnessing. There were other officers to manage the vicious horses. These observations are evidently about 1000 years older than those in Kantilya's chapter on अवाक्षर in the अवस्थान and about 2000 years earlier than those in the treatises of ज्ञानदर्शन and नृसेन.

2 Alexander's favourite charger Bucephalus died at Jhelum City of the Hydaspe in N. India after carrying him in all his campaigns. Alexander built at this place a city in memory of his charger after his battle with Porus. (Vide p. 110 of Smith's Smaller Classical Dictionary. Everyman's Library, London, 1913.)
Among the early British at the time of the Roman conquest the Iceni held a justly high reputation for the excellence of their horse and their horsemanship.

In mediaeval times good horsemanship was highly esteemed as witness the English Knights who won their spurs by gallantry on the field of battle.”

The foregoing data gives us a glimpse into the history of Indian interest in horses and the consequent importation of foreign horses into India from very early times. We have seen already that the Amarakoṣa refers to the Pārasika or Persian horses. We know also that Pulakeśin II of the Deccan sent an embassy to Persia in A. D. 625. Are we to suppose that the Persian horses began to be imported to India after A. D. 600?

1. Iceni—a powerful people in Britain dwelling in the modern counties of Suffolk and Norfolk. Their revolt from the Roman under their heroic queen Boadicea is celebrated in history (Ibid, p. 277).

2. Mongol horseman under Khōn (died 1227 A. D.) were celebrated for their conquests—"A Mongol on a single pony will ride from Urga to Kalgan—by the shortest route 600 miles" (Vide p. 133 of Unknown Mongolia by Carruthers, Vol II). See article on Mongol Army in JRAS, 1943, p. 51.

3. According to Bombay Gazetteer (Vol. XIII (Thana) Part II, p. 403). The Thana coast has taken a leading part in foreign commerce of Western India in the following periods of history:

(i) B. C. 2500—B. C. 500—There are signs of trade with Egypt, Phoenicia and Babylon.

(ii) B. C. 500—A. D. 250—There are dealings with, perhaps settlements of, Greeks and Romans.

(iii) A. D. 250—640—There are Persian alliances and Persian settlements.

(iv) A. D. 700—1200—There are Mussalman trade relations and Mussalman settlements from Arabia and Persia.

During the reign of the great Nāḥerwan (A. D. 531-578), the relations between Western India and Persia were extremely close. In the several lists of the articles of trade imported to India from outside before the period of the rule of the Sīlaharās (A. D. 819-1060) I don't find any references to the import of horses. The Gazetteer observes (p. 431):

"The chief trade in Animals was towards the close of the period (1290), a great import of horses from the Persian Gulf and from Arabia. No ships came to Thana without horses and the Thana chief was so anxious to secure them that he agreed not to trouble the pirates so long as they let him have the horses as his share of the plunder. This great demand for horses seems to have risen from the scare among the Hindu rulers of the Deccan caused by the Mussalman cavalry. As many as 10,000 horses a year are said to have been imported." Speaking of Mussalman trade (p. 444) the Gazetteer observes:—"The constant demand for horses kept up a close connection between the Thana and East Arabian ports and there was a considerable trade with the Zangibar coast."
According to the *Bombay Gazetteer* the demand for Persian and Arabian horses arose from the scare created by Mussalmān cavalry. If this statement is true to history the horse-trade from Persia and Arabia must have been started some time after the conquest of Sind by the Arabs in A.D. 712. The Arabs had made several raids on the coasts of Western India, one of these in A.D. 637 from Bahrain and Oman in the Persian Gulf and plundered the Konkon coast near Thana (see Elliot and Dowson's *History*, I, pp. 415-416). In view of the above history of the trade in Persian and Arabian horses I am inclined to think that the treatises on horses by जवद्वन्द्र and नकुल viz. the अश्ववंशक and अश्वचिकिरित क अर्जित are later than c. A.D. 800 as they refer to the पारसीक (Persian) and ताजिक (Arabian) horses among the best breeds of horses. These treatises were probably composed before A.D. 1300 as they show in a remarkable degree the necessity felt by the Hindu Kings of the period 800-1300 A.D. of providing such manuals for the care of their cavalry with a view to combating the Mussalmān trained cavalry like that used by Śhiab-ud-din against Prithivīrāja of Ajmer in A.D. 1191.

If चणक or gram came to be used as food for horses in India say between A.D. 800 and 1300, the period during which the above mentioned treatises on horses were composed, we must investigate whether the use of चणक as food for horses has travelled to India along with the Persian and Arabian horses or otherwise. In connection with this problem it is necessary to locate references to चणक as food for horses in Persian, Arabic and Turkish sources prior to A.D. 800 but I must leave this task to scholars conversant with these sources. I have tried in this paper to record the history of चणक or gram as food for horses between c. A.D. 800 and 1870. I propose to deal with the question of the antiquity of चणक on the strength of Sanskrit and non-Sanskrit sources on a subsequent occasion and the present paper is only an off-shoot of the main study pertaining to the history of this important grain on which horses have been fed for more than 1000 years in India.

1. जवद्वन्द्र is called "महासामान्त" in the colophons of the different chapters of his आधरेडक.
26. Use of Canaka at an Aṣvamedha in the Rāmāyaṇa, of Conḍaṅkāla in Rasavidya (c. A.D. 1000 onwards) and Trade in Canaka (about A.D. 1300)*

In my paper† on the History of Canaka (gram) I have recorded references to it from very early medical and other texts such as the Bhelāsāṁhitā, Kaśyapaśanāḥhitā, Canaka Sāṁhitā, Suśruta Sāṁhitā, Nāṭyaśāstra, Guhyasāmājatantra, Paumacariya, Brhatāsāṁhitā, Gāthāsaptāsati, Pañcaratnā, Thānāngasutta, Amarakośa, etc. Among these references I did not record any reference to Canaka from the two Epics, the Mahābhārata and the Rāmāyaṇa, because I had no time to peruse these voluminous texts, having already spent many months in studying the history of Canaka from varied sources and recording the results of my study in a few papers§ on this subject. Recently a learned friend, Mr. S.N. Vyas of Jodhpur (Rajaputana), who happened to read my paper on Canaka in the Annals (B.O.R. Institute) directed my attention to the following reference to Canaka in the Rāmāyaṇa (Uttarākanda, chap. 91, verse 20, p. 231, of T.R. Krishnacharya’s edition, Bombay, 1913):—

(Rāma asks Lakṣmana to carry out preparations for the Aṣvamedhā sacrifice in the Naimiṣā forest on the bank of river Gomati).

"शर्त वारससहस्त्राणि तपस्विनां विपृत तां।
श्रौतित तिलमुद्राणि प्रवत्त्यामेहार्ष्य || १६ ||
चण्डनकारां कुल्थानां मापायां लावण्यं च ||
श्रोतनुभूर्ण स्त्रेष्ठं च गर्भं संज्ञितमेव च || २० ||"

In my paper on Canaka published in the Annals I have pointed out that the Agnipurāṇa (A.D. 800-900) prohibits the use of Canaka in religious fasts and further Vijñāneśvara (A.D. 1070-1100) prohibits its use at a Śraddha. This prohibition may be contrasted with the recommendation of the Rāmāyaṇa that Canaka should be used along with tila, tāndula and mudga as also Kulatha, māṣa at an aṣvamedha sacrifice. If Southern

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Europe is the native habitat of Canaka, and if from this habitat, i.e. from Greece and Italy, it migrated to India possibly during the Greek occupation of Panjub (B.C. 190—C. A. D. 20) as suggested by me, it is natural to find it mentioned with favour in the Uttarakanda of the Ramayana which must have been composed at a time when Canaka was popular among the sages of India as an edible grain in spite of its foreign origin. As all early medical texts prescribe the use of Canaka on account of its dietetic value we have to suppose that it became the friend of the common people within a short time from its introduction by the foreign settlers in Indian agriculture. At a later stage say after A. D. 300 the Canaka came to be produced in larger quantities and was consequently included among the articles to be used for the regimen of horse. About A. D. 1000 Canaka ousted out Yava from the regimen of horses though at this time the Dharmaasastras, which had more respect for Yava on account of its Vedic antiquity, prohibited Canaka in important religious ceremonies and ritual. In spite of this prohibition Canaka became more and more popular and demanded respect, so that by about A. D. 1450 we find it among the grains to be offered at a Sraddha by pilgrims as prescribed in the Gangavakyavali. This in short is the story of Canaka as reconstructed by me on the strength of ancient and mediaeval Sanskrit and non-Sanskrit texts.

In the numerous printed editions of the Ramayana the verse "चणकानां कुलस्थानं" etc. which I have quoted from Krishnacharya’s edition of 1913, has been uniformly retained. I would, however, request our Ramayana scholars to see if this verse is dropped from any MSS of the Uttarakanda, which might be accessible to them.

Apart from the dietetic value of Canaka vouched by early medical texts we have in later texts references to the medical use of Canaka and its products. I may note here a few of these references:

(1) In the Canakavidhi (section on Canaka) found in the MS of Aśvayurveda of Vagbhaṭa, son of Vikrama (B. O. R. Institute MS No. 581 of 1899-1915, folio 54) we find the following description of Canaka plant at its flowering-time:

"पुष्पे लक्षणातिकास्मर्दिं दैविकापथ्यतः"

At present we use the acid procured from Canaka as a house-hold remedy. It is called अंब (Amb) in Marathi and is gathered from the Canaka fields at the flowering time. The above line refers to the three rasas or flavours developed in the Canaka plant viz सल्वर्ण (saltish), तिक (bitter or pungent) and अम्ल (sour or acid), at the flowering time. I cannot say how far this
statement is correct but I can vouch for the अम्लरस or the acid taste, which was recognized more than a thousand years ago by Indians during the history of Canaka in India for about 2000 years.

The acid gathered from the Canaka plants was called चणकाग्नि (चणकाग्नि in Marathi) as will be seen from the following references:—

In the Rasaratnākara (Vādikhaṇḍa ed. by J. K. Shastri, Gondal, 1940) a work on alchemy assigned to the 13th Century A.D., we get the following references to चणकाग्नि etc.:—

Page 8 — (Upadesa II) अम्लरस

—“चाणको चणकाग्नि टु मात्रुद्भास्मवेतसम् || ७ ||
चिंचनातगामणिमेतमवर् इति स्मृति: ||”

Page 10 — (दिव्यमिथिनण)

—“वदंसी लखिया चणका वास्तवपत्रका ||”

Page 62 — (Upadesa VII) तात्रेच

—“मगवको सुखप्रौढ़ टु चणकाग्नि समुन्न भावयेत”

Page 79 — (पारं ब्रजारणम्)

—“पूर्वो भोज्याग्नि न मधुशाय चणकाग्नि: || ७५ ||
वारुनाणामवेतस्य न चूर्णमाग्निमितिवेतस्य
अग्रको चणकाग्नि: जीरों जीरों : विपेक्षम्: || ७६ ||
इत्येव जार्येवतुल्यां गार्येव गमनं कसमाद्”

Page 103 — “मद्येतातस्वल्यं तू चणकाग्नि स्वमितिवचिति
नवसारीं: नात्र लेवेतस्य नित्विशेषे ||
पारं दातित्व साध्रु चणकाग्नि च काजिकम् ||”

Page 116 — “धाम्याम्लः पेप्पेतत्रस्त्य तद्वर्ज्रामैं वेतसम्”

Page 122 — “मद्येतातस्वल्यं सर्वमेतदिनवचिति || ११ ||”

Page 125 — “मद्येतातस्वल्यं शामादृगम् गम्येव त्रिक्तमम् || ४० ||”

Page 146 — “चाराचरं रामं च चणकाग्निमवेतसम् || ६१ ||”

1. In the S'abdakosak Upaditma (Calcutta, Vol. II), p. 417, we get the following entries about चणकाग्नि:—

चणकाग्नि (चणकाजातसम्मलम् || तत्स्वरूपतः कन्या: || चणकालवस्य तद्वर्त गुणाः: || अर्थालम्बम् || दीपनालम् || दत्तहल्यालम् || लवणातुसरलम् || रवमल्लम् || शुल्कालिनिवृत्तालिङ्गविशिष्टम्
इति भावयकारार (c. A. D. 1550) पूर्वकरकादेप्रमेयभागे: ||
चणकाग्नि: (चणकालिस्य चणकालवश्य वारिजातम् ||) चेत्तस्थानकलवश्य—
काप्पाप्पितिशिलानि इति रज्जार्या.
In the Rasārnava (c. 12th Century A.D.) edited by Dr. P. C. Ray (Bib. Indica, Calcutta, 1910) we get a few references to चनकाल्म as follows:

Page 64 — "अर्धलेष्टसम्बोधीयज्ञाम्भुच्छाकल्मकस्
नार्द्ध तिनिततिदाक्ष्य च चाष्यर्मलस्मीयमादि: ॥ ३२ ॥"

Page 90 — "चारत्र्य रामद्य च चनकाल्मल्वेदसम्"

Page 161 — "रसेन तद् देवेशि चनकाल्मलेन कालिकम् ॥"

Dr. P. C. Ray explains the term चनकाल्म in his Glossary (pp. 26-27) at the end of the Rasārnava edition as follows:


In the Rasaratnasamuccaya of Vāgbhaṭa, who is assigned by Sir P. C. Ray "between the 13th and 14th Centuries A.D." (p. li. of Intro. to History of Hindu Chemistry, Vol. I, Calcutta, 1902) we find the following references to चनकाल्म in Chapter X (page 40 of extracts at the end of Hist. of Hindu Chemistry, Vol. I):

"नार्द्ध तित्तिदाक्ष्य च चाष्यर्मलस्मीयमादि: ॥
अर्धलेष्टसम्बोधीयज्ञाम्भुच्छाकल्मकस्
करवाद तथा चान्यद्वस्तवर्ग: प्रकाशीतिः ॥"

From the references to the "Caṇakāmla" (acid of Cicer arietinum in the Āśvāyurveda of Vāgbhaṭa, son of Vikrama, the Rasārnava and the Rasaratnasamuccaya recorded above it would be reasonable to suppose that this acid was a recognized product from the Caṇaka plant in India say from A.D. 900 onwards. It is now necessary to trace references to Caṇakāmla prior to A.D. 900 in datable texts.

In another work on alchemy called the Rasaprakāśasudhākara (13th Cent. A.D.) ed. by Rājavaidya. J. K. Shāstri, Gondal, 1940 we get a reference to the चनकाल्म (acid from Cicer plant) as follows:

Page 9 — "स्वतं हि रसुक्रेण तारेय चनकाल्म हि ॥"

(Here चनकाल्म is possibly identical with चनकाल्म)

The foregoing references to चनकाल्म in treatises from 13th Century onwards warrant an inference that Caṇaka was grown in the fields in large quantity to enable the alchemists to gather the चनकाल्म in sufficient quantity for use in their experiments in rasavidya. This inference is corroborated by the following anecdote about a trader in Caṇaka narrated by Merutunga in his work Prabandhacintāmani of A.D. 1305:

Pages 106-107 (Tawney's Eng. Trans., Calcutta 1901):—
Then one night the King was looking at a play in the temple of Karnameru, when a certain ordinary trader, a seller of gram placed his hand on his shoulder. The King’s mind was astonished at his sportive familiarity but he again and again accepted with his satisfaction the betel and camphor which the trader offered him, and when the play was dismissed, he found out by means of his attendants the house of the trader and other particulars in the fullest detail, and then, returning to his palace he went to sleep. In the morning the King, after he had performed the duties incumbent on him at the beginning of the day, adorned the assembly pavilion with his presence, giving general audience to the people and summoned the trader that sold gram and said to him, “My neck is aching from the weight of the hand that you rested on it last night”. But he with prompt readiness of invention, replied, “If your Majesty’s shoulder does not feel pain from bearing the weight of the whole earth, even to the urge of ocean, what pain can it feel from the weight of me, a mere life-less man of straw, that subsists by trade? The King was delighted by this speech of his, which put matters in their true light, and gave him a present. Here ends the Story of the Seller of Gram.”

The above story of the seller of Canaka is recorded in a work of A.D. 1305 but it relates to the reign of King Jayasimha Siddharaja Solanki of Gujarat (A.D. 1093-1142). If it really relates to this reign we can infer from it easily that the production of Canaka in Gujarat had grown to such an extent say about A.D. 1100 that there were special traders in this commodity with respectable status like the one in Merutunga’s story represented as having royal contact.

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2. The text of this story as found in the edition of the Prabandhacintamani, ed. by Ramananda Sastri, Bombay, 1888, p. 175 reads as follows:—

Sarga III—“अन्यान्यान्यान्या निष्ठि कर्मैर्मृत्युणां सुभिक्षुक्कक्क्रियां यौगिका ग्राममध्ये स्तन्जनं स्वतंत्रसङ्खेितस्तथात्तं सहस्त्रालापितं सत्यविर्माणमासं। स पुष्पी मृत्युकालीनां सर्वप्रसिद्धिकरणां परिसंक्षोच्छुदन, नायकर्स्वनामावर्सनाचूरं समस्तव्याय श्रीमलासाय सुचारु।”

इति क्रियाविक्रियायों: प्रबन्ध:॥
In the *Aṣvāyurveda* of Vāgbhaṭa, son of Vikrama (MS No. 581 of 1899-1915, folio 54) the author states that in the southern quarter below the Vindhya mountains *Canaka* was used prominently as horse-food (“दिल्लिविद्याय चणकः प्रसादो” and “चको द्विषेण विधानुचरेण चवाहित्”). This statement is in harmony with the abundant trade in *Canaka* (about A.D. 1100), which appears to have been carried on in Gujarat during the reign of King Siddharāja. In my paper on the *Canakavidhī* mentioned in the above *Aṣvāyurveda* I have suggested that this treatise appears to have been composed sometime before A.D. 1000. This suggestion gets some corroboration from the story of the seller in *Canaka* connected with the reign of King Siddharāja, during which the production of *Canaka* below the Vindhya range was growing apace, resulting in a well-established trade in this grain with special dealers. Evidently this grain of foreign origin had made its mark in the agricultural economics of India by A.D. 1000, if not some centuries earlier.

Aparātka in his commentary (c. A.D. 1100) on the *Yājñavalkyasūtrī* [ed. Anandāśrama, Sans. Series, Poona, 1903, Vol. I, pp. 322-353 (शचारवाच्य) शान्तकरण] quotes an extract from the *Matsyapurāṇa*. In this extract I find the following verses giving चण (Cicer) a respectable place among the 18 dhanyas prescribed for sacred gifts to Brahmīns:

“कीर्तियसस्तर्युक्त तिलद्रोपः परिशेषः।
तथाऽस्तुशाष्टाधान्यासि समस्तातिरिक्तित्वेत्॥
स्वामरकान्ययज्व (v.1. तिल) मुद्रितालामुमाण्
गोभुमनोद्रढकलामदनीविश्रेणिः।
सदाददशं चश्चकलामयोहराज
माष्ठपिक्रमूमहितं च मयोरमाहः॥”

The statement of *Aṣvāyurveda* of Vāgbhaṭa, son of Vikrama, that *Canaka* was current to the south of the Vindhya mountain (चको द्विषेण विधान) gets confirmation from the recent discovery in the Kolhapur excavations of charred *gram* seeds at depths attributed to the *Satavahana* period (B.C. 100—200 A.D.) by Dr. M. G. Dikshit, Curator, Deccan

1. Dr. Dikshit reports in his letter to me, dated 30th September 1947 as follows:—

“The following charred objects have been recovered from various levels in the *Brahmapuri* excavations, Kolhapur, 1945:

(i) Charred *Gram*—No. 796, Sq. IV—Stratum (4) Bahamani Period.
(iii) Charred *Gram*—No. 2988, Sq. I—Stratum (8) *Satavahana* Period.
(iv) Charred *Gram*—No. 2185, Sq. I—Stratum (8) *Satavahana* Period.
College Research Institute, Poona. If the dating of the levels at which charred *gram seeds* were found at Brahmapuri (Kolhapur) is correct we may be justified in presuming that *Canaka* was either grown in India between B.C. 100 and A.D. 200) or was imported into India from outside as an article of trade either by the Greeks during the Greek occupation of the Panjab between B.C. 190 and A.D. 20) or by the Romans whose trade with India in the 1st Century A.D. is now amply proved by the discoveries at *Arikamedu* (near Pondicherry) which was an Indo-Roman trading station on the East coast of India (*vide* article on *Arikamedu* in *Ancient India*, July 1946, pp. 17-124).

(v) Charred *Ragi*—Ex. II—(6) Depth 18 ft.—*Satavahana Period*.

(vi) Charred *Rice* occurred in a 6 inch layer all over a pavement attributable to the *Satavahana Period* (100 B.C.—200 A.D.)

I have to thank Dr. Dikshit for the above information which he sent to me very promptly.
27. Studies in the History of Indian Plants—
The use of Caṇaka (gram) as horse-food vouched by
five Sanskrit treatises on the Āsvaśāstra*

An accurate history of Indian plants of medical and nutritive value
can be written only when the history of each plant has been reconstructed
on the strength of Indian and foreign sources. I have accordingly been
engaged during the last ten years in gathering materials for such a
history and have even published some papers¹ on it. I have recently
sent for publication two papers² on the history of Caṇaka (gram) as
horse-food. The evidence recorded in these papers shows conclusively
that Caṇaka as horse-food has a clear history of more than 1000 years
as will be seen from the following table which shows at a glance the
evidence gathered by me from published and unpublished Sanskrit and
non-Sanskrit sources:—

* Pracyavāni, January–April 1946, pp. 35-39.
1. These papers are as follows:—
   (1) History of the Fig (Ficus Carica)—from B. C. 1000 to A. D. 1800 (New Indian
   (2) Antiquity of Jawār (Holcus Sorghum) from B. C. 2200 to A. D. 1800 (B. C. Law
       Volume, Part I, pp. 142-158).
   (3) A Contemporary Ms of the Bhojanakutūhala of Raghunātha (Between A. D. 1680
       and 1685)—Reference to chillies (मिद्राम) in this MS and references to अद्वैत,
       पंडित, अन्नफल, शौतास्त्र in the बृहदस्त्रयात्तम of Saint Rāmadāsa (A. D. 1608–1682)—Bombay
2. These papers are:—
   (1) History of Caṇaka (gram) as food for horse with some Notes on the History of
       the Import of Foreign Horses to India (Annales-B. O. R. Institute, Vol. XXVI,
       pp. 89-105.
   (2) Role of Yava and Caṇaka in the Regimen of Indian Horses as disclosed in the
       Āsvāyurveda of Vaghaṭa, son of Vikrama (Dr. A. B. Dhruvā Commemoration
       Volume).
<table>
<thead>
<tr>
<th>Chronology</th>
<th>Source</th>
<th>Reference to Canaka as horse-food</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before A.D. 1000</td>
<td>Aśvayurveda of Vāgbhata, son of Vikrama.</td>
<td>Does not mention पारसीक and ताजिक horses—Praises वव as food for horses from Himalayas upto विन्य mountain and चणक as important food for horses to the south of the विन्य mountain.</td>
</tr>
<tr>
<td>Between 800 and 900 A.D.</td>
<td>Agnipurana.</td>
<td>mentions चणक as food for horses along with वव</td>
</tr>
<tr>
<td>Before A.D. 1000</td>
<td>Aśvacikitsita of Nakula.</td>
<td>mentions ताजिक (Arabian) and खुरसान (Khorasan) Horses as the best. mentions वव as the best food for horses and चणक as the second best food for horses (यवाभावे चणक i: परे पान्यमृ).</td>
</tr>
<tr>
<td>Before A.D. 1300</td>
<td>Aśvavadyaka of Jayadatta</td>
<td>mentions ताजिक (Arabian) and पारसीक (Persian) horses as the best. mentions चणक as food for horses along with वव.</td>
</tr>
<tr>
<td>c. A.D. 1450</td>
<td>Rajanighanju of Narahari.</td>
<td>mentions चणक as &quot;बाजिभव&quot; or food of horses</td>
</tr>
<tr>
<td>A.D. 1513</td>
<td>Albuquerque, Cartas</td>
<td>grāos (=gram) as food for horses (exported from Persian gulf).</td>
</tr>
<tr>
<td>A.D. 1554</td>
<td>Castanheda</td>
<td>grāos (=gram) food for horses of Vijayanagar.</td>
</tr>
<tr>
<td>c. A.D. 1610</td>
<td>Pyrard de Laval</td>
<td>grain (=gram) like lentils.</td>
</tr>
<tr>
<td>A.D. 1702</td>
<td>Wheeler</td>
<td>gram</td>
</tr>
<tr>
<td>A.D. 1776</td>
<td>Halhed's code</td>
<td>gram</td>
</tr>
<tr>
<td>A.D. 1789</td>
<td>Munro's Narrative</td>
<td>gram (used instead of oats)</td>
</tr>
<tr>
<td>A.D. 1793</td>
<td>Dirom's Narrative</td>
<td>gram (not given to bullocks in the Carnatic).</td>
</tr>
<tr>
<td>A.D. 1804</td>
<td>Wellington</td>
<td>gram worth 50,000 pagodas for four regiments.</td>
</tr>
<tr>
<td>A.D. 1865</td>
<td>Palgrave's Arabia</td>
<td>gram</td>
</tr>
</tbody>
</table>
References in the above list from A.D. 1513 onwards are taken by me from Hobson-Jobson by Yule and Burnell (London, 1903, p. 393—article on GRAM). References earlier than A.D. 1513 were discovered by me during the course of my study. Since my discovery of the evidence regarding चणक as food for horses from Sanskrit works on Horses I have come across the following additional evidence from another treatise on Horses which I traced in the Government M.S. Library at the B. O. R. Institute, Poona. This treatise is called सारसमुच्छय and is a copy made in 1866-68 (No. 119 of 1866-68—Bühler’s Collection). At the beginning of the MS the copyist has copied the 6th chapter of 5 verses from the बुद्ध संहिता of वराहमिहिर (c. A.D. 500) called the तुरंगतिकणाच्याय. The work सारसमुच्छय follows this chapter.

It begins as follows:—

“श्रीगणेश्वर नामः || श्रीमहालच्छीमेलविलेखरास्माः नामः ||
वेन विश्वानवता हिमालयतस्मच्छापातु विकीर्दिति
य: स्नातो हथेच्छाताशिशिरेरागावशः पावने: ||
थे यत्वरुगसुखवजनतैलारिते हृदिते: ||
पावत: स तुरंगोश्रवण: श्रीशालिहोऽयो मुनि: ||
श्रीशालिहोऽयो हयोपुवं महामुनीय: प्रशिक्षाय तपस्तात: ||
श्रीममशा:पालसुतं चिकित्साविशारदं विल्हस्वामामातातम: ||
श्रीशालिहोऽयो निमृत्ता श्रीसुधेरस्वाभावस्यं: संग्राहं विचाराय: ||
विचाराय वसमलति च कल्याण विचित्स्यं सारसमुच्छयेद्यम् ||
श्रीशालिहोऽयो विधुतुदुःक्त: संवेच्छाविश्वासंपरो भिपुक: यो: ||
श्रीममशा:पालसुतं सारसमुच्छयेद्यम् बुद्धि कर्तिकायुजुबो बुधोदिति ||
"

In the several colophons of chapters found in the MS this work सारसमुच्छय on अग्निज्ञान is described as "विल्हस्वामामातातमकृ मल्लथुम्हेंत्र" i.e. composed by Kalhana, son of Bilhana. The genealogy of our author as recorded in verse 2 above is as follows:—

यशोपाल, son विल्हम, son कल्याण (author of सारसमुच्छय).

The date of this कल्याण has not been determined so far as I know but he appears to be different from कल्याण, the author of the celebrated राजतरागिनिः, who was the son of चणक. This चणक was minister to King Harṣa of Kashmir (A.D. 1089-1101). Our author’s father विल्हम who is called चिकित्साविशारद (verse 2) is not identical with विल्हम (c. A.D.

1. See अग्निज्ञानविरोधकोश by Chitrav Shastri, Poona, 1937, p. 207.
2. Ibid. p. 567.
1030-1100), the author of the विकर्माओऽदेवचारित, who was son of ज्ञेष्ठकरण्य and not of यज्ञपाृक. Whatever be the date of our Kalhana he appears to have been a Kashmirian physician like his father Bilhana styled as विकर्मशाहिवार्द or expert in medicine. With these remarks about the सारसमुच्य चिट and its author, I record below the evidence regarding the use of चायक as food for horses given by कश्यप in his work under reference:—

On folios 10 and 11 of MS No. 119 of 1866-68 (सारसमुच्य) the author deals with the food to be given to horses and observes:—

—“केशा: सुधातांकोणिन्द्रालाम: पुष्पः पशू: संतोषा एव देय:।
योगो न युक्तोम्बवधास्तः रसादिवांत्स्तन्तु च मान्यः।।।।
एकतिरिणायस्य नृपं प्रदायकासीष्ठायाः सेवनं सिद्धिगुणः।।।।
मुख्यविकांगामामन्त्रधारितं ददायार्डकांमालवेदेः सुकमः।।।।
न केशालास्ति कुष्ठे दिक्षोऽस्य सारदत्ते सततः प्रदायात।
रिवः न रसो न च कीटसूक्ते देयो हृदयां चाेकास नित्यम्।।।।
न खादनमांसवर्तेऽन्नोऽज़नेऽन्नेवासास्तितिविनिधे:।
तथा न पुष्पिष्ठानीव वाणिज्यं यथा हि सौविविनिता प्रजायते।
*हिमालाणश्च्युतः दृढ़ाः वव: प्रदायः करितो मृदुः:।
दिन्दिघ्यायां चाचाक: प्रशास्तो मकुटक: पतिभमूदिमागे।।।।
—“प्रयो कृषीमिर्तिश्च दिन्दिघ्यायां चाचाकं स्तुत्रवतिर्मिर्तियोऽवस्थानां
गोमूलेण सुत्वं कप्रमिर्तिश्च सिमाध्याणाचण्डादिन
प्रक्षालं सरसमुच्य सरसमुच्य कप्रमिर्तिरिपयः॥”

Verse 9 in the above extract is found in the अध्यायांवेंद्र of वाग्भता without any serious variations, As Kalhana’s सारसमुच्य has summarised and digested some earlier sources on the treatment of horses (as its name indicates) it is possible to suppose that Kalhana may have borrowed this verse from वाग्भता’s work. Even though the possibility of a common

*In the वनक्तिति of अध्यायांवेंद्र of वाग्भत, son of विकम (B.O.R. Institute MS No. 581 of 1899-1915, folios 55-56) this verse is found at the commencement of the वनक्तिति section. It reads as follows:—

“हिमाळाणश्च्युतः चाचाकः प्रदायः कश्यपकः।
दिन्दिघ्यायां चाचाकः प्रशास्तो मकुटकः पतिभमूदिमागे।।॥”

There is possibility of कश्यप borrowing this verse from वाग्भत’s अध्यायांवेंद्र as कश्यप has summarised some earlier sources. In his वनक्तिति, वाग्भत again repeats the substance of the above verse as follows:—

“चाचाकं दश्येन विश्वायां उसरेण यवाहितः।"
source from which both Kalhana and Vagbhaṭa may have borrowed cannot be ruled out we may take it as certain that Kalhaṇa lived at a time when चनक had assumed an important role in the regimen of horses in India so as to wrest out from its senior यव much of the latter's glory as horse-food par excellence.

It will be seen from the evidence recorded by me so far that the use of चनक as horse-food has been prescribed by (1) the अनिम्पुराण (section on अञ्चिकल्लित), (2) the अण्युद्वेष of Vagbhaṭa, son of Vikrama, (3) the सारसमत्रेष (on अर्हशाष्य) by कहा, son of विहाण, (4) the अञ्चिकल्लित of Nakula and lastly by (5) the अश्वेन्यक of Jayadatta. All of these texts are treatises on अर्हशाष्य composed between c. A.D. 700 and 1300, a period when there appears to have been a revival of princely interest in horse-lore consequent upon the effect of the superior Muslim cavalry against which Indian princes had to fight for their very existence. If this suggestion is accepted, it is easy for us to understand why these manuals on the care and treatment of horses came to be written. But for these texts, some of which definitely state that they have drawn their contents from the earlier texts of बालिकम्प and others it would have been difficult for us to have a peep into the ancient Indian horse-lore, which had become almost misty but whose development is fully attested by Kauṭilya's chapter on अर्हशाष्य in his आर्थासूत्र. Kingship depended on cavalry in ancient and mediaeval India as observed by Vagbhaṭa in the following lines in his अश्वेन्यक:

"अन्या भनिन्ति सुविय यथि हि तथि साजारः
ञ्चोऽस्य करनायिनी दृष्टेऽय पुष्टिः"

Though horses were the main stay of the old empires in the history of the human race, they have been now replaced by army tanks and in 1945 the Atom Bomb reigned supreme in human war-fare. When the scientists conspire Indra trembles in his war-chariot.
28. Studies in the History of Indian Plants —
The Role of Yaava and Canaka (gram) in Regimen of
Indian Horses as disclosed in the Áśvâyurveda of
Vāgbhata, son of Vikrama*

In my paper1 on "Canaka (gram) as food for horses" I tried to prove
the history of Canaka as food for horses in India for about 1000 years.
The earliest reference to Canaka as horse-food was traced by me in the
section dealing with Áśvacakitsitsita forming part of the present Agnipurāṇa
(c. 9th Century A.D.). To corroborate this reference there are references
to Canaka as horse-food in Jayadatta's Áśvavaidyaka and Nakula's Áśva-
cakitsitsita. In fact Nakula recommends Canaka as second best food for
horses, though he praises Yaava as the best horse-food. Even in the Agni-
purāṇa, Canaka appears as an alternative to Yaava. Since my sending the
above paper for publication, I have traced some interesting evidence about
Canaka as horse-food in a MS2 of a work dealing with horses and their
treatment. The chronology of this work has not been determined. The
MS of this work in the Government MSS Library at the B.O.R. Institute,
Poona, is dated Saṁvat 1701 = A.D. 1645.

The author of this work was वारम्भ, son of विक्रम, and the name of the
work is अंधकारुङ्गेश. In the Colophons of different chapters of the work, the
author's name is given as वाह्य which is identical with the name वारम्भ as
recorded by the author in the following verse on folio 4 of the MS:—

"इदानीमय्य शास्त्रम कमो विक्रमसुन्नता।
बोधाय वै भुज्याणां वारम्भेनामविनीते || ॥ ॥"


1. Vide Annals (B.O.R. Institute, Poona), Vol. XXVI.
2. MS No. 581 of 1899–1915, folios 196, the Colophon on folio 196 reads:—

"इति भौरेकृमसहामनादविरिक्तेनद्वारुङ्गेन्द्रे विमोर्चिन्विता इत्य। संवरः १७०१
श्रव्य सुदि १२ क्रमे लिखितम्तः हृदरतिसहस्रुधुलेलाव (?) क्रासुदुहंवेक्ललकातकतपुत्रुदुहुवेलाव-
देवेन् राजमहलम्येव्य स्रवरिजीवे प्रस्थकर्तारे च || etc."

In the first 9 verses, the author tells us that he has based his treatise on the earlier
works of शालिहृद्र and other sages ("साक्षातसमुद्यनिसंवल्लोपालयामेऽविवर्तमादिचिन्यकिता दितादिनम् || ॥ ॥")
There are several writers of the name वामन in Sanskrit literature. Even in the field of Medicine, we have the following name-sakes\(^1\) of our वामन:

(1) वामन I (author of व्रेष्ठिसंस्मर) c.A.D. 625.
(2) " II (author of व्रेष्ठिमय) 8th or 9th century A.D.
(3) " (author of रसरत्नसरसचन्द्र) 13th century A.D.

The relation of our वामन, the son of विवल, to his name-sakes recorded above remains to be investigated. The relation of his व्रेष्ठिर्मय with the treatises on horses by Jayadatta and Nakula needs also to be proved on definite evidence. For the present, I record below the evidence about the use of यं and चिन्न as food for horses described in detail by our author in the following extracts of the B.O.R. Institute MS before me:

(१) यवविषिः (folio 54)

| तुमानात्मध्य वाहनां महातितकारिपा ।
| निमित्तायं शमिततय हुरितवा यवविषिः ॥ ७५ ॥
| कुःथायायोगमो बलजनङ्गाएवस्तवायस्यवत।
| सत्यसैुसस्मायप्रज्ञातिगुणाशक्तिः निन्द्रियायां मृतुट्टि।
| तन्नाना वैयार्याः पुनःविहारस्यमेव स्वस्वस्मिर्योपविलयाः।
| संज्ञायेत हरिशामिश हुरितयवा सेव्यमानाय यमावत। ॥ ७६ ॥
| व्रेष्ठिमयो यमावला (यमावला) युगा वृहतिसंयुता।
| उत्तेज्युस्माः पर्याजयेत गर्भसंयुता। ॥ ७७ ॥
| दीर्घादिक्रमेष्यं संतस्तो व्यक्तक्रत्य वव। ॥
| पमार्शस्त्रदुबोक्षा। सम्भवति मनीषिस्मिः ॥ ८० ॥
| रत्न: व्रेष्ठिमयेत स्तु: कालाः हुरितवा वव। ॥
| कालाकोटका रुक्षा थाला: प्रक्रियावलु: ॥ ८२ ॥
| व्रेष्ठिमयेत युगाः (२) पुष्टी पुष्टिपति पुष्पिता। ॥ ८३ ॥

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2. यं as man’s food from the Rigveda onwards is celebrated in Sanskrit literature. In Kantilya’s Arthaśāstra, it is prescribed for horse regimen along with other ingredients. In later treatises on horses such as जदन्त’s जदरस्रोत, मुल्ला’s अनुसरणसमावेश, the वृष्णस्वरूप ascribed to भोजस्वरूप etc., it is much praised as food for Horses. Even in the हस्यसंग्रह of पालकाण्ड, it is constantly prescribed as food for elephants. It found in चाक, a superior rival sometime before A.D. 1000. Even पालकाण्ड prescribes चाक for elephants in the following verse:

“तेहदि यवपूर्णमा कलपाः (यं) धराग्रहतः। पालकाण्डे प्रक्रिया | ४० ॥” P. 646 of हस्यसंग्रह (A.S.S. Poona, 1894).
विवाद सुधार बारा: कठुआ गामिनात्त: || निकृतांकृत्ति जनतित ततो मांसः केशभाषा मूलकारिणः || 84 ||

सहीराच रसोपेता मादुर्यायथायुतः || वितांकृपण निश्च्याहितायंते भावना: || 85 ||

पका युक्ता रसः प्रहसिः कोंदाहकतो मताः ||

मेदोमारासिमात्ती म्यारकुवति सेविताः || 86 ||

सके प्रमाणस्य विरेण: कफसेचनि

प्राप्तमवति पानेन बर्जायतितलङ्कुषः || 87 ||

िोहु न पार्यते तुष्णा ग्राहासून्ता विसिते।

एकादश यथाप्रायां बालपत्रकुमार यथा: || 87 ||

शक्ति साक्षमानां तथा द्वारा रसायनः || कलेसंसेर्यमानां हि यथा स्व: कमयो चावः || 88 ||

विनेन्द्रे रक्तमानसारसिमैदोमारासिमातः

ब्यौरेद्विंद्रे प्रशंसते कमादुर्यामकानूः || 89 ||

सत्यः सत्ताकारवक्तामेवः चरित्ते ये: ||

वचनान्त दुर्में तत्र ते परेव वचनवर्त्ता: || 90 ||

वचनाय वल्लवप्रचि: सत्यनामिन जायते।

न तां वर्णितं प्रका मित्रां: शास्त्रपारागः: || 91 ||

इति यथाविवि: 1

हिमालयावृद्धिस्यक्षुर्वः यावत्

चावः प्रद्याना क्रियता मुर्गिन्द्रें: |

द्रव्याद्विग्यायि चयुक्तः प्रयासो

मुकुटः पवित्रभूमभिमागः: || 92 ||

1. Cf. the following remarks of Nakula in his अध्विविक्षित (Bib. Ind. 1887) about द्रव्य as food for horses:

P. 40—"देवसानां वाता विद्रव्यः ह्यां कवादितः याः। नदीनां च वधा गाहा तथा ग्रेहा वधा यथा हये।"

P. 42—"परीक्रादी वायु: हेतुः स्त्रेस्य च प्रायिकः। हुस्तस्य च तत्र शर्स्यां ग्राह्यमि:।"

P. 40—"सुभमण्डोभद्वेण संवेदनीयकर्ता नास। नीरोधायूः ह्यां च शर्स्यानां वायसं द्रव्यमि।"

There is a MS of a work called वाशील (ascribed to वाशील in the Colophon) No. 16 of 1868-69 in the Government MS Library at the B.O.R. Institute, Poona (dated साहवत 1864)

=A.D. 1808) in which I find the following verses:

Folio 6—"संवेदनयमस सदासदगिर्धुक्ताः हि। यायाके वाने च ब्रह्मात् द्वारस्कु म निर्देशः। || 9011"

"परीक्रादी यथा हेतुः स्त्रेस्य च प्रायिकः। हुस्तस्य च तत्र शर्स्यां ग्राह्यमि:।"

The relation of this सोज्विविक्षित to Nakula's अध्विविक्षित needs to be examined.

2. Cf. नकृत in अध्विविक्षित (Bib. Ind. 1887)

P. 39—"वायामावेश च ग्राह्यान द्वारास्कु त्यन्त दया यः।"

P. 43—"वायामावेश च ग्राह्यान द्वारास्कु त्यन्त दया यः।"

"प्रचारे च मुकुटानां मुद्रा देया मनोमितिः।"
चबानां विचित्रितक्षणाणां मानामध्ये रोक्ते।
चणका प्रत्येक द्वारे सजातां हरित क्रमां ॥ ६३ ॥
कुसुमादुन्दुक्रियाय मादुमोदिशासारं ॥
सारसक्रम पाके स्यादिष्ठ प्रत्येकप्रि मतत ॥ ६४ ॥
पुष्ये लम्बावित कलार्थो दोषाकर्षण ॥
मदव्रत तथा जाति कूश [१] स्यान्मर्गे सुहु ॥ ६५ ॥
तिक निर्म्योध्यासारं श्रोत्रो रक्षवर्धनं ॥
रक्तसार सारणलं कुर्मावनं द्रुतं हुयं ॥ ६६ ॥
मदोमाजरिश्चुकाणां इति रसित गति ॥
गोमेधातुरवध्रुवाको मायेव सत्यं ॥ ६७ ॥
चणको दृष्टिकोट्यो विध्या हु चरेण चवाहितं ॥
गोपूर्ण [२] विश्वासर्वाते मातुराविकिल हुयें ॥ ६८ ॥
संपर्की दौकितप्राप्तहु चोपत्तियोर्प्रसार ॥
तथा संतदलो मद वहीराङ्गार्य......र ॥ ६९ ॥
गोविन्दो जातमादुरुं चबोपि न गुर्जनावह ॥
व्यापकर्षणविकालकुद्रोगाय जायते ॥ १०० ॥
विचित्रामगाघरसरि राजहरण मुनीकदः ॥
निन्या वनस्तो राजा सौंभव ॥ पवित्रहुत ॥ १०२ ॥
व्यापकारितासारानां विचित्रकस्मवयधु ॥
चणकस्य विचित्रां तावत यावतः महैविशं ॥ १०३ ॥
एवमुको महानाः साहित्यां त्यामाशयाः ॥
शुरुन नैष्पद बहानां गाढीविरोधकनबं ॥ १०४ ॥
द्वीतिकाय सत्याय सौंभव ॥ द्वाय ॥
एक वापसित चणको नापर सत्यमीहं ॥ १०५ ॥
तस्माततमये प्रान्ते नियमयो भिंतर ॥
नर्यम्योध्याशयाय वहसंशुकलया [३] द्व ॥ १०६ ॥
कुमिकत्ववादाशय मदहाविनि संसरगं ॥
कहृत्विजय वा मदहृत्विजय वा कावितं ॥ १०७ ॥
वी...लमनोपेत सिद्धेत वनने ।।।।।
............मलयाबालाविशाले कुषमात्रकह (३) ॥ १०७ ॥
फलोरस्वरूपतक । रोहण ॥
प्रातास्किर्देशवः समं ला० वुचयते ॥ १०८ ॥
वानुपाध्याय परम ब्रह्मु दुःखम समसतः ॥
हितीये निषेधित द्वादशं ॥ पतिवंत ॥ १०९ ॥
.................पुष्यं वस्त्राविकर (४) ।
तुतीये लाहरं चाहं च एकं लवपादहु ॥ ११० ॥
The foregoing long extracts recorded by me from the अनुसूचौऽऽ of वासम, son of विक्रम are very important as they throw a flood of light on many points pertaining to the production and consumption of यव, चाँणक and वरुघ in different parts of India. These extracts open a new field of inquiry about the agricultural history of the several edible grains prescribed as food for horses by वासम and other writers on horses, such as शाफ़होऽ of

1. Cf. जयदत in अश्वकंद (Bib. Ind. 1835, Calcutta)
   P. 106—चाँणक्ष्य व चाँणक ये चाणक दहलादः
   चाणक्ये प्रतिवेदना द्वेशसाप्तते सादेऽः ॥ १ ॥

2. See p. 411 of त्रिचुर त्रिचुर by K. M. Vaidya, Trichur, 1936—Here मकुड or मकुकड is identified with मकुड़ (Marathi). According to Nairne (P. 78 of Flowering Plants of Western India, 1894) मकुड़ is a "doubtful native." He identifies it with Crotalaria Pauroloides. On P. 89, he mentions Phaseolus Trinervus—मकुड़ which grows in Western India. Narahari and Bhavamisra call मकुड as वरुघ.
hoary antiquity, नकुल, जवदुच, भौज etc., not to say पालकाप्य and others whose writings on elephant-lore have come down to us.

On the strength of the above extracts and other features of the आस्वयुर्वेद of वाग्भाता, son of Vikrama, I have to make the following tentative suggestions for verification by brother-scholars: —

(1) Verse 92 in the above extract is of exceptional interest to us as it tells us emphatically the geographical divisions of India in which three prominent horse-grains were grown about 1000 years ago: —

(i) वाग्भाता states that from the Himalayas upto the Vindhyas range of mountains डीव was prominently used as horse-food.

(ii) In the Southern quarter, presumably below the Vindhyas range चणक was used prominently as horse-food.

(iii) In the Western regions मकुल was adopted as horse-food. In fact the whole of India was divided into वह-व्यान (above the Vindhyas) and चणक स्तवान (below the Vindhyas) as repeated in verse 98 by our author (“चणको दुःखे विन्यालदुस्तरेण चणक स्तवान”)

(2) The association of वह with the Vedic Aryans, both as man’s food and horse food continued for more than 2000 years but with the Aryan migration to the southern parts below the Vindhyas, this veteran वह had to fight with चणक, its superior rival that must have been then cultivated in large quantities. On account of its importance for human and animal nourishment, चणक ousted the veteran वह from the ‘menu’ of horse and man and has continued its supremacy in this field even to this day. The वह-गो मूल partnership was dissolved more than 1000 years ago and चणक-गो मूल (Gram-Wheat) alliance has governed our kitchens without a break.

(3) The exact date of the आस्वयुर्वेद of वाग्भाता, son of Vikrama, from which I have recorded my data is not known. I may, however, suggest that it appears to be earlier than A.D. 1000. In this connection, I have to point out that in the list1 of horse-breeds, numbering 54, I don’t find the Persian (पारसीक) the Arabian (ताजिक) and the Turkish

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1. This list is found in कुलायाय (folios 43-48 of B.O.R. Institute MS of अभासयेद of बाहर and consists of the following names:—

(तुर्क) breeds which are mentioned uniformly as the best breeds by जयदत्त नकुल, रेषमेशर (A.D. 1130) and mentioned even by हेमचन्द्र (A.D. 1088-1172). These writers flourished between c. 800 and 1250, when the foreign horse-trade with India was carried on at the Western Indian ports on a huge scale to meet the growing demand of Indian princes for the best horses to fight with the superior Muslim cavalry. I am, therefore, of opinion that the Aṣvāyurveda Vāgbhaṭa, son of Vikrama, is possibly earlier than the works of the above writers, which expressly mention the Persian, Arabian and Turkish breeds among the best breeds of horses. The Arthaśāstra of Kauṭilya mentions in its chapter on Aṣvādhyakṣa (p. 148 of Eng. Trans. 1929) the breeds of Kambhoja, Sindhu, Araṭṭa and Vanāyu countries as the best, those of Balḥika, Papeya, Sauvīra and Taitala as of middle quality, and the rest, ordinary (avaraṇa). The Amarakośa (Kanda II, Kṣatriya-varga, verse 45) mentions four kinds of horses viz., Vanāyuja, Pārasika, Kambhoja and Balḥika. In this statement, the mention of the Pārasika or the Persian breed is note-worthy; the remaining three are mentioned in Kauṭilya's work and other early texts. If it is suggested that the Aṣvāyurveda of Vāgbhaṭa, son of Vikrama, is later than the works of Jayadatta, Nakula, Someśvara (c.A.D. 1120) and Hemacandra (A.D. 1088-1172), we have to inquire how it fails to mention in its exhaustive list of 54 breeds of horses—the पारसीक, तालिक and तुर्क horses which are mentioned as best horses by Jayadatta, Nakula and Someśvara. Another omission in Vāgbhaṭa's treatise is that of the names of horses according to colour (वर्ण) such as सराह, सुम्राह, उराह, उकराह, वृक्षार, etc., which are mentioned by the above four writers. Hemacandra calls these names as "देशीमय" but they appear to me to be foreign terms associated with foreign breeds of horses imported to India between A.D. 800 and 1300. In view of these omissions in the treatise of Vāgbhaṭa, I am inclined to suggest tentatively that this treatise is earlier than c.A.D. 1000. More light on this question can be thrown after a close study of the B.O.R. Institute MS No. 581 of 1899-1915, which I propose to undertake at some later date.

1. Vide my paper on these names contributed to the Nathuram Premi Commemoration Volume that is being published by Dr. V.S. Agrawala and other friends.
29. Some Cultural Gleanings from the Jñānakānda of the Kāsyapasamhitā of the Vaikhānasas

I have been studying the history of Canaka (cicer arietinum) or gram during the last three years and have published some papers on it based mainly on Indian sources. These papers have already clarified the history of this important plant for the last 2000 years. There is, however, much scope for its study, especially in texts earlier than 1000 A.D. Recently I happened to read one such text published by the S. V. Oriental Institute, Tirupati viz. the Jñānakānda of the Kaśyapasamhitā of the Vaikhānasas, a Vaisnava sect with some literature, much of which is still unpublished. This Jñānakānda contains some references to Canaka. They are as follows:

P. 33—Chap. 22—कर्णशात्तिविधि—साङ्कृयकान्याग्नि. The Seventeen Grains are referred to as follows:

"प्राकुम्बो भूतवा अध्यात्मान्यां त्यौतो हुवा शालि—वीरि—यजु—सुद्र तिल—माप—मिष्कु—नोशु—चराक—तिलतिल—सुदु—प्रतसी—कुलथ—ध्यय—नामाक—पाचि—निष्पावा. इत्येते समसाहान्वया भवति। एतान अतोष्ट रुपानं क्रेश शोभामय्यं वल्ल दचनां।"

P. 82—Chap. 58—क्रकुरुपाशिविधि।

"क्रकु—कुड—यजु—सुदु—रूपाव—मिष्कु—नोशु—चराक—तिलतिल—सुदु—थापानि धाण्यानि खालसे मुद्रां वा पूर्णें यावदक्रकुरसनं तावः जलेदु निष्पावे क्रकुपाश्रे धाण्यानि ध्रादय तेतु होमामय्यं एका।"

P. 138-139—Chap. 85—दैविकसुदेशप्रतिग्रहसाहस्यमालक्ष्यत्सू।

"शालि—वीरि—यजु—कुड—माप—मिष्कु—नोशु—चराक—तिलतिल—सुदु—थापानि धाण्यानि ध्राहरत। क्रकुरुपाशिकथान्या—नामकारुं।"


These references found in a treatise with Viśnava ritual and worship amply prove the status attained by Caṇaka at the time this Jñānakāṇḍa of the Kaśyapasamhitā of the Vaikhanāsas was composed. Caṇaka (an exotic) seems to have been at this time one of the 17 recognized grains of India with an established status among grains of Indian origin. It appears also to have been considered sacred1 at this time among the Viśnavas though in some other works on Dharmaśāstra its use has been proscribed as I have pointed out in my earlier papers on Caṇaka.

As regards the date of the Vaikhānasiya Kaśyapasamhitā I may record here the views of the editor of its Jñānakāṇḍa, Pandit Parthasarathi, as communicated to me in his letter of 7-8-1948. These views are as follows:

1. This Kaśyapasamhitā should date immediately after the Vaikhānasakalpasūtra.
2. Rṣis, Bṛgu, Atri, Marici and Kaśyapa were contemporaries and possibly the disciples of the great Vaikhānasa, they produced their works during the life-time or immediately after their Guru.
3. The earliest mention of the Vaikhānasakalpasūtra is found in the Bodhāyanasūtra, which is acknowledged to be the earliest of the Sūtras in the Vedic period according to Oriental Scholars.
4. The Vaikhānasakalpasūtra and the Samhitās, therefore, date earlier to the Bodhāyana period.

Bodhāyana, the author of the Dharmaśūtra and the Gṛhyaśūtra known by his name is assigned by scholars to about 250 B.C. If this date is correct, the Bodhāyana period referred to by Pandit Parthasarathi would be about the 3rd cent. B.C. It remains to be seen if the Kaśyapasamhitā of the Vaikhānasas in which the references to Caṇaka are found is really earlier than 3rd century B.C. The Jñānakāṇḍa of the Vaikhānasiya Kaśyapasamhitā comprises 108 small chapters in simple Sanskrit prose. These chapters contain much objective data of great value to the student of the history of Indian culture. A thorough analysis

1. Compare the use of Caṇaka seeds (steeped in water over-night) made by married women in the Deccan at Haṭadī-Kukku ceremonies especially during the month of Caṅtra.
of these data may clarify the problem of the chronology of this text. In the meanwhile I record below some notes of cultural value gathered during my cursory perusal of it.

(1) The following references to āmbula show that the practice of giving āmbula to guests etc., was current among the Vaishnavas, though in some works on dharmaśāstra its use is proscribed on certain sacred occasions:—

p. 111 — "वर्तन्तृतूः श्रृव शीतलं स्वादुं सुगन्धितं वारिः पात्रे पानींद्व द्रातः ज्ञातावते कर्मूर्ज-जातीयः-एला-वच्छ-सहितं श्रमुखं ताम्बूलं द्रातायनुथ-वालम्"

p. 116 — "प्रमित्रामुर्मिता क्रमुपस्य: तिलिगुणीं दिविगुणीं ताम्बूल-पशुकुलों मुख-वास:"

p. 120 — "कल्परसहिता सुवक्षास:"

"दलातबकोलो-जातीयः-कल्परसहितो सुवक्षास:"

p. 125 — "जसं नादेभे वर्तन्तृतूं मुखवासं काल्कताम्बूल-एला वच्छ-तकोल-कल्पसुधुतम्"

(2) There are frequent references to the Tulasi plant, so sacred to the Vaishnavas:—

1. For the history of the Tulasi (Holy Basil) see Pandit Ramesh Bedi's monograph on "Tulasi" (Bharatīya-Drayagāya-Granthamala, No. 4), Lahore, 1946. I note some points from this monograph:

(i) The Carakahāṣṭhita (Ch. Chap. 23 and 18) refers to Tulasi (=Tulasi) — "सुमुखः सङ्खरी" and "पुलस्काविता च."

(ii) The Susrutasāhita (U. Ch. 38, verses 16-17) mentions Tulasi, which Dallaśa (c. A.D. 1100) equates with Tulasi ("तुलसीदृश्चतो जोके")

(iii) This plant is not mentioned in the Vedas, Krānyakas, Brahmāṇas, Pāṇini's Aṣṭādhyāyī.

(iv) Works referring to Tulasi are:—

राजनिष्ठ, वैदेवनिष्ठ, भावप्रकाश, ब्रह्मचर्यपुराण (प्रक-विलय), बृहदमपुराण, पदार्थपुराण (उत्तरकलिठ), प. व. (कियायोगिसार), शास्तिसलिलितभूत, ग्रामपाठ (mentions मुसरस?), वार्षिकोपिनिपद, अर्थविद्यमार्गित, विवादसलिलितभूतार्ट्यां-पनिपद, सामर्थ्योपिनिपद, रामरस्योपिनिपद, तुलसुपनिपद, कालिकानाथाय, इरितिकीलिंग, तुलसीलोक, सामर्थ्योपिनिपद, गौरीनाथ (तुलसीवाद्य), श्रेयोपिनिपद, गद्धपुराण, नद्यपुराण, तन्तरतिलिपिपद, राजकाल, गोमति-शिविर, श्रीगुरुकाल, हरिसंहिता, ब्रह्माश्वपुराण (तलाकवच), रामनामदी, तन्त्रार, श्रमसंहिता, राजमलावंद, वैधंमासिक, शोटल, भैरवाराज, रामगर्वसंहिता.
Some Cultural Gleanings from Śrīnākanda

(3) Chap. 57 (pages 80-81) is called "मर्गीयान्तरिक्षणमिर्नक्षणवनस्खलितां. It deals with the process of casting metal images of deities by the use of wax-moulds. The Manasārā edited by Dr. P. K. Acharya has a chapter on this process called "मर्गीयान्तरिक्षणवनस्खलितां. The Caraka Samhitā also refers to this process incidentally (शारीरस्थान) Chap. 3—यथा—कनकरंजताम्रां शुष्कसीलकाँग्रतहुयुतात्ममातानां बल्लेषु भस्त्रि मर्गीयान्तरिक्षणवनस्खलितां...पु 19॥

(4) Chap. 50 (pp. 70-72) deals with "देवीतिलमिवस्मितांविनायकिनिधिनि" Three classes of picture are defined in the following extract:

(5) Chap. 19 (pages 28-29) deals with "बटुरंदेशवस्मितांश्चरंदेशवस्मितांविनायाकिनिधिनि"—Among the deities to be worshipped we find विनायाक (p. 29—

"...... विनायक वल्लेषु: पूजयेद्")

Chap. 27 (दास्तांवर्धिनिधिनि) also refers to विनायाक as follows:—(p. 42)—

"विनायाक विनायाकाय......स्वायत्त इति व्याख्या"

Chap. 74 (सुतितमकम्म) refers to the worship of विनायाक (p. 115):—

"ब्रह्मकर्म्मुकंदेशितं विनायाकसिदितं ब्रह्मकर्म्मुकं......ताभावं ताभावंयेदाई"

These are evidently references to god Ganeśa.

(6) Chap. 95 contains a reference to पारद in the following line:

p. 160—"सार्वपौर्णिमं दिवसमानं दिवसमानं दिवसमानं...पारद" in this line means mercury. The Amarakośa (वैश्यभा ५) mentions 4 synonyms for mercury as follows:—

"हर्ष चापयो रस: सुकृत पारदे || ७७ त्रिध"

I have not come across any references to पारद in works composed prior to the Christian era.

(7) Chap. 12 mentions रोमक in connection with शामिलावेशः:

p. 15—"पायस्द्रोमकपुरक्रिरति...शामिलावेशः"
(8) Chap. 79 mentions 10 Avatāras as follows:

p. 127—“मत्यः, कृमिः, वराहः, नारसिंहः, ब्राह्मः, जामदेवयामः, राविवरमः, बलरामः, कुर्मः, कल्यः”

(9) Chap. 72 deals with flowers to be used for worship as also those to be avoided in worship (आमवाप्युथविच). The following flowers are recommended for use in worship:—

चस्मक, जाति, कर्षिकार, पद्म, संतिक, सालती, कुमुद, रोलोलल, कर्वीर, नन्दावती, पलाय, यासोक, तमालकुदमोलक, वर्द्धिन, वक्लापकक्षी(?), कंकणिक, केतक, कुर्वक, ब्रतिक, पुनास, गुलुन, कावलनल, कविक, भद्र, तैलिक, ग्रौहर, नन्द, सार्थी, नागदुः, बालसुः, कपालख, बुधक, तुषा, धातु, कुक्मम, दुर्सकुकुर, बन्युक, अर्क, नीलोतप, निरुपसी, उनमतेचवी कर्षीपक्षिकानि(?), सुचरुला, चीरी, जया, कोकमाली, द्विखर्क, सुषवण्माली, कनक, तुलसी, तापसाकुकुर, मन्त्रोपिनी नाम नृंढकुरः.

Flowers to be avoided:—

जपा, किषुक, कुस्म, कनक, कोकमाली, चुनुक, सुर्नानन्द, कुरसद, माझक, प्रामली, सुइक.

(10) Chap. 91 deals with castes arising from five main castes (जाति:) viz. (1) चालुक्येषाः, (२) अनुलोमाः, (३) प्रतिलोमाः, (४) अनालाभः, and (५) वाणिः. Some of the castes arising by a mixture of these main castes are as follows:

कृष्ण, रोज, भोज, संतिक, कर्षिकार, बलायकर, धारपन्न, मालबक, पारसाख, निशाख, नायक, कुमकार, वधिक, शूलिक, सड़क, धारपन्न. शातिक, चूक (कारादीवदक), कठक, नारायण, कालावद्यसागर, चेवक, पुलक, नासक, बंदेक, चापक, माण, तनुवाय, धाराग, सुलिंद, सुत, धारक, नारिक (सुमुखलहानीवी), बेमक, चर्मक, महाभद्र, चाप्च (सुमुखपश्वरेण), सूचि, ताषानीति, सन्न, बैशानियासक, उदर्थक, राजिनांति, शाप, etc.

Students interested in the history of castes and professions may find this chapter useful as the text explains some of these caste-names.

The foregoing notes of a cultural nature gathered at random from the text of the Jñānakanda before me lead me to conclude that this text cannot be assigned to any date earlier than the Bodhāyana period. On the contrary it appears to be later than the first few centuries of the Christian era as it reveals a very advanced condition of Vaiṣṇava religious worship and ritual.
30. Studies in the History of Indian Plants—
The Mahaśali Variety of Rice in Magadha
(Between A.D. 600 and 1100)*

In the Aṣṭāṅga-ṛddhadeśika of Vāgbhaṭa II there is a chapter called the "annasvarūpa-vijnānīya" devoted to a discussion of dietetics. This chapter has a sub-section called the Śūka-dhānya-varga* which records the varieties of rice (Śali) and their properties. These varieties need to be identified with the varieties of rice now current in India and elsewhere in the interests of the history of Indian agricultural products which is still a desideratum. Among these varieties we find a variety called "maha-śali" and the commentators Arunādatta (A. D. 1220) and Hemādri (A. D. 1260) attempt to explain the term in their respective commentaries on the Aṣṭāṅga-ṛddhadeśika of Vāgbhaṭa II (c. 8th or 9th cent. A. D.). The verse mentioning the rice maha-śali reads as follows:

"रक्तो महान् ् स कलम स्तुर्युक्षः: गुककाणात:।
सरामुलो दीर्घशृङ्गो रोमस्वः: सुमनविक:। न। न।"

Arunādatta explains these varieties as follows:

(P. 84) —"तत्र रक्तश्रावी — महाश्रावी स्त्रयितावेच। कलमो मणिप्रधिरिपु अतिष्ठिन।
श एव महातस्विल ह्रति काश्मीरेषु।" etc.

From these remarks it appears that the Bengali commentator Arunādatta distinguishes rakta-śali from maha-śali. The variety called Kalama was known under that name in Magadha and other provinces in the 13th Century A. D. We are further informed by Arunādatta that in Kashmir this very variety Kalama was called maha-tandula.

Vāgbhaṭa II gives us the varieties of rice and puts deva-śali at the top and maha-śali next to it in point of their medical properties as will be seen from the following line:

"महार्मभुम्भु कलमस्तं चाण्यनु तत्त: पेरे। न। न।"

2. Dhānya is divided into two classes: (1) Śūka-dhānya, and (2) Śimbī-dhānya. Rice belongs to the Śūka-dhānya class.
Arunadatta explains: —

"सत्यतुः रक्तशाली: पाषाणः महान् शालिबर्तः। तत्र च महान्तमनु कलमः महालंगात् कलमः। किन्तु ज्ञानः इत्याधः। तत: --अज्ञातमम्, परे अत्रं शालयं बर: ब्रह्म:।"

So we get a graded series: —

Rakta-sali—Maha-sali—Kalama and others. Now Hemadri explains and supports the above series as follows: —

"सहाश्वायाचीदीनां गुणानां—महीलात्मानिति। तमसन रक्तशालीस्तीनो महान्। तं बायतुः कलमः। महती हीनगुणः।" etc.

Hemadri then quotes from Suśruta (Suṣṭraśāṇa, Chap. 46, 4); Caraka (Suṣṭra, Chap. 27, 7); Aṣṭāṅga-Saṁgraha of Vāgbhaṭa I (Suṣṭra, Chap. 7) and Khāraṇādi, a lost medical treatise. He then concludes as follows: —

"सतसालोकान्त्रक्रमः। उज्ज्वलः। इह रक्तशाली शालीन: मुस्मृतुकन्तुविनर्विविधविशालसुखत्तलदीपिनान्तोऽकर्मद्वाराइनां लोकान्तत्तलदीनां स्वविसानासुतावं महतोऽकर्मद्वाराइ। तेषु विष्णवो तथा सूक्ष्मकर्मः। यथा विष्णवो अन्तः कर्मः। उत्तालसारस्नं दुर्विविधधारादस्त्रित्या। बालेश्वर गुँडान: सुधुतारायणेश्वरी कलमशालेदनोपविश्वासः। तामेश्वर चरकशालीस्तिनो। महाश्वायाचीदीनो। न व कलमन: महाश्वायाचीदीनो। महाश्वायाचीदीनो। कदाचन व संकृतः। मैत्रय:। यदा कलमो महाश्वायाचीदीनो निर्माणः तदा ततोस्तुत् युक्तात्ततः। स्वज्ञेन नवधेन महाश्वायाचीदीनो स्वज्ञेन प्रकृति वायतुः। तस्मादविभवं प्रमाणारः। उप.अज्ञातमः।"

In the quotations given by Hemadri from (1) Suśruta, (2) Caraka, (3) Khāraṇādi, and (4) Aṣṭāṅga-Saṁgraha we find a mention of the terms rakta-sali, maha-sali and Kalama. Suśruta uses the term loha-sali for rakta-sali and puts it at the top of his list ("तेषां बीहितकः श्रेष्ठः."). Caraka, evidently copied by Vāgbhaṭa II (the author of the Aṣṭāṅgaḥṛdaya) and Vāgbhaṭa I (the author of the Aṣṭāṅga-saṁgraha) states: —

"रक्तशालिविश्रेष्ठ वायुविश्वामलापहः। महासत्मतमुः कलमस्त्रे चाष्यतु तत: ग्रे॥"

This gradation of "रक्तशालिः — महाश्वायाच्छिन्नस्त्रयितोः — कलम" is exactly identical with that found in the Aṣṭāṅgaḥṛdaya. Khāraṇādi, however, follows a different gradation as follows: — "रक्तशालिकित्विनाशस्त्रयितोः: कलमोऽतु महादत:।" viz. "रक्तशालिः: — कलम: — महाश्वायाच्छिन्नस्त्रयितोः".

All these academic discussions of medical scholars right from Caraka to Hemadri do not give us any idea about the exact size and other particulars of the grains of rice of each variety, which might enable us to identify these varieties mentioned in ancient treatises with the varieties
now current. Then again there are gaps of time between any two of the several medical authors, who give us these varieties as will be seen from their probable chronology noted below:

1. **Caraka** — earliest extant medical treatise.
2. **Suśruta** — earliest extant medical treatise.
4. **Aṣṭāngasamgraha** of Vāgbhaṭa I — about 625 A.D.
5. **Aṣṭāngaḥdaya** of Vāgbhaṭa II — 8th or 9th Cent. A.D.

In view of the above chronology it is difficult to visualize with any degree of certainty the several varieties of rice mentioned by the earliest treatises of Caraka and Suśruta and accept in toto the explanations, howsoever academic, offered by late commentators of the 13th century A.D. as recorded above. We must, therefore, search for some contemporary historical evidence regarding each of these varieties of rice. In the present paper I shall record such evidence from a Chinese source\(^1\) of the 7th century A.D. with respect to the Mahāśali variety only. This evidence is furnished by the Life of the celebrated Chinese traveller Hiuen-Tsiang written by his pupil. While describing his guru’s visit to the Nālanda monastery (in Bihar) he refers to the different branches of learning in which the priests of the monastery were carrying on their studies. He refers to non-Buddhist Śāstras "Such as the Vedas and other books, the Hetuvidyā, Śabdavidyā, the Cikitsāvidyā, the works on magic (Aṭhārvaveda), the Sāṅkhya" etc. He further describes the royal patronage to the priests of the monastery founded "700 years" before his visit as follows:

"The King of the country respects and honours the priests and has remitted the revenues of about 100 villages for the endowment of the convent. Two hundred householders in these villages, day by day, contribute several hundred piculs of ordinary rice and several hundred

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1. Vide p. 109 of *Life of Hiuen-Tsiang* by the Shaman Hwui Li with an Introduction containing an account of the Works of I-tsing by Samuel Beal, London, (1911), (Trubner and Co.). Hiuen-Tsiang returned to China after his sojourn in India in the year 645 A.D. and died in the year 664 A.D. After this event I-tsing in the year 671 or 672 resolved to visit the Western World (Vide Intro. p. xxi).
catties in weight of butter and milk. Hence the students here, being abundantly supplied, do not require to ask for the four requisites. This is the source of the purification of their studies to which they have arrived."

Referring to his guru’s residence at the Nalanda monastery the pupil of this Chinese traveller states as follows:

P. 109—“After this he went to reside in a dwelling to the north of the abode of Dharmapāla Bodhisattva, where he was provided with every sort of charitable offering. Each day he received 120 Jambivas, 20 Pin-long-stem (pūga, arecanut), 20 tan-k’an (nutmegs), an ounce (tael) of camphor and a ching (peck) of Mahāśāli rice. This rice is as large as the black bean and when cooked is aromatic and shining, like no other rice at all. It grows only in Magadha, and no where else. It is offered only to the King or to religious persons of great distinction and hence the name Kung-ta-jin-mai (i.e. rice offered to the great householder). Every month he was presented with three measures of oil and a daily supply of butter and other things according to his need.”

The above description of the Mahāśāli is very important for the history of this variety of rice which is mentioned by the earliest medical treatises of Caraka and Śuṣruta but about which we fail to get any descriptive notes of an objective character. Hemādrī in his remarks mentions the ideal qualities and characteristics of rice by the adjectives शुष्क (soft), मधुर (sweet), स्वस्व (oily), सुरस्यि (sweet-smelling or odorous), अङ्कु (white or bright in colour), विशाल (shining), भूल (big) and आयात (long) and some of these characteristics viz. bigness, aroma, shining appearance etc. are incidentally found recorded in the foregoing Chinese description of the Mahāśāli rice of Magadha eaten by Hiuen-Tsiaṅ during his stay at the Nalanda monastery in the 2nd quarter of the 7th century A.D.

The Life of Hiuen-Tsiaṅ in which the description of the Mahāśāli rice is recorded by his disciple Shamu Hwui-li is a supplement to the Record of the Western Countries and “what is obscure or half told in the one is made clear in the other.” Hiuen-Tsiaṅ (=HT) was born in the year 600 A.D. He left for India in 629 A.D., where he had his sojourn for 16 years and returned to China in 645 A.D. In view of this chronology for HT’s Travels in India the above description of the Mahāśāli rice recorded by his disciple is a piece of reliable contemporary evidence. The description asserts that the Mahāśāli rice was produced

1. Ibid., pp. 112-113—The Editor explains: - 1 picul =133½ lbs.; 1 catty=160 lbs. and 4 requisites = clothes, food, bedding and medicine.
in Magadha and nowhere else. This statement is wonderfully corrobo-
rated by the earliest commentator on Caraka, viz. Cakrapanidatta of
Bengal who flourished 400 years after Ht i.e. c.A.D. 1060. Cakrapanidatta
(also called Cakradatta) explains Caraka’s remarks on the varieties of
rice Kalama and Mahāśāli as follows:—

“यथू प्राचार्यः गौडं तत्त्वलिक्यायः। श्रेण्द्रेषिप्रियम् च किंविच्छुः।

......कलमो केदारहरेयु स्वयामप्रियम।...... महाशालिमेधः प्रसिद्धः......
रक्षशालिगुणान महाशालिमेधागमिन। एवं तत्वानु कलम इत्यवाच्यो वाच्यम्।

Cakradatta maintains without any confusion the distinction between
Kalama and Mahāśāli found in Caraka, Suśruta and Khaṇḍaṇḍi and also
informs us that Mahāśāli was celebrated in Magadha.

Another Bengali commentator viz. Arunādatta who flourished about
160 years later than Cakradatta i.e. in A.D. 1220 represents a different
tradition about the home of the Mahāśāli and Kalama varieties as we
have seen above. In fact he states that Kalama was celebrated in
Magadha (कलमो मंगावाडिव प्रसिद्ध) and further asserts that this very Kalama
rice was known as mahātandula in Kashmir (स एव महातन्तुला इति काश्मीरिणु) If by mahātandula Arunādatta means महाशालिः we have to suppose that in the
13th century the Kalama variety of rice had come to be associated with
Magadha in the manner of the Mahāśāli variety and further it was called
mahātandula which may be a mere paraphrase of the term महाशालिः. Whatever
be the true history behind the remarks of Arunādatta we have reason to
believe that Arunādatta may not have been very critical and accurate in
his remarks about Kalama which he distinguishes from श्लोकशालिः but equates
with महातन्तुला of Kashmir current in his days.

Leaving aside the dubious statements of Arunādatta we have to note
that Khaṇḍaṇḍi, a junior contemporary of Arunādatta evidently distinguishes
between कलम and महाशालिः and regards कलम as slightly inferior to महाशालिः
when he states:—

“स्थवेच्छादेव महाशालिः स्वतःस्त्रव्य एव कलमो हि।”

This statement of Khaṇḍaṇḍi (A.D. 1260) the minister of the Yadava
Kings of Devagiri (Daulatabad) shows that in the medical circles of
South India in the 2nd half of the 13th century, the original distinction
and status of Kalama and Mahāśāli as found in Caraka and Suśruta
was recognised.

1. Vide p. 148 of Carakasaññhitā with Cakradatta’s commentary (N. S. Press, Bombay,
1922, Sūrāstātha, Chap. 27).
With a view to clarify our discussion we give below the evidence discussed so far in a tabular form as follows:

<table>
<thead>
<tr>
<th>Source</th>
<th>Chronology</th>
<th>Terms used</th>
<th>Where produced</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>चरक 1</td>
<td>Earliest medical treatise.</td>
<td>(1) महाशालिणी   (2) कलम</td>
<td>Not mentioned.</td>
<td>महाशालिणी and कलम distinguished</td>
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<td>शुभ्रु तारायणि</td>
<td>Do</td>
<td>Do</td>
<td>Do</td>
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</tr>
<tr>
<td>चण्डगांधर्म</td>
<td>Before A.D. 650</td>
<td>Do</td>
<td>Do</td>
<td>Do</td>
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<td>चण्डगांधर्म</td>
<td>c.A.D. 625</td>
<td>नम्प्राण श कलम:</td>
<td>Do</td>
<td>Do</td>
</tr>
<tr>
<td>Life of Hiuen-Tsiang</td>
<td>c. A.D. 640</td>
<td>महाशालिणी</td>
<td>मगध</td>
<td>(महाशालिणी) grows only in मगध and nowhere else.</td>
</tr>
<tr>
<td>काश्मीरी</td>
<td></td>
<td>Not mentioned.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>चंपालिपत्त लिपिविद्वार</td>
<td>c. A.D. 1060</td>
<td>महाशालिणी</td>
<td>मगध</td>
<td>महाशालिणी शासनों शासनों में प्रसिद्ध:</td>
</tr>
<tr>
<td>श्रम्वदत्त</td>
<td>c. A.D. 1220</td>
<td>महाशालिणी</td>
<td>मगध</td>
<td>कलमों शासनों शासनों में प्रसिद्ध:</td>
</tr>
<tr>
<td>श्रम्वदत्त</td>
<td>c. A.D. 1260</td>
<td>महाशालिणी</td>
<td>मगध</td>
<td>कलम महाशालिणी महाशालिणी</td>
</tr>
</tbody>
</table>

1. Bhulasamhita (Calcutta, 1921), p. 127, mentions कलम variety of rice:
   “कलमान् दीर्घशंकुक्ष्र रक्षालिच्छ सुपदिकार”. P. 48 —“दीर्घशंकुक्ष्र महाशालिणी: सुपदिकार: शालिकामुख” (महाशालिणी: ought to be महाशालिणी).
It appears from the above table that medical tradition from Caraka and Susruta onwards up to A. D. 1300 or so maintained the distinction between the महावालिक variety of rice and the कलम variety. The statement “महावालिक कलम:” used by the Aṣṭāṅgasamgraha (c. A.D. 625) and repeated by the Aṣṭāṅgahṛdaya (8th or 9th cent. A.D.) suggests that महावालिक and कलम were possibly losing their distinctive characteristics, thus leading to the merging of the two varieties into one variety, whether called महावालिक or कलम or महावालपद्वल. It is, however, certain that a variety called महावालिक possessing eminent qualities of rice so beautifully expressed by Hemadri in the 13th century was a speciality of Magadha, where it was used by the Chinese pilgrim Hiuen-Tsiang (between A. D. 629 and 645) during his stay at the Nalanda monastery in Magadha. The fame of Magadha as the home of the महावालिक variety of rice remained intact from c. A. D. 630 to 1060, a period of 430 years as proved by the Chinese evidence of A. D. 640 or so, which gets corroborated by the later statement of the Bengali commentator Cakradatta of c. A. D. 1060.

Though references to the महावालिक variety of rice are rare in the classical Sanskrit literature we find some references to the कलम variety as the following quotations will amply illustrate:—

(1) KĀLIDĀSA in his Kumārasambhava (V, 47) refers to the Kalama rice as follows:—

"अन्तः स्थिरः कौटिपि तवेष्तरो युजः
विचारय कण्णातृपलुभवति गति ∥
उपेश्यते त: शालिविनयोऽष्टमः:
क्षोलुदयो गौमार्गापिक्षेः: || ४७ ||

Mallinātha explains:— "कलमा: शालिविनयो: तेयां अभागिनि तदनु विन्दुः: जयः
उपेश्यते "

Again he refers to Kalama rice plants in the Raghuvamśa1 (IV, 37) as follows:—

"आपात्यप्राणयाता कलमा इव ते रक्षु: ।
पत्रोऽऽसा निम्निष्ठायात्मदीपिताः: || ३७ ||

Mallinātha explains:—

"कलमा इव शालिविनयो इव ।
"शालयः कलमायु पतिकाचाराय पुस्थयमि"

इति समारः "

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1. Raghuvamśa (Bombay, 1900) Notes, p. 81.
Mr. M. R. Kale while explaining the above simile observes:

"The paddy flourished in water and so did the Vaṅgas\(^1\) who were great navigators (नैसाधयनः) and Raghu attacked them at a time when the paddies were probably bent low on account of the weight of corn."

(2) BHARAVI in his Kiratarjuniya (IV, 4) refers to the Kalama rice as follows:

"तुलबोध पशुकलमत कालिने स् वारििजि बालिका रामस्यक्कृम्"

Mr. Kale observes:

"The paddy fields are covered over with water during the rains and often abound in lotuses."

Mr. Apte in his Dictionary explains कळम as "Rice which is sown in May-June and ripens in December-January." The Unādi Sūtras (84) refer to Kalama rice.

In this way it is possible to know some details about the Kalama rice from early Sanskrit sources, not to say the Jaina and the Buddhist ones. We must, however, leave this subject for a further study.

(3) In the Subhaṣitaratnabhandāgāra (N. S. Press, Bombay, 1900) we get some verses, though anonymous about शालि and कळम as follows:

\begin{quote}
Page 254 — शालि:

"शालिसंततिसंस्निद्धनमस्तः भूसौत्पत्तिपराचनो
अध्यायते तथाच: फर्विकेरिकेरिविभिन्नः: प्रायिनाम।
विद्यमपरमार्क्कुमति शालैलुमसक्कृतः
दल्ला वे वें भिज शिरः सुकृतिना को नाम न प्रीतितः।। १३५ II"
\end{quote}

1. Though Kalidasa here compares the Vaṅgas (or people of Eastern Bengal) to Kalama rice plants, it is difficult to conclude from this simile whether he looked upon मगध (South Bihar) or वाश as the original home of the Kalama rice plant. It is also possible to infer that the Kalama rice may have been cultivated in Vaṅga, though the Life of Huen-Tsang contains the explicit statement that the महाशालि rice "grows in Magadha and nowhere else." Presuming the early distinction between महाशालि and कळम to be true to history we may suppose that:

(1) the महाशालि rice was grown especially in मगध and (2) the कळम rice was grown in वाश or Eastern Bengal in Kalidasa's time. This presumption would be in perfect harmony with the statement in the Life of H. T. that महाशालि rice was grown only in मगध.

2. According to Paitasaddamahapriyavata by Hargovinda Das (1923-28) p. 289, the word कळम is used in the following Prakrit works:

(1) उच्चासनात्साहि, (2) मद्यप्रक्रियस्ति, (3) पालक्ष्य-प्राणाममालाः
In the article on Rice in the Hobson-Jobson (by Yule and Burnell, London, 1903, pp. 763-764) we are told that the knowledge of Rice came to Greece from the expedition of Alexander. The references to rice between B. C. 320 and A. D. 90 recorded in this article are as follows:—

(1) B. C. 320-300 — Theophrastus (earliest Greek references to rice almost during the life-time of Alexander).

(2) B. C. c. 20 — Strabo quotes Aristobulus, a companion of Alexander’s expedition in his description of rice plant and its cultivation.

(3) B. C. 300 — Athanaseus iv. §39 — Megasthenes is quoted regarding the use of rice by Indians.

(4) A. D. 80-90 — Periplus §41 — Peninsula of Guzerat (syrastréne) produces wheat, rice, sesammin oil, butter and cotton and piecegoods made from it.

In all these early foreign references to rice no mention of any variety of rice is made in the manner of our early medical texts like Caraka and Sūrūta. We must, therefore, study all the varieties of rice mentioned in our earliest medical and other literature and try to reconstruct their history with a view to clarify our knowledge of the history of Indian economic products which is at present in a nebulous condition.

1. Vide pp. 127-131 of Arahasthāra (Trans. 1929) Chap. XXIV, Superintendent of Agriculture. Much valuable information regarding such history is recorded by Kauṭilya. He states that शालि and श्रीहि are to be sown at the commencement of the rainy season. On p. 101 शालि and श्रीहि are again mentioned. On p. 102 we are told that one meal of an Arya should consist of one prastha of rice, pure and unsplit, one-fourth prastha of सुप and clarified butter or oil equal to one-fourth part of सुप — Dugs are to be given one prastha of cooked rice—श्रीहि increases four times when cooked, while शालि increases five times when cooked.—p. 147—शालि and श्रीहि are given to best horses and to elephants (p. 152).
31. Studies in the History of Indian Plants
Antiquity of Jawār or Jondhla (Holcus Sorghum)
(From B.C. 2200 to A.D. 1850)*

In July 1941, I published a short paper on the *History of the Fig (Ficus Carica)* recording its history from c. B.C. 1000 to A.D. 1800. My main object in preparing this paper was to record the history of this plant from foreign and Indian sources and to point out how it was gradually assimilated by the Indian *Materia Medica* like many other plants of foreign origin. This paper of mine has received better appreciation from Sanskrit scholars, botanists and medical men than I expected. Dr. Birbal Sahni, F.R.S., Dean of the Faculty of Science, Lucknow University, directed my attention to a recent book on the *History of Plant Sciences* by Howard S. Reed which has two chapters "on the history of the plant lore of the ancients, where Egypt and Assyria, Greece and Rome, China and early America are all adequately treated" but "one looks in vain for a bare mention of ancient India which was certainly well abreast of the times and gave much that the West has assimilated, though not always gracefully acknowledged." Dr. Sahni rightly observes that the Retrospective Period (Chap. IV of Reed's book) was retrogressive only so far as the occidental nations were concerned.

The study of Indian culture in all its aspects of which the history of Indian plants is but one aspect has not yet been properly carried out

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*Dr. B.C. Law Volume, part I, pp. 142-158.
2. Dr. P. M. Mehta, M.D., M.S., Chief Medical Officer, Jamnagar State, who is deeply interested in Indian Botany and Ayurvedic System of Medicine suggested that I should take up a systematic study of other plants of medical and nutritive value. His constant correspondence with me during the last 3 years has been responsible for maintaining my interest in the history of Indian Medicine. I am thankful to him for supplying me extracts from works on medicine and botany not easily accessible to me in local libraries.
3. *Vide*, p. 369 of *Current Science*, 1942, XI, No. 9 where Dr. Sahni's interesting review of Reed's book appears. A copy of this review was kindly sent to me by Dr. Sahni, who wrote to me on 12th January 1943:—"I have read with much interest your Notes on the *History of the Fig (Ficus Carica)*. I think you would be doing a service to Indian Botany if similarly you were to work out the history of our knowledge of other common Indian plants of medicinal or nutritive value. Our own ignorance concerning this subject is colossal and we can scarcely blame the western writers if they ignore the ancient Hindu knowledge of the plant sciences."
in spite of the wealth of material in Jain, Brahmanical, Buddhist and foreign sources in contact with India from remote antiquity. It is, therefore, no fault of the Western writers if they ignore the ancient Hindu knowledge of our sciences as reflected in the literary and other sources now available for study. In view of the unsatisfactory character of the history of Indian plant sciences as pointed out by Dr. Sahni I have thought it advisable to note down and record as many facts about the history of different Indian plants as I can gather during the course of my other studies pertaining to the history of Indian Culture in all its manifold aspects. As one such effort in the field of this history I shall deal with the antiquity of Holcus Sorghum (Jawâr or Jondhla) which is supposed to be the earliest of the wild plants to be domesticated according to SWANSON and LAUDE,¹ who record the following points regarding its antiquity:

(i) **Holcus Sorghum** is indigenous of Equatorial Africa and Asia.
(ii) Evidence of its existence about 2200 B.C. is furnished by one of the Egyptian tombs of this date.
(iii) In the Bible (Book of Ezekiel) the word *doochan* occurs. It is translated by the word *millet* but it is possible that it signifies the *Sorghum*.
(iv) The cultivation of *Sorghum* in Asia, particularly in India is very old.
(v) *Sorghum* was grown as early as 3rd Century A.D. in China, where it was probably introduced.

Watt in his *Dictionary of Economic Products of India*² devotes some space to the history of *Sorghum*. I note below some points from his remarks:

(1) Some of the cultivated *Sorghums* had been developed in India.
(2) Sir Water Elliot pointed out that the most general Sanskrit name for the crop, *pavana* denotes in other connections a Greek, Muhammadan or stranger while its Persian name *juâr-i-hindi* shows that it reached Persia, at least from India.
(3) De Candolle lays a certain amount of stress on "the absence of a Sanskrit name as rendering the Indian origin doubtful."

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¹ Vide Bulletin No. 266 (1934) by A. F. SWANSON and LAUDE—"Varieties of Sorghum in Kansas" (Kansas State College of Agriculture and Allied Science, U. S. A.) This Bulletin was not accessible to me but the pertinent information was supplied to me by my brother Mr. R. B. Gode, M.Sc. Assistant Investigator, Govt. Dry Farming Scheme (1933 to 1943) and now Bio-Chemist to Govt. for the Bombay Province.
(4) Some writers have given Zūna or Zūra as the Sanskrit for this grain, but if that be the case, neither Dhūra or Zūra has given origin to any of the Indian names. Zūra or Zūna is moreover clearly derived from the Arabic Dhūra. The Arabic word has on the other hand passed into the Egyptian and perhaps also the Hebrew, so that it seems almost justifiable to say that the aboriginal people of India knew of and perhaps cultivated their indigenous Sorghum long anterior to the Aryan invasion. Indeed, it may be assumed that the Sanskrit people first learned of this grain in India, but gave themselves very little concern regarding it. But, indeed, the absence of any allusion to it in the classic literature of the Sanskrit people can hardly be advanced as positive proof that it was unknown to them. The religious associations of the grain, the observances of cultivation and the multiplicity of forms of the crop, all point, to an antiquity quite as great as can be shown for most other articles of the humbler phases of life. The absence of any historic indications of an ancient importation and the presence in India of an abundant wild species that affords a large conspicuous edible grain seem, when taken in conjunction with the argument already advanced, "conclusive evidence in support of the opinion that many of the forms of this millet are beyond doubt natives of India."

(5) "Smith (History of Bible Plants, p. 214) has endeavoured to show that the stalks of this millet were very probably the reed of St. Mathew and that the spikelets on its top were very likely the hyssop of St. John mentioned at the crucifixion. The hyssop (Esob of the Hebrews) of Moses was a word used to denote any common article in the form of a broom of a material suitable for that purpose. If this view be accepted, the cultivation of Sorghum in Palestine may be regarded as very ancient."

1. Ibid. p. 295. These remarks read in conjunction with the existence of Sorghum in an Egyptian tomb of 2200 B.C. may tend to confirm the belief that the Sorghum has very great antiquity say of more than 5000 years and if the theory of its importation to India from Africa is accepted we have to suppose that this importation took place in remote antiquity prior to the Christian Era. The evidence recorded in this paper shows its existence on Indian soil for the last 2000 years. It is for the students of the pre-historic culture of India to investigate the exact period of the suggested importation. In the meanwhile we may accept Watt's conclusion that the Sorghum and its varieties are natives of India.
The foregoing scholarly collection of facts and views bearing on the history of the *Sorghum*, though illuminating, is not conclusive so far as the antiquity of *Sorghum* in India is concerned. It is the purpose of this paper to record some useful data bearing on this antiquity so that the whole problem should be clarified by the application of the chronological method of recording textual evidence adopted by me in my present study of the problem. In recording my evidence I shall follow the method of proceeding from the present to the past so that readers may know how far I have penetrated the mist of antiquity gathered round this important grain the *Sorghum*, the sustainer of life in different parts of India even in its worst quality now rationed out to millions of my countrymen consequent upon the exigencies of the present world-war.

JOHN GRAHAM published in 1839 his book on *Plants growing in Bombay and its vicinity* in which he refers to *Jowarree* and *Bajree* as follows:

*Page 237* — *Holcus* (From *Helko* to draw in allusion to the supposed emollient properties of a grass to which this name was given.

*Page 238* — *Holcus Shicatus* — *Bajree*—extensively cultivated and forms a very important article of food along *Jondhala*.

*Holcus Sorghum*—*JOWAREE*—Jondla, the great millet a well-known cerealia. The straw called *Kurbiee* is reckoned very nourishing for cattle and is a substitute for forage for horses, when grass is not obtainable.

EDWARD MOOR, one of the founders of the Royal Asiatic Society London, served with the Maratha army against Tipoo Sultan in A.D. 1790-91. In his *Narrative of the Operations* etc. published in London in 1794 he refers to *Jawary* as follows:

*Page 278*—In Chapter XXI Moor gives historical and descriptive particulars of Canara and the Canarese. In this connection he states:

"We learned that in times of plenty, the ordinary price of provisions was in this proportion: a bullock load of *jowary* for a rupee or four sheep or twenty fowls: sheep we have frequently picked at half a rupee each. A bullock load is eighty *pucka seer* which at a liberal allowance will serve a family of six persons a month." On *page 505* Moor explains *Jawary* as "A grain called in America and the West Indies *Guinea Corn*."

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1. *Jawar* is selling at 4 seers a rupee in Poona at Present (August 1943). About A.D. 1790, when the Peshwa was still ruling at Poona its cost in the Deccan is indicated by Moor's statement "a bullock-load of *jowary* for a rupee." He further explains "a bullock-load" as equal to 80 *pucka seers*. It is clear, therefore, that the cost of *jowary* has increased 20 times. Students of Indian Economics should ponder over this contrast.
Yule and Burnell record usages of the Jowar, Jowarree in their monumental work Hobson-Jobson. These usages are taken from sources dated c. 1590, 1760, 1800, 1813, 1819 and 1826. The earliest of these usages is from Ain-i-Akbari by Abul Fazl (trans. by Blochman and Jarret) and reads as "Jowari" as will be seen from the following extract:

"C. 1590 — In Khandesh "Jowari is chiefly cultivated, in some places, there are three crops in a year, and its stock is so delicate and pleasant to the taste that it is regarded in the light of a fruit" Ain ed. Jarett, ii, 223."

Other usages are — 1760 (Jouri), 1800 (jawarry), 1813 (jwarree), 1819 (joivaree), 1826 (Joanees).

Marsden in his book on Sumatra (London, 1784) refers to a kind of padde as "peddee Jerroo" as follows: — "In the Lampoon country they make a distinction of padde crawang and paddee jerroo, the former of which is a month earlier than the latter."

I cannot say if the word "jerroo" mentioned by Marsden has any connection with the word Javar or Jwar.

Raghunathya Ganesa Navahasta (C. A.D. 1640-1712) a friend of Saint Rāmdas of Maharāstra composed a work on dietetics called the Bhojana-kutuhala (MS No. 594 of 1899-1915 dated A.C. 1803 in the Govt. MSS Library at the B. O. R. Institute, Poona). In the 1st Paricceda of this work represented by the above MS I find the varieties of Yavanala mentioned as follows:

1. Vide p. 465 of Hobson-Jobson (London, 1903) — "Jowar, Jowarree S. Hind. javar, jaar [Skt. yava-prakara or akura 'of the nature of barley.'] Sorghum Vulgare. Pers. (Holeus Sorghum L.) one of the best and most frequently grown of the tall millets of southern countries. It is grown nearly all over India in the unflooded tracts; it is sown about July and reaped in November. The reedy stems are 8 to 10 feet high. It is the cholam of the Tamil regions. The stalks are kiribee. The Ar. dura or dhura is perhaps the same word ultimately as javar; for the old Semitic name is dekn, from the smoky aspect of the grain. It is an odd instance of the looseness which used to pervade dictionaries and glossaries that R. Drummond (Illus. of the Gram. Parts of Guzeratee etc. Bombay, 1808) calls Jooar, a kind of pulse, the food of the common people."


3. A Hindi Court-poet of Sevai Jaising of Amber (A.D. 1699-1743) has composed a Cookery book मोहन्यास (MS No. 1515 of 1891-95 in the Govt. MSS Library at B. O. R. Institute, Poona). The name of this poet is विवत्तरि and he composed this work in A.D. 1739. In the following extract he describes the preparations of जावारि and गाजरा as current in the royal kitchen:
It will be seen from the evidence to be recorded subsequently that Yavanala is a synonym for Jawar or Jondhla.

SADHU SUNDARAGANI, a Jain lexicographer who composed his Dhaturatnakara in Samvat 1680 = A.D. 1624 refers to Yavanala or Jondhla as follows in his lexicon called the Sabdaratnakara1:

(4th Kanda, verse 257) —

“जोधला यवनालक्ष्य, जुरणच, जूतिच: श्य: सण: || २५७ ||”

In Marathi document of A.D. 1541 published by the historian Rajawade we find Jondhla mentioned as जोधल (Jojhala) several times. I reproduce one entry from this document as follows:

“जोधला गुड़ जुरी
शाय ||शाय.|| ||शाय.||

NARAHARI in his medical glossary called the Rajanighantu composed in Kashmir C. A.D. 1450 refers to Yavanala and its properties as follows:

“अथ जवारि मुररी चोपै
हरकरि मुररी हुन चांग तिनके अर्कुसयण मयाय.||
सेको ग्राम्भि बालकरि होष उपस उणा चाबट हरिसयोम.||
इति जवारि चवेना चोपै
अथ बाजे को चवेना
तिरा हरकरि लेरेवै तिनके सेक ग्राम्भि यह दार
उपस उणा चाबट हरिसय निरधारी ताके बलि जाय.|| ५२५ ||”

1. Ed. by Hargovindas and Bechardas, Benares (Veera Era 2439).
2. Vide Sources of Maratha History (Khaḍa 17, Document No. 62).
Studies in Indian Cultural History

Page 360—(17) यावनाला: ।
“यावनालोधतव्वल मदिरो यावनाल्रसांसभव:।
यावनालरमसवखरपन्तैः सहायकं।॥ ३५ ॥
गुणः — यावनालासुधास्वलामीयुज्ञातपत्थरकम्।
शौचित पितङ्गयुपपेश्वयो सन्नामतइक्षुमः।॥ ३५ ॥”
Sugar produced from Yavanala is called Yavanali Sarkara and is mentioned by Narahari as follows:—

Page 91—“यावनाली (सक्तयात्रिऴयो:)।
यावनाली हिमोवमता हिमान्ता हिमशाक्षर।
बृंदावनिर्विक चुड़ा गुड़जा जलबिन्दुजा।॥१६३॥”
King Madanapala of Kāstā race, ruling on the banks of the Jumna composed his medical glossary called the Madanagnīghaṇṭu in A.D. 1374. In this work he refers to Yavanāla and its synonyms as follows:—

Page 123—धान्याशिऱ्य।
“यावनालो देशानाग्य जूरूंचि सुल्लो नलं।॥ २२ ॥
यावनाल: स्वादुरीती वाताल: कुस्पिणिशिजं।॥ २३ ॥”
We have now seen that Sadhu Sundaragani (A.D. 1624) uses the words जूरूं, जूरः for यावनाल and that Madanapala (A.D. 1374) uses the word जूरा for यावनाल. Hemādri, the famous minister of the Yadavas of Devagiri (A.D. 1260) composed a commentary called the Āyurvedarasāyana on the voluminous medical compendium of Vāgbhaṭa II (c. 8th or 9th cent. A.D. according to Hoernle) called the Āṣṭāṅgahṛdaya, in which we find the word जूरूं mentioned:—

Sūtrasūtra, Chap. 14, verse 21—
“कलाट्य जूरूंश्चामाक्ष्यतस्मात्सूत्रकम्।॥ २६ ॥
Hemādri (A.D. 1260) explains in his commentary the word जूरूं (Jūrā) used by Vāgbhaṭa II as follows:—
“जूरूं — यावनाल:”
This explanation shows that about 700 years ago the word यावनाल, which is given as an equivalent of जूरूं by Sadhu Sundaragani (A.D. 1624), meant जूरूं a term for Jāvār, which seems to have great antiquity.

In A.D. 1220 Arunādatta, the Bengali commentator of the Āṣṭāṅgahṛdaya explains the जूरूं of Vāgbhaṭa II (8th or 9th cent. A.D.) as follows in his commentary Sarvasāgasundarā:—
“जूरूं: तत्यात्रिविशेष: दर्शितापेये जूर्यालक इति प्रसिद्दः.”

1. Ed. (1902, Calcutta) by Ashubodh.
The variants for जोन्थलक in the above line recorded by Vaidya Paradkar are:—"जोन्थलक, जोमलक, and जोमलक." It is clear, therefore, that in the 13th century the old word जवार for Jawār or Jondhla was known in the Deccan as जोन्थलक and its variants recorded above. The testimony of a Bengali commentator of A.D. 1220, which equates जवार with जोन्थलक is further confirmed by the Mahānubhava literature of c. 1250 A.D. In fact Cakradhara, the founder of the Mahānubhāva Sect, was very fond of जोन्थलक and its preparations. In a work (in Marathi) called the लिलाचारित्र composed by Mahindrabhattra, the pupil of Cakradhara, there are many references to जोन्थलक or Jawār.1 I note below a few of these references from the published edition8 of Lilacaritra:—

Part I, p. 18—"हुरडा सोले"
Part III, p. 76—"ना जी गांवी एकर चौर काळेलेच: सारिकीतिक जोन्थलक: अचंचा विरि सारिका चालु:"

Part IV, p. 48—"निविद (नियिद) केल्या गोसांवीकभिं पाठिकातुज्या अश्रोण्यावा: काली अनारिसी नाही:; महांनो जोतेचा अनाजवाइलेच",
"p. 49—"उद्यों जोन्थलकेच्याची तिथी ठीकरी"
"p. 51—"तिलिविन याचे (समानता) गाहे: चणे: जोतेच: ऐंशे होते: तेजाना भक्तजनाचा ठाहे: उपाधार केला"
"p. 61—"पुढे करूनसे बोलळावली...जोन्थलेच्या कपुष दोनी पालिके: ते गोसांवी प्रसाद केला......उपाधिया करती हुरडा भाजविला"
"p. 62—"वाइही हुरडा पाळविला: काहा वाळला: अश्री: वेकर वाळली: गोसांबाळी बोलगलील: गोसांवी प्रसाद केला: गोसांवी अबलेयां भक्तजनां दीदलां: मग गोसांवी हुरडा अरोगिला!"

It is clear from the above extracts that in the Deccan of the 13th century...

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1. My friend Prof. D. R. Bendre of the Commerce College, Poona, has brought to my notice the following references to जोन्थलक in a Canarese work of the 70th Century A.D.:—
   c. 940 A.D.—Canto IX, Verse 84 of पंचमत (or विहकमुख्य), published by Karnatak Sabha Parishad, Bangalore, refers to जोल (Jola):—
   Dialogue between कळ and कुक्की "Setting aside the good deeds of the Lord (his chief उपादेश) and being false to जोल can one live thereafter?" (Here जोल= Jawar).
   Canto X, 42 (A soldier proceeding to the battle-field observes) :—"How shall I repay जोल if I don't kill so many horses and elephants." Here जोल= Jawar.

I am thankful to Prof. Bendre for these references.

2. शीताकाळित्र by H. N. Nene, Parts I and II (1936); Parts III and IV (1937). Nagpur. Cakradhara was contemporary of King Kanharadeva (A.D. 1247-60) and King Mahadeva (A.D. 1266-71) of Devagiri. Hemadri was the minister of kings Mahadeva, and Rāmacandra of Devagiri. In another Mahānubhāva work चक्रवाकुमुख्य (by H. N. Nene, 1936) there are references to जोन्थलक on pp. 18 and 38.
the terms जोड़क़े or जोड़क़े (Holcus Sorghum) and its preparations were current. We also note here that the present custom of roasting the grain bunches of Sorghum and eating them in the field or at home was also current 700 years ago and these roasted grains were known as हव्रा, a term for these grains which has survived even to this day. The pastoral life in the Deccan has not changed very much so far as the crop of जोर्नि and its uses are concerned. The custom of preparing बूढ़े or omelets from the flour of जोर्नि was also then current though we now prepare them from the flour of gram. This custom is worth renewing even in cities as Jawar is now selling at 4 seers a rupee while it was sold at 80 seers a rupee as observed by Edward Moor in A.D. 1790. In the encyclopaedic Sanskrit work called the Manasollasa composed by king Someśvara or Bhulokamalla (A.D. 1116-1127) there is a section on Hunting (गुप्तितिस्मात्रणे) in which the use of a jawar grain-bunch (or जोर्नियां जोर्नियां “कोड़क” as we call it to-day) is prescribed for feeding the deer as follows:—

P. 282 —“कोड़काः गुप्तितिस्मात्रणे का्र्. वर्गमाच्यायेन्ययुगात्”

Keśavasvāmī in his lexicon Nārāthārnavā-sankṣepa (A.D. 12th century) mentions गुप्तितिस्मात्रणे and वर्गमाच्यायेन्ययुगात् in the following line:—

P. 118 —“गुप्तितिस्मात्रणे खान्ते हृ जोर्नियां न्यः ग्रिपुष्य: || कृति ||”

In a Canarese inscription of A.D. 1166 we find a reference to corn merchants and jwari as follows:—

P. 110 —“All these chief merchants not minding any tax granted to glorious God Cennakēśava jwari of one spoon (Satṭugha) from each shop” (line 50-53 of the Inscription).

Canarese scholars will be easily able to record earlier references to jawar from literature and other sources (before A.D. 1166) and I earnestly request them to do so.

From the Deccan and Karnāṭaka of the 12th century we now turn to Gujarat in search of the history of jawar. We find that Hemacandra, the great Ācārya of the Jainas (A.D. 1089-1173) who lived at Patan in Gujarat composed a lexicon of Desī words called the Desinamamala in

2. Vide p. 118 of Classical Sanskrit Literature by Krishnamachariar, 1937—“प्राचीनभाष्य सांस्कृतिक शब्दों भाषाये विषयक इतिहास.”
3. Vide p. 110 of Inscriptions in Northem Karnāṭaka and the Kolhapur State by Prof. K. G. Kundanagara, Rajaram College, Kolhapur, 1939.—Date of Inscription No. 13 in which the reference to jwari occurs is Sāka 1088—A.D. 1166, (Tuesday 5th July).
which we find the word “जीवारीलिप्ताः” and “जीवारी” corresponding to the modern words जौबला and जवार respectively as will be seen from the following extracts:

Page 151—“जीवारीलिप्ताः जीवारी। वाक्यमण्डाः। जीवारी शब्दोपरि देशस्य एव व्ययमण्डाः। वस्त्रोऽवरी अन्यभिस्पतितेः जीवारीलिप्ताः कारण सांस्कृतिक वाक्यमण्डाः। वस्त्रोऽवरी अन्यभिस्पतितेः जीवारीलिप्ताः॥ ॥

Hemacandra (in the 12th century) states that the word जीवारी is also a deśya word like जीवारीलिप्ताः. If this statement is correct we have to regard both these words as dialect words current in Hemacandra’s time with some antiquity behind them as Hemacandra has based his Deśināmamala on some earlier Deśī lexicons now lost to us.¹

We have already seen that Madanpāla mentions the word जुराफ़ for Jondhala. We shall see later that this word is very old. In fact it is used in the earliest medical text known as Carakasamhita. Cakrapāṇidatta (A.D. 1060) a Bengali commentator explains the term “जुराफ़” as equivalent to जीवार, a word current in his time in Bengal. I have found two references to “जुराफ़” in the Carakasamhita,² which may be recorded here:

Page 111—Sūstrasthāna, Chap. 21, verse 25—

“प्रशासितका प्रमाणं स्थापयितु ज्ञाता यथा। जुराफ़ोऽवरी जोश्चार्य वैश्वर्यविन्दुः। जुराफ़ोऽवरी जोश्चार्य वैश्वर्यविन्दुः। ॥ ॥

1. Hemacandra composed a Sanskrit lexicon called the अभिधानविलासाः in which he notes the synonyms of ज्ञाता (==Jawār) as follows:—

Page 475—(Edition of अभिधानविलासाः, with a separate index volume)

“स्त्रयांत्रिको उपनिषदोऽवरी अन्निको जीवारीलिप्ताः। ॥ ॥

Hemacandra writes his own commentary on the above lines as follows:—

“ज्ञाता हेतु नालामयं यथा। ॥ ॥

कृत्यते विना: “सुरतः” (उपयोगोऽवरी) ॥ ॥

इन्द्रेण संप्रसारण: ॥ ॥

“जिन्द्रचं ज्ञाता” कृत्यते जराफ़ो: “डीयह्यविन्दुः” ॥ ॥

इति कतः सत्संत, नूतन इत्यादियो यथा जराफ़ोऽवरी: ॥ ॥

देवकिन्यास्य कर्तव्याः ज्ञाता जीवारीलिप्ताः। ॥ ॥

2. Ed. by Nirnayaśāgar Press, Bombay, 1922—The B. O. R. Institute Govt. MS No. 66 of 1872-73 wrongly called ज्ञाता नालमयेः in fact Cakrapāṇidatta’s comm. on चरकसम्भिता—
folio 149—“जुराफ़ोऽवरी ज्ञाता इति सर्वाः.”
Vāgbhaṭa I (c. A.D. 625 according to Hoernle) refers to jauvar as “जूण्ड” in the following line of प्राचीनसंग्रह, सुमस्तान Chap. 7, verse 12— (तुषारान्यानी सामान्ययुगानि)

“कहै दोषों जूण्ड जूण्ड हृदयाकल्याणापदाका || १२-||”

See बिन्यमनस्थान, Chap. 8—“सुदूर दोषों जूण्ड” etc.
Unfortunately the commentator in the above line does not explain the word जूण्ड in the above line.... He merely states “कम्यावरीया”. It is, however, clear that the term जूण्ड was known to Vāgbhaṭa in the 7th century A.D.

In a Jain Prakrit work called the Tiloyapannatti (Trilokaprājñāpti) which belongs to the first stratum of the pro-canon of the Digambaras and the author of which JĀDIVASAHA is a revered author of antiquity we find a reference to jauvar as जम्सराल (Sanskrit: जम्सराल) as follows—

Page 157—“जम्सराल वह विभीन तिलिजन गोसुपाल्मान पहुं दीसह्न || सन्तरे ज मसराल धुरिव गोसुपाल्मान सूरिह || १२२ ||”

The editors identify जम्सराल with “जम्सराल (जूण्ड)” in their Hindi translation of the above stanza, which includes जम्सराल amongst the best kinds of grain like wheat etc. The Tiloyapannatti is assigned to the 5th century A.D. by some scholars. At any rate this reference to जम्सराल (जम्सराल) is very important, recorded as it is in a Prakrit text of great antiquity, incorporating the hereditary knowledge and ancient tradition of the Jainas pertaining to Jaina cosmography, dogmatics, mythology and chronology.

I have already recorded two references to जूण्ड in the Caraka-samhita, one of the earliest medical texts. According to Buddhist tradition Caraka was the court physician of King Kaniṣka who is

1. Ed. by Pt. Rāmchandra Shāstrī Kinjavadekar, Chitrashala Press, Poona, 1960, with the commentary called साक्षिला by इन्दुकुमार
2. Ed. by Dr. A. N. Upadhye and Prof. H. L. Jain, Pub. by the Jain Sanskritī Samrātākā Sangha, Sholapur, 1943, with Hindi Translation by Pt. Balchandra.
3. This translation reads :

“जम्सराल (जूण्ड) वह तूफ, तिल, जी, गेहुँ, और उदन, अत्यादि समस्त उत्सर्गों से मृत्यु मोहणों द्वारे वे नाग शोभा को प्राप्त हैं || १२२ ||”

4. Vide p. 33 of Aryan Medical Science by Thakore Sahib of Gondal (London, 1890)—“Some believe him (कनिष्क) to have been born at Benares 320 years B.C.”—Pt. Durgashankar K Shastri (in his History of Ayurveda in Gujarati, Ahmedabad, 1942, p. 87) makes 5th century A.D. as the latest limit for the chronology of early Ayurveda Sanshitas. He also states that Carakasamhita and Susrutasamhita were completed before 5th Cent. A.D. (i.e. before A.D. 400 or so.)
5. Vide p. 256 of Vincent Smith’s Early History of India, Oxford, 1914—Kaniṣka came to the throne “most probably in 78 A.D.” Dr. Fleet thinks that Kaniṣka came to the throne “in 58 B.C.”
assigned by some scholars to the period A.D. 125-140. Whatever the exact date of the Carakasamhita, the fact of its being one of the earliest medical texts before A.D. 400 is acknowledged by many scholars and consequently we may regard the term "jowar" as the earliest usage of this term for jowar or jondhla so far known. As regards the other synonym for jowar viz. javanala which occurs in the Prakrit work of about the 5th century A.D. as "jamala", I have to record its usage in another earliest medical text, the Sphuta, where it appears as "javanala" as will be seen from the following extract:

Page 48 of Bhelasamhita (ed. by Asutosh Mookerjee, Calcutta University, 1921) भेलसम्हिति—

"हरेषाचो मृद्वांश सतिताध्य तथायकं |
कृत्रियास्वाभितेषु व पकावासुररुपस्य |
तन्यं तु लल्लवम्-धिन (वीर्य) नीय (न) एकुपिति: |
श्रापु (पु) प्रायश्चिनिशेषेन दर्शलाभेन हिदिति न |
श्रवणध जवानालध हो श्रायो। जवाली स्थली। |
गुज्ज (क्र) विनिहित (ह) सत्तो तु हि नापि शारीरिकाम्।"

The mention of javanala, and its properties along with those of other grains like मृद्वांश, कृत्रियास्वाभितेषु etc. in the Bhelasamhita indicates that javanala is the name of a grain known to Bhela, the pupil of आत्रेय (6th cent. B.C.) 1. Atreya had six pupils "each of whom is reputed to have committed to writing the teaching of the master in the form of a Sanhitai or compendium." So far three of these Samhitas have been discovered. They are श्रावणकुली संहिता, in the form of the redaction by नरक (2) श्रावणकुली, (ed. by Asutosh Mookerjee) and (3) करकुली संहिता recently published by Rajaguru Pandit Hematāj of Nepal. If the tradition about the Atreya school of medicine is correct we have to regard the श्रावणकुली as earlier than the श्रावणकुली, preserved in the form of नरककुली and published by the N. S. Press, Bombay. There is a divergence of views about the chronology of these Samhitas, which go by the names of Caraka, Bhela and Kashaya. It is, however, agreed to by all scholars that they are the earliest medical treatises that have come down to us from antiquity.

Dr. Dinesh Chandra Sircar states that Āśvaghoṣa is said to have been a contemporary of Kaniṣka. Āśvaghoṣa's Buddhacarita was translated into Chinese between 444 and 421 A.D. (Vide pp. 379 and 380 of Successors of Satavahanas. Calcutta, 1939). If the tradition about Caraka's connection with Kaniṣka is correct the date of Caraka is evidently before A.D. 400.

1. Vide prefatory Note to Bhelasamhita by Sir Asutosh Mookerji.
2. Published, Nirnaya Sagar Press, Bombay, 1938.
Starting from A.D. 1839 we have now moved backward through centuries of the history of Jawar (Holcus Sorghum) and have reached the first few centuries of the Christian era, when this grain appears to have been cultivated and used by our ancestors and when also its properties were studied and recorded by the earliest medical writers of those centuries. If this view based on the data recorded in detail in this paper is accepted we may be able to understand the significance of the following remarks of Lassen¹ about the introduction of jawar into Italy in the 1st century of the Christian era:

"Another Indian cereal Milium was not exported from India it is true; but on the other hand its cultivation was introduced into Italy ten years before Pliny wrote this passage (Periplus Mar., Erythra p. 32). It is probably the kind of millet very common in India which botanists call Holcus Sorghum and the Indians guari or jawar in the vernacular."

As Pliny, the Roman author flourished between A.D. 23 and 79 and as there was contact of India with Rome in this century the probability of the cultivation of Indian jawar in Italy as suggested in the above extract cannot be ruled out in a summary way. In fact Prof. Franklin Edgerton² of the Yale University (U.S.A.) has found a reference to the city of Rome in the Sabhaparvan of the Mahabharata which he has critically edited for the B.O.R. Institute Critical Edition of this Great Epic of India.

The history of plants, especially when these plants have migrated from their original habitat to different regions of the globe, is necessarily interwoven with the history of the different people who cultivated them in remote ages of the history of the globe. I am quite incapable of getting access to the sources of the history of all these people and must confine my studies to such of these sources as are available to me easily. Even this study of the history of the jawar must remain only as a sketch of this history made by a shaking hand on too big a canvas stretching from 2200 B.C. to A.D. 1850. The chronology of the sources from which I have drawn my data is somewhat definite for sources later than A.D. 1000 but only relative so far as sources earlier than A.D. 1000 are concerned. However, in the present stage of our chronology we have no other recourse but to represent only the current views about them, leaving it to future scholars to solve the problems of early chronology on the strength of their own studies of the present sources and in the light of new sources, if discovered hereafter.

About the several problems that arise out of the present collection of data bearing on the history of Jawar it is better to defer our judgement. We have no direct peep into remote antiquity and consequently the gleams of light that are furnished by a few documentary references are the only guides that help us to clarify the age-long history of this edible grain, which may have been cultivated in India even prior to the Aryan invasion as observed by Watts in his Dictionary of Economic Products of India.

The following chronological table will show at a glance the evidence collected in this paper regarding the antiquity of Jondhla or Jawar:

<table>
<thead>
<tr>
<th>Chronology</th>
<th>Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.C. 2200</td>
<td>Evidence about the existence of J furnished by an Egyptian tomb (Swanson and Laude). J (=यावनाल) mentioned in शेकसपिता, one of the earliest medical treatises like the चरकसंहिता and काराकसंहिता. J referred to in the Bible according to Smith (History of Bible Plants, p. 214).</td>
</tr>
<tr>
<td>A.D. 100—200</td>
<td>J (=जूरांह) Mentioned in चरकसंहिता. J (=? an Indian Cereal Milium) introduced into Rome in the time of Pliny (A.D. 23—79) according to Lassen.</td>
</tr>
<tr>
<td>A.D. 200—300</td>
<td>J Cultivated in China, where it was probably introduced from outside.</td>
</tr>
<tr>
<td>400—500</td>
<td>J (=जमगाल =यावनाल) mentioned in तिलोकप्रसंचि of जौधबसह, a Jain author.</td>
</tr>
<tr>
<td>c. 625</td>
<td>J (=जूरांह) mentioned in आधाषांसंहि of Vāgītha I.</td>
</tr>
<tr>
<td>700—800</td>
<td>J (=नोलम) mentioned in the Tamil work जीवकाचितामणि.</td>
</tr>
<tr>
<td>1050</td>
<td>J (=यावनाल, योनल, जूरांहिय, देवखण्य, जौलाला etc.) mentioned by यादवप्रकाश.</td>
</tr>
<tr>
<td>8th or 9th Cent.</td>
<td>J (=जूरांह) mentioned in the आधाषांसंहि of Vāgītha II.</td>
</tr>
<tr>
<td>A.D. 1060</td>
<td>J (=जूरांह =जीनार) mentioned by चक्रबाणिर, a Bengali commentator of चरकसंहिता.</td>
</tr>
<tr>
<td>c. 940</td>
<td>J (=जौला) mentioned in Canarese work प्रमाणपत्र.</td>
</tr>
<tr>
<td>1089—1173</td>
<td>J (=जोचारी, जोयारलिङ्ग, यावनाल, योनल, जूरांहिय, जौलाल, देवखण्य etc.) mentioned by हेमचन्द्र in देशोनमालि and अभिधानविवरमणि.</td>
</tr>
<tr>
<td>1090</td>
<td>J (=जूरांहिय) mentioned in a Prakrit work सुरसुरूरिचित्र.</td>
</tr>
<tr>
<td>1100—1200</td>
<td>J (=यावनाल, जौलाल) in नानायारे विवेकेंद्र of केसरसमभोज.</td>
</tr>
<tr>
<td>1116—1127</td>
<td>J [=यावनाल (कविण)] mentioned by Someśvara in his मानसोऽलास.</td>
</tr>
<tr>
<td>Chronology</td>
<td>Evidence</td>
</tr>
<tr>
<td>------------</td>
<td>----------</td>
</tr>
</tbody>
</table>
| 1143       | J (=
> कृपालू) mentioned in the Prakrit work सारसेलिय सरसेलिय. |
| 1166       | J mentioned in a Canarese inscription. |
| 1220       | J (=
> कृपालू = जीन्यलूक in दशिकास्ट) mentioned by Bengali author जीन्यलू दशिकास्ट in his Comm. on शामिलक र (variants of जीन्यलूक are जोहलूक, जोहालूक, जोहालूक). |
| c. 1250    | J (=
> जोहालूक, जोरालूक) mentioned in लोकाचारित and अचारबाहु (Mahabharata texts). |
| c. 1260    | J (=
> जोरालूक = यावनालू) mentioned by Hemadri in his Comm. on the वास्तविक. |
| 1374       | J (=
> यावनालू, जूर्ण, देशवास्तु, जूर्ण etc.) mentioned in the शामिलक, a medical glossary by शामिलक. |
| c 1450     | J (=
> जूर्ण) described in the राजविजय of नवरी (in Kashmir). |
| 1541       | J (जोरालू) mentioned in a Marathi document along with गाल and गुरी. |
| 1590       | J grown in Khandesh (Ain-i-Akbari). |
| 1624       | J (जोरालू, जूर्ण, जूर्ण, जूर्ण) mentioned by Sadhusundaragani in his शास्त्रस्त्राकर. |
| c. 1650    | J (जूर्ण) described by Raghunatha Navahasta friend of Saint Ramdas in his Bhojana-Kutthala. |
| 1739       | J used in the royal kitchen of 'Sevai' Jaising of Jaipur (Rajputana). |
| 1760       | "Jouari" (reference quoted in Hobson-Jobson). |
| 1784       | "Jerroo" a kind of paddy in Sumatra mentioned by Marsden. |
| 1790       | Description of J by Capt. Edward Moor. |
| 1800       | "Jowarry" (Hobson-Jobson reference). |
| 1813       | "Juarree" (Hobson-Jobson reference). |
| 1819       | "Joivaree" (Hobson-Jobson). |
| 1826       | "Joanes" (Hobson-Jobson). |
| 1839       | Description of J by John Graham in his work on Bombay Plants. |
32. The History of Maize (Makā) in India—Between A.D. 1500 and 1900*

For the last ten years I have been studying the history of Indian plants of medical and nutritive value in response to the suggestion made to me by my esteemed friend, the late Dr. Birbal Sahni, F. R. S. Several papers on this history have already been published by me in different Oriental journals and other publications. While engaged in the study of the history of Indian plants in 1948, the General Secretary of the Royal Asiatic Society of Bengal, Calcutta, wrote to me on 5th April 1948 as follows:

"I enclose copy of a letter received from the Registrar, Indian Agricultural Research Institute, New Delhi, asking for some information concerning the existence of corn (Zea Mays) in India long before the discovery of America by Columbus. I shall be grateful if you will kindly let me know your remarks on the subject for forwarding to the Research Institute in New Delhi."

I informed the General Secretary of the Royal Asiatic Society of Bengal that the information given to the Agronomist of Texas by Indian students about historical records proving the existence of Corn (Zea Mays) in India before the discovery of America by Columbus was incorrect, if not misleading, as I shall show in a special paper projected by me on the history of Maize in India, which I have been studying for the last few years.

Subsequent to the above reply I got into direct touch with the Agronomist of Texas viz. Prof. R.G. Reeves and sent to him many of my papers on the history of Indian plants. Prof. Reeves has now sent to me


1. This letter dated 17th March 1948 forwarded to the Royal Asiatic Society of Bengal the following letter dated 19th August 1947 from the Agronomist, Texas Agricultural Experiment Station, Texas (U.S.A.):

"I have recently been talking with students from your country (India) and some of them tell me that there are historical records of the existence of Corn (Zea Mays) in your country long before the discovery of America by Columbus. I have been interested in the history of Corn for a number of years and would like to have more information concerning these reports. Will you please pass this inquiry along to the person who can give me some suggestions and literary reference with the most convenience. I shall thank you very much for doing me this favour."
his book on Corn or Zea Mays in which he has traced the history of this plant from non-Indian sources.

I note below some points from this history for the information of readers to whom Prof. Reeves' book may not be easily available:

Page 7-9

(1) November 5, 1492—Two Spaniards delegated by Cristopher Columbus to explore the interior of Cuba returned with a report of "a sort of grain they call Maiz which was well tasted bak'd dry'd and made into flour." Thus was introduced to the white man Maize, a plant of immense food value.

(2) Today Maize is grown in every state of the U.S.A. and its crop is maturing somewhere in the world every month of the year. It grows in Canada, Russia, Caspian Plain, Peruvian Andes, Hindistan. It is grown on more than 200 million acres of land and produces an annual crop exceeding four billion bushels.

(3) Maize has a diversity of forms. The Russians have collected more than 8000 varieties. There are, however, five main types—dent, flint, flour, sweet and pop.

1. *The Origin of Indian Corn and its Relatives* by P. C. Mangelsdorf and R. G. Reeves, Bulletin No 574 of the Texas Agricultural Experiment Station, Texas (U. S. A.), May 1939, Pages 315. At the end of this volume a list of books cited is given. The following items from this list may be of interest to the readers of this paper:


Maize would soon disappear from the face of the earth, if deprived of man's protection.

Ancient civilizations of Peru, Central America, and Mexico were based upon the culture of Maize.

There is no historical evidence pertaining to Maize previous to A.D. 1511. Maize is not mentioned in the Bible and there is no Hebrew or Sanskrit term for it. The Greek writers discoursed on many crop plants, among which Maize is not mentioned. The Greeks have no word for it. There are no Egyptian representations of the plant or ear.

Extensive search of the pre-Columbian Chinese literature reveals no evidence that the Chinese scholars were acquainted with it. The records left by the ancient Americans—the Incas, Mayas, and Aztecs—tell us nothing of the origin of Maize, though they do point out its importance in the economic, social, and religious life.

There are no fossil remains of Maize. A specimen from Peru believed to be a fossil has been proved to be a clay rattle or perhaps a toy for the amusement of some prehistoric infant.

There is absence of clear-cut evidence about the Maize from history, archaeology, geology and paleobotany. We must, therefore, study the plant itself and its relatives.

The first printed reference to Maize and its botanical description appears in "Decades" by Peter Martyr published in A.D. 1511. The first part of the first "Decade" which refers to Maize was written by November 1493 within one year after the discovery of America by Columbus. An English Translation of the "Decades" by Richard Eden was published in A.D. 1555.

The first reference to Maize in a botanical publication appeared in A.D. 1532 in the "Stirpium" by Bock. Ruel mentions the plant in 1536.

The first artistic and accurate illustration is given by Leonard Fuchs in his herbal of A.D. 1542 (Figures 10 and 11). Fuchs called it Turricum frumentum or Türkisch Corn.

In A.D. 1493 Columbus took Maize to Europe on his return from America. He gave it the name Maize which is a modification of the Arawak name māhiz or Marisi. Subsequently
a profusion of names for this plant became current e.g. the following:

*Panicum* (by Peter Martyre in A.D. 1493).
*Walschkorn* (by Bock, 1539).
*Turricum frumentum* (by Fuchs, 1542).
*Milium indicum* (by Dodens, 1552) and in 1566 *Triticum frumentum*.
*Frumentum indicum Mays dictum* (by C. Bauhin, 1623).
*Frumentum asianticum* (by Gerard, 1636).
*Triticum indicum* (by J. Bauhin 1650).
*Zea Mays* (by Linnaeus, 1737).

(14) Sturtevant (1879) reviewed the literature regarding the eastern and western origin of the Maize,

*Page 31 —*

(15) *Figure 13* — Reproduction of Parkinson’s (1640) description of *Maize*.

*Page 34 —*

(16) The earliest written record of *Maize* appears in *Popol Vuh*, the sacred book of the Quiché Indians of Western Guatemala, whose records go back to the 8th Century. This book records a legend of four barbarians who guided the Quichés to “A most excellent land, so full of good things, where the white and yellow Maize did abound.”

*Page 35 —*

(17) *Maize* is not mentioned in any Old World treatise prior to A.D. 1492. It is not mentioned in the *Bible*, *Rgveda* and other Vedas (no Sanskrit or Hebrew word for Maize). There are no Egyptian representations of Maize. Pliny mentions *Zea* as growing in Egypt but *Zea* was a kind of *wheat* according to early Greek botanists. No authentic specimens of *Maize* grain or ear have been discovered in Egypt, Assyria or Babylonia.

(18) The specimen of Maize found by Rifaud in a tomb at Thebes is now conceded to have been the work of an impostor. Similarly the Charter of Incisa of A.D. 1204 according to which seeds of Maize were brought from Anatolia by the Crusaders has been shown to be a fabrication (Cf. East, 1913).

(19) The Portuguese voyagers to Africa prior to A.D. 1492 never encountered Maize.

(20) *Ortus Sanitatus* (A. D. 1491) contains no reference to *Maize*. 
(21) Li Shih-Chen, the greatest Chinese authority on natural history refers to Maize in his *Pen ts’ao kang mu*. Bonafous (1836) supposed that this book was written in the 16th Century. De Candolle (1855) and later writers have shown that this treatise was probably written at a much later date than that supposed by Bonafous.

Page 36 —

(22) Columbus in a letter to Ferdinand and Isabella dated 30th May 1498 writes of the use of Maize in the New World and in another letter, speaking of his brother states: "During a journey in the interior he found a dense population entirely agricultural and at one place passed through eighteen miles of corn-fields."

(23) Within one generation Maize was known over most of Europe. Not later than A.D. 1540 Maize reached China from the west through Tibet from India, to which the Spanish or Portuguese traders had carried it in the previous generation. The first reference to Maize in Chinese literature is assigned to A.D. 1573 by Goodrich.

Page 38 —

(24) It is now generally agreed that Maize was confined to America before the discovery.

Pages 39-46 —

(25) Evidence of Archaeology and Ethnology proving the great Antiquity of Maize in America.

It now remains for me to record the results of my study based mainly on Indian sources but supplemented by information from the non-Indian sources available to me so far.

(1) G. Renard in his book "Life and Work in Pre-historic Times" (London, 1929) makes some remarks on the beginnings of agriculture in pre-historic times. In this connection he makes the following remarks on the Asiatic origin of Corn (Maize): —

Page 127 — Corn which was the conquering grain in nearer Asia, in Egypt,¹ and all over Europe seems to be a native of the first-named

¹ A. Lucas in his book on "Ancient Egyptian Materials and Industries" (3rd Edition, 1945) p. 61 (foot-note 2) definitely mentions maize as "a modern importation into Egypt." This opinion of a scholar who has made a thorough study of ancient Egyptian materials discovered in the ancient tombs of Egypt contradicts the statement of G. Renard that maize was found in the oldest Egyptian tombs.
country (i.e. Asia.) It has been found in a wild state near Mount Hermon in the North of Palestine. How was it cultivated? We do not know. We find it in the oldest Egyptian tombs. We find it in the ruins of the lacustrine cities besides rye, barley, buckwheat and millet, the last of which perhaps disputed with it for sovereignty for considerable time."

Page 130—"Corn and rice have crossed the seas to conquer America. In revenge America sent to Europe maize, which in the beginning, forgetful of its origin, she called Turkish corn, and with the tomato, the sweet potato etc."

(2) E. J. W. Macfarlane in his "American Indians' Gifts" (London) makes the following remarks on Maize:—

"Maize or Indian Corn was the staple grain of the ancient Americans. Unlike wheat, rice, barley, and other old world Cereals, Maize has no wild relatives and would soon become extinct outside of cultivation. There is one large Mexican grass called Teosinte which will cross with Maize with difficulty and gives sterile hybrids. A study of the Chromosomes of these hybrids shows that Maize and Teosinte sprang long ago from a common stock. The genetics and botany of Indian Corn show that it has been in cultivation for thousands of years. In fact some scientists believe that it may be the most ancient of all cereals.Indian Corn which supported the ancient American Civilizations is now a staple diet for the hardy hill people in parts of the Himalayas. These folk have no inkling that they are beholden for their food to the ingenuity of Mayas and Incas of long ago."

(3) One of the earliest figures of Maize in a European book is reproduced by Howard S. Reed in his History of Plant Sciences (page 67) Waltham, Mass. U. S. A. (1942), Figure 10. This figure is taken from the book New Kreuterbuch (A. D. 1543) by a medical botanist Leonard Fuchs (A. D. 1501-1566) of Tubingen University. Fuchs wrote a work on plants called De Historia Stirpium containing pictures of 511 plants. He believed in the supreme authority of Dioscorides. He describes Maize as Turricum frumentum (Türckisch Korn).

(4) Speaking of Herbalists in the Orient, Howard S. Reed (p. 76 of

1. Attempts to prove the native home of a plant in a particular region by the fact of its growing in such a region in a wild state in modern times have often misled botanists about its true home.

2. These remarks were sent to me by Mr. S. L. Narasimha Rao, B. A., L. T. of Cocanada through my friend Prof. E. V. Viraraghavacharya of the P. R. College of this place. I am thankful to both these friends for their interest in my present inquiry.
Plant Sciences) refers to Li Shi Chen's herbal (A.D. 1590). This book contains an illustration and a notice of Maize. At this time Maize had become an important food plant in parts of China. Reed observes that the assumption that maize may have been introduced into China in pre-Columbian times is disproved by the absence of any notice of this Cereal from all Chinese herbals prior to the discovery of America. "The Angustian monk Martin de Herrada spent three months in China in A.D. 1575. He published his "History of the Great and Mighty Kingdom of China" (Rome, 1585). Herrada mentions wheat, barley, millet and Maize as cultivated in China. The mention of Maize is important because it shows that the Spaniards who took it to Philippine at an early date were instrumental in introducing it into China. ( Ibid, p. 79). Reed informs us further (p. 21) that "Europeans became acquainted with Maize after the expedition of Columbus to Cuba in 1492, who found it cultivated there by Indians." The home of the Maize was Peru but the exact original home is unknown (p. 22) though Maize was brought into cultivation from stone age (p. 23).

(5) The University of Bombay possesses a manuscript of an anonymous Nighantu (a glossary of medical and botanical terms) in the Bhadakamkar MSS collection (No. 12). The Nighantu appears to be later than A.D. 1700. It mentions Makka (Maize) among minor cereals (upadhaivas) in the following extract:—

Folio 6b —

"मधु उत्चारचावनि श्राह"
याबानला: ||
मेदो मका, याबानलाको महाव, बल्वो दुवरे वातपितानव ||
रूख्य: संतययो बालकियो मका समुद्रन: ||"||

We learn from the above extract that Makka (Maize) is a variety of yovanala (wrongly written in the extract as याबानल and यवानाल). It is called "महाव यावानल" i.e. a bigger kind of yovanala (Holcus Sorghum) or Jodhla1 or Jawar. It is tasteful, strengthgiving, dear to children etc.

(6) Maize is called Maka in Marathi. My friend Mr. S. L.
Narasimha Rao of Cocanada has sent to me the following list of words for *Maize* in a communication dated 29-3-1945:

- **Eng.**—Maize; Indian Corn.
- **Sanskrit**—Yāvanāla.
- **Hind.**—Makka.
- **Ben.**—Buththe, Bhattā and Makāi.
- **Burm.**—Pysungbooz.
- **Dul.** and **Hind.**—Mukka jauri.
- **Mah.**—Makaibonda.
- **Tam.**—Mukka-Cholam.
- **Telugu**—Mokka-Jonnalu.
- **Mal.**—Jagung.
- **Can.**—Bottah.
- **Cing.**—Munwairingu.

I leave it to the students of historical linguistics to explain how and when the above-mentioned vernacular\(^1\) terms for *Maize* became current in India and Burma. In particular it would be useful to study historically the terms: *Makā, Makka, Mukka, Makai,* and *Mokka* in the above list.

(7) In the Marathi Encyclopaedia called the *Jñānakośa* by S. V. Ketkar (Vol. XVIII p. 1) we are informed that the native habitat of *Makā* (Maize) is America. *Possibly the Portuguese brought Maize to India.* It must have taken about 100 years to cultivate in India different varieties of Maize to suit different climates in the different parts of India. On p. 87, *Makā* is mentioned as one of the *Upadhānyas* or minor cereals.

(8) Carl Whiting Bishop in his *"Origin of far Eastern Civilizations: A Brief Hand-Book"* (Smithsonian Report, 1943, pages 463-512—publication 3758, Washington) makes the following remarks about

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1. In reply to a query from me about references to *Maize* in the datable old Gujarati literature, Prof. B. J. Sandesara of Ahmedabad wrote to me on 24-10-1949 as follows:

"I have been studying old Gujarati literature for the last 18 years but I am not aware of a reference to *Maize*. After I received your letter I just peeped into two unpublished old Gujarati works of the 17th Century, which mention hundreds of varieties of cooked preparations but even there I did not find the mention of any preparation of Maize. This does not, however, exhaust the possibility of finding references to Maize because Maize was and still is the staple food of the village population in the Pancha Mahals, Sabarkastha and several other districts of Gujarat. The fact that Maize was considered the food of the rustics may probably account for the paucity of its references in literature."
Maize, while dealing with the migrations of Tibeto-Burman peoples to Western China 1000 years before our Era in the upper Yangtze basin (under the Chou Dynasty):—

"In extreme Western China the local culture also contained elements from Northern India. Similarly culture traits passing through the region traversed by the now famous Burma Road have gone on diffusing themselves from pre-historic times right down to the present day. To take a fairly recent example of this, Maize, or Indian Corn, an American plant brought by the Portuguese to India during the sixteenth century lost little time reaching China by this route. And the vital importance of the Burma Road to China today is well known to all."

(9) The cultivation of Maize in the Deccan about A. D. 1700 is proved by document No. 283 dated Śaka 1629 (Āśādhā, Vādyā 8) = A. D. 1707 in the *Sources of Marāṭhā History*, Khandā 20 (page 413) published by the historian V. K. Rajawade. In this document (mahajar) the following extracts refer to the cutting and looting of Maize (Maka) crop and other crops from the fields of farmers:—

Page 413 —

"भैरैला धानयुगां भिरोजी पाटली।

"नसोजी पाटलिकार खदा कोण

याची मक्का राखा व सेत कापून कापून

नेले खाराची जाली — कलम"

Another undated document No. 175 (pertaining to the Chitrāva family of Wai in the Satara District) mentions "मक्क्याची काप्सें" (bunches or ears of maize seeds) — p. 232 (ibid).

(10) The cultivation of Maize (Makā) in the Deccan in the 17th Century is proved by a list of octroi and tolls (वाल्मीकियों के दर) on food produce published by Sardar G. N. Mujumdar in the *B. I. S. Mandal Quarterly* Vol. XX p. 160. In this list we get the following references to bunches or ears of Maize seeds (मक्क्याची काप्सें):—

"— मक्क्याची काप्सें"

"— २३ प्रती मक्क्याची काप्सें काप्सें व तरकारी बसोई दर"

This list is not dated but it is said to belong to Shivji's times (A. D. 1630—1680).

(11) In a MS of a medical work called the *Vaidyāvataṁsa* (No. 601 of 1899—1915) in the Govt. Mss Library at the B. O. R. Institute we get the following reference to Makka (Maize):—

Folio 12—

"मक्क्याचे काप्सें गुणां:—

यावनाले महान बत्तो बुर्जों वातापिलक्ती।

रूप्य: संतरांची बाळपिल्लें मक्का समुद्र: ॥१४२॥”
This verse is identical with the verse about Makā recorded already by me from the anonymous Nīghanta (MS in the Bhadkamkar Collection of the University of Bombay).


(12) The verse about the properties of Makā or Maize viz. यावनाली महान् बल्यो…………समुद्रः“ is also found in a work on dietetics called Bhojanakutiṭhala by Raghunātha Ganeśa Navahasta who was an intimate friend of Saint Rāmadāsa of Maharāṣṭra (A. D. 1608—1682) and who flourished between c. A. D. 1640 and 1710 as I have proved in my papers on this author and his works. In the first Paricheda of the Bhojanakutiṭhala (MS No. 594 of 1899—1915) we get the above verse as follows on folio 5—

“यावनाली महान् बल्यो हुज्जरो वातपितक्तः।
रूच्य: संतपंचो बालिम्यो मक्का समुद्रः॥

॥ मक्का ॥”

A ms of the 1st Paricheda of the Bhojanakutiṭhala belonging to Śamji Nayak Punde (C. A. D. 1650—1685) is available in the MSS collection of the late Rājavaidya Shankarrao Jagtap of Kolhapur. In this contemporary MS we get the above verse about Makā (Maize) as follows—

folio 5—

“यावनालो महान्यो हुज्जरो वातपितक्तः।
॥ मक्का ॥”

The above reference clearly proves that the term मक्का for Maize had become current in the Deccan in the middle of the 17th century, if not many years earlier.

(13) The Marathi Poet Rāmjoṣi (A. D. 1762—1812) has given a description of a famine at the close of the Peshwa period (A. D. 1775—1800). In this description he refers to the high prices of food materials prevalent during the famine. A fragment of a bunch of Maize seeds


was sold for one pice ("पैक आयाचा कडे एक मोडका") — see page 463 of Maharāstra Sārasvata or History of Marathi Literature by Bhave.

(14) Buchanan in his Patna-Gaya Report (1811-1812), Vol. II (Published by Bihar and Orissa Research Society, Patna) refers to the cultivation of Maize in Bihar and its use as food in the following extracts:

Page 498 — "near the Ganges maize has been introduced in its (Maruya's) stead and it is to be regretted that the practice has not yet extended into the interior as the produce of Maize is larger, and there can be no doubt, that the grain is better although as yet the natives give a higher price to maruya. This grain is chiefly used in unleavened cakes but is occasionally used into unboiled puddings. The straw is preserved for fodder. Next to maruya, maize is the culmiferous grain most common in these districts but as yet it is confined almost entirely to the banks of the Ganges. The stems both green and ripe are given to cattle, but the former only are thought good. The natives are very fond of the grain, when quite young, parched in the cob."

Page 670 — Exports and Imports.

"The maize and Janera come from Tirhut and Sarun and are sent mostly towards Benares."

Page 636 — Common Artists.

"Those who parch pulse and maize are called Bharbhuna or Chabena furosh and are much employed. They are all women many of them however young, and generally sit in the streets with a little fireplace parching for all the people in the neighbourhood and receiving a little of the grain from each. They may get in Patna 2 payasas a day but in other places they make less."

(15) Raghunatha Indraji alias Katābaṭ in his Nighatasaṁgraha (Junagad, 1893) records the following verses11 about Maize:

10. Among the grains used for parching by ancient Indians Maize is not mentioned (Vide my article on the Use of fried grains etc. in the Annals (B. O. R. Institute, Poona) Vol. XXIX pp. 43-63 (1949)).

11. The source of these verses is not mentioned by Katābaṭ. The verses tell us that Maize has properties similar to those of yavanāla (Holcus Sorghum) "यावनालमः 
मुक्ते—compare the description of Maize as "महान् यावनाल" (bigger variety of yavanāla) given by the works (1) Vaidyāvatāhsa of Loliṃbaraja and (2) Bhojanakutghala of Raghunātha Gapesa Navahasta.
The names for *Maize* recorded by Kātabhāṭ are as follows:

1. *Sanskrit*—महाकाय: and कृदिघान्यम.
2. *Gujarati*—मહाकाई.
4. *Hindustani*—मुका.
7. *English*—Indian Corn; Maize.

The foregoing notes on the history of *Maize* in India, Europe, and America confirm the opinion of Professors Reeves and Mangelsdorf that Maize was unknown to the old world before the discovery of America by Columbus in A.D. 1492. The evidence collected by me from Indian sources ranges from c. A.D. 1575 to 1900. It is worth while investigating and recording some evidence about the importation and cultivation of Maize in India between A.D. 1500 and 1600. It is believed that the Spanish or Portuguese traders took Maize to India from Europe sometime before A.D. 1540. This belief gets support from the references to Maize by Lollimbaraja and Raghunatha Ganeśa Navahasta, who lived (between c. A.D. 1575 and 1700) in the districts of Pooana and Satara respectively. After the Portuguese advent in A.D. 1498 many foreign articles of commerce found their way to these districts of the Deccan. *Maize* must have been one of these articles like the chillies, tobacco, guava, custard-apple, pine-apple etc. which entered Indian agriculture and horticulture at this time and enriched Indian diet and cookery to such an extent that many of us hardly know that they are foreign importations.

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12. The history of these names for *Maize* should be studied by linguists. Like the herbalists of Europe and China Indian authors of medical *Nighanṭus* (Glossaries) tried to make their works up to date by adding all new acquisitions to the field of Indian agriculture and horticulture like the *maize, guava* etc.
33. Some notes on the History of the Fig (Ficus Carica) from Foreign and Indian Sources

According to the history of the Fig (Ficus Carica) recorded in the Encyclopaedia Britannica,¹ it was probably one of the earliest objects of cultivation. There are frequent allusions to it in the Hebrew scriptures. According to Herodotus it may have been unknown to the Persians in the days of the First Cyrus. Pliny mentions varieties of figs and the plant played an important part in Latin myths. This history of the fig testifies to the high value set upon the fruit by the nations of antiquity but it says nothing about its early existence in India or its importation to the Indian provinces known to the Greeks and Romans.

According to Dr. Aitchison² the Fig or Ficus Carica was "probably a native of Afghanistan and Persia" and it is indigenous in the Badghis country and Eastern Persia. According to de Candolle³ "the pre-

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² Vide p. 228 of Vol. IX of the Fourteenth Edn. 1920. "From the ease with which the nutritious fruit can be preserved it was probably one of the earliest objects of cultivation..... antiquity." I may note here the points in the para noted above:

1. Fig must have spread in remote ages over Agean and Levant;
2. May have been unknown to Persians in the days of the First Cyrus according to a passage in Herodotus;
3. Greeks received it from Caria (hence the name Ficus Carica);
4. Fig, the chief article of sustenance for the Greeks—laws to regulate their exportation—Attic Figs celebrated throughout the East—improved under Hellenic Culture;
5. Figs were used by the Spartans at their public tables;
6. Figs were used as food for the slaves in Rome;
7. Fig was held sacred to Bacchus—employed also in religious ceremonies—

² Vide p. 347 of WATT: Dictionary of Economic Products of India, Vol. III. (Calcutta and London, 1890). WATT records the vernacular names of the Fig:—Angir (Hindi); Angir (Beng.); Kimri, jag, jad, jadari, jadari (PB); Angir (Bomb.); Angir (Guz.); Angjor or Angjor (Kan.) Tio-thia (Burm.); Angira (Sansk.); Ten (Arab); Anjir (Pers.). Dealing with the HABITAT of the Fig he states that it is cultivated in many parts of India; North West Provinces, Punjab, Western Himalayas, Sind, Baluchistan, Bombay, Madras, Burma, Andaman Islands etc.

³ According to a passage in Herodotus the Fig seems to have been unknown in the days of the First Cyrus (B.C. 559) as stated in the Encyclopaedia Britannica. Herodotus the Greek historian and the father of history was born in B. C. 484 at Halicarnassus, a Doric Colony in Caria. Vide p. 260 of Smaller Classical Dictionary, Ed. by E. H. Blakeney (London, 1913). Cyrus was killed in 529 B.C. (p. 178 of Class. Dictionary).

⁴ Ibid, p. 348.
historic area of the Fig tree covered the middle and Southern part of the Mediterranean basin from Syria to Canaries." He further mentions the fact that "leaves and even fruits of the wild *Ficus Carica* with teeth of *Elephas premigenius*, and leaves of plants, of which some no longer exist, and others like *Laurus Canariensis* which have survived in the Canaries" were found by PLANCHON in the quaternary tufa of Montpellier, and by DE SAPOTRA in those of Aygaledes near Marseilles and in the quaternary strata of La Celle near Paris. WATT records the use of the Fig in Medicine.  

Alexander FAULKNER refers to Figs in his *Dictionary of Commercial Terms* published in Bombay in 1856 but records no historical information in his note. Prof. H. P. PARANJPE in his recent book on the cultivation of fruits states that Southern Arabia is the original home of the Fig. He further states that there are many varieties of the wild Fig in India but the Fig used for eating was unknown in India up to the 14th Century A. D.  

According to the recently published *Marathi Dictionary* dried figs are said to be imported into India from Arabia. The usage of the word *Anjir* recorded by this Dictionary is from a Sanskrit medical work the *Yogaratnakara* which according to my evidence was composed in Maharashtra.  

5. *Ibid.*, pp. 349—The dried fruit of the Fig is demulcent, emollient, nutritive and laxative. It is however, rarely employed medicinally. —Sometimes used for relieving constipation—used also as poultice to effect suppuration—pulp of figs mixed with vinegar and sugar, useful in bronchitic affections in children—dry fig contains 60 to 70 percent of grape and unripe fruit contains starch—Figs are prescribed in consumptive cases—The Arabsians place figs in their *Mobahyats* or *Aphrodisiacs* and *Muziat* or *Suffpurantia*—Smyrna figs are deemed the best.

6. Page 56—The vernacular and other names of Fig as recorded by FAULKNER are:—(Arab)—*Teen*; (Gujarati and Hindustani)—*Anjir*; (Persian)—*Anjeer*; (Portuguese)—*Figos*; (Sanskrit)—*Uddumvara*; (Tamil)—*Simi attie pullum*. (Tel.)—Mayāṉḍōo; (Cingalese)—*Rata Attiika*; "This fruit of a small tree (*Ficus Cariciv*) indigenous to the temperate parts of Asia and now cultivated in the fertile islands of the Mediterranean, in Spain, Italy, France and Greece. An inferior description of dried Figs are largely imported into Bombay from the Persian Gulf."  


As no authority is cited for this statement, I am unable to assess its exact historical value.


10. Published in the *Anandasrama Sanskrit Series, Poona*, 1900, pp. 13-17—

"सुत्तादुपाकरकसमयऽधिशतव न ।
रेल्यामायाताकरमिनिर्मिनिर्मनः ||३८||"
between A. D. 1650 and 1720\textsuperscript{11} or so. This work states the properties of the fruit under a section dealing with cereals, fruits, roots and vegetables but it quotes no earlier authoritative medical work for its statement.

Verthema is his \textit{Travels}\textsuperscript{12} (1502-1508 A. D.) states that he visited "Batha Cala" on 16th November 1504. In describing this city which is "subject to the King of Narasinga" (Vijayanagar Empire) Verthema observes:—

\begin{quote}
Page 49 —"We begin here to find nuts and FIGS after the manner of Calicut........In this country no grain, barley or vegetables are produced but other most excellent fruits usual in India."
\end{quote}

"Batha Cala" has been identified not with Bhatkal but with Sadashivgarh within Karwar Head close to Anjediva Island. As this city was on the west coast the FIGS seen by Verthema in 1504 may have been imported dried figs (p. liii).

Figs and guavas appear to have been current at Poona about A.D. 1730 and A.D. 1789.\textsuperscript{13} Baber in his \textit{Memoirs} about 1525 A.D. refers to the fig.\textsuperscript{14} In the \textit{Munta-Khabu-i-Tawarih}\textsuperscript{15} "Figs of Paradise" are mentioned. Battura in his Travels (C. A. D. 1326) refers to figs of Palestine and Syria.\textsuperscript{16}

According to Thakore Saheb of Gondal the FIG was newly added to the Indian Meteria Medica by Raja Madanapala in his work called the \textit{Madana-vinoda}\textsuperscript{17} which was composed in A.D. 1374 and not after

\textsuperscript{11} My paper on the \textit{Date of the Yogaratnakara} was read before the Bharata Itihasa Sams. Mandal, Poona in June 1940. It will appear after sometime. The Anandashrama, Poona, has published 2 editions of this work, one in 1888 and other in 1900. There is also a Mysore Edition of the work, published in 1899.

\textsuperscript{12} Argonaut Press, London, 1928 (copy No. 486) p. 49.

\textsuperscript{13} Vide pp. 7 and 6 of \textit{Munna Khanab-i-Tawarih} by N. G. Chapekar, Poona, 1937 —"\textit{रक्षंतीर}" and "केसर" are referred to in the extracts from documents recorded by Mr. Chapekar.

\textsuperscript{14} Vide also Letter No. 76 (\textit{Peshwa Daftar Selection} No. 9) from Kashibai to her son Nana Saheb Peshwa. This letter was written between A.D. 1720 and 1740 and refers to Figs and Guavas as follows:—

"\textit{सुद्धाकारानं कृत्य तुच्छर ॥ नव पालिकोऽञ्जहेत हे बेशें दुःहास ज्ञानीराथी आवदी असलीती तरी लोके पाळिकोऽञ्जहेत।} उष्ण कृत्य श्रेष्ठ पाहित ज्ञानीयों। यथेन्द्र बोधे बहुत पाहित ज्ञानीयों।\ldots\ldots\ldots" "तुहास ते चेषे पेहुः सिलसिले (\S) यों बहुत बालास धातवित्ते वालो।।" These references to रक्षंतीर and केशर seem to suggest that these fruits were articles of luxury at the Poona Court about A.D. 1730 and not so common as we find them to-day in the Poona market.

\textsuperscript{15} Memoirs of Baber (Edited by Erskine, 1826, p. 318)—Baber referring to a "yellowish blue monkey from some islands" states that "its colour is somewhat like the colour of the FIG"

\textsuperscript{16} Page 326—"It (Guler) resembles the FIG."

\textsuperscript{17} Vol. II (Translated by W. H. Lowe) p. 360.

\textsuperscript{16} Broadway Travellers, Edited by Gibb, 1929, p. 58. "From Tyre I went on to Sayda (Sidon) a pleasant town on the coast and rich in fruit; it exports FIGS, raisins, and olive oil to Cairo."

\textsuperscript{17} Vide p. 120 of \textit{Aryan Medical Sciences}, London, 1896.
Bhāvamisrā's Bhāvaprakāṣa as stated by the Thakore Sahēb. I have examined the MSS of Madanavinoda Nīghantu of Madanapāla of the Tākā race and find that they contain verses describing the properties of श्रेष्ठ or Fig, which may be recorded here:

**MS No. 110 of 1873-74, folio 21** (फलन्तः भर्दः)

"श्रेष्ठस्त्रयूगले मेघ काशकार्दिर्विका फलम्।
श्रेष्ठस्त्रयूगले मेघकाशकार्दिर्विका फलम्।
तस्मात्युगले मेखलस्थितमेघकाशकार्दिर्विका फलम्।
श्रेष्ठस्त्रयूगले मेघकाशकार्दिर्विका फलम्।"

**MS No. 459 of 1895-98, Folio 48 (प्रेमी वर्णी)—A.D. 1616.**

"श्रेष्ठस्त्रयूगले मेघ काशकार्दिर्विका फलम्।
श्रेष्ठस्त्रयूगले मेघकाशकार्दिर्विका फलम्।
तस्मात्युगले मेखलस्थितमेघकाशकार्दिर्विका फलम्।
श्रेष्ठस्त्रयूगले मेघकाशकार्दिर्विका फलम्।"

**MS No. 929 of 1884-87—(Folio 28)—A.D. 1705.**

"श्रेष्ठस्त्रयूगले मेघ काशकार्दिर्विका फलम्।
श्रेष्ठस्त्रयूगले मेघकाशकार्दिर्विका फलम्।
तस्मात्युगले मेखलस्थितमेघकाशकार्दिर्विका फलम्।
श्रेष्ठस्त्रयूगले मेघकाशकार्दिर्विका फलम्।"

18. Bhāvaprakāṣa was composed about A.D. 1550 as stated by Thakore Sahēb on p. 36 of Aryan Medical Science, while Madanavindu was composed in A.D. 1374. (This: date is recorded in the work itself; see Chronogram on folio 43 of B. O. R. Institute. MS No. 110 of 1873-74). Thakore Sahēb’s statement “Bhāva Mistrā is followed by Raja Madanapāla” is obviously incorrect as the two authors are divided in point of chronology by no less than 200 years.

19. These MSS are available in the Government MSS Library at the B. O. R. Institute, Poona:

(1) No. 170 of 1873-74 dated Sāvat 1855 = A.D. 1799 see folio 27.
(2) No. 109 of 1873-74—Folio 26—"श्रेष्ठस्त्रयूगले मेघकाशकार्दिर्विका फलम्।"
(3) No. 459 of 1895-99—dated Sāvat 1672 = 1616 see folio 48 (प्रेमी वर्णी).
(4) No. 929 of 1884-87—dated Sāvat 1750 = A.D. 1705 vide folio 28.

20. Bhāvamistrā (C. A. D. 1550) in his Bhāvaprakāṣa (B. O. R. I. MS No. 454 of 1887-92, folio 168—प्रेमी वर्णी) repeats the lines of Madanapāla (A. D. 1374) as follows:

"श्रेष्ठस्त्रयूगले मेघ काशकार्दिर्विका फलम्।
श्रेष्ठस्त्रयूगले मेघकाशकार्दिर्विका फलम्।
तस्मात्युगले मेखलस्थितमेघकाशकार्दिर्विका फलम्।
उद्वरेजोडी विद्यार्थी मदविष।"
Though the verses quoted above are written incorrectly they are sufficient to prove the fact of the existence of the श्रवण or FIG about 1350 A.D. in Northern India where Raja Madanapala ruled.21

Mr. R. D. KINJAVEDEKAR in an Appendix to his recently published edition of the Sutrasthana of the Astanga Samgraha22 has recorded some texts on the topic स्वस्थ्य. He quotes the following verse in which श्रवण is referred to:

Page 198—परशिष्ठ—३. पानकालिन (drinks or beverages) चारोदृष्टि—पानकम्
“६२१—प्रवाहीर चुकास्त द्राशाधारिनः तथा
एकौ समवं भिन्नं पानकं किष्ठे तुम्हे !”

No indication of the source23 or chronology of this verse has been given by Pt. KINJAVEDEKAR.

In the old Testament of the Bible24 we find references to FIGS brought unto Jerusalem on the Sabbath day. LIVY25 the Latin Historian (39 B.C.—17 A.D.) refers to FIGS in the following quotation26:

“Ficus ficus, ligonem ligonem vocal.”

(He calls figs figs and spade a spade.)

21. The above extract is not found in a dated MS of the Bhavaprakasa (Sainvat 1799 =A.D. 1741) where it ought to be found on folio 93b after श्रवण and before गुड्रम. This MS is No 901 of 1887—91—Madanapala is mentioned on folio 169.

22. Published by the Chitrashala Press, Poona, 1940. If the expression “प्रवाहीर” means “dried figs” we have reason to believe that the drink was prepared from the pulp of dried figs in the century to which the verse belongs. We have already noted that the dry fig contains 60 to 70 per cent of grape sugar and hence a drink prepared from it may taste more sweet and delicious.

23. I have traced the verse in the Kṣema Kutūgha of Kṣema Sarman composed about A.D. 1548 (“वाराकासुब्दे नारदे (७५) वस्ते विक्रमाधिकः”—folio 52 of MS No. 387 of 1887—91—B. D. R. Institute). On Folio 50 of this MS the verse reads as follows:

“प्रवाहीर नारायका द्राशाधारिनः तथा।
एकौ समवं भिन्नं पानकं किष्ठे तुम्हे !”

This verse is part of Chapter XII dealing with पानक and नारायका पानक, जोधीर पानक, विजुलत पानक, भारशल पानक etc.

24. Holy Bible, London, 1913, Page 561—Nehemiah Chapter. 13—“15. In those days saw I in Judah some treading wine presses on the Sabbath, and bringing in sheaves, and lading asses; as also wine, grapes, and FIGS, and all manner of burdens which they brought into Jerusalem on the Sabbath days, and I testified against them in the day wherein they sold victuals”.

In Judges JX, fig and wine are mentioned.


BREWER\(^{27}\) records the usages of the Fig in English language and literature such as—

1. **Fig Sunday—Palm-Sunday** is so called from the custom of eating figs on that day.

The practice arose from the Bible Story of Zaccheus who climbed up into a fig tree to see Jesus.

2. **Fig-tree**—It is said that Judas hanged himself on a fig-tree.

3. **Figs**—I shan't buy my attic figs in future but grow them.

   Don't count your chickens before they are hatched.

   It was Xerxes who boasted that he did not intend any longer to buy his figs because he meant to conquer Attica and add it to his own empire but Xerxes met "a signal defeat at Salamis and never loosed his sandal till he reached Abdira."

4. "**In the name of the Prophet, Figs**"—A burlesque of the solemn language employed in eastern common business of life. The line occurs in the imitation of Dr. JOHNSON'S pompous style in *Rejected Addresses* by James and Horace SMITH.

The references to the Fig recorded so far do not clear up the question as regards its early existence in or its importation into India before A.D. 1000 during definite periods of history. The word बृंजीर now current for the "Fig" and used by Madanapāla of Northern India in A.D. 1374 is not a Sanskrit word as stated by WATT in his *Dictionary* or by the editors of the Śabdakośa who call it both Sanskrit and Persian. It is for linguists to record and prove its early usages from contemporary Indian sources. Obviously Madanapāla used this word as a loan-word in his verses quoted by me already.

The absence of systematic historical study of the present Indian flora and fauna leads to a hazy and incorrect knowledge of Indian culture resulting in anachronisms. This absence of historical knowledge coupled with the prevalent uncritical methods of editing texts is responsible for Figs appearing in a Mahābhārata passage along with other fruits like mangoes, pomegranates etc. which can claim much higher antiquity in Indian

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27. *Dictionary of Phrase and Fable*, P. 460. See also p. 696 of Shorter Oxford Dictionary—

**FIG**—ME [OF—fige, figue; L—ficus]. In the East and West Indies the word Fig is applied to Banana also to the Cochineal Cactus (1582 A.D.); Fig of Spain, Italian Fig (A.D. 1691); The disease Ficus (pl.) (A.D. 1550).

—Vide p. 366 of BREWER's *Reader's Hand book*. London, 1911. 'Figs of Holvan'—Holvan is a stream of Persia and the Persians say its figs are not to be equalled in the whole of the world.

"Luscious as the figs of Holvan"—Saadi: Gulistan (13th Century).

literature than their junior-most confrère the Fig (Ańjira). In the Poona Edition of the Mahābhārata (Vanaparvan) we find the following line in which Ańjira has been referred to:

"सूचनात्कालस्तःत्वाभीराराधन दिव्याकाव्यजपातकान्"

Evidently the MSS on the strength of which the above line was first edited must have been late copies prepared during a period of history when ब्रजीर �became a common article of diet and hence the copyist without understanding the results of his tampering with the text introduced ब्रजीर in the Epic text. Thence forward it became a circulating joke and even in the Marathi translation of 1915 by no less a scholar than Pandit Appa Shastri Rashivadekar गुलाम and ब्रजीर imperceptibly found their way unchallenged. These instances are sufficient to impress upon us the need for Critical Editions of Sanskrit texts and the Bhandarkar Oriental Research Institute will be thanked by all scholars not only of the present generation but of succeeding centuries for their herculean effort in the work of the Critical Edition of the Mahābhārata. The B.O.R.I. constituted text for the line in the Chitrashala edition referring to ब्रजीर reads as follows:

"अजातकांस्ति जीरान्त्वदिग्नाराधनजपातारकार"

It was by a curious coincidence that Dr. Sukthankar informed me about his rejection of ब्रजीराराधन from the line in question. While studying the references to ब्रजीर I inquired of him if he has come across any references to it in Sanskrit texts. In reply to this inquiry he drew my attention to the line in the Chitrashala Edition of the Mahābhārata and his rejection of the reading ब्रजीराराधन on the grounds of textual criticism. As Ańjira is a loan-word in the Indian Vernaculars it is not found in early Sanskrit lexicons like the Amarakośa. The earliest Indian Materia


In the Marathi translation of the Mahābhārata (1915) by Pandit Appa Shastri Rashivadekar we find "ब्रजीर, बाणीर" etc. in the translation of the above line on p. 320 of the Volume for Vanaparvan. He also translates "घटाण, कुटाणा" as "गुलाम, कुडे." It remains to be proved if ब्रजीर and गुलाम (Figs and Roses) were known to authors of the Mahābhārata or to our ancestors of the Epic times,

29. Variants rejected by Dr. V.S. Sukthankar, the General Editor of Mahābhārata are as follows: found on p. 519 of Aranyak parvan (B.O.R. Institute, Stanza 40 of यक्षुद्धिप) III, 155, 40—

K₃ B.D. (D5 om तत्सारिता (DC omा) न्)
T₃G₄ 4 तत्सारिता

30. The Amarakośa (Kṣaṇa II—वनविषय 8) mentions काकोइङ्करिक: —
"वाल्कोइङ्करी कल्पुमलपु (यु) उखनेफळा दृश्यि II १५४ II"
Bhairavi Dikṣita in his comment: वाह्यपुष्पa on Amarakośa explains: —"काकोइङ्कर उनुस्वरी...बलराहि
Medica viz. the *Dhanvantari Nighantu* which is said to be earlier than the *Amarakośa* contains no reference to Aṇijara.

Bernier (A.D. 1656-1668) in his *Travels* refers to the fruit imported into India as also the variety of fruit sold in Delhi, but does not refer to Aṇijara specifically though it is possible to suppose that dried figs may have been imported into India along with other dried fruit specified by Bernier in his remarks.

Mr. Apte in his *Sanskrit-English Dictionary* records the word अणिजरा as species of the fig-tree and its fruit but gives no usages of it, though he remarks that it is "perhaps a Persian word."

In a treatise on dietetics by Raghunāthasūri composed about A.D. 1675

"मल्लपपु 'कृद्वरी' इति स्थलस्य।" Madanapala (A.D. 1374) appears to equate काकोदमर्यादिका with अणिजरा perhaps on account of its similarity with अणिजरा but Bhannji Drkṣita (c. 1630 A.D.) gives the current names काकोदमर्यादिका as मल्लपपु 'कृद्वरी' and not अणिजरा. The fruit of the *Amarakosha* (Marathi अद्धरी) tree is not identical with अणिजरा fruit. In the *Bhavvośatarīlīyamu* and *Rājātīlīyamu* (pp. 186-187 of Anandasrama Edn. 1896) the properties of अद्धरी and काकोदमर्यादिका have been separately given—Sarvananda (A.D. 1159) in his टीकाकारवाच on Amara's line "काकोदमर्यादिका" observes :- "काकोदमर्यादिकालक वसो भववरियुण न दृष्टे।" (p. 116 of *Amarakosa*, edited by Ganapati SASTRI, Part I, 1911) श्रीसतानी in his commentary explains काकोदमर्यादिका as "काकोपिशा अद्धरी।" Can कोशावरी mentioned in A.D. 1159 by सरवनन्द be identical with अणिजरा which Madanapala mentions as "काकोदमर्यादिकालक" in A.D. 1374?—*Pañcasadanamahakāvya* (p. 296) mentions काकोदमर्यादिका as आणिजरा (उप-1321 दी. पृष्ठ ?)

32. Bernier’s *Travels*, Vol. I, pp. 203–204 of 1891 Edition, Constable and Co., London, Cloves, nut-megs, cinnamon, are supplied by the Dutch—Fresh fruit (from Sarnakand, Balk (Balk), Bocara and Persia) such as melons, apples, pears, grapes, eaten at Delhi during winter; also dried fruit such as almonds, pistachio and other small nuts, plums, apricots, raisins.
33. Ibid, pp. 249, 250—The fruit market contains dry fruit from Persia, Balk, Bocara and Sarnakand. Bernier mentions the following fruit:—almonds, pistachios, walnuts, raisins, prunes, apricots, also fresh grapes (black and white) brought wrapped in cotton, pears and apples of three or four sorts, melons and water-melons.

Ambas or mangoes are plentiful and cheap. The best come from Bengal, Golconda and Goa.


34. *Bhojana Ketakahala* (1st Paricchedha) MS No. 594 of 1899-1915. On folio 39A only the properties of अद्धरी fruit are mentioned:

"अद्धरी वर् कपादयस्याय पश्चात् उ मधुरं हि इर्मं।
कुम्भितितरं गुड्डा अद्धादुत्प्रपाधम् \(II\) उवर्चे \(II\)."
many fruits are referred to but I fail to notice in this elaborate list any reference to *Añjira* in the MS of the work before me.

The Marathi Encyclopaedia called the *Jñānakosa* (1924), Vol. IX devotes a paragraph to the history of *Añjira* but the sources of this history are not indicated. Some points in this historical account may be noted here:

1. South Arabia is the native place of the *Añjira*.
2. The *Añjira* may have migrated to other places from South Arabia.
3. Archæological research has proved the cultivation of *Añjira* thousands of years before the rule of the Greeks and Romans.
4. Definite evidence regarding *Añjira* is found in works dating 700 years before the Christian Era.
5. It is from Arabia that *Añjira* migrated to Rome, Greece, Asia Minor, Italy, Portugal, France, Khorasan, Hirat, Afghanistan, China.
6. There are many varieties of the wild *Añjira* in India but the variety used in India for eating was unknown in this country up to the 14th century.
7. Dried *Añjirs* are imported into India from Smyrna in Asia Minor.
8. *Añjira* is called "इङ्गीर" in Asia Minor. The name *Añjira* is possibly a corruption of "इङ्गीर".°

The history of *Añjira* recorded in the *Jñānakosa* is practically the same as recorded by me from several other sources. It is for linguists to say whether the derivation of the word *Añjira* from "इङ्गीर" given above is historically correct.

If *Añjira* used for eating was unknown in India up to the 14th century as stated above it is impossible to find any references to it in Indian

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The *Kṣemakutuhala* of Kṣemāśarman (16th century) gives the use of भौंिवर fruit in cooking:

Folio 30 of B.O.R.I. MS 887 of 1887-91.

“प्रभूिकुङ्कर वालमनस्तको गा धनितम्।
वैस्वाधनः स्वभावितं संस्कृतविनितम्।।
शीतल कपायमुहुः रक्तपिन्तप्राणाः।
सूर्यामुनि समाधिवाच्यायंकारकः।।”

35. Ed. by Dr. S. V. Ketkar, *Vol. IX*, pp. (३५०—४२)
36. Dr. Ketkar states that the cultivation of the *Añjira* in Maharashtra is found in the Furandar taluka of the Poona District. Some foreign species of *Añjira* are imported for cultivation into India but they have not fared well.
literature before A.D. 1000, much less in the Mahābhārata times and consequently it is an anachronism to insert it in the text of the Great Epic as we find it in the Chitrashala Edition of the Mahābhārata. If any scholar succeeds in proving the existence of either imported or cultivated Anījira on Indian soil before the Christian Era he will be justified in imagining its presence in the Mahābhārata text. So far I can see no a priori case made out in support of such insertion and I await more light in this matter from experts in the ancient Indian history and culture. For the present we must go by the text of the Mahābhārata purged of any references to Anījiras and Gulabs, which are evidently late importations into Indian history and culture. If Anījira migrated from the Mediterranean region to Greece and Rome and then to the Eastern countries like Syria, Arabia, Persia (and lastly India) its history (say between the 1st century A.D. and the 14th century A.D.) is closely connected with the cultural history of these nations and it is the business of the historians of these countries and their culture to record definite chronological evidence regarding such history from the literatures of these countries, to any knowledge of which I can lay no claim, I would, however, feel satisfied if any scholar takes the history of the Anījira backwards from A.D. 1300 say by at least 500 years on the strength of definitely dated evidence, preferably from Indian or Persian and Arabic sources.

The following chronological table would give at a glance the chronology of the Anījira recorded in this paper:

37. I propose to publish a historical paper on the Gulab in India in the near future.
38. Though contact of India with Greeks and Romans is a matter of known history there is absolute absence in Indian literature of any reference to the Anījira in early works contemporaneous with the Greek and Roman history. In the study of Indian Plants and Animals known to the Greeks published in the Indian Antiquary, (Vol. XIV) 1885, pp. 274 ff. no reference is found to any species of the Fig, either wild or cultivated. Only Pipal tree seems to have been known to the Greeks. Though Prof. Franklin Edgerton has found a reference to the city of Rome in the Sabhāparvan of the Mahābhārata (J.A.O.S., Vol. 58, pp. 262-265) no case has been made out for Anījira in the Mahābhārata either on textual or historical grounds. Roma is included among the cities conquered by Sahadeva (Sabhāparvan Book 2).
39. A. K. Nairne (Flowering Plants of Western India, London, 1894, pp. 304 ff.) deals with Fig and its Species which include Vaṅ, Pipal, Kal-umbar (काकोद्वंचरि) and Anjir (Ficus Carica—p. 303). He gives the following reference to the Fig in Book 8 of Odyssey:

"There (in the garden of Alcinous) grow tall trees blossoming, pear trees, and pomegranates and apple trees with bright fruit, and sweet figs and olives in their bloom." Nairne further observes:

"The figs grown in India must be placed far below those of England, and these again are in flavour nowhere near the Italian figs; but the scientific cultivation of fruit in India must come in time."
<table>
<thead>
<tr>
<th>Chronology</th>
<th>Particulars</th>
<th>( F = \text{Anējīra} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000 B.C. or about 850 B.C.</td>
<td>Pre-historic evidence about leaves and fruits of wild F (Ficus Carica) in quaternary strata near Paris and Marseilles.</td>
<td>Homer refers to F in <em>Odyssey</em>.</td>
</tr>
<tr>
<td>559 B.C.</td>
<td>F unknown to Persians according to Herodotus.</td>
<td></td>
</tr>
<tr>
<td>484 B.C.</td>
<td>Birth of Herodotus, who refers to F.</td>
<td></td>
</tr>
<tr>
<td>B.C. 485-465 B.C.</td>
<td>Xerxes, King of Persia with whom <em>Attic Figs</em> are associated.</td>
<td></td>
</tr>
<tr>
<td>From about 330 B.C. up to 160 B.C.</td>
<td>References to F in the <em>Old Testament</em> of the <em>Holy Bible</em>.</td>
<td></td>
</tr>
<tr>
<td>59 B.C. - 17 A.D.</td>
<td>Livy, the Latin historian refers to F.</td>
<td></td>
</tr>
<tr>
<td>A.D. 23-79</td>
<td>Pliny, the Roman author, refers to the varieties of F.</td>
<td></td>
</tr>
<tr>
<td>Between A.D. 200 and 800</td>
<td>In the Pahlvi(^4^) work <em>Nīrangastān</em> &quot;juice of figs&quot; is mentioned.</td>
<td></td>
</tr>
<tr>
<td>A.D. 1250</td>
<td>Figs of Holvan in Persia referred to by Saddi in <em>Gulistan</em>.</td>
<td></td>
</tr>
<tr>
<td>A.D. 1326</td>
<td>Batutta refers to figs in Palestine and Syria.</td>
<td></td>
</tr>
<tr>
<td>A.D. 1374</td>
<td>Reference to F in the <em>Madanavinoda Nīghanṭu</em> of Madanapāla.</td>
<td></td>
</tr>
<tr>
<td>A.D. 1504</td>
<td>F on the west-coast mentioned by Verthema, the Italian traveller.</td>
<td></td>
</tr>
<tr>
<td>about 1526 A.D.</td>
<td>Baber’s reference to F.</td>
<td></td>
</tr>
<tr>
<td>15 8 A.D.</td>
<td>F referred to in the <em>Kṣomakutikāla</em> of Kṣomāsarman.</td>
<td></td>
</tr>
<tr>
<td>15 0 A.D.</td>
<td>F referred to by Bhāvamīśra in <em>Bhāvaprakāsa</em>.</td>
<td></td>
</tr>
<tr>
<td>1691 A.D.</td>
<td><em>Figs</em> of Spain and Italy referred to.</td>
<td></td>
</tr>
<tr>
<td>C. 1730 A.D.</td>
<td><em>Figs</em> sent to Nanasahib Peshwa by his mother Kashibai.</td>
<td></td>
</tr>
<tr>
<td>1789 A.D.</td>
<td>F mentioned in the Peshwa period (at Poona).</td>
<td></td>
</tr>
</tbody>
</table>

\(^4^\) Vide p. 353 of *Ārpaṇastān and Nīrangastān* Eng. Trans. by S. J. BULSARA, Bombay, 1913. My friend Mr. M. F. KANGA of Bombay informs me that the word *Anējīra* does not occur in Avesta literature. It is found in the Pahlvi language and literature, which flourished from 3rd to 9th century A.D. (Vide pp. 293-297 of *History of Zarōastrianism* by M. N. DHALLA, Oxford Uni. Press, 1938). Detailed Chronology of Pahlvi references to the fig must be reserved for a separate study by Parsi scholars themselves, as I have no first-hand knowledge of their sacred texts and other early literature.
P. S.—Studies bearing on the history of Indian culture require the cooperation of experts in the different branches of Indology. I am, therefore, extremely grateful to my friend Khan Bahadur Prof. SHAHID Abdul-Kadir-e-Sarfaraz, MA., I.E.S. (Retd.), for the following notes on the history of the Fig, which was received by me after the composing of my paper by the press. This note fills a gap in my Chronology for the Fig and thus enriches my present paper:

1. MOLEWSORTH says the word is Sanskrit or Persian.

2. In Persian (post-Islamic) the word is undoubtedly extensively used from very old times to modern. Sadi (XIII c.) used it; Nizami (XII) used it several times. Two forms of the word seem to have been in use "Anjir" and "Anjirah." There is an infinitive also, "Anjir-dan," which means 'to bore a hole, drill, perforate.' The word occurs in several compounds also, such as "Anjir-e-Adam," or Anjir-e-Dasht," i.e. 'Adam's Fig,' which is our 'Udumber,' glomerous fig; 'Bed-anjir," which is Palma Christi, or our 'Brand.' Long descriptions of the principal varieties of Anjir, the properties and the medicinal use of it are given in Persian Pharmacopoeias and medical books. Three principal varieties are mentioned: Barfi, which grows in plains, Kohl, which grows on mountains, and Bushtan, which grows in gardens. Another variety called "Shahr," 'Royal' is said to be specially delicious and quite suitable for eating; the blackish variety is generally used in medicine.

3. The home is said to be Syria or Asia Minor.

4. In pre-Islamic Persian or Pahlavi the word for "Fig" is not "Anjir" but "Tin."

5. In Arabic the word for "Fig" is "Tin." It is used in the Qur'ān, only once. There is a chapter of the Qur'ān, the 95th, which is entitled "The Fig," because it begins with the words "By the Fig." The commentators say that God swears by the fig, because "it is wholesome and of easy digestion, and physically good to carry off phlegm, and gravel in the kidneys, or bladder, and to remove obstructions of the liver and spleen, and also cures the piles, and the gout etc." (Sale's Transl.) The word "Fig" is also held symbolical, but there is a good deal of difference of opinion about the exact interpretation thereof. Some take it to stand for the Jewish or Mosaic dispensation which was to wither away like the Fig-tree in the Gospel; others say that it may stand for man's destiny. The word "Tin" used in the Qur'ān and the Arabic literature was well-known in Pre-Islamic Arabia. It is generally taken to be Arabic, but according to some (Western) scholars borrowed from Akkadian "tittu," "tintu."

6. The word "Fig" occurs in the Bible in a number of places. See any concordance. In Matthew e.g., 20. 1, Jesus is said to arrive at a place called Bethphage, which literally means "the house of figs." It is stated in the Bible that when Adam discovered his nakedness in the garden of Paradise, or Eden, he sewed fig leaves and made aprons. Now this garden of Eden or Paradise, according to Higher criticism is located generally on the banks of the Euphrates and the Tigris.

7. The fig is said to have been introduced in England by Cardinal Pole (1500-58).
34. Some Notes on the History of the Fig —
Does the word “Phalqu, used by Caraka and Suśruta
mean “Ańjira” ?

In my paper 1 on the History of the Fig I have recorded evidence
which suggests that the FIG (Ficus Carica) migrated to India very late,
the earliest reference to it as “Ańjira” being found in a Sanskrit materia
medica of A.D. 1374. The term “Ańjira” for the FIG is evidently a loan
word from the Persian, where it is found in the Post-Islamic Persian. 2 The
word Īn for the FIG as used in the Qur’an is Arabic and according to
some Western scholars it is borrowed from Akkadian “tittu”, “tintu.” 3

The above evidence raises the question: Is there any word in
Sanskrit for Ańjira or Īn or Ficus Carica? I have not been able to
trace any Sanskrit equivalents to the names of the Fig used in Persian,
Arabic and Latin. Recently while reading a Marathi translation 4 of the
celebrated medical work Suśrutasamhitā in Sanskrit I found that the
translator had translated the Sanskrit term Phalgu 5 by the term Ańjira.
This translation led me to examine the question further and I note below
some evidence which suggests that the word Phalgu used in the Phalavarga
of the Suśrutasamhitā cannot be identified with the Ańjira fruit.

Vāgbhaṭā I—(7th century A D.) in his celebrated work Aśṭānga-
samgraha 6 uses the word Phalgu in the following verse:—

“सौवर्धानिलाकल्फल्गुः प्रायकाल्कोटम् || १५६ इ॥”

Indu’s commentary on the above line 7 reads as follows:—

“मोचाद्विभाकान्तं ब्रह्माकाविद्ययुक्ततम”

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2. Ibid., p. 130.
3. Ibid.
5. Ibid., p. 435—Suśrasthāna, ch. 46 “सौविरुद्ध अंशकं फलपुष्पकं प्रमृतीलिं” || १५३ इ॥
7. Ibid., p. 62.
In this explanation we miss the explanation of the word Phalgu but Mr. R. D. Kinjavedekar in his Sanskrit notes on the line observes:

"फळुः काकोदुःसुरिका स्तनामक्ष्यः पंताराजी नमोक्ष्यः (काङ्गा उंचर) अन्त्र केचन फळुः "ब्लेनर रामोदुःसुरिका स्यामु (अंजोर) हट्टाइः।"

This explanation shows that a belief exists among the modern Vaidyas that the word Phalgu means Aṇjira, and Vaidya Phadke's equation Phalgu = Aṇjira" in the Suṣrutasamhitā is evidently on the lines of this belief. We must, therefore, see if this belief is warranted by the earliest explanation of the word Phalgu occurring in Sanskrit medical works or elsewhere.

In the Astangahṛdaya9 of Vāgbhaṭa II (8th or 9th century A.D.) the line10 from the Astangasamgraha is obviously repeated as follows:

"स्वीरवर्दऽराहोकल्पः व्याप्तकोल्पः"

The commentators Aruṇadatta (c. A.D. 1220) and Hemādri (c. 1260 A.D.) explain11 the word as "फळुः—काकोदुःसुरिका." In footnote 30 of my paper12 on the History of the Fig I have recorded the following facts:

1. A.D. 1374 — Madanapāla refers to Aṇjira in the line:

"अंजोरं मंगलं में काकोदुःसुरिकालम्"

2. Madanapāla appears to equate the fruit काकोदुःसुरिका with अंजोर perhaps on account of the similarity of the latter with the former.

3. Amarakośa (before 8th cent. A.D.) uses the word Phalgu in the following line:

"काकोदुःसुरिका फलुःलुः (इ)मेंतनेर्"

4. Bhānuji Dikṣita (c. A.D. 1630) explains the above line from the Amarakośa as:

"काकोप्रिया उदुःसुरी...त्वारी 'मलव्या' 'कटुर्मरी' इति व्यास्तम्"

5. Sarvānanda (A.D. 1159) comments on the above line:

"काकोदुःसुरिकानुपि कोडुःसुर इति व्यास्ते"

It would appear from all these explanations that the word Phalgu used by the Suṣrutasamhitā and repeated by Vāgbhaṭa I and Vāgbhaṭa II in their treatises means ब्रूहुस्वर or its variety काकोदुःसुरिका with which later

8. Ibid.
10. Ibid., p. 110—Sutrasthāna—"अन्तस्तायुपक्षिणाय कथ्यः: 6"
11. Ibid., pp. 110, 111.
Madanapāla (in A.D. 1374) possibly identifies the term श्रंगोर. The explanation of Madanapāla being a very late one can have no determining force in equating Phalgu with Aṇītra as our Vaidyas are inclined to do at present. This view of mine is further substantiated by the following evidence:

The Caraka Samhitā\(^{13}\), the earliest known medical text uses the word Phalgu in the following line:

"तर्पणं इहरं फल्गु गुह विष्णविम शोतलम्"

Cakrapāṇidatta (c. 1060 A.D.) explains the word Phalgu as "Audumbara." In view of this explanation of the earliest commentator on the earliest medical treatise of Caraka I am inclined to believe—

1. that the word Phalgu used by Caraka, Suśruta, Vāgīṭha I, Vāgīṭha II means "Audumbara" fruit as stated by Cakrapāṇidatta (c. 1060 A.D.) and

2. that it may have been used for a variety of the "Audumbara" fruit called by the names काकोदुंबरिका, कोडघंदर्व, काजुंबरी, काजुंबरी. When Aṇītra got naturalized in India people may have called it by these names perhaps on account of its similarity with the Aṇītra. If काकोदुंबरिका is identical with "कामं दुंवर" a black audumbara as suggested by R.D. Kinjavadekar we may be able to account for the name काकोदुंबरिका for Aṇītra mentioned in the work of Madanapāla in A.D. 1374. Prof. Shaikh\(^{14}\) mentions some varieties of Aṇītra which include "a blackish variety generally used in medicine". Perhaps this blackish variety may have been used for medical purposes in India in Madanapāla's time and hence it may have been confounded with काकोदुंबरिका or a blackish variety of the Audumbara fruit mentioned in the Amarakośa.

In view of the foregoing discussion I find it difficult to equate Phalgu of the Carakasamhitā and the Suśrutasamhitā with Aṇītra. For the present I am inclined to accept the explanation of Cakrapāṇidatta (c. A.D. 1060) that Phalgu in the Carakasamhitā means "audumbara". The medical glossary Dhanvantarinighantu which is earlier than the Amarakośa contains no reference to Aṇītra but on the contrary the properties of the "audumbara" and "Kākodumbaraṇikā" are separately given in it.

\(^{13}\) Carakasamhitā, N. S. Press, Bombay, 1922, p. 156.

\(^{14}\) NIA., July 1941, p. 136.
In a paper contributed by me to the Proceedings of the Indian History Congress (Hyderabad) I have pointed out that Bindusāra, the father of Emperor Aśoka ordered some figs and raisin wine from Antiochus Soter, the then king of Syria. These figs were sent to Bindusāra by his Syrian ally. Bindusāra came to the throne in B.C. 298, while Antiochus died in B.C. 261. In view of this interest of Indians in the figs as early as 3rd century B.C., one wonders why the Aūjīra or Fig appears very late in Indian literature. Is it possible to find any evidence in Indian sources about at least imported figs, if not those cultivated on Indian soil? Any evidence bearing on this question from Indian sources between say B.C. 100 and A.D. 1000 is eagerly awaited by me from scholars working in the field of the early history of Indian culture.

35. Early Indian Interest in Syrian Figs in the 3rd Century B.C. contrasted with their late Cultivation in the Deccan in the 17th Century A.D.*

In my recent paper on the history of the Fig (Ficus carica) from about 1000 B.C. to A.D. 1800 from foreign and Indian sources the earliest dated reference to Fig or Anjira in Sanskrit texts recorded by me is of A.D. 1374. No earlier reference could be found by me. It is, therefore, necessary to record any evidence regarding the knowledge of the Fig that could be ascribed to Indians on the strength of Indian or foreign evidence regarding the early Indian contact with Greece and Rome. While discussing this question with my friend Dr. P. V. Bapat, M.A., Ph. D. of the Fergusson College, Poona, I inquired of him if he could give me any reference to the Fig in early Buddhist literature. Though he could not point to any such evidence in the Buddhist records he invited my attention to a passage in the Early History of India by Vincent Smith according to which Antiochus Soter, the king of Syria, forwarded some Figs to king Bindusārā (298 B.C.). These figs were sent to this Indian monarch in response to his own request about (1) Figs, (2) raisin wine and (3) a professor. As the evidence recorded by Smith has a direct bearing on the history of the Fig I quote it below:—“The anecdote concerning the correspondence between Antiochus and Bindusārā although trivial in itself is worth quoting as a tangible proof of the familiar intercourse between the sovereign of India and his ally in Western Asia. Nothing we are told being sweeter than the figs. Bindusār begged Antiochus to send him some figs and raisin wine and added that he would like him also to buy and send a professor. Antiochus replied that he had much pleasure in forwarding the figs and raisin wine but regretted that he

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*Proceedings of Indian History Congress (Fifth Session), 1941.


3. Ibid. p. 220, footnote 1 “Antiochus Soter died between July 262 and July 261 (B.C.) at the age of sixty four.” According to Smaller Classical Dictionary (ed. F. H. Blakeney), London, 1913, p. 87, this king of Syria reigned from B. C. 230 to 261. He was the son of Seleucus I, the founder of the Syrian kingdom. He married his step mother with whom he fell violently in love and whom his father surrendered to him. He fell in battle against the Gauls in B. C. 261.
could not oblige his correspondent with the last named article because it was not lawful for Greeks to sell a professor."

The above passage makes amusing reading. Obviously the Greek professors were not marketable commodities like figs and raisin wine in those days! If figs from Western Asia were known to Bindusāra in the 3rd century B.C. one wonders how their cultivation on Indian soil took more than 1500 years to be effected. Then again one is curious to know why any appellations of the Fig have not been preserved in Sanskrit or Prakrit literature between say B.C. 298 and A.D. 1200. Whatever be the reasons for the absence of the fig in Indian sources before A.D. 1000. Bindusāra’s interest in a Greek professor and figs in the 3rd century B.C. has a distinct place in any history of the Fig, whether imported from foreign countries or cultivated on Indian soil. Bindusāra was the son of the celebrated Maurya Emperor Candragupta and father of Aśoka Maurya. It is, therefore, possible to presume that even during the time of Cāṇakya, minister of Candragupta, imported figs may have been known in India though in the Arthasāstra of Cāṇakya one fails to notice any reference to the figs.¹

According to Smith the Deccan or Peninsular India must have been subjugated by either Candragupta or Bindusāra. Now a sovereign who ruled over the Deccan in the 3rd Century B.C. had sufficient knowledge of the foreign figs to enable him to order a few of these figs from his ally in Western Asia; but it is a curious contrast with this fact that we find ourselves in difficulties as regards the exact or approximate chronology of the cultivation of the fig trees in the Deccan. In this connection I have already recorded a reference of c. A.D. 1730 when the mother of Nana Sahib Peshwa of Poona procured for him nine figs. This reference shows the rarity of this fruit at that time in the Deccan. Since recording the above evidence I have come across a reference to Anjira plants in a Marathi work² called “Pustaka Mestaka” which according to Mr.

1. In Chapter XV of Arthasastra Trans. by Shamsastry, (1929) the following fruits are referred to:—grapes, Jambu, jack fruit, Carīkita, cucumber, mango, Karamarda, Vida-tamalaka, Matulunga, Kola, Bada, Savītra, Parushaka (p. 101), Chap. XVII deals with Forest Produce but fruits are not specified. Kauitila only remarks “Bulbous roots and Fruits are the group of medicines” (p. 108). Chap. XXIV on Agriculture refers to Fruits like Vatipilgula (pumpkin, gourd and the like), grape. Chap. XXV (on liquor)—“Fruit of Putraka” (p. 132), grapes, mango, (Sahakara), Phalāmila (acid drink) from Fruits (p. 134). Chap. XI—“Mango fruit” (p. 79). Matulinga (p. 80).

Rajawade, the Maharashtra historian was composed during the reign of Rajaram Chhatrapati (A. D. 1689-1700).¹ This inference is in keeping with the date of the MS of the work viz. Śaka 1667-A. D. 1745. The MS was found at Masur in the Satara District of the Bombay Presidency. This work gives a list of trees to be recorded by the village official in his books. In this list² I find a mention of Anjīra tree along with other trees of economic value to government. If Rajawade's inference about the date of the the work is correct we have reason to believe that figs had come to be cultivated in the Deccan before say A. D. 1690. Their economic value to government naturally led to the Anjīra plant being included in the list of cultivated plants, which the village official was required to maintain possibly under the orders of the then government. If in northern India Raja Madanapāla ruling on the bank of the Jumna in A. D. 1374 refers to the properties of Anjīra in his Materia Medica called the Madanavinodanīgāntu, we find in the Deccan a Marathi writer of c. A. D. 1690 recording the Anjīra plant among plants of economic value to government. Further references to the cultivation of the fig or Anjīra in Indian provinces need to be recorded from Indian Vernacular sources, if possible. In spite of the sweetness and delicious nature of the fruit the Anjīra had a very slow course in its cultivation on Indian soil, unlike tobacco, which within 50 years of its advent in India between A. D. 1600 and 1650 was cultivated in the Deccan in abundance. In fact the Bijapur Sultans had a regular Tobacco Department with a special Officer in charge of it. As Antiochus was the king of Syria between B. C. 280 and 261 the reputation of figs in Syria must have been sufficiently great to attract the attention of his contemporary Bindūśā, the then sovereign of India. The despatch of Syrian figs to India in the 3rd Century B. C. is in harmony with the references to figs in the Old Testament of the Bible (say between 330 to 160 B.C.). It would, therefore, be useful to investigate if any sculptures of the Indo-Greek period of Indian history contain any representation of the fig plant, its leaves or fruit; but, I leave this problem to the students of Indian Archaeology and sculpture for the present.

1. Ibid., p. 27.
2. Ibid., p. 30. This is a fine list of fruit bearing and other plants, that were grown in the Deccan when the work was composed.
36. Some Notes on the History of Candana (Sandal) in general and of śveta-candana (white sandal) in particular—Between B.C. 500 and 900 A.D.*

Yule and Burnell make the following remarks on Sandal (Candana) in their Hobson—Jobson (London, 1903, pp. 789-790):—

"Sandal, Sandal, Sanders, Sandal-Wood — S. From Low Latin Santalum......coming from the Arab. Sandal and that from Skt. Chandana. The name properly belongs to the fragrant wood of the Santalum album L. Three woods bearing the name Santalum, White, Yellow and Red were in official use in the middle ages. But the name red Sandal-wood or Red Sanders has been long applied, both in English and Indian vernaculars to the wood of Pterocarpus santalina, L. a tree of South India, the wood of which is inodorous but which is valued for various purposes in India (pillars turning etc.) and is exported as a dye-wood. According to Hanbury and Flückiger this last was the Sanders so much used in the cookery of the middle ages for colouring sauces etc. In the opinion of those authorities it is doubtful whether the red sandal of the mediaeval pharmacologists was a kind of the real odorous sandal-wood, or was a wood of Pteroc. Santal. It is possible that sometimes the one and sometimes the other was meant. For on the one hand, even in modern times we find Millburn (see below) speaking of the three colours of the real sandal-wood; and on the other hand we find Matthioli in the 16th century speaking of the red sandal as inodorous.

It has been a question how the Pterocarpus santalina came to be called sandal-wood at all. We may suggest as a possible origin of this, the fact that its powder "mixed with oil is used for bathing and purifying the skin." (Drury s. v.), much as the true sandal-wood powder also is used in the East."

The following usages of "Sandal" are next recorded in the Hobson—Jobson:

- c. A.D. 545 — "Sandalwood" (Cosmos in Cathay etc.)
- c. A.D. 1390 — "......colour it with Saunders" (Wright, Domestic Manners, etc. 350).
- A.D. 1554 — "Santal" (Matthioli—old Fr. version—liv. i. ch. xix).

A.D. 1563 — "Sandal grows about Timor which produces the largest quantity and it is called Chandana and by this name it is known in all the regions about Malaca, and the Arabs being those who carried on the trade of those parts, corrupted the word and called it Sandal. Every Moor whatever his nation calls it thus......" (Gracia, fol. 185 v.).

A.D. 1584 — "Sandals" from Cochin and Malacca (Wm. Barret in Hakl. ii. 412).

A.D. 1613 — "Sandal trade" (Bocarro, Decada, 723).

A.D. 1615 — "Sanders-wood" (Samsbury, i. 380).

A.D. 1813 — "Sandal" (red, yellow and white shades of the same colour, Milburn, i. 291).

A.D. 1825 — "Red Saunders" (from Coromandel coast imported to England for dying)—(Milburn, ed. 1825, p. 249).

The foregoing chronology for Sandal from foreign sources clearly shows the reputation of Candana among foreigners for about 1500 years. I may add to the above references the following remarks of Nairne (285 of Flowering Plants of Western India, 1894):—

Santalum album—

"......habitats from Poona southwards, elsewhere planted. The Abbé Raynal describes it under the unromantic name of the Sanders tree. Some authorities consider that the algum or alimug tree (1 Kings X. 11; 2 Chron. ii. 8 etc.) was the Sandal (Dictionary of the Bible) but Hooker thinks it was probably either Pterocarpus Santalimus, or Bombay blackwood (Teachers' Bible). The ancient Hindoos had no liking for the tree. Sir M. Williams quotes from the "Hitopadesha": "The root is infested by serpents, the blossoms by bees, the branches by monkeys, the summit by bears. In short there is not a part of the Sandal tree that is not occupied by the vilest impurities."

The chronology of the Chandana in its cultural perspective can be easily recorded on the strength of extant texts, Jain, Buddhist and Brahmanical. We must, however, study in detail the varieties of candana

1. This remark is contradicted by the evidence about the popularity of the Chandana tree and its products in India for more than 2000 years. What the rose was to the Persians, the Chandana was to the Indians, as vouched by the literature of Persia and India.

2. The Paharpur Copper-plate inscription of A.D. 478-9 mentions "Sandal", incense etc. as requisites for Jain Arhats (see p. 73 of Jaina Antiquary, Jan. 1947 and Epi. Indica XXII, 63-4 and B. C. Law Vol II, pp. 252-3). This inscription is of the Gupta year 159.
known to ancient Indians and their products used in the domestic and
court life of our ancestors through successive centuries of Indian
civilization. With a view to facilitating such a study I note below a few
references which will indicate the landmarks in the history of the candana
plant in India:

(1) In the list of Vedic Plants recorded by Dr. G. P. Majumdar
(B. C. Law Volume, 1, 1945, pp. 645-668) no reference to candana is found,
though he records some other fragrant plants like—Aukṣaśandhi (A. V.
iv, 37, 3) mentioned along with Guggulu and Naladi; Kuṣṭha (A. V. v,
4 etc.); Pila (A. V. iv, 37, 3; Pramundani (Kauś. Sātra, viii, 17 etc.) a
sweet-scented plant, etc.

(2) The word candana is found in the following Upaniṣads:

(i) Vāsudeva Upaniṣad, (ii) Gopicandana Upa. and (iii) Rāma-
pūrvatāpani, (see Jacob’s Concordance, Bombay, 1891, p. 352).
The references recorded by Jacob do not mention any variety of candana
as such. The Vāsudeva Upa. mentions kuṅkuma along with candana.
The Bhagavadgītā contains no reference to candana (see Bhagavadgītā
Word-Index by P. C. Diwanji, Bombay 1946).

(3) The Arthaśāstra of Kauṭilya contains detailed observations
about candana in Ch. XI of Book II (p. 79 of Eng. Trans. by Shama
Sastry, 1929):

“(As to) candana (sandal):

Sātana is red and smells like the earth⁴; Gośtrākṣa is dark-red and
smells like fish; Haricandana is of the colour of the feathers of a parrot
and smells like tamarind or mango fruit; likewise Tārnasa⁴; Grāmeruka
is red or dark-red and smells like the urine of a goat; Daivasabheya is red
and smells like a lotus flower, likewise Aupaka (Jāpaka); Jongaka⁵
and Taurūpa⁵ are red or dark-red and soft; Māleyaka⁶ is reddish white;

3. Like the smell of the earth when rain water falls upon it — Com.
4. This is of the colour of the feathers of a parrot and of sour smell — Com.
5. Product of the country of Kāmarūpa, Assam — Com.
6. Is this Māleyaka Candana identical with the Malayaja? The colour of the Māleyaka
   is mentioned as pāndurakā (reddish white) while according to me Malayaja=Sveta
   Candana (white Sandal).
7. The Sanskrit text for this passage reads as follows on p. 78:
   “Candana—
Satanam raktam bhūmigandhi (1)
Kucandana is as black as Agaru (resin of the aloe) or red or dark-red and very rough; Kalaparvataka is of pleasant appearance; Kośakaraparvataka (that which is the product of that mountain which is of the shape of a bud) is black or variegated black; Śitodakiya is black and soft and smells like a lotus flower; Nāgaparvataka (that which is the product of Nāga mountain) is rough and is possessed of the colour of Śaivala (Vallisneria); and Sakala is brown.¹

Light, soft, moist, (aśyāna, not dry), as greasy as ghee, of pleasant smell, adhesive to the skin, of mild smell, retentive of colour and smell, tolerant of heat, absorptive of heat, and comfortable to the skin,—these are the characteristics of Sandal (Candana).”

We may here note that in the above elaborate and minute account of candana and its varieties given in the Arthasastra there is no reference to the white sandal (śveta-candana) which we get in some late works. The colours of candana varieties mentioned by Kautilya are red, dark-red, black, colour of the feathers of a parrot, colour of śaivala, and reddish white, but not pure white.

(4) We are familiar with the following verse⁸ which associates candana with the Malaya mountain:

---

Gosīśrakam kālatūram mātyagandhi (2)
Haricandanan sūka,patravaṃpamāṃragandhi (3)
Tārīṣaṃ ca (4)
Gramurukam raktam raktakālam va bastamutragandhi (5)
Dāivasabheyaṃ raktam padmagandhi (6)
Jāpakaṃ ca (7)
Jōngakaṃ raktam raktakālam va snigdham (8)
Tauruṃ ca (9)
Māleyakam pāyuiurakam (10)
Kucandanan kālarekṣamagurukālam raktam raktakālam va (11) Kalaparvatamamana-vadyavarpaṃ va (12) Kośakaraparvata kālam kālacītram va (13) Śitodakiyaṃ padmabhena kālasnigdham va (15) Nāgaparvatam rūkṣam sāivalavarpam va (15) strebhāṃ kapilamiti.”

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¹. Vide p. 176 of Subhasitaratnakabandagara, N. S. Press, Bombay, 1911—Some other verses which connect the Canadian plant with the Malaya mountain may be noted here:

Page 312 — “Malayājarasaviliptatanavāḥ......abhisārīkāḥ II 23 II”

Page 63 — “Malayābbhuviśrūdhas’candananabhiśrūddha
Na bhajati kila veguḥ saurarabhām candanasya l”

Page 90 — “Malayācalagandhena tvindhanam candanaśyate,”

Pages 248-9 — Verses 40-61 on anyoktaś regarding Canadiana — Some of these verses associate Candana with the Malaya mountain. A few verses refer to presence of serpents on the Candana trees.
“Atiparicayādavajñā saṃtata gahanādānādarā bhavati ।
malaye bhīlapurandhri candanataru-kaśṭhamindhanām kurute ॥”

In connection with the above association of candana with the Malaya mountain I have to state that we have the following testimony for it from a Chinese source of the 7th century A.D.:

Shaman Hwui Li, the pupil of Hiuen-Tsiang (A.D. 645) describes in his Life of Hiuen-Tsiang (Trübner, 1911, p. 140) the Sandal and Camphor* trees in the country of Malakūṭa bordering on the sea-coast as follows:

“To the South of this Kingdom bordering on the sea is Malayāgiri, with its precipices and ravines, towering upwards and lying deep. Here is found the white sandal-scented tree, the Chandaneva tree. This tree is like the white poplar. Its substance being of a cold nature many kinds of snakes frequent the trees during summer but in the winter they conceal themselves in the ground. Thus this kind of sandal tree is distinguished.

If the above description of the white candana tree growing on the Malayagiri is true to facts we have in it reliable evidence of a foreign source regarding the production of white candana tree on Indian soil in the 7th century A.D. The question now arises: Was the white candana known to Indians earlier than c. A.D. 500? If this white variety of candana had been known to Kauṭilya he would not have failed to refer to it in his elaborate account of the candana varieties, red, black, greenish, reddish white etc.

(5) C.V. Vaidya in his Epic India (Bombay, 1933, p. 139) records a description of Yudhīśhthira’s daily life as given in Chap. 82 of the Dronaparvan of the Mahabhārata. This description contains a reference to sandal-scented water and red sandal wood as will be seen from the following extract:

“Yudhīśhthira rose in the morning and having performed the necessary duties went to the bath-room. One hundred and eight bath servants

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Shaman Li describes the Camphor tree as follows: —“Again there is the Karpūra scented tree. It is like the pine in its trunk, but leaves different, as also its blossoms and fruit. When the tree is cut down and full of sap, it has no scent but when it has been cut down and dry, then dividing it through the middle there is found the scented portion, in appearance like mother of pearl and of the colour of congealed snow. This is what is called Dragonbrain Scent (camphor).”

In the Gandhayuktī Section of Bṛhatasamhitā of Varāhamihira (C. A. D. 500) mention is made of māvakarpūra, karpūra, candana etc., and tāmbūla, pūgaphala, kakkola, etc.
bathed him with sandal-scented water poured out of golden pots after having rubbed him with medicinal preparations. He then wound about his head a swan-white turban in order to drain off the wetness of his head. Besmeared with red sandal wood and putting on newly washed clothes and a garland he sat for some time doing his Japa facing the east and with his hands clasped in adoration."

Reference is made in the above passage to the red sandal wood used for besmearing the body. I would like to know from scholars who have made an intensive study of the Mahabharata if they have noticed in this Epic any references to the white sandal (sveta candana).

(6) In the Kuttanimata of Damodara Gupta of Kashmir (c. A.D. 756-786) edited by T. M. Tripathi, Bombay, 1924, we find the following references to candana:—

Verse 102—Candanaapankah pankheruhanirahahraghanasaram" (Ghanasara=camphor).

Verse 607—"Ghanasara-kuunikama—candana-dhupadi" It is not clear from the above references whether the sandal referred to as candana was white or red.

(7) The Amarakośa (Kanda II, Chap. 6—manusya-varga) mentions camphor or karpura in the following line:—

"Atha karpüramastriyam | ghanasūra candrasamjñiḥ sitābhro himavalukā || 130 ||"

and then mentions the synonyms of candana as also its varieties as follows:—

"Gandhasāro malayajo bhadraśricandano'striyam |" 11

The Amarakośa further records the varieties of candana as follows:—

"Tailaparṇika gosīrse hariandananastriyam || 131 ||"

Bhānuji Dikṣita explains:—

"Taileti | tilaparṇe vrkṣabhede jātā ||.....

"Tailaparnī malayaje śrīvāse sihlake’pi ca" iti Medini || gob

10. On p. 156 of Epic India C. V. Vaidyā observew:—"The people of the South such as Pandya, Kerala and other countries are described as decked with garlands, having red teeth, wearing clothes dyed in diverse colours, and having bodies besmeared with powder (gandharcūrvarucūpītāḥ)—Karnaparvan, XII (17).

11. Bhānuji Dikṣita (c. A.D. 1630) explains this line and quotes other lexicons Vīcā and Tīkāṇḍūsena in support of his explanation of the synonyms for sandal viz. gandhasāra, malayaja, bhadraśri and candana. (Vide p. 383 of Amarakośa. N. S. Press, Bombay, 1905).
śirṣamiva | -tailaparnāgōśirṣau ākārāvasya iti svāmi (=Kṣirasvāmi c. A.D. 1050) | harerindrasya candanam | hari kapilavarnam candanam | ‘Haricandana mastraṇī sāttṛidaśānām mahiruhea | napumśakam tu gośirṣe jyotsnā kūnkumayorapi’ iti Medini II II candanavisēṣānām prthak prthak II”

Among the four synonyms of sandal mentioned by Amara the synonym malayaja (product of the Malaya mountain) may indicate the white sandal in view of the testimony of Shaman Li about white candana trees growing on Malayaigiri²² recorded in the Life of Hsiuen-Tsiang pointed by me already.

The Amarakośa also records 5 synonyms of red sandal:—
“Tilaparnī tu pattraṅgam raṇjanam raktacandanaṁ l kućandanaṁ ca.”

The only variety of candana which can be identified with white sandal appears to be the malayaja mentioned by the Amarakośa. We must, therefore, hunt up the antiquity¹³ of this term or its synonyms in Sanskrit literature and allied sources prior to say A.D. 500.

(8) The medical glossary called the Dhanvantari Nighantu supposed to be earlier than the Amarakośa refers to white sandal (śveta-candana) in the following verse quoted by K. M. Vaidya in his Aṣṭāṅgahṛdayakośa, 1936, p. 214):—

“Candanam gandhāsāram ca mahārham śveta-candanaṁ | bhadrāśriṣṭu malayajam gośirṣam tilaparnikam II”

12. Cf. Pañcatantra I. 41—“Vinā malayamanyatra candanam na prarohati”—In the Aṣṭāṅgahṛdayakośa by K. M. Vaidya, Trichur 1936, p. 429 we find the following remarks on Malaya—

“Malayaṁ, stūtrasanā 5 parvatavisēṣāṁ, one of the seven principal chains of mountains in India. It is most probably to be identified with the southern portion of the Ghats running from the South of Mysore and forming the eastern boundary of Travancore.”

13. Kālidāsa in his Śākuntala refers to the sandal tree and its natural home the Malaya mountain in Act IV as follows:—

“Kathamīdiṁ tātasyāṅkāt paribhraṅga malayātajñomūlīta candanalaṅeva desaṅtare jīvitam dhārāyaśyāṁ” | —Monier Williams (p. 175 of his Oxford edition, 1876) translates this passage as follow:—“How now removed from my foster-father’s side like a tendril of the Sandal tree uprooted from the slopes of Malaya, shall I support life in a strange place?”......

Frequent allusion is made to this tree being infested by snakes (see Raghuvanāsa, IV, 46, 48 and Hitopadesa p. 1582 of Johnson’s 1st Ed.)—Shaman Li’s remarks support this allusion as we have seen above. Kālidāsa himself refers to black serpent and Candana tree in Act VII, verse 182 of the Śākuntala:

“Sattvasaṁsātīrasyaśukho’pi ḍūṣyaṇe | Kṛtaparāpam-viśuneva candanam II 182 II”

Pliny in his Natural History [Book XII (XVIII)] describes trees of countries adjacent to India. In this description he observes:—“There was also a plant with a very strong scent, that was full of tiny snakes whose bite was instantly fatal.” (Vide p. 25 of Trans. by H. Rackham, Vol. IV—Loeb Classical Library).
In this verse the several names (nāmāni) of sandal are mentioned. While the term \textit{malayaja} indicates the topography of the region where sandal was produced, the term \textit{śvetacandana} indicates its colour. It is possible to identify \textit{malayaja} with \textit{śvetacandana} in view of Shaman Li's evidence.

(9) Aparārka (c. A.D. 1100) in his commentary on the \textit{Yājñavalkya Smṛti} (ed. in Ānandāshram Sans. Series, Poona, 1903, Vol. I, p. 483), Chap. I—Śrāddhaprakarana, quotes the following verse from \textit{Brahma-purāṇa} which distinctly mentions \textit{śvetacandana} (white sandal):—

\begin{quote}
śvetacandananakarpūra-kuṇikumani ca l
vilepanārtham dadyāt tu yadvāṇyatpitṛvallabham ll
\end{quote}

It would appear from this reference that the white sandal had become current in India long prior to A.D. 1100.

(10) In the \textit{Bhāvaprakāśa} of Bhāvamiśra (c. A.D. 1550) \textit{dhavalacandana} (white sandal) is referred to in the following line:—

\begin{quote}
cūrṇalehāsasvasnehāṁ sāḍhyāḥ dhavalacandanaṁ
\end{quote}

See p. 214 of \textit{Aṣṭāṅgahṛdayakośa} by K. M. Vaidya).

(11) In the \textit{Rājanighaṇṭu} of Narahari (c. A.D. 1450) two varieties of \textit{śvetacandana} viz. \textit{veṭṭa} and \textit{suṅḍi} are mentioned. We are further informed that the hills near the Malaya mountain produce \textit{candana} called \textit{Veṭṭa}:—

\begin{quote}
Candanam dvividham proktam veṭṭasukvadisamijjakam l
veṭṭam tu sārdhicchedam svayam śūkam tu suṅḍi l
malayādrisamipasthāḥ parvataḥ veṭṭasamijjakāḥ l
tajjatam candanam yattu veṭṭavācyam kvacinmate l
\end{quote}

(12) Vaṅgasena (\textit{between c. A.D. 900 and 1100}) is quoted by Hemādri (c. A.D. 1260) in his commentary on the \textit{Aṣṭāṅgahṛdaya} (Cikitsā Sthāna, Chap. 2—p. 582 of Paradkar Shastri edition, Bombay, 1939). In this long extract we find references to \textit{candana}, \textit{raktacandana} (red sandal) and \textit{sitacandana} (white sandal) in the treatment of \textit{raktapitta} (leprosy). Shri Bappalal G. Vaidya in his \textit{Nighaṇṭu Ādaraśa} (Part II, Broach, 1928, p. 346) quotes the following line from Vaṅgasena which refers to \textit{śvetacandana} (white sandal):—

\begin{quote}
śvetacanadānalkena hilamocābhavam rasam | pibanmasurikārambhe ... ll
\end{quote}

(13) Cakrapāṇidatta (c. A.D. 1060) mentions \textit{“dhavalacandana”} in explaining the term \textit{agryacandana} used by Caraka in the following line in \textit{vimānasthāna}, ch. 6. (p. 256 of \textit{Carakasamhīta}) N. S. Press, Bombay, 1941):—

\begin{quote}
Caraka:— ... kṣaṇe kṣaṇe agryacandanaapriyaṅgu ... anuṅgataisca vāribhiḥ abhiproksanam ...
\end{quote}
Cakrapāni:—agryacandanaṁ dhavalacandananam”
I cannot say how far Cakrapānidatta is correct historically in equating agrya (best) candana of Caraka with dhavala candana (white sandal) known to him.

(14) Śrāvaṇgadhara Samhitā, a medical work assigned to the 14th century A.D. (between A.D. 1300 and 1400) mentions “tagaracandana” in its recipe for satavaritaila in the following line:

“satāvari devadāru māmsī tagaracandananam.”

[Verse 710 of Khaṇḍa II, Ch. 9 of the Edition (Poona, 1917) by P. L. Vaidya and Y. G. Dikshit.]

The term “tagaracandana” is translated in Marathi as “pāndhra candana” (White Sandal).

(15) Mammaṭa (c. A.D. 1100) in his Kavyaprakāśa, Ullāsa X (p. 789 of the Edition of 1917 with Jhalkikar’s commentary) quotes the following stanza14 as an example of sāṃyana alamkāra:

“Malayajarasavilipatanavlo navahāralatāvibhūsītāḥ
sitaataradantapattraṇkrtavaktrarucu rucirāmalaṃśukāḥ l
saṃabhṛti vitatadhamānti dhavalayati dharamavibhāvyātām gataḥ
priyavasatīm prayānti sukham eva nirastabhiyo’ bhisārikāḥ ṭ 557”

In this verse women proceeding to meet their lovers on a moon-lit night are described. Being clad in white from top to toe they are fearless of being detected owing to their whiteness being completely merged in the moon-light. Their garments and ear-ornament and bodies besmeared with the pastes of sandal15(malayaja) are all white. Hence there is no contrast of colours which can mark them out on a moon-lit landscape.

It is clear from the above verse that the colour of sandal paste used by these women was quite white, consequently the term malayaja (sandal from the Malaya mountain) used in the above verse definitely means white sandal or svetacandana or dhavalacandana. Pandit Jhalkikar in his commentary points out that the above verse “malayaja etc.” has been quoted by Vāmana (c. A.D. 800) in his Kavyalamkarasūtravṛtti (Chap. 3 of Adhikarana IV). In view of this evidence we are warranted in concluding that the sandal known as malayaja about A.D. 800 was definitely of white colour and that it came from the Malaya mountain. This evidence confirms the statement of Shaman Li that the sandal tree

14. I am thankful to my friend Dr. K. N. Watave of the S. P. College, Poona, for directing my attention to this stanza.
growing on the Malayagiri was white sandal. Shaman Li's evidence is about 150 years earlier than Vāmanā's as Hiuen-Tsiaṅg returned to China from India in 645 A.D. Shaman Li wrote his Life of Hiuen-Tsiaṅg as a supplement to his guru's Record.

(16) Hemacandra (A.D. 1088-1172) in his lexicon Abhidhānacintamāna (III—Mātyākāṇḍa, verse 302) describes a cosmetic called yakṣa-kardama prepared by mixing up karpūra, aguru, kakkola, kasturi and candana. In his commentary he quotes Dhanvantari in support of this recipe as follows:—

"Dhanvantaristu
"Kuṅkumāgurukastūrī karpūram candanam tathā l
mahāsugandhimitiyuktam nāmato yakṣakardamah ī"

He then gives the varieties of candana and explains them as follows:

1. Śrīkhandam—śriyā khandayati.
2. Rohaṇadruma—rohaṇācalasya drumah.
4. Candana—candyate ḫlādyate anenā.
5. Bhadraśrī.
6. Phalaki
7. Haricandana—hareḥ indrasya candanam or harikapilam va
tacca ati śītam pitam ca āhuh.
8. Tailaparnika—tailaparno giriḥ ākaraḥ asya.

He mentions the red sandal and its names:—
1. Patrāṅga, (2) raktacandana, (3) kucandana, (4) tāmrasāra, (5) raṇjana, (6) tilaparnikā.

Many of the names in the above list are found in the Amarakośa (between A.D. 500 and 800) including the malayaja, which I presume is white sandal (santalum album L) in view of the evidence of Shaman Li (c. 650) and Vāmanā (c. A.D. 800) already recorded by me.

(17) The Kāramāvyāha, an early Sanskrit Buddhist-text (Calcutta Edition) contains the following references to sandal (candana):—
Page 56—"Vividhāni candana-karpūra-kastūrikādinī dhārayati i"
Page 60—"Divyāḥ ca aguru-drumavṛkṣāh sugandhāḥ candanavṛkṣāh"

(18) The Bhela Samhitā, one of the earliest medical texts like Carakasamhitā, contains many references to candana. I note some of them from the Calcutta Edition, 1921 (ed. by Asutosh Mookerjee):—
Page 2—"candanasya ca yat śrām badarāt khadirasya ca."
Page 7—Syāmakāgurucandanaṃ."
Page 114—"yaścandanamivābhāti."
Page 123 — Mahāpadmatala (Recipe).
— "darbhavetasamulāni candanam madhukamlabhā.
Page 174 — "Candanam nilamtpalam."
Page 205 — Mūlakataila (Recipe).
— vacā cāgurucandanam."
Page 206 — Rāsnātala (Recipe).
— "Candanam paripelavam."
Page 214 — Udumbaradilepa (Recipe).
— "madhukam candanam tilāth"
Page 217 — "Raktacandanadigdhāṅgā (kāntāh).
Page 251 — "Candanaiśca sapadmakaih"
Page 264 — "Candanam padmakam caiva."
Page 267 — Drākṣa madhukacandanaik."

The above references clearly show how candana had become a recognised item of the materia medica of the time of the Bhela Samhītā. It was freely used in the preparation of some medical oils like rāsnātala, mahāpadmatala, mūlakataila etc. These references, however, do not give us any idea about the species of candana used for these preparations.

(19) Another early medical compendium viz. the Kaśyapasamhītā (ed. by Rajaguru Hemaraja of Nepal, N. S. Press, Bombay, 1938) contains numerous references to candana as will be seen from the extracts noted below:

Page 73 — (Bālagrahacikitsa)  
— "talisapatram naladam tathā candanasariva
                       .................................
etaitailam samam siddham etc."

Page 133 — (Chapter on dhūpakalpa) — Recipe for vāruna dhūpa.

15. This chapter is important as it gives recipes for the following dhūpas which were current about 2000 years ago — Kaumāradhūpa, māhesvaradhūpa, agneyadhūpa, bhadrakamadhūpa, rākṣaghnadhūpa, uttamadhūpa dāvāṅgadhūpa, mohadhūpa, vārunadhūpa caturāngikadhūpa, nandakadhūpa, kaṇadhūpa, śrīdhūpa, grahaghnadhūpa, puyaadhūpa, sīśukadadhūpa, brāhmadhūpa, pratidadhūpa, siddhārthakadhūpa, arīṣṭadhūpa, gaṇadhūpa, svastikadhūpa, gīthadhūpa, etc. The text refers to forty kinds of dhūpas (p. 135) —

"Siddhārthārthārceti dhūpāste caturāngikadhūpā
bhīṣagīdhikarā nīthām putradā roganāstanāh!"

These dhūpas or different kinds of incense were used not only for medical purposes but also for scaring away ghosts etc. who were supposed to cause ill health. They had also some value as perfumes as some of the ingredients used in them were aromatic. The chapter on dhūpakalpa is concluded with the story about the origin of the dhūpas — The Rṣis were disturbed in their penance by rākgasas. They approached Vanāhi (Fire) for help. Vanāhi gave them these dhūpas as a means to scare away these rākgasas — This is a mythical story about the origin of dhūpas with a religious back-ground. Then follows a dhūpa-japa —

"Agniṣvā dhūpayatu, brahmā tvā dhūpayatu....namo devēbhya iti jāpet."
The extracts show how *candana* was prescribed against several diseases in ancient India but unfortunately they do not reveal what particular species or variety is meant by the term *candana* used in them. The *raktacandana* is of course different from *candana*. On page 298 the expression
"candanadvayam" is used but it is difficult to say whether it means (1) candana and (2) raktacandana or two varieties of candana itself.

(20) Principal Bappalal G. Vaidya in his Nighantu Adarsa (Broach, 1928, Part II. p. 345) records the following references to candana from the Caraka-Samhita:—

(i) Raktapitte — "candanatulyabhagikah" (Ciki. ch. 4).
(ii) Raktarvasam snigdharaktasangrahane — "sanagarasa candanarasascha II" (Ciki. ch. 9).
(iii) Hikkayam — "nayaveccandanam vapi" (Ciki. ch. 21).
(iv) Vamane — "dhatrirasenottamacandanam va" (Ciki. ch. 23).
(v) Raktatisare — "candanam talaambhasa" (Ciki. ch. 10).

References from the Suritch Samsita recorded by Vaidya are:—

(i) Pradare — "candanakvathameva va (sirira ch. 2).
(ii) Sukramehe — "kakubhacandanakaasyam va" (Ciki. ch. 11).
(iii) Mamsithamehe — "maishthacandanakaasyam" (Ciki. ch. 11).

These references to candana do not give us any particulars about the exact variety of candana which was used in medical practice 2000 years ago. The terms "uttamacandana" used by Caraka in Chikitsa, Chap. 23 corresponds to the term "agracandana" used by Caraka in Vimanas Chap. 6. Dallana explains this term as "dhavalacandana" or white sandal.

(21) Patañjali (c. 150 B.C.) in his Vyakaranas Mahabhasya comments on the sutra of Panini (2.2.8) — "Tatsthaisca gunaih II 2 II" as follows:—

"Saṣṭhigunaih saṣṭhi samasyate iti vaktavyam brähmanavarnah candanagandhaḥ pataḥasabdaḥ nadighosah" (see page 413 of Kielhorn’s Edition, Vol. I, Bombay, 1892). It is clear from this reference that a scented variety of candana was current in India about 150 B.C. as the term "candanagandha" (odour of sandal) indicates. This reference is in harmony with the references to candana in the early medical samhitas of Caraka, Sūruta, Bhela and Kāśyapa recorded by me already.

(22) In the Word-Index to Panini-Sūtra Pātha and Pariṣṭas (B.O.R. Institute, Poona, 1935) the following references to candana are noted from lingānuśasana and ganāpātha only:—

(i) ganāpātha (pp. 384 and 703) — "candana 217, 5."
(ii) lingānuśasana — "candana 76".

The Index does not record any references to candana in the Katyāyanavartika, Aṣṭādhya, Dhatupātha, Śakaṭayanasadhitaśabdah and Pīṣṣutra.
(23) No references to candana are found in the Rgveda, Atharavaveda, Yajurveda and Sāmaṇeraveda. I have consulted the Indices to these texts but failed to find any references to candana in them.

(24) I have already pointed out some references to candana in the Mahābhārata. I note below a few references to candana from the Rāmāyana (ed. with Marathi Trans. by S. D. Satavalekar, Aundh) Ayodhyākānda (1942):

Page 21 — “Antahpurasya dvārāṇi sarvasya nagarasya ca II 13 II Candanastragbhīracyantāṁ dhūpāiśca ghrāṇahāraṁbhīh”
   (Ayo. 3’13).

Page 120 — “Varāharudhirābhēna śucinā ca sugandhinā 1
   Anuliptāṁ parārdhyena candanena paramātpam 2”
   (A. Sa. 16’9),

Here the candana paste used for besmearing the body is stated to be of the colour of the blood of a boar and highly scented.

Page 105 — “Candanaśgurudhūpāiśca sarvataḥ paridhūpitāṁ II 28 II
tāṁ purīṁ samatikramya ...” (A. Sa. 14’28).

Page 127 — “Rajamārgam yayau Rāmo madhyenāgura-dhūpitam II 3 II
candanaṁ ca mukhyāṁśagurūñam ca saṁcayaiḥ”
   (A. Sa. 17’3-4).

Page 128 — “Dadarśa taṁ rājapathaṁ divi devapatiṁyathā 6 II
dadhyāṣata-havirlājaḥdhubairagurucandanaṁ”
   (A. Sa. 171’6-7).

Ayodhyākānda (uttarārdha) 1942 —

Page 57 — “Haricandana16 saṁprktamudakāṁ” (A. Sa. 65’8).
   88 ... “Candanaśgurusaṁprktadhūpasarāṁmurchito’ malah ā
   pravāti pavanah ... II 29 II” (A. Sa. 71’29).

Page 231 — “Candanena mahārheṇa yasyāṁgamapasevitaṁ”
   (A. Sa. 100’35).

Page 311 — “Candanaśgurugandhaśca na pravāti samantataḥ II 20 II”
   (A. Sa. 115’23).
   — “Candanaśgurugandhaṁśca mahārāṁśca vanasrajah II 22 II”
   (A. Sa. 115’22).

The few references to candana in the Rāmāyana collected above show

16. The Sāsvata Kosa (ed. K. G. Oka, Poona, 1918) of about A.D. 600 refers to haricandana as follows:

"kuñkume devavṛkṣe ca Haricandanamāśyate" (p. 39).
kuñkuma = saffron; devavṛkṣa = mandara tree (Apte’s Dictionary).
how it was used as a perfume in social and domestic life of people living in the city as also at the royal court. These references also are not very helpful in our inquiry about the species of candana used for several purposes such as perfuming water, burning as incense, preparing paste for besmearing the body etc.

(25) In the Mānasollāsa (c. A.D. 1130) of the Cālukya King Someśvara (G. O. Series, Baroda, Vol. II, 1939, pp 85-87) there is a section called the vilepanabhoga on the King's use of cosmetics and unguents etc. such as (1) yakṣakardama, śāndhyalepa, pumillīṅga-gandha, etc. The śāndhyalepa is meant for the removal of the odours of body sweat. The root of the candana tree to be used for this paste is described in detail as follows:—

"Candanasya tarormulam granthikōtaka (ra) karparam II 984 II
gandhotkataṃ himasparśaṃ variśtham tannirūpitam I
yacchedādrakatām dhatte gharṣe pitatvameva ca II 985 II
śoṣe śubhrahātvarāyați svāde tīktrasarām bhaveti I"

The sandal root described above is extremely scented and cool to the touch as ice; when cut it appears red; when it is rubbed (on a stone) it assumes yellow colour, but when it is dried up it becomes white. — Is this a description of the root of the white sandal (santalum album)?

(26) The poet Bāṇa (c. A.D. 630) refers to malayaja in his Kadambari (page 316 of uttarabhāga — B. S. Series) in the following line:—

"Malayajajalārdrapadminipattractoranaena."

This line mentions "a bed of lotus leaves wet with sandal (malayaja)-water". Possibly malayaja means here the white sandal. I may note here some more references to candana from the Uttarabhāga of Kādambarī:

Page 241 — "Karpurakṣodamisṛacandana-paṅkapindā."
Page 248 — "Haricandananarasacarcām."
Page 251 — "Sarasaharicandana-paṅkacakchaṭāchuraṇena."
Page 253 — "Lālāṭaphalakene candana-lekhiṅkām."
Page 255 — "Candana-parimala iva"; "sarasaharicandana."
Page 256 — "Bhujangīva asahyasamśtāpālīṅgitacandana."
Page 269 — "Purvācīgadhuvadananacandanatilake."
Page 269 — "Līmpadbhiriva sāndracandanadrāvena yāminīm" (candrapādāih).
Page 281 — "Toranabaddhacandananālam."
Page 283 — (Description of jalamanḍapa).
— "Karpurapatavāsaharicandana"; "candanāṅgarāgam."
These and other references to candana in Bāna’s works fully illustrate the varied use of candana in the 7th century A.D.

(27) Dhanapāla in his lexicon Pāialacchināmamala (A.D. 973) mentions “Malayaruham candanāṁ” (vide folio 4. MS No. 185 of 1872-73). The term “Malayaruha” is identical with “malayaja,” which according to my view is white sandal growing on the Malaya mountain.

(23) The (Prākrit Dictionary) Pāisasaddamaḥamavā (by Har Govind Das) records the following usages of candana.

Malaya = śrīkhaṇḍa (— Jivājivāḥbhigamasūtra. 3 ) = candana.
Malayabhava = Candana (Gauḍavaha — Between A.D. 729 and 753).
Malayaruha = Candana (Surasundarīcaria, 1, 28 — C. A.D. 1090).
Candanakāśṭha (Pāialacchināmamala — (A.D. 973).

(29) Varāhamihira (c. A.D. 500) in his Bṛhatasamhita refers to candana and Malaya (Malayaja) in the following extracts from J. H. Athalye’s edition of Bṛhatasamhita with Marathi Translation (Ratnāgiri, Jaganmitra Press, 1873):

chapter on cosmetics (No. 78 — gandhayuktī)
verse 7 — “Kuṣṭhenotpabalbandhikāṃ samalayaḥ. Purvobhaveccamanapako”
verse 8 — “Malayapriyaṅgubhāgau gandho dhupyo gudanakhena”
verse 9 — “...Turuṣkanakhaḥcandanaḥ piṇḍaḥ”
verse 14 — “Karpūracoramalayaiḥ”
verse 24 — “......malayanakhaḥśrīkakudurukāḥ”
verse 30 — “candanaturuskabḥgau......”

It is clear from these references that candana and Malaya i.e. the sandal growing on the Malaya mountain were used in Indian cosmetics in Varāhamihira’s time. Possibly Varāhamihira distinguishes malaya (=white sandal) from candana in general.

Candana was also used for making furniture. In Chap. 79 (Śayyāsana-lakṣaṇa) of the Bṛhatasamhita the use of candana as timber is prescribed.

197, 14 (Page 1027) refers to the malaya mountain in the following verse:—

“Himavān pāriyātravacavindhyo malaya eva ca |
catvāraḥ parvataḥ kena pātita bhuvī tejasā || 14 ||”

18. Varāhamihira refers to Malaya mountain in Chapter 14, verse 11 as follows:—

“Atha dākṣiṇeṇa laṅkājina-Saurikṝpa-tālākāṭaḥ |
Girinagara-malaya-dardura-mahendra-mālīndya-bharukacchāḥ || 11 ||”
in the following extracts for preparing beds and seats (Śayana and Āsana):—
verse 2 — “Asana-syandana-candana.....”
verse 12 — “Candanamayo ripughno.....”
verse 18 — “Amba-syandana-candanavyṛkṣānām”

In Chap. 16 (Candana) we are told that the planet Bhrigu or Śukra (Venus) governs materials like grahabhaktayah etc. (verse 80 — “Jatiphalāgaruvaçaippalayaścandanaṁ ca bhrgoḥ”).

(30) In the Sanskrit Buddhist text Āryamaṇjuṣṭīmukalpa, Trivandrum Sans. Series, 1920) there are many references to candana. According to Winternitz this work was translated into Chinese between A.D. 980 and 1000 and into Tibetan in the 11th century (p. 397 of Vol. II of History of Indian Literature, Calcutta). According to Marcelle (ibid p. 635) this work belongs to the 2nd century A.D. Whatever be the exact date of the work we must take it to be prior to c. A.D. 900 in view of its Chinese translation between A.D. 980 and 1000 referred to by Winternitz. The Trivandrum edition of this text contains the following references to candana and Śveta-Candana (white sandal):

Page 13 — “Gandhamādanaṁ simantāyatana-samantaprabha-candana etc.” (Here “candana is the name of Pratyekabuddha in the mahāparśanmandaḷa)

Page 27 — “Saptābhimantritāṁ candanodakām” (Sandal-water)
— “dhūpamantraḥ 13 candanam karpuraṁ kuṅkumam caikīkṛtya dhūpaṁ ādāpayet”
— “karpūra candanakuṅkumaiḥ” (“gandhamantrah cātra bhavati naman sarvabhuddhānām” etc.)

Page 37 — “Pañcagavyasammiśrītena candanakarpūraṇukummodakena” etc.

Page 38 — “candana-karpūra-kuṅkumavyāmiśrakena śvetasugandha-puspaiḥ” etc.

Page 47 — Āhūtīnāṁ karpūra-kuṅkuma candanamīśrāṇāmaṇḍasahasrāṁ juhuyāt”

Page 48 — “Tathāgatakule candanam.....śasyate”
Page 49 — “Sugandhacandana-kuṅkumābhhyaktena paṭena maṇḍalam praveśṭukānāṁ mukham veṣṭayitvā” etc.

Page 50 — “Candanakuṅkumbhyāṁ hastau mraksayitvā”
Page 52 — “Candana-kuṅkumodakena abhyasiṇcet”
Page 56 — “śvetacandanaṁ kuṅkumodakam.....śvetacandanaṇukumakarpūraṁ ca ekikṛtya.....”
Page 57 — “aprāṇyāṅgasamutthām vā kuṅkumacandanaṁ dibhiḥ”
Page 58 — “Śvetacandanaakuṇkumābhyaṁmanyatarena anulopaṁgaṁ karpuravāsitavadanāṁ”
Page 60 — “Śvetacandanaliptaṁgah hastau uddhṛtya śilpinah ॥”
Page 61 — “Ṭapataṁ .......... karpurakuṇkumacandanalidhibhirāṅgam vāsaiṭavyam”
Page 74 — “Candanaṇukumakarpūram ca ekīkṛtya”
Page 84 — “Śvetacandanaṇukumābhyaṁ khaḍirakāṣṭhaiḥ agnim prajvalyā”
Page 86 — “Nāgakesarakiniḥ jalīkāhūtināṁ śvetacandana-karpuravyāṁ-
misrāṇāṁ”
Page 87 — “Nāgakesaracūrṇāṇam śvetacandana karpuravyāṁmisrāṇāṁ”
— The sādhaka is to perform the homa at different places among which we find the Malaya mountain —
“Sahye Malaye caiva arbude gandhamādaṁ | trkute parvataṁjey. smiṁ sādhayet karmamuttamam ॥”
Page 90 — “Uśiraśvetacandana kuṇkumam vā karpurādi dibhivyatimisrey-
itvā”
Page 107 — “Karṇikārapuspāṇāṁ suklaścandanaṁ misrāṇāṁ ..satasa-
hrāṁ ṣūhuyāt”
Page 111 — Candanaḥ, gandhamādaṁ, ketuḥ, sukuteḥ, sitaketu-
rūṣtoparinimēṣca” (8 pratyekabuddhas)
Page 121 — “Praśastairvamakaiścāpi śvetacandana kuṇkumaiḥ | praks-
āya yatnato tasmāt.......
Page 137 — “Śvetacandana karpurāṁ kuṇkumam misrapūjitah ॥”
Page 138 — “...... juhuyāṭkuṇkumacandanaṁ”
— “Śvetapadmāṁ samāṁḥ ṿṛtāṁ śvetacandanaṁ samayutāṁ”
Page 139 — “Nāgakesarākarpurāṁ candanaṁ kuṇkumāṁ samāṁ”
Page 144 — “Śvetacandana karpurakuṇkumācāca vidhīyate”
Page 145 — “Śvetacandana karpurakuṇkumāṁ ca ekīkṛtya”

The wealth of references to the Śveta candana or Sukla candana (white sandal) in the Aryamaṇjjrīśrī-mūlakalpa pointed out in the above extracts clearly proves that this white variety of sandal had an honoured place, along with karpurā16 and Kuṇkuma (camphor and saffron), in Buddhist

19. Pandit G. S. Sadhle in his Upaniṣadavakyamahakosa (pūrvaṁdaḥ), Bombay, 1940 on p. 141, records the following quotations from the Śaṅgiliyopaniṣad and Yogasūkhoṇiṣad which mention Camphor (Karpurā)—
—“Karpuramanale yadvat” (Śāngi. 1-7-21)
—“Karpūre iljamāne Kīṁ kāthinyah tatra vidyate (Yo. Śī. 1-1-49). Jacob’s Concordance to Upaniṣads records no reference to Karphūra.
ritual and worship long prior to A.D. 900. The *Kāraṇḍavyuḥa*, as already pointed out by me refers to *candana* only but does not mention the *Śvetacandana*. In my cursory perusal of the *Āryamaṇḍujayür-mūlakalpa* I could not trace any reference to the *malayaja* sandal though this text refers to the *Malaya* mountain along with *Sahya* and other mountains.

(31) In the *Saundarananda* of *Āśvaghoṣa* (2nd century A.D.) edited by E. H. Johnston, Lahore, 1948, I find the following references to *candana* and *Lohitacandana*:

Page 19 — “Niścitamātrirasi *candana-yo*ma jagāma duḥkhasukhayośca vikriyām”

Page 27 — “Tatstanodvartitacandanaḥbhyāmukto bhujābhyām na tu mānasena”

Page 136 — “Praverito lohitacandanaḥkto haimo mahāstambha ivāvahāse”

(32) Ātitsayana in his *Kamaśūtra* (ed. by Kedarnath, N. S. Press, Bombay, 1900) refers to *candana* in the following extract:

—“Tathā *candana*-Kuṅkumayoh pūgaphalānāṃ patraṇāṃ kālayu-kātanāṃ... dānāṃ...”

(33) We have already referred to Kālidāsa’s reference to *candana* plant on the *Malaya* mountain in his *Sākuntala* (Act IV). In his *Vikramorvaśīya* (N. S. Press, 1914 p. 60) Act III, verse 10, he refers to the *Malayaja* sandal used for smearing the body as follows:

—“Kusumaśayanaṁ na prayagraṁ na candramaśicayo, na ca *malayajām* sarvāṅgīnāṁ na va maṇiyaśatyāḥ”

(The commentator Raṅganātha observes):

“Sarvāṅgīnāṁ sarvāṅgavyāpi malayajām candanaṁ.”

In the *Rtusaṅhāra* of Kālidāsa (ed. by S. R. Sehgal, Lahore, 1944) we get the following references to *Candana*:

1-2 — “Sarasūṁ ca *candanaṁ*”, 1-4 — “stanaṁ... sacandanaṁ”
1-6 — “Payodharāścandanaṁ paṅkacarcītāḥ”
1-8 — “Sacandanaṁbuṣyajanodbhāvānilaiḥ” “breezes produced by fans wet with sandal water”
2-21 — “Kālāgurupracuracandanacarcītāṅgayāḥ (nāryah)”
3-20 — “Hāraṁ sacandanaṁraṁsaḥ... vibhūṣayanti”
5-3 — “Na candanaṁ candramaśicītalam”
6-12 — “Ālipyate candanaṁmaṅgānabhīḥ”
6-8 — “Śtanāsu hāraṁ sitacandanardrāḥ” — This reference to *sitacandana* or white sandal is important for my suggestion that *malayaja* sandal is identical with white sandal. Kālidāsa uses the terms *malayaja*, *sitacandana* and refers to the association of the *malaya* mountain with *candana* and the serpents, who live in the vicinity of the *candana* plant.
VI, 28 — malayānīla (breeze from the Malaya mountain).
(34) In the Travels of Fa-hsien (399—414 A.D.) translated by H.A. Giles (Cambridge, 1923) we find the following references to sandal:

Pages 30-31 — "when Buddha went up to heaven for ninety days to preach the faith to his mother, king Prasenajit, longing to see him, caused to be carved in sandal-wood from the Bull's head mountain an image of Buddha and placed it where Buddha usually sat."

(Perhaps the sandal-wood from the Bull's-head mountain is the go-sīrṣa sandal).

Page 72 — (Description of Ceylon)— 'Sandal-wood, garoo-wood (lign-aloes), and all kinds of scented woods were placed at the top' (of the funeral pile of wood).

(35) In I-cting's Record (A.D. 671-675) translated by J. Takakusu, Oxford, 1896, sandal-wood is referred to in the following extract:

Page 149 — "The scent is prepared as follows: take any perfume tree, such as sandal-wood or aloes-wood, and grind it with water on a flat stone until it becomes muddy, then anoint the image with it and next wash it with water."

(36) Reference to sandal-wood and its perfumes as mentioned in the Buddhist Jātakas (between B.C. 300 and A.D. 400) have been recorded by R.N. Mehta in his Pre-Buddhist India, Bombay, 1939, as follows:

Pages 202-203 — "Sandal-wood, especially Kasika-candana, was the chief raw material and also a finished product in itself. (Jataka V, p. 302. G 40; I, p. 331). Sandal-wood-powder and oil were manufactured (Jataka I, pp. 129, 238, II, p. 273; IV, p. 82; VI, 336)."

(37) In the Guhyasamājatantra (G. O. Series, Baroda, 1931) which its editor assigns to about 3rd century A.D. we get references to candana (sandal) and karpūra (camphor) and kunkuma (saffron) as follows:

Page 8 — "Karpūracandanairyuktām gulikām trilohaveṣṭitām."
Page 99 — "Karpūrakunkumairiyuktām gulikām" etc.

20. Shahan Li (c.A.D. 650) in his Life of Hiuen-Tsiang also refers to carved figures of Sandal wood as follows:

Page 91 — "......carve from sandal-wood a true likeness of his (Buddha's) appearance."

Page 93 — "King Udāyana had caused a sandal-wood figure to be made......"

Page 213 — "(Treasures from India taken by Hiuen-Tsiang in A.D. 645) Sandal-wood figure of Buddha" (with pedestal 3 ft. 5 inches high).

Page 214 — "Sandal-wood figure of Buddha" (with pedestal 1 ft.—3 inches high). It is clear from the evidence of Fa-hsien and others that the art of carving images etc. from Sandal-wood now current in Mysore etc. has a clear antiquity of more than 1500 years.
Studies in Indian Cultural History

(38) The Lalitavistara (ed. by Rajendralal Mitra, Bib, Indica, Calcutta, 1877) contains the following references to the candana:

Page 19 — "Tasyah sarvaramakuebhya candanagandhah pravati"
Page 513 — "Divyaih candanacurnaih"
Page 501 — "Ya ratnapatri abhuta candanamiśriṇikām"

(39) Mr. Tapo Nath Chakraborty in his article on "Women in the Early Inscriptions of Bengal" (B.C. Law Volume II, 1946, pp. 242-260) records valuable information about women in Bengal during a period of more than 750 years (A.D. 432-1200). In this information he refers to the use of aromatic ingredients as follows:

Page 257 — "Fashionable ladies were thus in the habit of using musk and other aromatics like camphor, sandal etc. for their decoration.

Cf. ("Karpurairiva pūritam) Malayajaksodairvalepitam"

— [v. 8 of Kṣṇadvarika Temple Inscription]......we have reference in the Deopāra Inscription (verse 31) to the use of sandal powder."

The reference to Malayaja (white sandal) used by the women of Bengal as found in an inscription is noteworthy for the history of śveta candana (white sandal) in India.

(40) The Ahirbudhnya Samhita (ed. by M. D. Ramanujacarya, Adyar, 1916) refers to candana and raktacandana as follows:

Page 344 — "Bhurjapatre likhetvaitatkukmumaiscandanena tu"
Page 279 — "raktacandananaliptāngam devam padmam samarciyet"
Page 387 — "candanagurukarpurakāśmiraksodamanḍitam"

(41) Marco Polo in his Travels (ed. by Thomas Wright, London, 1901) A.D. 1298 describes the island of Nocueran (one of the Nicobar islands). In this description he refers to the white and red kinds of sandal as follows:

Page 376 — "Their woods abound with the noblest and most valuable trees, such as the white and the red sandal", etc.

(42) Col. G. A. Jacob in his Laukika Nyāyañjali (Handful of Indian Maxims) Part III, N. S. Press Bombay, 1911, p. 46, records an interesting

21. The Yogivasistha (nirvāṇa prakaraṇa uttarārdha—sarga 66, verse 9) refers to the white moon-light and compares it with the white Candana āstu:

—"Candraścarcascaturdikkam candanenātmatejasāl
racayanāttriḥhinoyostamo hantyapi hṛdgatam 1911"

simile based on candana from the sūtras of Bādarāyana and the comments of the great philosopher Śaṁkarācārya on it as follows:—

"Candananyāyah

The simile of sandal-oil. Bādarāyana uses this as an illustration in sūtras 2, 3, 23, 24. As the application of a drop of the oil to one part of the body produces a pleasant sensation in the whole of it, so soul, abiding in one part, namely in the heart, is yet perceived as present in the entire frame. Śaṁkara’s exposition of the former sūtra is as follows:—

Yathā haricandanaṃ abinduḥ śāriraikadeśasambaddho’pi san sakaladehavyāpinamālāhadām karotyevamātmāpi dehaikadeśasthāḥ sakaladehavyāpinīmupalabdhiḥ kariyati tvaksambadhāccāsyā sakalāśārīragatuḥ vedānā na virudhyate tvagātmanoḥ saṁbandhāḥ kṛtstnāyām tvaci vartate tvak ca kṛtstnāśārīravyāpinīti"

In this explanation Śaṁkara presumes candana of Bādarāyana to be identical with Haricandana (yellow sandal). I cannot say how far this presumption is correct as Śaṁkara lived in the 8th century A.D. while the sūtras of Bādarāyana are a few centuries earlier in date than Śaṁkara.

(43) The Kashmirian poet Bilhana in his poem Vikramānkadevajcarita (ed. by Bühler, B. S. Series, Bombay, 1875) composed about A.D. 1085 describes the warlike expeditions of King Vikrama of Kalyāna. In this description he states that Vikrama destroyed the sandal wood forests of the Malaya hills and slew the lord of Kerala (Canto IV, verses 1-18).

Other references to candana in this poem are:—
Page 12 — “Cāndanālayapāṇḍubhiḥ.....stanaiḥ”
Page 17 — “Ārdracandanaṃ”
Page 26 — “Malayādrikuñja” and “candanavāyu”
Page 28 — “Malayadrumāḥ”, “candanavāyu”, candananisvana’
   — “gajonmūlitanikṣiptacandanaadrumasampadaḥ”
Page 46 — “Candanaarasa”
Page 59 — “Candanaapallavānām”
Page 62 — “Candanaāreḥ”
Page 74 — “Candanapāṅkaivāpi”
Paga 83 — “Candanapāḍapāṇām” malayanilah”
Page 97 — “Candanalepa”
   — “Kṣipyatāṃ Vcana candanapāṇḍucandrikarasabharāh kalaśabhīh”

Even if the description of the sandal-wood forests on the Malaya mountain and their destruction by the elephants of Vikrama is considered as poetical bombast it cannot be denied that in Bilhana’s time the Malaya
mountains were producing a large number of candana trees. My suggestion that these candana trees were of the white sandal gets confirmation from Bilhana's use of the term pāndu (whitish) as applied to candana in the expressions “candanalepapandubhiḥ” breasts...appearing whitish by the sandal paste) and candana pānduḥ candrika rasabharaḥ (moonlight whitish on account of the candana paste). I am inclined to suppose that in Bilhana's time (11th century A.D.) the white sandal was extremely popular in India and had perhaps put into the background the other varieties of candana of different odours so minutely described in the Arthaśāstra of Kautilya.

(44) In the Harivamśa (ed. with Marathi Trans. by Viṣṇuśāstri Bapat, Wai, 1911) we notice some references to candana, some of which may be noted below:

Page 16 — "(Harivamśanāhatmya)
"Candanāgurukarpurakuṇkumairgandhakādībhiḥ II 12 II"

Page 301 — "(Viṣṇuparva-chap. 89)
"Rajobhiḥ sarvapuspanām prktascandanaśaityabhṛt II 73 II"
"Reme balscandanapankadigdaḥ (verse 1)"

Page 301 — "(Viṣṇuparva, chap. 70, verse 71)
"Harāścamanāyāsaiva candanānyagurūṁ ca"

(45) In the Sarngadharpaddhati (ed. by Peterson, Bombay, 1888, vol. I, pp. 468-9) we get the following references to candana, Malayā and Malayaja:

\[
\text{Stanza} \quad 3255 \quad - \quad \text{malayaja} \\
\text{Dhūpāḥ} \\
\quad 3256 \quad - \quad \text{candana} \\
\quad 3257 \quad - \quad \text{candana} \\
\quad 3259 \quad - \quad \text{malaya ( = Malayaja)} \\
\text{Dhūpavartīḥ} \\
\quad 3260 \quad - \quad \text{candana} \\
\text{Dīpavartīḥ} \\
\quad 3262 \quad - \quad \text{malaya ( = malayaja)} \\
\quad 3263 \quad - \quad \text{candana}
\]

(46) Mr. C. E. Fischer published in 1938 a very scholarly article on “Where did the sandalwood tree (Santalum Album Linn.) evolve?” in the Journal of the Bombay Natural History Society, December 1938) pp. 458-66. In this article he has recorded evidence in favour of an

22. In Bilhana's Caurapaṇīcaśika (ed. by S N. Tadpatrikar, Poona, 1946, p. 4) we get a reference to Candana in the following stanza 8:

"Adyāpi tām mastpacandanaṇaṇamīṣrakasturikaparimalothhavisarpī-
gandhām"
Indian origin of the white sandal (santalum album) and that opposed to an Indian origin. I give below a brief analysis of this evidence:

I — Evidence in Favour of an Indian Origin.

(a) Rāmāyana refers to forests of sandal on the islands of the river Tamraparnī.

(b) In his epic poem Chilappatikaram Ilanko-Atikal, the Tamil poet (between 2nd and 5th cent. A.D.) speaks of sandal born in the Southern Mountain (Malaya Tenmalai piranta chantanam).

(c) Kalidasa (not later than 5th cent. A.D.) refers to sandal, derived from South India (see Raghuvamśa, IV, 48, 51).

(d) Pañcatantra (not later than 5th cent. A.D.) refers to sandal, as not flourishing any where except on Malaya.

(e) Rājaśekhara (A.D. 880–920) in his Kavyamimamsa speaks of the Malaya mountain as the homeland of the delightful true sandal.

(f) Hitopadeśa (II, 163) refers to sandal trees infested by serpents.

(g) The Periplus of the Erythrean Sea (2nd cent. A.D.) refers to "... sandal wood, teak, ebony and black-wood, imported from Baragaza (Broach) in Western India to Apolokus, an important harbour at the mouth of the Euphrates."

(h) Kautilya’s Arthaśāstra (between 320 B.C. and 300 A.D.) Chap. XI, includes sandal among objects entered into treasury.

(i) Buddhist Jātaka Stories (7th cent. B.C.) mention sandal as article of toilet.

(j) Sandal-wood was one of the articles of commerce brought from India to the Roman Empire.

(k) Francis Buchanan in Travels in Canara and Mysore (A.D. 1807) refers to sandal tree found in quantities at many places. "The quantity brought from Coorg during the years 1792 to 1798 amounted to about 12000 candies."

II — Evidence opposed to an Indian origin.

(a) Ain-i-Akbari of Abul Fazl (1551–1602 A.D.) Vol I, Ain 30, page 81 refers to chandan as follows:—"9. sandal-wood called in Hindi Chandan. The tree grows in China. During the present reign it has been successfully planted in India."

(b) Garcia da Orta (A.D. 1562) refers to the introduction of the sandal tree in his Colloquies etc. p. 399.
(c) *Cosmos* (Indicopleustes — about A.D. 545) Hak. Society, Vol. 98, p. 363, concerning Taprobane (Sumatra), refers to the importation of sandal-wood to India from the Malay Archipelago.

(d) Ebn Baithar (about A.D. 1250) in his account of eastern medical plants (ed. by Dr. J. Sontheimar, 1842, p. 136) states that the name sandal "betokens a wood brought from China."

(e) Barbosa (c. A.D. 1500) mentions the uses of sandal-wood in India. He asserts that it occurs in Timor and in no other locality. He does not include it in the products exported from Cochin or Calicut. His evidence is important as he was employed in commerce on the Malabar coast.

(f) Magellan (First Voyage etc., Hak. Soc. Vol. 35, page 153) states in reference to Timor that "... white sandal-wood only grows in this country."

(g) The records of the East India Co. (The English Factories in India, 14 Vols. 1618-1677 A.D.) refer to a considerable trade in sandal-wood but there is no record of the wood being obtained in India.

After discussing the evidence briefly indicated above Fischer puts forward the following theory:

"At a very early period a scented wood (or woods) was produced by a tree growing in India probably mainly in the South. This wood was used for various purposes and went by the name of chandan. Later on the wood of *santalum album* began to be imported and as it became more and more available, gradually replaced the indigenous wood. At first it may have shared the same name and in due course supplanted the original even in that respect. Eventually some enlightened person thought of introducing the plant itself, but the spread except where enforced, would be slow. The fact that the tree where it grows at present appears to be indigenous need not impress one greatly when one considers the establishment of other non-indigenous plants in India. Who seeing lantana or prickly-pear-infested localities would imagine that they are aliens, were the history of their introduction not known? I must now leave the decision to my readers."

The above Theory is cogent enough in the light of the evidence recorded by Fischer. Granting that the *white sandal* (*santalum album*) was introduced into India from outside as postulated by Fischer, we have to see at what time it was planted on Indian soil. In this connection
the references to white sandal (sveta candana) collected by me from Sanskrit sources would be found useful. Before tabulating these and other references chronologically I shall record a few more references to candana with a view to making this study as comprehensive as possible.

(47) I have to record most gratefully the following remarks of my friend Mr. A. S. P. Ayyar, M.A., I.C.S., District and Sessions Judge, Chittoor, regarding candana in Tamil sources:—

12-6-47 — “I find in the Tamil Silappadikaram (The Lay of the Anklet, an epic whose date is put variously between the 2nd and 5th century A.D.) the hero, Kovalan, drawing figures with sandal paste (chandanam, no mention of white or red) on the breasts of his beloved, Kannaki. It is the custom in Malabar and the south country still for the bridegroom to daub a woman’s breasts with sandal paste on the nuptial day! Of course the drawing of figures is a poet’s fancy, the figures drawn being Kama and Rati!”

3-7-47 — “Now as to sandalwood—Silappadikaram is a Tamil book having only about 11% of Sanskrit words in it, the remaining 89% being purely Dravidian (Sumerian, Proto-Indian or whatever its origin!). It does not of course say “Malayaja” Chandanam but merely chandanam. I give you below the exact reference you want:—(1) In Book I (song of Benediction) you find this:—“Lovely maidens bringing spices and flowers spoke and sang and looked bewitching. Women with full breasts and lovely tresses took with them sandal-paste (chandanam), frankincense, perfumes and powders,” and distributed them at the marriage of Kovalan and Kannaki, just as such ladies do even today in our Tamil Nadu. I never heard of any sandal paste being distributed at marriages except our usual white or yellow sandal paste. (2) In canto 2 of Book I, Kovalan (Sanskrit Gopalan) paints on the broad shoulders and full breasts of Kannaki (in the privacy of the nuptial chamber) the sugar-cane (Kama’s bow) and Kamanalli (the heavenly creeper representing Rati) with sandal paste. He tells her, “with sandal-paste38 figures painted on your beautiful breasts, what need is there for a string of pearls on them?”

There are some other references to chandanam in the book. But these would suffice. Please remember that the patron Saint of Tamil

23. The practice of applying Sandal paste to breasts in a marriage ceremony referred to in the Tamil work may be compared with the following verse in the Carakasamhita (cikitsastrana, Chap. 29—vatarakta-cikitsita—p. 633 of N. S. Press Edition, 1941):—

—“Candana-dratastanakaraḥ priya naryah priyamvadah i sparṣas’itah sukhaparsa’ ghnanti dhaham rujah klamaḥ ii 130 iii”

Here Caraka prescribes an agreeable company for the patient suffering from vata-rakta.
Nadu, who gave it its alphabet, grammar and institutions was Agastya Kumbhayoni the twin brother of Vasiṣṭha, the Aryan sage and that his abode was Agastyakūṭam hill or Chandanāchala (Malaya) in Travancore (called also Podiyil Hills). Of course, the Silappadikaram may only date from the 5th cent A.D., though Dr. Krishnaswami Aiyangar and Prof. Neelakantha Sastri put it in the 2nd cent A.D."

(48) Cakrapāṇidatā (c.A.D. 1060) while commenting on the term haricandana in Carakasamhita (Sārīrasaṅga, Chap. 8, para 9—p. 341 of N. S. Press Edition, 1941) equates haricandana with śvetacandana (white sandal) as will be seen from the following extract :—

—"Haricandanaśabdena śvetacandanam vivakṣitam, hariśabdasya anekārthatvat; hariśabdena śvetasyaiva grahanam praśastatvat"

The opinion of Cakrapāṇidatā that Haricandana of Caraka is identical with Sveta candana or white-Sandal appears to be unwarranted as we are not quite sure if the śvetacandana was known to Caraka and secondly Kauṭilya in his passage on the varieties of candana mentions Haricandana as having the colour of the feathers of a parrot, and smelling like tamarind or mango fruit." (haricandanam Śukapatravarṇamāmragandhi). Evidently the testimony of Kauṭilya in explaining the Haricandana of Caraka is more useful to us than that of Cakrapāṇidatā who flourished more than 600 years after these authors.

(49) The poet Māgha (c. A.D. 625), in his Sīṣupālaavadhakāvya (canto XI, verse 14) refers to malayarunharajas (sandal-dust) the whiteness of which is first compared to the whiteness (dhavalima) of the moon and then contrasted with the colour of saffron (kuṇkuma). The western quarter

24. Similarly Cakrapāṇidatā explains the terms candana as Rakta candana and bhadraśvī as śvetacandana, Chap 3 of cikitsāstha (P. 422 where the recipe of Candanādūṭaila is recorded by Caraka. The correctness of this explanation is also open to doubt.


—"Kīḍadhavalimaḥbhedāh śayana pas成龙śaṃ hi harinucirirupimnaṃ rājate rajyāmānair jaraṭha kamalakandacchedagaurāṁmayūkhāḥ II 14 II"

Mallinātha (c.A.D. 1430) explains :

"Himaruṇiḥ candraḥ arupimna astasamayaraṇaḥ hetunā rajyāmānaiḥ lohitāyamānaiḥ I jaraṭhasya parīṇatasya kamalakandasya cehadāḥ iva gauriḥ sūbhrāḥ I chedagrahaṇau dhavalayarthāḥ I taill mayūkhiḥ kuṅkumena Kīnteṣ kīṭaḥ dhavalimabhadāḥ dhavalaya bhaṅgāḥ yeṣuṇa tais śabdabhagnadhavalaiḥ malayarunharajbohiḥ candanareṇubhiḥ iva pasrīṃ mās Śivya prasyaśīvā iti bhāvāḥ I bhūṣayan rājate I upamālākāra kīṭa II"

This is a beautiful description of the moon at sunset in the western quarter.
(paścimāśa) looks beautiful on account of the white moon's rays contrasted slightly with the red glow of the evening sky, (at sunset). The western quarter looks beautiful like a lady having on her body a mixture of white Malayaja dust (or paste) and the colour of saffron. The slight contrast of the white and saffron colour, instead of marring the beauty of the lady, only tends to heighten it.

This is the earliest reference to the Dhavalima or whiteness of the Malayā-born sandal so far discovered by me in Sanskrit literature. This reference is earlier than the reference to the Malayaja sandal and its whiteness referred to by Vāmana (c. A.D. 800) in his Kavyālambkāra, Sūtrakṛiti in his description of abhisārikās.

(50) Vṛnda in his Siddhayoga (ed. in Anandashram Sans. Series, Poona, 1894, p. 400—Chap. 56—masurikādhikāra, refers to two kinds of sandal, candanadvayam as follows:—

"Vāsam durālabhām dhatrimuṣirāṁ candanadvayam"
The commentator Śrīkanthadatta in his Vyakhyakusumāvali commentary (c. A.D. 1240) on the Siddhayoga of Vṛnda (9th or 10th cent. A.D.) explains the term candanadvayam as follows:—

"Candanadvayam śvetacandananām raktacandananām ca"

Elsewhere (p. 210) this commentator explains candana in the Siddhayoga as Śvetacandana and on p. 304 candana in Vṛnda is explained to mean śvetacandananām rakta-candananām (iti iśānāh)

(51) The theory adumbrated in the present paper that the Malayaja sandal is identical with white sandal gets additional support from the following evidence of the Bengali commentator Arunadatta (c. A.D. 1220):—

The Aṣṭāngahṛdaya (Śūtrasthāna, Chap. 15, verse 11, p. 235, of Paradkar Shastri's Edition, N. S. Press, Bombay, refers to a term śiśiradvayam in the following verse:—

"Sārivosīrakāśmaryamadhukāśiśiradvayam ā vāṣṭi paruṣakam hanti dāhapttaśratrādījvarān 11 11 11"

Arunadatta explains:—

"Śiśiradvayam-ekāṁ sitacandanaṁ malayajasamījñam anyadrakta-
candanāsamījñam."

26. See p. 179 of D. K. Shastri's "Āyurvedano Itihāsa" (Ahmedabad, 1942) where Kaviṛṣa Gaganāth Sen's view on this date for Vṛnda is quoted.
27. Vāsudeva in his Samkhya-yāna gṛhyasāmghraha, (Benares Sans. Series, 1908, p. 10) mentions Śītacandana:—

"Vivahakarma vakṣyāmaḥ | varaḥ snātaḥ kītalaṅkikamaṅgalāḥ sitacandanānuliptaḥ" etc.
Arunadatta states clearly that the term *śīrādavāyam* means two kinds of candana viz. (1) one, white sandal known as *mālayaṇa* and (2) the other known as the red sandal.

Elsewhere (p. 236 — Sūtrasthāna, Chap. 15, verse 19) Arunadatta explains the term *trihiṃa* mentioned in the *Aṣṭāṅgahṛdaya* as follows:

"Trihiṃaḥ candanatrayayam, *mālayaṇa* raktacandananadāruharidra-bhedena."

It is clear from the above evidence that in the medical circles of Bengal about A.D. 1200 a variety of sandal was known as *Mālayaṇa* and further this sandal was white, as expressly stated by Arunadatta.

We must now try to trace the earliest references to the *Mālayaṇa sandal*. With a view to helping further research in this subject I record below a tabular statement giving the chronology of the references to candana and its varieties as disclosed by the varied evidence gathered by me in this paper:

<table>
<thead>
<tr>
<th>Chronology</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between B.C. 100 and A.D. 300</td>
<td><em>Ramāyana</em> contains many references to candana, haricandana.</td>
</tr>
<tr>
<td>Between B.C. 300 and A.D. 400</td>
<td><em>Jātakas</em> mention candana and <em>Kāśika-candana</em>.</td>
</tr>
<tr>
<td>Between B.C. 200 and A.D. 300</td>
<td>References to sandal-water and red sandal-wood in the <em>Mahābhārata</em></td>
</tr>
<tr>
<td></td>
<td>(Dronaparva and Karnaparva).</td>
</tr>
<tr>
<td>c. 150 B.C.</td>
<td><em>Patañjali</em> in his <em>Mahābhāṣya</em> mentions candanagandha.</td>
</tr>
<tr>
<td>c. A.D. 80-90</td>
<td><em>Periplus of the Erythrean Sea</em> refers to Sandal-wood exported from Broach to a port at the mouth of Euphrates.</td>
</tr>
<tr>
<td>c. A.D. 150</td>
<td><em>Āśvaṅgoṣa</em> mentions candana and <em>Lohita candana</em> (Saundarananda).</td>
</tr>
<tr>
<td></td>
<td><em>Bhāradvāja-grhyasūtra</em>” (ed. by Salomon, Leyden, 1913) mentions “sārva- surabhpiṣṭam candanam ca” (II, 18-page 50) and “candanenānulepsyamānah” (II, 20-page 50).</td>
</tr>
<tr>
<td></td>
<td><em>Agniṃeṣṭya-grhyasūtra</em> (Trivandrum, 1940) mentions candana (p. 71) and raktacandana (p. 74). It refers to tāmbula-tāmbulādi dādyāt (p. 131).</td>
</tr>
</tbody>
</table>
—Āpastamba-ghṛtyasūtra (Benares, 1928) p. 165 mentions sārvasurabhīnacandana-nena (V, 12, Sutra 7).
—Harivamśa (of the Mahābhārata) mentions candana.
—Suśruta Samhita mentions candana many times.
—Bheda Samhita mentions candana and raktacandana.
—Kāśyapa Samhita mentions candana in chapter on dhūpas and elsewhere. It mentions raktacandana also.
—Caraka Samhita mentions candana many times. It mentions agrya candana (Dhavalacandana) according to Cakra-panidatta.
—Kāmasūtra mentions candana.
—Holy Bible (Kings X 11 etc.) mentions a tree called algum or almug which is sandal according to some authorities.
—Lalitavistara mentions candana many times.
—Kāraṇḍavyūha mentions candana etc.
—Guhyasamājatantra mentions candana karpura.
—Arthaśāstra mentions 15 varieties of candana with their colour and smell such as, gosīrṣaka, haricandana, tārṇasa, grāmeruka, daivasabheya, jāpaka, jongaka, taurūpa. ‘māleyakam’ described as pāṇḍurakta, kucandana, kalaparvataka, kośākāraparvata, sītodakīyam, nāgaparvataṁ, sākālam etc.
—The Jain work Jīvājīvabhīgamasūtra mentions malayacandana.
—Kālidāsa mentions candana as growing on malaya mountain (in Sakuntalam) as also Kṛṣṇasarpa associated with it. In Vikramorvaśīya he mentions malaya and in Rūsamhāra he refers to sitacandana (white sandal).
A.D. 399—414
—Fa-hsien refers to sandal-wood from Bull’s head (=gośīrṣa).

A.D. 478-479
—Reference to candana used by Jain Arhats (Paharpur inscription).

Between A.D. 200 and 400
—The Tamil epic Silappadikārām mentions candana.

Between A.D. 200 and 800
—Āryamaṇjuśrī-mūlakalpa mentions śvetacandana and suklacandana many times.

C.A.D. 500
—Malaya (sandal) mentioned in the gandhayukti section of Varāhamihira’s Brhat Samhitā.

A.D. 432-1200
—Early Bengal Inscriptions mention karpūra, malayaja (mentioned in Deopara Inscription) etc.

C.A.D. 545
—“Sandal-wood” (Cosmos in Cathay etc).

Between A.D. 500 and 1000
—Ahirbudhnya Samhitā mentions candana, Karpūra, Raktacandann.

Between A.D. 500 and 800
—Amarakośa mentions malayaja and other varieties of candana.

A.D. 750-800
—Śamkaracārya explains candananyāya of the Bādarāyana sūtras. He mentions Haricandana.

Between A.D. 500 and 800
—Pañcatantra states that candana grows nowhere else, except on Malaya mountain.

C. A.D. 600
—Dhanvantarinighāntu mentions malayaja, śvetacandana etc. among the names of candana.

C. A.D. 625
—Śaśvatakośa mentions haricandana.

C. A.D. 630
—Magha refers to the whiteness (Dhavalimā) of Malayaruha sandal dust in his Śiṣupālavādha (xi 14)

C. A.D. 650
—Bāna mentions malayaja, candana and Haricandana in his Kādambarī.

—Shaman Li mentions white candana trees on Malayagiri as also snakes frequenting these trees.
A.D. 671-672 —I-ting mentions sandal-wood paste.
   Candana and Gopicandana mentioned in late Vaiśṇava Upaniṣads like Vaiṣudeva-
   upanisad, Gopicandansupa. Rāmatapāni
   upa. etc.

A.D. 729-753 —Gaudavaho mentions malayabhava (=malayaja)
A.D. 755-786 —Kuṭṭaninmata refers to candanapāṅka, candana-
   dhupa etc.

A.D. 800-950 —Vṛnda in Siddhayoga mentions candanadvaya
   which Śrīkanṭhadatta (A.D. 1240) explains as
   (1) śvetacandana and (2) Raktacandana.

C. A.D. 800 —Vāmana in his Kāvyalāṁkārasūtravytti men-
   tions sandal in his description or abhisarikas
   going out in white moonlight to meet their
   lovers.

A.D. 880-920 —Rajāśekhara mentions malaya as the home of
   candana.

Between A.D. 900 and 1120 —Vaṅgasena mentions Śvetacandana (white
   sandal).

A.D. 973 —Dhanapāla mentions malayaruhāṁ candanaṁ
   (Paialacchināmamāla).

C. A.D. 1060 —Cakrapaṇidatta explains Agryacandana
   (mentioned by Caraka) as dhavalacandana
   (white sandal).

A.D. 1085 —Bilhana refers to sandal-wood forests on
   Malaya.

C. A.D. 1090 —Surasundaricaria mentions malayaruhā,.
   Malayaja.

C. A.D. 1130 —Manasollāsa describes a sandal root candan-
   amula.

C. A.D. 1100 —Aparārka mentions Śvetacandana.

C. A.D. 1100 —Mammarxa in his Kāvyaprakāśa mentions
   malayaja sandal in a verse (quoted from
   Vāmana’s Kāvyalāṁkārasūtravytti).

A.D. 1088-1172 —Hemacandra mentions 9 kinds of candana in-
   cluding Malayaja which he explains as
   “Malayādṛṣṭētāh”. He also mentions 6
   kinds of red sandal.

A.D. 1298 —“Sandal” (Marco Polo).
   —Marco Polo refers to white and red sandal
   trees in Nicobar islands.
A.D. 1240 — Śrikanthadatta mentions śvetacandana and Raktacandana.
A.D. 1250 — Ebn Baithar states that "sandal" betokens a wood brought from Chiña.
A.D. 1220 — Arunadatta states that sitacandana was known in his time as Malayaja (Malayajasāmīnjam).
A.D. 1300-1400 — Sarṅgadharasamhita mentions Tagaracandana which is translated as white sandal by the translator of this treatise.
c. A.D. 1325 — Sarṅgadharapaddhati mentions Malayaja (sandal).
A.D. 1390 — "Saunders" (Wright).
c. A.D. 1450 — Narahari in his Rajanighantu mentions two varieties of white sandal viz. (1) vetta and (2) Sukvaṭi. He further states that the hills called Vēṭṭa near Malaya produce Vēṭṭa candana.
c. A.D. 1550 — Bhavamīśra in his Bhāvaprakāsa mentions Dhavalacandana.
c. A.D. 1500 — Barbosa asserts that sandal occurs in Timor and in no other locality.
A.D. 1554 — "Santal" (Matthioli).
A.D. 1563 — "Sandal" growing in Timor called Chundana (Garcia).
A.D. 1584 — "Sandales" from Cochin and Malacca (Wm. Barret).
A.D. 1590 — Ain-i-Akbari mentions (1) candana as growing in China and (2) the plantation of candana trees in India in Akbar's reign.
A.D. 1613 — "Sandal trade" (Bocarro).
A.D. 1615 — "Sanders-wood" (Sainsbury).
A.D. 1618-1677 — Considerable trade in sandal-wood carried on by the East India Co.
A.D. 1807 — Buchanan refers to sandal trees in Mysore and Coorg.
A.D. 1813 — "Sandal" (red, yellow, white) — Milburn.
A.D. 1825 — "Red Saunders" (Milburn).
37. History of Mendi or Henna
(Between B. C. 2000 and A. D. 1850)*

In his "Ancient Egyptian Materials and Industries," A. Lucas1 deals with Cosmetics, Perfumes and Incense and observes: "Cosmetics are as old as vanity. In Egypt their use can be traced back to the earliest period of which burials have been found, and continues to the present day." About henna (Marathi हीना) Lucas records some valuable information which may be of interest to students of the history of Indian Cosmetics and Perfumery. I note some points from this information as they provide a historical back-ground for study of henna from Indian sources. These points are as follows:—

Pages 87-88 —

1. Egyptian unguents are described by Theophrastus, the Father of Greek botanical science and friend of Aristotle, as also by Pliny the Roman historian who died in 79 A.D.

2. Pliny (XII, 51) mentions an Egyptian unguent made from Cyprinum, an Egyptian tree, which was probably henna, the flowers of which are odoriferous.

3. "In connexion with henna it may be mentioned that the leaves were possibly used in ancient Egypt, much as they are today, in the form of a paste to colour the palms of hands, the soles of the feet, the nails and the hair. Thus the Romans certainly employed henna, an Egyptian shrub for colouring the hair (Pliny XXIII, 46) and probably, therefore, the Egyptians also, and Elliot Smith describes the hair of the mummy of Henttawi (XVIIIth Dynasty 1580 to 1350 B.C.) as being dyed a brilliant reddish colour, which he suggests, was done with henna. Naville states that the finger-nails of an Eleventh Dynasty (2160 and 1788 B.C.) mummy he examined were tinted with henna and Maspero thought that the hands of Ramesses II were stained "jaune-clair par les parfums," Elliot Smith, however, suggests that the latter were merely discoloured by the embalming material, which may be the case also with the mummy to


which Naville refers, as it almost certainly is with the staining of the finger nails of several mummies examined by the author. Newberry has identified twigs of henna from the Ptolemic cemetery of Hawara (W.M. Flinders Petrie, p. 50).

Page 243

(4) "The henna plant (Lawsonia inermis) is a perennial shrub that grows abundantly in Egypt; it is cultivated in gardens for its strong smelling flowers and as a farm crop for its leaves, the chief use of which is as an article of toilet, a paste being prepared from them, with which the hands, feet, nails, and hair are coloured red; a decoction of the leaves is stated to be occasionally used for dyeing cloth.

That the finger and the toe-nails of mummies are sometimes stained has often been noticed. Thus Rouyer says that certain mummies had the palms of the hands, the soles of the feet and the nails of the fingers and toes stained red with henna."

If the use of the henna plant products for staining the finger and toe-nails etc. was current in Egypt say about 2000 B.C. as claimed by several writers quoted by Lucas, we have to see when and how this "Egyptian shrub" migrated to India and its use for staining certain parts of the human body became current in this country. I propose, therefore, to record in this paper some data which might enable scholars to study the history of henna from Indian sources:

(1) In the Marathi Dictionary (Sabdakośa by Date and Karve, p. 2528) we are informed that the henna plant is identical with mendī (मेंदी). Its leaves mixed up with काँत and बुना are used by women for painting finger and toe-nails. A bunch of mendī fruits is called इसचंद and the attar from mendī flowers is called हिना (हिना). [Sanskrit—mendhi (मेंदी)].

The Sabdakośa does not record any usages of the word from Marathi literature.

(2) In Apte's Sanskrit-English Dictionary we find the following entry about mendī without any usage:

Page 879:—"मेंदीका, मेंदी—Name of a plant (Mar. मेंदी) from the leaves of which a reddish dye is extracted wherewith to colour the tips and nails of fingers, the soles of the feet and palms of the hand."

1. The Sabdakalpadruma (by Radha Kantadeva Bahadur) records the following entries about मेंदीका and मेंदी:—Vol. III, p. 782—"मेंदीका, रंगी (राजा श्रीमानन्दनाथलाल स्वामी) रंगी गोरोहित्। लघु पवित्र:। इतिकैतिष बहुत मेंदी केलिया।"

"मेंदी, रंगी, (राजा श्रीमानन्दनाथलाल) वैरित्यग्न रंगी गोरोहित्। लघु पवित्र:। इतिकैतिष बहुत मेंदी केलिया।"
(3) Brewer’s *Dictionary of Phrase and Fable* informs us as follows about *Henna*:

Page 598 — "Henna. The Persian ladies tinge the tips of their fingers with *henna* to make them a reddish yellow."

"The leaf of the *henna* plant resembles that of the myrtle. The blossom has a powerful fragrance; it grows like a feather about 18 inches long, forming a cluster of small yellow flowers."

—Baker: *Nile Tribes, Abyssinia*  Chap. i, p. 3.

(4) In the *New Encyclopaedia* (T.C. & E.C. Jack, London), p. 767, *Henna* is described as "the powdered leaves of *Lawsonia inermis*. These contain a red stain, used in *Persia* and *India* to dye the finger nails etc."

(5) According to *Shorter Oxford English Dictionary* (p. 890) the word appears to have been current in the English language for about 350 years as will be seen from the following entry:—

—"Henna...1600 [a. Arab. See also ALCANNA]. The Egyptian Privet *Lawsonia inermis* (N.O. *Lythraceae*); the shoots and leaves of this plant used especially in the East, as a dye for parts of the body, or made into a Cosmetic with *Catcehu*."

—"Alcanna — na. 1625 [a. Sp. alcana, a. Arab. al-henna: see *Henna* and *Alkanet*]. Bot. Egyptian Privet (*Lawsonia intermis*, N. O. *Lythraceae*) or its leaves, etc., used by Oriental to dye parts of the body reddish orange; *henna*.

—"Alkanet. ME. [?] ad. alcaneta, dim. of alcana...var. Orcanet. (1) Dye-material yielding a fine red colour. (2) The plant whose roots yield the dye *Anchusa* or *Alcanna tinctoria*, N. O. *Boraginaceae*; *Orchane*, Dyer’s or Sp. *Bugloss*, *Bugloss* of *Languedoc* 1567 etc. (L. *Canescens*)."

The above entries show how *Henna* and its products had entered the European languages and settled there from about A. D. 1550. Unfortunately in our dictionaries no usages of the word have been recorded, though the *Henna* plant under its vernacular name *mendi* (मेंडी) is now grown in different parts of India and its dye used by Indian women to dye their fingers and toe-nails as in ancient Egypt of c. 2000 B. C.

(6) In the *Hobson-Jobson* (by Yule and Burnell, London, 1903) we get the following information about *Mendi* or *Henna* plant:—

P. 567 — MENDY — S. Hind. *mehndi* [menhdi Skt., mendhika] the plant *Lawsonia alba*, Lam. of the N. O. *Lythraceae* strongly resembling...
the English privet in appearance and common in gardens. It is the plant whose leaves afford henna used so much in Mahomedan countries for dyeing the hands etc. and also in the process of dyeing the hair. Mehndi is according to Royle the Cyprus of the ancients (see Pliny xii, 24). It is also the Camphire of Canticles, i, 14, where the margin of A. V. has erroneously Cypress of Cyprus.

1813 — "After the girls are betrothed, the ends of the fingers and nails are dyed red with a preparation from Mendey or hinna shrub."

— (Forbes, Or. Mem., 2nd Ed. i, 55, also see i, 22).

C. 1817 — "... his house and garden might be known from a thousand others by their extraordinary neatness. His garden was full of trees and was well fenced round with a ditch and mindey hedge."

— Mrs. Sherwood's Stories, ed. 1873, p. 71.

These usages of Mendi or Henna do not help us very much to trace the history of this Egyptian shrub in India as they are later than A. D. 1800.

(7) Nityanāthasiddha in his Rasaratnākara (Vādikhanda, chap 6, p. 49 of the Edition by Rajavaidya J. K. Shastri, Gondal, 1940) describes लाम्बाराट्या as follows:

"भागा ब्राह्मण तारस्य घुल्कव्या भाग्योदेश्य।
ब्राह्मणः कार-yardm लिप्ता रूपा पुदे पनेतुम II ६६ II
महिन्द्रीपन्त्रीनरे वाराणिष्ठ नोडोव।
राग्गमदिलामागणनक्रमद्वृत्त्या विमार्शेतुम II ६७ II"

I am of opinion that the expression "महिन्द्रीपन्त्रीनरे." in this extract means "the decoction of the leaves of महिन्द्री or मेदी or Henna." If my identification of महिन्द्री with मेदी is accepted we have in the extract some evidence of the use of मेदी or Henna in Indian alchemy as early as the 13th century, to which Nityanātha Siddha has been assigned by scholars. Even if this identification of महिन्द्री with मेदी is not found acceptable it cannot be easily brushed aside as we find from the following reference that the word "मेदी" was actually current in India about 850 years ago.

(8) In the Suśrutaśamhitā (Cikitsāsthāna, chapter 25 मित्रणमितिकित, verse 43) the following verse refers to a plant called मदयनिकित and its

leaves (कद) in the preparation of a fragrant unguent* (अद्वर्ज्ञ) worthy of
kings (नरदेव-नोभक्ष) :

(P. 496 N. S. Press Edition, 1936)—

“हरीतकीचुृःशिरस्वर्तः
चुृःआदिमुःपुनःस्तम्भः।
पशुं च द्याभमधीन्तिकाया
स्योऽिज्ञापितो नरदेवऽयोः।॥४१॥”

Dallana (c. A. D. 1100) the Kashmirian commentator of the
Suṣṛutasamhitā comments on the above verse as follows :

“हरीतक्यादि। श्रिनिवशेऽनन्दवर्त्तैं केनिलिङ्गपत्रायं। चुृःआदिमुः भावतः। मद्यनिका
‘मेदी’ इति लोको वस्या: पिन्दे: पत्रे: नखाना राग्य सिय अत्याधुनित।॥४३॥”

Dallana states that मद्यनिका mentioned by the Suṣṛutasamhitā is
identical with the plant ‘मेदी’ known in his days (c. A. D. 1100). He further
takes care to inform us that ladies use the powder and leaves of बेदी to
paint their nails. This explanation clearly proves that बेदी was cultivated
in India in Dallana’s time. If Dallana’s equation of मद्यनिका with बेदी
(or Henna) is supported by other earlier evidence we shall be in a position
to infer that this Egyptian shrub entered India during the early centuries
of the Christian era when the text of the Suṣṛutasamhitā was composed.

(9) Thakoresaheb of Gondal in his History of Aryan Medical
Science (London, 1896) refers in the following remarks to Henna among
new additions to Indian Materia Medica :

Pages 122-123 — "About the middle of the present century, that is to
say in 1867, Pandit Vishnu Vasudev Godbole published his “Nighantaratnakara.” It is a very popular work as it contains an epitome of all the

2. In this unguent no fat or oil is mentioned as a constituent, but in verse 40 Suṣṛuta
refers to a fatty preparation for the face as follows :

“मेदी मज्जा रिक्यत्र्यो गोहरुत्च
दुधाः काः: श्रीरिज्ञानां च स मायामः।
एतस्य रक्षेष्येश्वरन्यु कपक्षाधिक्य मधामः।॥ ४० ॥”

Lucas (p. 85) states that in ancient Egyptian Cosmetics oils and fats were freely used as
vouched by ancient records, and by Greek and Roman writers. The use of alcohol in the
perfumery of modern times which requires a knowledge of the process of distillation cannot
have been known in ancient Egypt. The earliest reference to this process is that by Aristotle
(Meteorologica I, 9, 11; II, 11, 3) in 4th cent. B. C. Theophrastus (4th to 3rd cent. B. C.)
and Pliny (1st. cent. A. D.) mention distillation, though the process was then in a primitive
state. In Pliny’s days and in the time of Theophrastus plants were steeped in oil and then
pressed or boiled in oil,
previous treatises on Materia Medica, supplemented by about fifty new herbs not referred to by older writers. Among the new names we find Elivaka (aloes), 1 Anannasa 2 (pine-apple), Peruka (guava) 3 , Tamakhu (tobacco), 4 Pudina (mint), Medica 5 (henna), Sitaphala 6 (custard apple), etc.

While admitting that Henna is a new comer to India I may observe that it migrated to this country sometime before A. D. 1100. The exact period of this migration, whether it was before the Muslim conquest of Sindh in A. D. 712 or after it, needs to be determined on documentary evidence. In this connection I may point out that Dallana, who equates मदधनिका (of मुक्त) with मेंदी or Henna, elsewhere equates अचाबला plant mentioned by मुल्त with हिस्फिल्व of the श्रृंग country and further states that अचाबला is a kind of नेमिका with large leaves. In my paper 7 on Āsvabala I have recorded Prof. A. K. Shaikh’s view that हिसफिल्व mentioned by Dallana is equal to the Persian word “Ispist” or “Aspist”, which means a fodder for horses, used in India, Persia and Turkey and known as “Lucerne grass.” Is it possible to suppose that this हिसफिल्व or a variety of नेमिका came to India along with Persian horses 8 which were imported to India from very early times? If such a supposition is historically tenable it may be possible to presume that the words मदधनिका and अचाबला equated by Dallana with मेंदी or henna and हिसफिल्व or a variety of नेमिका respectively, were Indian names of foreign plants, which migrated to India long before the Muslim conquest of Sindh in A. D. 712. We must, however, collect more data pertaining to the relics of early Indo-Persian contact in the wealth of linguistic material bearing on materia medica available in the early medical texts like the Carakasamhita, the Susrutasamhita etc. In this way alone we can understand the historical background of each item in the ancient Indian materia medica, which got enriched by foreign contact through centuries of political and cultural vicissitudes.

1. Vide article on Alos in Hobson-Jobson (p. 16). Pliny (A. D. 70) states: "The best Aloe (Latin the same) is brought out of India."
2. Vide article in Hobson-Jobson (pp. 25-28) — Usages of ‘Pine-apple’ recorded here are from A. D. 1585 onwards.
3. Vide Hobson-Jobson (pp. 399-400) — Usages from A. D. 1550.
5. Ibid, p. 567 (Mundy).
7. See pp. 67-80 of Bharatiya Vidya, July 1946.
(10) In the Ain-i-Akbari (c. A. D. 1590) Abul Fazl records the Regulations of the Perfume Office (Pages 65-75 of Gladwin's Trans. Vol. I, Calcutta, 1897) in which there is a list of Flowers. This list contains Henna, which is described (p. 72) as follows:—

"Henna has four petals and every shrub bears a different coloured flower."

Elsewhere (p. 328) the Ain-i-Akbari refers to Henna as follows:—

"Excellent Henna of a high colour is also to be procured here (i.e. at Byaneh in the Soobah of Agra). Perhaps the oil of Henna is meant in this reference.

I may note here that the Rajavyawaharakośa (c. A.D. 1676) composed by Raghunātha Pandita mentions cosmetics and perfumes with some foreign names for them current in the 17th century. There is no reference to Henna in the verses which mention these cosmetics and perfumes.

(11) As regards Madanantika equated by Dallana with मेदी (or Henna) I have to observe that this word is found in the Asťangasamgraha of Vāgbhaṭa II (about 8th or 9th century A. D.) in the following contexts:—

(i) चिकित्सितस्याः (chap. 2, verse 27 — p. 579 of N. S. Press Edition, 1939). In the treatment of leprosy or रक्तपित वाग्भटा prescribes Madanantika along with other drugs as follows:—

"पिठोलामालसतोभवन्द्रकायप्रकामः।
रूपों युक्तस्तनुतीपः कुमारःश्रमसद्वन्निकाः॥ २७॥"

Hemadri (A. D. 1260) explains Madanantika as यूषिदिका, which is a kind of Jasmine.

1. See राजस्थवाहरकोष (Shivaji Press, Poona, 1880, p. 8) मोगर्व — Verses 90-94 read as follows:—

"रुषौवृक्ष इति तु प्राणुः सुगन्धिमद्वन्नामकमः।
कुष्ठीरुषौवृक्षिनयुक्तास्मात्मविलक्षबद्धः।॥ ६०॥
सोचा त्वास्तिः स्वात्मश्रवणमात्रायज्ञायः।
जावादी नाम भोजारमदहस्मानन्ति हि ॥ ६१॥
सुकुलाः: स्याहज्जहा चूर्णमास्तिम:।
चत्तर: चुर्णमात: स्याहस्त्वकरकस्तामकमः।॥ ६२॥
सका दो मुखाः: स्यात्केतिः जातकर्णामः।
समकरीतितिम: मोगर्वार्थिन्युक्तिमात्रायः।॥ ६३॥
तथा चर्मदीपकेताः चार्मिन्तिति क्रृष्णितान:।
उद्दो धृतिं लितपार्व स्वाहाययामितिरिताः॥ ६४॥

I cannot say if the term अर्ब in verse 92 includes the attar of Ross and the attar of Henna.
Studies in Indian Cultural History

(ii) उत्तरवतन (chap. 7 — अवस्थानस्मित्रेश — verse 22) p. 803—Here मद्यलन्ती is a constituent of the प्रथमेय preparation but the commentator Arunadatta does not explain the word.

The Āṣṭāṅgasamgraha of Vāgbhata I (c. 625 A. D.,) refers to मद्यन्तिका (उत्तरवतन — chap. 8 — अवस्थानाविवि — p. 78 of Chitrashala Press Edition, Poona, 1940) as an antidote against poison as follows:—

“तत्तत्रतित्विववेलाताकामाच्छन्दमध्यन्तिकाकलके चीरसिद्ध
सर्वसम्भवे पाने च विद्ध्वातू॥ ३८॥”

The commentator हेतु does not explain the word मद्यन्तिका but the editor Pt. R. D. Kinjavadekar explains it as मल्लिका (मोगरी, बलमोगरा).

The Amarakośa does not contain the word “मद्यन्तिका” though it mentions चूर्णिका. The lexicon Vaijayanti (c. A. D. 1500) refers to मद्यलन्ती in the following line:—

“शत्तीमद्यलन्ती गबाची तुणाचूर्णकर्म” (see p. 60 of Gustav Oppert’s Edition of Vaijayanti). Oppert explains मद्यलन्ती as “Arabian jasmine ... Tamil: Mallikai”.

In view of the above evidence about मद्यन्तिका which contradicts Dallana’s equation “मद्यन्तिका = मंदी” we cannot be sure if the term मद्यन्तिका does really mean मंदी or Henna. We must, therefore, try to find out some explanation of मद्यन्तिका in sources earlier than A. D. 1000.

(12) Mr. K. M. Vaidya in his आधुनिकदक्ष (Trichur, 1936, p. 418) explains मद्यन्तिका as “नलक्षको नाम प्रतिक्रियाएँ: म स्वायः पिते: प्रत्येकानां रागां चिन्त उत्तरवतन। “प च द्वानान्यकाली लेखोपकारां नद्यकोपोऽपूर्वव:” इति सुधूरः।”. He then records the vernacular and foreign names of मद्यन्तिका as follows:—

हिं — मेहेदी, मेहेदी, महानेत्र; भं — मेहेदी, मेहेदी, मेहेदी .... पा (Persian) — हिना; अर (Arabic)

योराहा, हिना श्राकार कामद्रुम ....... ह Tulu ?) — मतरंगिंग; French — Henna; English — Henna Samphire; Latin — Lawsonia alba.

नामांनि — “तिम्मर कृत्रक्ति च हिंदुक्ति नजरंजकाः”

गुणाः — “रकर्षण राहृश्री बालासाहित्यकलमुकुकुरा।

वीजमुद्धर नास्ति कर्त्त च प्रकृतिपत्तम्।

मुन्नरहाणां दीर्घ च स्वरे चौद्विनाशयेत्”

Vaidya remarks:—“मल्लिका इति बहुः। नवमक्षिका इति एके ।। He explains नलक्षका as “नलक्षकः। चातकी इति इन्दुः। कामलक्षिका 'इति हारायणं।”

1. This statement is taken from Dallāya’s commentary on स्वायम as I have already shown in this paper.
(13) *Rasārnava* (c. 12th century A.D.) an important work on alchemy (ed. by Sir P. C. Ray and Pandita Harischandra Kaviratna in *Bib. Indica*, Calcutta, 1910) refers to मद्यन्तिका in the following extract from its 5th पाताला (सौष्ठवित्ति):—

Page 66 — "मध्यन्तिका सुखम् लाभ्या विदर्शनान्तया।
रत्नवाल्ल्ये वेदेिशि—पीतवर्णमिका: श्रेष्ठ।
कुक्कुम्मा किणुर्का राजादृशोऽपत्तो: मद्यन्तिका। II ३६ II"


As मद्यन्तिका is included in the पीतवर्ण or plants yielding yellow dye it is difficult to equate it with *Henna* which produced red or reddish dye.

(14) While this paper was being drafted I discovered the following additional references to मद्यन्तिका in the *Suśrutasamhitā*—

(i) *चिकित्सासाह्य*—chapter 2 (सौष्ठवित्ति) —कः—

Page 414 — "सैवली जालिनी चेत्र मद्यन्ती युगादनी" (verse 91).

*Ｄａｌलाना* explains:—

"सैवली मनः शिला। जालिनी कोशालाकी।
मद्यन्ती मैनिन्दरका नखः खऽ। युगादनी इत्यादित्वादी।" etc.

(ii) *चिकित्सासाह्य*—chap. 9, verse 34—

Page 445—“तिक्कुला त्वः तिक्कुला दुरसा मद्यन्तिका"

*Ｄａललाना* explains:—

"मद्यन्तिका मद्यन्तिका मद्यन्तिका महानी (v. 1. मद्यन्ती) इति प्रसिद्धा।"

*Ｄａललाना* further quotes a passage from बुद्धवामदीयाय (i.e. बुद्धवामदीयाय of Vāgbhata, I) in which मद्यन्ती is mentioned:—

"... बृद्धवामदीयाय महानीयापुरुषोऽसि वेदा। यथा—
मद्यन्तिका: समायमा: सुरुम्या: प्रभायस्य च" etc. (चि. २)

(iii) *चिकित्सासाह्य*—chapter II, para 10 refers to "त्रायन्तिका" as follows:—

Page 453 — "तत: संक्षिप्त अनन्तापूर्विकापदोऽनन्ततिका ..."

*Ｄａललाना* explains:—

"त्रायन्तिका मद्यन्तिका।" ¹

¹ In शुचि, चिकित्सासाह्य, Chap. 25 we get a reference to "मद्यन्ती" which *Ｄａललाना* explains as "मध्यन्तिका":—

Page 496—Verse 33:—"पिण्यास्य सांस्या भेद मद्यन्तिका"

*Ｄａललाना*: "मद्यन्ती मल्लिकर्णिका योगसे विषाला.

In verse 43 मद्यन्तिका ( = मेंदी) is referred to by शुचि.
From the references recorded above we get the following equations according to Dallana:

(1) मद्यन्ती or मद्यन्तिका—मेन्द्रिका, मेहंदी (नखादि रागरजनी or नखरजनी) (v. 1. महिन्द्री)

(2) मद्यन्तिका = नायन्तिका (सुषुत)

(3) मद्यन्ती = महिका

I cannot say if नायन्तिका in Suśruta means मेन्द्रि (Henna), as in the भारतगहुल्कोष it is equated with नायमाण्णा (p. 275) and variously explained.

It is noteworthy that Dallana distinguishes between मद्यन्ती and मद्यन्तिका. Hemadri explains मद्यन्तिका as यूथिका as we have already stated. The Dhanvantari Nighantu as quoted in the भारतगहुल्कोष (p. 430) also mentions मद्यन्ती as the name of महिका.

Whatever be the real meaning of मद्यन्ती or मद्यन्तिका mentioned in the Suśruta the fact remains that in Dallana’s time (c. A. D. 1100) it was understood as equivalent to मेन्द्रि or मेन्द्रिका or मेहंदी with its use for colouring the nails etc. as mentioned by Dallana three times in explaining the word मद्यन्तिका.

P.S. — My friend and colleague Mr. G.N. Shrigondekar, Librarian, B. O. R. Institute, informs me about the uses of Mendi now current in Mahārāṣṭra as follows:— “Ladies generally apply Mendi to the palms of hands, soles of feet and the forehead (between the eye—brows) and the nails of fingers in the month of Śrāvana on the Nāgapaṇcami day. Mendi is also used by ladies during the 7th, 8th and 9th months of their first pregnancy.” I am thankful to Mr. Shrigondekar for this information. It is curious to note how this foreign shrub, Mendi, should get settled in India for more than a thousand years and also get identified with Indian life and culture, with its great capacity for absorbing all good and useful elements of foreign cultures.

Śrikanthadatta (c. A. D. 1240) in his comm. on Vṛnda’s Siddhayoga (Ānandaśrama, Poona, 1894, p. 304) equates मद्यन्तिका with “मेहंदी” in explaining an unguent (अर्जराग) mentioned by Vṛnda (जह धाराधारविचि).
38. Some Notes on the History of the Almond (Badām) in India Between c. A. D. 100 and 1900*

Among nuts of great nutritive value the almond plays an important role. The Indian gymnasts are in the habit of eating almonds daily on account of their strength-giving properties. The almonds are largely used in Indian confectionery and cookery. The physicians also prescribe preparations of almonds for their patients after certain stages of recovery from serious types of illness. In view of this importance of the almond in Indian life and culture it is worth while recording some notes on the history of the almond in India on the strength of Indian sources.

The Marathi Dictionary Sabdakośa by Y. R. Date and C. G. Karve, Poona, Vol. V (1936), p. 2215, records the word badām in the sense of almond but does not give any usages of the word which might enable us to determine the exact time when the badām became current in the Marathi language. This Dictionary records badām as the Persian word for the almond from which the Marathi word badām is evidently derived. I shall now try to trace the history of badām in the Sanskrit sources.

(1) Bhāvamisra (c. A. D. 1550) mentions about "150 drugs (in his Bhavaprakāśa) more than are found in Dhanvantari Nighantu. such as Ahiphena (opium), Khakhas (poppy seeds), Kusumba (safflower), Methica (fenu-greek), Vatavairi (almond) etc." 1

(2) K. M. Vaidya records the following references to Vatāma (=almond) on p. 513 of his Aṣṭāṅgahṛdayakośa, Trichur, 1936:—

(i) The Aṣṭāṅgahṛdaya of Vāgbhaṭa (about A. D. 850 according to Prof. Dinesh Chandra Bhattacharya) 2 refers to Vatāma in the

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2. See p. 135 of Indian Historical Quarterly (June 1947). Prof. Bhattacharya rejects Dr. Hoernle’s chronology for medical works and records his own tentative scheme as follows:—

Before A. D. 600 — Haricandra,
Before A. D. 600 and 900 — Ayurvedasara, Bindusara, Siddhasara etc.
About A. D. 850 — Vagbhaṭa.
A. D. 900-925 — Madhavakara, who comes after Jejjāṭa according to Nis’cala.
About A. D. 950 — Candraṭa.
A. D. 975-1000 — Vindakundia.
A. D. 1040-1050 — Cakrapāṇi.
Studies in Indian Cultural History

Sūrāṣṭhāna, chapter 6, verses 120 and 123 (Pages 110 and 111 of N.S. Press Edition, 1939) :

"वातामाभिनुका चौढ़ल्लकालिकोषकम्" ||१२०||

"वातामायुर्वीचि तु कफपितकर सरम्" ||१२१||

Hemādri comments:— "वातामायुर्वाचार्यप्राप्यस्तिमां वातामायुर्वाचार्यस्तिमां वातामायुर्वाचार्यस्तिमां सदनयुर्वाचार्यस्तिमां सदनयुर्वाचार्यस्तिमां निकोषकं-श्र्योकर-फलस्यामि। प्रियालों चार्यस्तिमां।

(ii) The Bhavaprakāśa gives the names of vātāma as follows:—

"वातादो वातचार्य स्थानोपयोगफलस्यामि।"

and also mentions its properties:—

"वाताद उष्ण शुद्धिवशो वातचा पुकाक। गुद्। वातावसज्जा मधुरे दृष्य:। पिच्छनवचाय:। शिवभोगः। कफःकृतेऽर्थो रक्तपिस्विकारिजाम्।"

(3) The Aṣṭāngasamgraha of Vāgbhaṭa refers to Vātāma in the following verse:—

"वातामाभिनुकोत्तममुक्लक्किनीकोषकम्।

उकमांषिप्रियालों च बुद्धशं गुद् शीतलाम् ||१७०||"

(Sūrāṣṭhāna, edited by V. R. Kinjawadekar, Poona, 1940, p. 62, chap. VII—श्रवस्वकविजायम्). The properties of Vātāma are referred in the following line of verse 176:—

"वातामायुर्वीचि तु कफपितकर सरम्।"

According to Hoernle Vāgbhaṭa I, the author of the Aṣṭāngasamgraha belongs to about A. D. 625, while Vāgbhaṭa II, the author of the Aṣṭāṅgahrdaya belongs to 8th or 9th cent. A. D. Prof. Dinesh Chandra Bhattacharya does not believe in this theory of two persons of the name Vāgbhaṭa. He believes that the Aṣṭāṅgahrdaya and the Aṣṭāṅgasamgraha are the works of one author Vāgbhaṭa, who flourished about A. D. 850.¹

(4) The Suṣrutasamhita (Sūrāṣṭhāna, chap. 46, p. 228 of N. S. Press Edition, Bombay, 1938) mentions Vātāma in the following line:—

"वातामास्य—श्रंकोत्तम—श्रमिन्दुक—निचुल—पित्रु—निकोषक—प्रभृतीति।||१८७||"

The commentator Dallana (c. A.D. 1200 according to Dinesh Chandra Bhattacharya) states that *Vatama* (almond) and other fruits mentioned by *Suśruta* belong to *Uttarāpatha* or northern region ("वातामः शौनिति उत्तरापथे जातामि कत्रेष्व मध्वानि"). Dallana records the views of other commentators on *Vatama* and other names of fruits (mentioned by *Suśruta*) as follows:

"केचिद् व्यास्यान्ति —

वातामः—मन्त्रसुरस्ना दीर्घाकारः |

अवोऽ—मदनफलाकारस्य मध्ये किंचिदनतिरलस्यिनः

पर्वतिल्लोऽ "ब्रह्मोरो" इति लोके |

सहसिद्रुकः—"हृदिवृ" इति लोके |

निकोचकम्—श्रीतरापिधिक्षयेकोभकलम् |

उत्तरापथावथगनयम् |

(5) The *Carakasamhitā* (*Sūrasthāna*, chap. 27, verse 157, p. 161 of N.S. Press Edition, Bombay, 1941) also refers to *Vatama* (almond) in the following verse:

"वातामाभिषुकाभोदπसूकलक्षीतिचकः |

गुह्वामन्त्रायमुर्तिः सोचमाया बलपदः ॥१५३॥"

The commentator Cakrapāṇidatta (c. A.D. 1050) observes:

"वातामाद्यः श्रीतरापिधिकः |

In view of these references to *Vatama* (almond) in earliest medical texts, the *Suśrutasaṃhitā* and the *Carakasamhitā*, as recorded above the statement of Watt (*Dictionary of Economic Products of India*, Vol. VI, Part I, p. 343) that almond is "not mentioned by older writers" is obviously incorrect.

The statement of Cakrapāṇidatta (c. A.D. 1050), Dallana (c. A.D. 1200) and Hemāḍri (c. A.D. 1260) that *Vatama* belongs to *Uttarāpatha* or northern region is correct. When Ibn Battuta (A.D. 1325-1354) visited the Governor of Multan he presented this Governor "some raisins and almonds." In this connection he observes:—"These are among the greatest gifts that can be made to them, since they do not grow in their

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1. See p. 132 of *Indian Hist. Quarterly* (June 1947)—"Dallapa's date is about 1200 A.D., being cited by Hemāḍri, and himself citing Halāyudha."

2. *Quintus Curtius* [VII, 4, 26 (18)] speaks highly of "orchards and vineyards of Bactria (Bāhlika) the heart of ancient Iran which was directly in the great trade route to India. (See p. 3 of *Bactria* by H. G. Rawlinson, Bombay, 1909). The fruits like *vatama* etc. mentioned by *Suśruta* were possibly from ancient Iran where they were produced in abundance."
land and are imported from Khurāsān."¹ In the light of this statement we may safely conclude that almonds (Vātama) were imported into India from Uttarapatha or northern region viz. Persia or Khurāsān specifically as stated by Battuta as they were not grown in India. Very probably the trade in almonds and other dried fruits from Persia with India was carried on from great antiquity.² This presumption is supported by the references to Vatama (almonds) in the Carakasamhitā and the Susrutasaṃhitā as we have noted above. The continuity of this trade is further vouched by Bernier,³ who mentions that "Hindoustan consumes an immense quantity of fresh fruit from Samarakand, Bali (Balkh), Bocara and Persia, such as melons, apples, pears, and grapes," "and likewise dried fruits, such as almonds, pistachio, and various other small nuts, plums, apricots, and raisins." It is worth while tracing the history of foreign dried and fresh fruit imported into India from ancient times to the present day by sea and land. The early Sanskrit medical texts and their voluminous commentaries, if studied minutely, will yield ample material for such a study.

(6) Vaidya Bapalal G. Shah in his Nighantu Ādara, Vol. I (Ahmedabad, 1927), pp. 479-480 quotes the following verses from the Bhavaprakāsha (c. A.D. 1550) and from the Madanapala nighantu (c. A.D. 1375):

bhāvaprakāsha—
"vātād uṇāḥ suṣrinnabh vātānāḥ āyukṛtā gūḍh.  
vātādā vātādā māhu rō būṣhā piṭāniśāpāh. ||"

et c.

madanapalaniḥśod—
"vātāmāmyuṣnāḥ suṣrinnabh vātānāḥ balaśyukṛtād. ||"

nighaṭṭaraukār—
"vātādāmā nārākāmā nārāmā māhu rō: κफप्रद: ||" etc.

2. Compare the anecdote about Syrian figs and raisin wine sent by Antiochos Soter of Syria to Bindusāra (B. C. 208) the father of Emperor Asoka. This anecdote is "a tangible proof of the familiar intercourse between the Sovereign of India and his ally in Western Asia" observes Vincent Smith (See p. 147 of Early History of India, Oxford, 1914).
4. The Rajanighaṇṭu (Anandashram, Poona, 1896) of Narahari (c. A. D. 1450) mentions a variety of grapes from Uttarapatha:—

Page 179 — द्राजा — "उद्यानविनिक ग्रीवा धनुषा श्रीलोकमा | स्वारापाक कुष्ठा नुवेता गोतनी हस्ता ||"
It is a matter for investigation whether any almond trees were cultivated in India between c. A.D. 1375 when the Madanapalanigbhu was composed and c. A.D. 1550, the date of the Bhavaprakasa of Bhavamisra. I may here record the evidence of Ain-i-Akbari (c. A.D. 1590) regarding the almond as follows:—


"The Fruiter—His Majesty is exceedingly fond of fruit, and by the great encouragement he has given to the cultivation of fruit-trees, skilful people have come with their families from Persia and Tartary and settled in this country."

"...... peaches, almonds, pistachios, pomegranates and many other fruits, have been introduced into Hindustan."

Page 63 — In the list of Tartarian Fruits almonds are mentioned as follows:—

"Almonds — 28 Dams per Seer
Almonds in the Shell — 11 Dams per Seer."

The above evidence warrants an inference that almonds were not grown in India prior to Akbar's reign, but Akbar encouraged their cultivation in India along with the cultivation of many other Tartarian fruits by bringing expert horticulturists from Persia and Tartary.

If the reference to Vātama (almond in the Carakasamhitā) is genuine we can compare it to the references to the almond made by Pliny the Elder (A.D. 23-79) in his Natural History (Books XII-XVI Trans. by H. Rackham, Loeb Classical Library, London, 1945). In particular the following remarks of Pliny on the almond are noteworthy:—Page 351—Books XV-XXIV, 88-91:—

"A third variety of the nut class is the almond, which has an outer integument like that of the walnut, but thinner, and also a second covering consisting of a shell, but the kernel is unlike a walnut's in its breadth and its hard part is more bitter. It is doubtful whether this tree existed in

1. A.K. Nairne in his Flowering Plants of Western India (London, 1894, p. 107) mentions the almond tree, badam, Prunus amygdalus as cultivated in the Deccan, along with the Strawberry, the peach tree and various roses.
Italy in the time of Cato, 1 as he calls almonds "Greek nuts" a name which some people also retain in the class of walnuts. At the present day the almond of Thasos and Alba are famous, and two kinds grown at Taranto, one with a brittle shell and the other with a hard shell which are very large in size and very little rounded in shape ... ... the pistachio (see Book XIII, 51. §83). This also was likewise first brought into Italy at the same time and it was simultaneously introduced into Spain by Pompeius Flaccus, Knight of Rome, who was serving with Vitellius."

Page 479—"In the actual neighbourhood of Rome Chestnuts and Cherries only grow with reluctance and the peach-tree round Tusculum and almonds are laboriously grown from graft, also Tarracina teems with whole woods of them."

The cultivation of almond trees in Italy many years before the time of Pliny is conclusively proved by the foregoing extracts. Unfortunately we have no means of determining if the almond trees were cultivated in India during the first few centuries of the Christian era, during which the early medical texts of Caraka and Suśruta, which mention Vatāma (almond) and its properties, were composed. So far I have not traced any references to Vatāma in Sanskrit non-medical texts, early or late.

(7) Katābhāṭ in his Nighañṭasamgraha (Junagadh, 1893, pp. 542-543) quotes verses about almond from the Bhāvarakṛṣā, Madanapalanighañṭu, Nighañṭarātākara. He quotes the following verse of Śivadatta:

"वातादीपितम्भग्राहेऽवेदोपप्रसमधलत्वाः
 मदरस्यैव दीपितग्रहेऽद्वम् || इति शास्त्रवत्:"


(1) M. Porcius Cato or Cato Major or the Censor (born B. C. 234 and died in B. C. 149 at the age of 85) wrote several works, of which only the De Re Rustica on agriculture has come down to us,

(2) M. Porcius Cato, great grandson of the above Cato was born in B. C. 95. He was an adherent of the Stoic School and noted for his rigid morality. He put an end to his own life to avoid falling into the hands of Caesar, his enemy.

Possibly Pliny refers to Cato Major, the author of De Re Rustica.

2. My friend Diwan Bahadur K. M. Jhaveri in his letter to me of 24-5-49 makes the following remarks about the almond:—

"The information sent by you...badam, as we call it in Gujarati you say is badam; you also know that ayes are compared to badam (cf. the epithet 'natropamaphala' and a weeping eye is called "निमुद्ध फसान बादाम" in Persian. Thus it has passed from a dried nut into a poet's fancy."
History of the Almond (Badam) in India

Possibly this verse belongs to the Śivakośa, a medical lexicon by Śivadatta, known as Karpurīya Śivadatta (Between A. D. 1625 and 1700 — see my article in the Poona Orientalist, Vol. VII, Parts 1 and 2, pp. 66-70).

(8) Having recorded some data about the history of the almond (vātāma) in India as revealed by Sanskrit medical texts we are in a position to consider its history outside India. In this connection the following notes from the chapter on Almond from “Sino-Iranica” by Berthold Laufer, Chicago, 1919, pp. 405-409, will be found very illuminating:

Page 405 — Iran was the centre from which the almond (Amygdalus Communis or Prunus amygdalus) spread to Europe, China, Tibet and India. In India the almond is cultivated occasionally in Kashmir and the Panjab, where its fruits are mediocre. “It was doubtless imported from Iran,” The almond yields a gum, which is still exported from Persia to Bombay and thence re-exported to Europe. The almond grows spontaneously in Afghanistan, the Zarafshan valley, and in the Chotkal mountains as also in Aderbeidjan, Kurdistan and Mesopotamia.

— The Greeks derived the almond from Asia Minor and from Greece it was apparently introduced into Italy. The Persian kings made use of the almonds daily. The almond is mentioned in Pahlvi literature.

— The Arabic name of the almond is lewze lauz. Under this name Abu Mansur (A.D. 970) in his Persian pharmacopoeia mentions its properties. He also mentions sweet almond (badām-i-Sirin) and bitter almond (badām-i-talx).

— Bitter almonds were used as a currency in Gujarat, where they were brought from Persia in the time of Aurangzeb. There is no fear that children will amuse themselves by eating them (See Tavernier’s Travels, Vol. I, p. 27).

Page 406 — Names for almond in different languages:

2. Middle Persian — vadam.
5. Tibetan — ba-dam.
7. Sanskrit — vātāma or bādama, derived from the Middle Persian.

— Arab merchant Soleiman (A. D. 851) mentions almonds among the fruit growing in China.
Page 409 — The old tradition concerning the origin of the almond in Persia is still alive in modern Chinese authors.

— "It may be of course, that the almond has shared the fate of the date-palm, and that its cultivation is now extinct in China."

I hope the data collected in this paper about the history of the almond (badam) in India and outside would be useful not only to the students of the history of Indian Materia Medica but also to the students who care to investigate the history of Indian culture and its indebtedness to other countries in direct or indirect cultural contact with India for more than two thousand years.
39. The Use of the White Mustard in Ancient and Medieval India*

Vaidya Bapalal G. Shah in his *Vegetable Materia Medica (Nīgānṭu Ādara)* Part I, Ahmedabad, 1927, pp. 77-78, records some Sanskrit medical texts dealing with the use and properties of the *sarsapā* (mustard) plant and its products. We notice in these texts two kinds of *sarsapā*: (1) *gaura* (white) and (2) *rakta* (red). I am concerned in this paper with the white variety and its uses as known to ancient and medieval India. The following table will show at a glance the references to the white mustard and its uses as vouched by medical texts, early and late:—

<table>
<thead>
<tr>
<th>Text</th>
<th>Chronology</th>
<th>Use &amp; Properties of <em>gaura-sarsapā</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>Harita-Samhita</td>
<td></td>
<td>-Prescribed against</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1) <em>apasmara</em> (epilepsy)</td>
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<tr>
<td></td>
<td></td>
<td>(2) <em>unmāda</em> (lunacy)</td>
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<tr>
<td>Dhanvantari-Nighantu</td>
<td>Before 800 A.D.</td>
<td>-Prescribed against</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1) <em>kṛimi</em> (worms)</td>
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<tr>
<td></td>
<td></td>
<td>(2) <em>ama</em> (indigestion)</td>
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<td></td>
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<td>(3) <em>kaṇḍā</em> (itching or itch)</td>
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<td></td>
<td></td>
<td>(4) <em>kuṣṭha</em> (leprosy)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(5) <em>śruti-śrīṣa-anilārti</em> (certain diseases of the ear and head)</td>
</tr>
<tr>
<td>Āṣṭāṅga-Samgraha</td>
<td>8th or 9th cent A.D.</td>
<td>-White mustard (<em>śveta sarsapā</em>) used in an antidote against poison called <em>saunyā</em> (v. 113)</td>
</tr>
<tr>
<td>(śūrasrāthana, ch. 8, vv. 113, 126)</td>
<td></td>
<td>-White mustard in the decoction to be added to water for bath (v. 126)</td>
</tr>
<tr>
<td>Vāṅga-Sena</td>
<td>Before 1200 A.D.</td>
<td>-Levigated powder of <em>gaura-sarsapā</em> prescribed against <em>vātā-rākta</em> (acute gout)</td>
</tr>
<tr>
<td>Bhāvaprakāśa</td>
<td>c. 1500 A.D.</td>
<td>-Properties of <em>sarsapā</em> of both red and white varieties are mentioned. Both varieties are capable of curing wounds (<em>vṛṇa</em>), itch (<em>kaṇḍā</em>), leprosy (<em>kuṣṭha</em>), worms in the abdomen (<em>kuṣṭha-kṛimi</em>) and epilepsy (<em>graṇa</em>). The white variety is the best (<em>gauro varo mātaḥ</em>). <em>gaura-sarsapā</em> is called <em>śiddhārthā</em>.</td>
</tr>
</tbody>
</table>

*Dr. Johannes Nobels Comm. Volume, 1959, pp. 61-66,
1. *Brassica campestris* (Latin name) is recorded by Bapalal. White mustard (*Sinapis alba*) is mentioned in Waring's *Pharmacopoeia*, 1868, p. 23.
It will be seen from the above table that white mustard (gaura-sarsapa) has been prescribed by Indian medical texts against many diseases on account of its therapeutic properties. I have not tapped all the medical texts for evidence on this point but the evidence collected in the above table is sufficient to prove that this white variety of the mustard was a regular item in Indian materia medica from about the first century of the Christian era onwards.

Sanskrit lexicons also refer to the white mustard. The Amarakośa (between c. 500 and 800 A. D.) mentions sarsapa and its two other names, tantubha and kadambaka (kāṇḍa II, varga 9, v. 17 — p. 353 of the N. S. P. edition, Bombay, 1905). It expressly states that siddhārtha is the name of white mustard. Bhānuji Dikṣita (c. 1630 A. D.) in commenting on the above reference quotes the lexicon of Rabhasa, which gives two names of white mustard, viz. rakṣoghaṇa (capable of killing demons) and bhūtaṁśana (capable of destroying ghosts). Bhānuji also quotes the lexicon Viśvakośa (1111 A.D.), which refers to sita-sarsapa or white mustard. This reference is found on p. 127 of the Banaras edition of the Viśvakośa, 1911. Even today there is a belief current in India that mustard is capable of warding off evil. Salt and mustard seeds are waved round the faces of babies and thrown away when these babies with their mothers enter a house for the first time after their birth (see my paper on this topic in the Quarterly Journal of the Mythic Society, vol. XXVI, pp. 313-314). In Apte's Sanskrit-English Dictionary (p. 73 of the 1957 edition by myself and C. G. Karve) the name anadya for white mustrad is recorded.

The use of gaura-sarsapa or white mustard in Indian life of the 7th cent. A. D. is vouched by the following references to it in the Kādambari of the eminent poet Bāna of King Harṣa's court (606—648 A.D.)—

(1) Kādambari, Part I, edited by P. Peterson, Bombay, 1889, p. 68—Description of the bed-chamber of Vilāsavatī, who was pregnant. She was resting upon a bed (sayana) upon which were scattered here and there white mustard seeds (itasato-viprakirna-gaura-sarsapam)...

(2)—Do—, p. 68—Description of the auspicious ceremony of avataraṇya (waving round) performed before Vilāsavatī by old ladies of the harem with many auspicious things, among which white mustard mixed with gorocanā (gorocanā-miśra-gaura-sarsapaiḥ) was used.

(3)—Do—, p. 68—Description of the king's intense longing for the birth of a son. He visualizes a son giving delight to his heart by his "curly hair dyed tawny with (the herb-mixture called) sarvaugadhi, with
a small quantity of ashes mixed with white mustard applied over his head" (atiali vinyasta-gaurasarsapomnitisra-bhūtileśo). It appears from this reference that white mustard was applied to the heads of children both for its medical properties and its supposed capacity to protect children from evil.

In the above references to the use of white mustard in Bāna's Kādambarī we find that white mustard was used not only as an auspicious thing but mainly on account of its supposed power to ward off evil and perhaps to scare away evil spirits from the bed-chamber of the pregnant lady. This use of white mustard in the 7th cent. A. D. justifies the names rakṣoghnā and bhūtanāśana given by the lexicon of Rabhasa to the white mustard as already noted by me in this paper.

The Carakasamhitā (between 1st and 3rd cent. A. D.), one of the earliest medical texts, deals with the care of the new-born child. Certain performances for protecting the child and the mother are prescribed in the śārīrasthāna, chap. 8, sect. 47. White mustard (gaura-sarṣapa) and other corns should be spread in the sūtikagāra (room in which the mother and the child are kept). In section 50 of this chapter the Carakasamhitā prescribes the use of white mustard in the water for the bath of the mother on the tenth day from delivery.

In the Indian system of weights recorded in the Manusmyti (between 2nd cent. B. C. and 2nd cent. A. D.), chap. VIII, vv. 132-137 give the following weights:-

The smallest unit of weight is the grain of dust visible in the sunbeam (trasareṇu). 8 of these grains = 1 likṣa. 3 likṣa = 1 grain of black mustard (rājasarṣapa). 3 of these = 1 grain of white mustard (gaura-sarṣapa). 6 of these = 1 grain of barley (yava). It is the grain of barley which is the theoretical unit of weight. This use of the white mustard in the Indian system of weights about two thousand years ago coupled with its uses in Indian medicine recorded above amply show that the white variety of the mustard was cultivated in India very early along with its other varieties, red or black.

On account of the curative and purificatory properties of the gaura-sarṣapa (white mustard) its use has been prescribed by the early texts on Hindu dharma-śāstra, some of which were composed prior to the Christian era.-

(1) We have already noted the reference to *gaura-sarṣapa* (white mustard) as a unit of weight given in the *Manusmṛti* (chap. VIII, vv. 132-137). In chapter V, verse 120, of this work we find a reference to the purification of linen garments by the use of the white mustard (*kṣaumānām gaura-sarṣapaḥ*). The commentators explain this reference as follows:

(i) Kullukabhaṭṭa states that *gaura-sarṣapa* here is equal to pounded white mustard (*piṣṭa-śveta-sarṣapa*).

(ii) Rāghavānanda states that the linen garments are purified by washing them with white mustard powder [*piṣṭa-śveta-sarṣapa-prakṣalanat-(śuddhiḥ)*].

(iii) Rāmacandra states that the linen garments should be washed with water mixed up with white mustard (*gaura-sarṣapa-sahitodakaḥ*).

(2) The *Āpastamba-Dharmaśūtra* (between 600 and 300 B.C.), edited by Bühler, B. S. Series, 1932, II, 8, 19, I st sūtra, p. 81, states that a man should take his food after washing his hands and feet with water mixed up with the powder of white mustard (*gaura-sarṣapaṇām cūrṇāni kārayītva tāih paniṇḍam prakṣālyya mukham kārau*). On p. 184 we find Haradatta’s comments on this reference. He explains the word *pṛṣya* in the text to mean “swallow the remainder of the mustard powder (water)”. The variant *pṛṣya* for *pṛṣya* means “should scatter away (viharet)’’ the remainder of the mustard-powder water.

(3) The *Vasiṣṭha-Dharmaśāstra* (ed. by A. A. Führer, Bombay, 1883, p. 13), chap. III, sūtra 55, states that linen garments are purified by the use of the paste of white mustard [*gaura-sarṣapa-kalkena kṣaumajānām (saucaṃ)*].

(4) The *Yajñavalkya-Smṛti* (between 1st cent. B.C. and 3rd cent. A.D.), I, 276, prescribes the use of the paste of white mustard (*gaura-sarṣapa-kalka*) in the worship of God Vināyaka. This paste mixed with ghee is to be applied to the image of the god after it is bathed. Verse 283 mentions the use of the oil of mustard (*sarṣapa-taila*) on the head of the image. Verse 289 states that mustard (*sarṣapa*) should be offered to the image along with flowers etc. (see pp. 564-567 of vol. I of the *Yajñavalkya-Smṛti*, Ānandāshram Series, Poona, 1903).

(5) The *Baudhāyana-Dharmaśūtra* (Kashi Sanskrit Series, Benares, 1934, p. 39), I, 8, 36 (sūtra), states that soap-nuts should be used for cleaning woolen blankets (*kutapa*); paste of white mustard (*gaura-sarṣapa-kalka*) should be used for washing linen garments.
Berthold Laufer in his *Sino-Iranica* (Chicago, 1919), pp. 380-382, makes some remarks about the mustard and its species under the title *Brassica*. The following points in these remarks are noteworthy:

1. There are two species of mustard, viz. (i) *Brassica* (or *Sinapis juncea*) and (ii) *Sinapis alba*.
2. *Sinapis alba* was imported into China as late as the Tang period.
3. *Sinapis alba* is first mentioned by Su Kun in his work (about 650 A.D.) called *Pent S’ao* as coming from Western Zum (Iranian regions).
4. *Sinapis alba* was conveyed to China over the land-route of Central Asia.
5. *Sinapis alba* was foreign to the Tibetans also. They call it "white turnip" (*yu^n-s-kar*).
6. *Sinapis alba* is not indigenous in India. Watt in his *Commercial Products of India* (p. 176) says that "if met with at all it occurs in gardens only within the temperate areas, or in upper India during the winter months; it is not a field crop."
7. Abu Mansur notes five varieties of *Brassica* under the Arabic name *karnab*.
8. The Persians spread the species of *Brassica* to Tibet, the Turks and Mongolia.
9. *Brassica rapa* is cultivated in Persia and many parts of India during the dry season (October to March).
10. Yi Tsin, the Buddhist pilgrim of the 7th cent. A.D., makes some comments on the Indian and Chinese varieties of *Brassica*. He says that India produces in sufficient quantity the varieties of *Brassica*, one with white and the other with black seeds. He also refers to the oil pressed from *Brassica* seeds for culinary purposes.

The foregoing notes, though scanty, are sufficient to prove the existence and use of the white mustard in ancient and medieval India for more than two thousand years. The statement of Watt that it is not indigenous in India needs to be examined. The suggestion of Laufer that it originated in the Iranian regions like many other cultivated plants needs also to be proved. I shall feel thankful if the readers of this paper throw more light on the history of the white mustard in India prior to c. 500 B.C. on the strength of Indian or foreign sources.
40. Some Notes on the History of Tea

Dr. N. N. Sen Gupta published a year ago a Note on the History of Tea in the Journal of the U. P. Historical Society in which he invited the attention of scholars to a reference to tea in the Tibetan biography of the great Buddhist scholar Atisa of Vikramasila, who visited Tibet upon the invitation of the Tibetan King by the middle of the 11th century. Dr. Sen Gupta observes at the conclusion of his note that tea was unknown to Atisa but was a common beverage in Tibet. Recently Dr. Radha Kumud Mookerji has written another Note on the History of Tea in the same Journal in which Dr. Sen Gupta's Note appeared. In this Note Dr. Mookerji points out the reference to Tea by I-Tsing, the Chinese pilgrim who travelled in India between A. D. 671 and 695 and observes:— "Even as far back as the Seventh Century the Indians took kindly to tea as an antidote to cold according to Ayurvedic texts then current and as these texts were much earlier than I-Tsing's visit to India, the use of Tea in India is to be dated much earlier." In view of the two notes on the history of tea I would like to record in this paper some of my own notes on the subject which I had collected some time ago.

(1) There is another reference to tea in I-Tsing's Record not pointed out by Dr. Mookerjee. It appears on p. 90 of Takakusu's Translation as follows:—

Chapter XVII—Proper occasion for salutation—"Firstly the impurity contracted through eating and drinking. Through the eating of anything or even the swallowing of a dose of medicine one is unfit for

1. Vol. XI, Part ii, p. 77—The king's representative presented Atisa with about 5 ounces of gold, one tray full of treacle and tea prepared in Tibetan manner poured in a cup decorated with the figures of the Chinese dragon. The conversation between the King's representative and the great Buddhist Scholar refers to 'tea' as 'celestial drink' 'Cha' and we are also told that "the monks of Tibet also drink it" (See Buddhist Text Society Journal, Pt. 1, 1893, p. 27).
2. Ibid.
4. Takakusu's Translation of I-Tsing's Record, p. 135. "Tea is also good. It is more than 20 years since I left my native country (i.e. China) and this alone as well as the ginseng decoction was the medicament to my body and I had hardly any serious disease."
5. I am not aware of any reference to Tea in the Ayurvedic texts now current.
salutation before one rinses one's mouth and washes one's hands. Even when one has drunk syrup, water, tea or honeywater or had ghee or moist sugar, one is equally unfit before one duly purifies oneself."

(2) In the article on Tea in the Encyclopaedia Britannica¹ we are informed that the early history of tea is traditional. There is a Chinese legend that Emperor Shen-nung (2737 B.C.) discovered the virtues of tea. There is also a tradition in China that the knowledge of tea travelled eastward to and in China having been introduced in A.D. 543 by Bodhidharma, an ascetic who came from India on a missionary expedition. "Bodhidharma vowed that he would contemplate the virtues of Buddha, through 9 unsleeping years." "The use of tea in China in the middle of the 9th century is known from Arab sources. In Japan the cultivation of tea was established in the 9th century.

(3) In a pamphlet² about the Complete Story of Tea by Mr. William H. Ukers the contents recorded include among other things the following:

(i) First English Translation Digest of the Cha-ching, the earliest work on tea—A.D. 780.
(ii) Tea's conquest of Java and Sumatra.
(iii) The far-flung kingdom of India Tea.
(iv) Tea's triumph in Ceylon.
(v) The Glorification of Tea in Japan.
(vi) Tea in Fine Arts and Tea in literature.
(vii) A Tea Chronology of over 500 Dates.
(viii) A Tea Dictionary of over 400 Definitions.
(ix) A Tea Thesaurus.
(x) A Tea Bibliography of over 2000 Authors and Titles.

As the above publication is not accessible to me I am unable to say what references it contains to Tea in India, earlier than those made by I-Tsing (A.D. 671–695).

¹. Fourteenth Edition, Vol. 21, p. 857. The Mahāraṣṭrīya Jīānakoṣa by S. V. Ketkar (Vol. XIII—¶40) contains an article on Tea but it contains no historical information except a reference to the effect that a Chinese Emperor (A.D. 569–605) was advised by a Buddhist bhikṣu to use tea as medicine against headache. I have no means of verifying the statement.

². Published by the Tea and Coffee Trade Journal Co. 79 Wall Street, New York, U.S.A. The price of the 2 Vols. of Story of Tea is £5.5.0 or 25 dollars net. Mr. Ukers has also published a Story of Coffee.
(4) To corroborate the Tibetan reference to Tea in the middle of the 11th Century pointed out by Dr. Sen Gupta I have found a reference to Tea in the *Life and Hymns of Milarepa*,\(^1\) which is as follows:—

“Enjoying wine and tea in merriment,
is drinking juice of aconite
To drink it is to drown
Salvation’s Vital Cord”

Jetsun Milarepa was the greatest of the Tibetan Saints. He belonged to Kargyutpa Apostolic succession founded by Tilopa in 950 A.D. Milarepa was the fourth in this succession and lived between A. D. 1050 and 1135.\(^2\)

(5) Though I-Tsing mentions Tea in India in the 2nd half of the 7th century we don’t find its existence in Bengal about A. D. 1400. In the *Mahuan’s account of the kingdom of Bengala*\(^3\) translated from the Chinese by Mr. Geo. Phillips he makes the following reference to the absence of tea in Bengal.

“Not having any tea they offer their guests the betel-nut in its place.”

Mahuan was an interpreter attached to the suite of Cheng Ho who led an expedition to the Indian coast with 62 ships and 30,000 soldiers. This event took place in A. D. 1405-6.

(6) For later references to Tea and its introduction into England and other countries of Western Europe reference is invited to *Hobson-Jobson*\(^4\) where we are told that the Tea-shrub is mentioned in the ancient dictionary *Rhya* which is believed to date long before the Christian era and a commentator on this work of the 4th century A.D. describes it

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2. Ibid, p. 674. See also p. 57 of *Tibetan Yoga* by Evans-Wentz, Oxford Uni. Press, 1933. On p. 591 of the *Buddhist Bible* the following chorus of a Song in the *Life and Hymns of Milarepa* contains a reference to Chinese Tea:—

   ‘The splendid kitchen, well arranged, with goodly stock of Chinese Tea, for three;
   The busy hands of many youthful novices for four;
   These four, if needed, thine, elder brother could procure.’

3. Vide p. 531 of *JRAS*, 1895, Though tea was not found in Bengal by Mahuan he refers to numerous articles of food and drink, some of which may be noted here:— Rice, wheat, sesame pulsee, millet, ginger, mustard, onions, brinjals, wines from cocoanut, rice, toddy and kadjang, jack-fruit, mangoes, pomegranates, sugarcane, granulated sugar, white sugar preserved fruits, plantain. He also refers to “white paper from the bark of a tree which is smooth and glossy like a deer-skin.”

Some Notes on the History of Tea

adding "From the leaves can be made by boiling a hot beverage." The first distinct mention of tea-cultivation in Chinese history is a record of the Tang Dynasty (A.D. 793) which refers to duty on tea in that year. The Arab traders of the next century also refer to tea as subject to a royal impost. The dates of references to Tea given in the Hobson-Jabson are as follows:—A.D. 851, c. 1545, c. 1560, 1565, 1588, 1598, 1611, 1616, 1626, 1631, 1638, 1658, 1660, 1667, 1672, 1677, 1688, 1690, 1726, 1789, 1844. Baldaeus (A.D. 1672) devotes five columns in his work to Tea and its use and abuse in India.

I believe, the notes on tea and its history recorded above would be found useful for the student of this beverage which has now caught both the hemispheres in its firm grip, too tight to be relaxed by the advice of moralists and economists.

I have to add the following reference to tea found by me after this paper was drafted:—

1. In A.D. 1009 Kio-Kie, a Sramana of Central India went to China. He took with him some relics, an impression of the Vajrasana and a few leaves of the sacred tree. When he returned to India he received an imperial decree a Kasaya-cloth to be offered to the Vajrasana of Mahabodhi. He also received silver, Tea and fruits for his route (Vide p. 323 of Indian Literature in China" by P. K. Mukherji, Calcutta, 1931).

On p. 392 of Rajawade's "Sources of Maratha History, Khauda VI," there is a reference to tea-cups ("क्याला ध्याबालि प्याले") which are mentioned as "not quickly getting hot" ("तबकर न तापेत ऐले"). Possibly porcelain tea cups are meant. This reference is dated Saka 1676 = A.D. 1754.

In letter No. 88 dated 16th June 1762 (Peshwa Daftar Selection No. 32—Private Life of Later Peshwas—P. 49) there is a reference to tea-pot ("क्यालादाळे"). The writer Naro Appaji states that the tea-pot or kettle has been sent to the fort of Simhagad. It will be ordered back and then sent to the Purandar fort.
41. The History of the Akṣayavaṭa
(Undecaying Banyan Tree)
at Prayāga and Gayā as revealed by
some Sanskrit texts —
Between the First Century A.D. and 1900

When the Silver Jubilee of the B. O. R. Institute was celebrated on
the 4th and 5th of January 1943 the late Prof. V. K. Rajawade, the oldest
among the founders of the Institute, was requested to plant a small sapling
of the banyan tree (akṣayya vata) on the premises of the Institute as a
landmark to commemorate the successful growth of the Institute during
the preceding twenty-five years and as a visible symbol of its future
expanding academic activities in the years to come. Prof. Rajawade agreed
to this request made by the Silver Jubilee Celebration Committee and the
akṣayya vata sapling (about 2½ ft. high) was planted at his hands in a
special pit at the western side of the main building of the Institute on
4th January 1943 at sunrise (about 7-30 a.m.) before a distinguished
gathering of the delegates from all parts of India as also local visitors to
the function.¹ Rev. H. Heras, the celebrated Indologist of the St. Xavier's
College, Bombay, was sitting by my side when the vata plant was planted.
He had read some of my studies in the history of Indian plants and
consequently put me the question: "Have you studied the history of the
vata tree and especially that of the Akṣayya Vata (undecaying banyan
tree) from Indian or foreign sources?" I told him that I would some day
record a few notes on the history of the vata tree in general and on the
akṣayya vata in particular as suggested by him. Accordingly I began to
collect some evidence on this topic and the present note is a part of the
evidence collected so far. Unfortunately my friend Rev. Heras is no more
to see this note in print! However, I record here my grateful and
respectful thanks to him for his suggestion which occasioned my present
inquiry.

The Vata plant which Prof. Rajawade planted on the premises of the
Institute 14 years ago has grown vigorously and can be seen prominently from
the main building of the Institute with its dark green umbrageous expanse.

¹ Annals (B. O. R. Institute Vol. XXXVIII, pp. 82-92.

1. I have published a detailed account of this function in my editorial in the Neue
The Institute will some day build a circular stone pedestal round it with an inscription: "The Akṣayya Vata planted by Prof. V. K. Rajawade on 4-1-1943 at the time of the Silver Jubilee of the B. O. R. Institute." After the Silver Jubilee was over I inquired of my friend the late Dr. Birbal Sahani, our great Botanist of the Lucknow University, at whose instance I began my studies in the history of Indian Plants, if he can point out any old Vata tree in India with authentic record of its plantation and growth. He replied that the only Vata tree of this type is that now in the Botanical Garden at Calcutta.

The Marathi Śabdakośa by Y. R. Date and C. G. Karve, Poona, 1932, Vol. 1, p. 195 observes as follows about akṣayavaṇa:

"अक्षयवट—The Vata tree on the confluence of the rivers Ganga and Yamuna at Prayaga¹ (Allahabad). It is said that this tree is very ancient and does not die. Such trees are pointed out at other holy places."

The Mahābhārata mentions Gayā and the akṣayavaṇa there as "famous in the three worlds" (triṣu lokeṣu viśrutaḥ). This reference clearly proves that at the time when this reference was made this banyan tree with all its religious significance was an established landmark revered by Hindu pilgrims visiting Gayā. We can also presume that some hundreds of years must have elapsed prior to this reference and posterior to the first planting of this tree at Gayā. No authentic account of the circumstances under which the tree, with its subsequent history of no less than two thousand years, was planted and the person or a body of persons who first conceived the idea of planting it and executed his or their plan

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1. See p. 921 of Indian Companion by G. H. Khandekar, Poona, 1894. Allahabad (Prayāg) is situated on the left bank of the Jamunā, on the wedge of land formed by its confluence with the Ganges and is distant 390 miles from Delhi.... (It) is a very ancient city.... In the Mahābhārata the country round Allahabad bears the name of Varaṇavatā, and was the scene of exile undergone by the famous Pāṇḍava brethren. The city or ancient Prayāga was built by the Hindus, and is held sacred by them, about 3 miles from the confluence of the Jamunā and Ganges rivers (a third river, the Sarasvati runs underground meeting here both the rivers and hence it is Trivenī, which can be seen with advantage from the palace in the fort. The waters of both rivers are easily distinguished by the difference in colour. A great religious fair known as the Magh Mela is held in December and January on the plain near the fort.... The present fort and city were founded by Akbar in 1575 A. D.; but the Aryans possessed a holy ancient city here called Prayāga.... In the fort near Asoka's pillar steps lead down to an underground Hindu temple. This building dedicated to Śiva, passes as the place where the river Sarasvati unites with the Ganges and the Jamunā.... The stump of a banyan tree said to be 15 centuries old and still alive is here the object of worship. The temple also contains the image of a famous saint, named Makunda,
in this connection, has come down to us. Was it in a fit of religious fervour that this tree was planted by a Hindu devotee or was it planted by any representatives of a particular Hindu religious sect to commemorate any important event in their history? It is difficult to answer these questions without collecting all evidence from literary and other sources pertaining to the akṣaya vātā.

The verses referring to Gayā and the akṣaya vātā are found in the Mahābhārata in the Aranyakaparvan (tirthayātrāparvan) edited by Dr. V. S. Sukthankar for the B.O.R. Institute (see p. 292-382, verses 71-73). These verses read as follows:—

"ततो गयां समासात्र ब्रह्मचारी जित्यन्त्रियः।
अश्लेघपल्लोचत्त्र स्वतः भारतः। ७१॥
तत्र गयास्त्राक्रमो नाम प्रियु लोके प्रियु निषुः।
विनुप्रीति तत्र केवल महत्य भवति गयो। ७२॥
महान्याक्षय पुञ्जु तत्र केवल निषुः।
अश्लेघपल्लो च सत्यमहान्यानि कादिकृः। ७३॥"

There is a reference to अक्षय पुञ्ज in the Aranyaka or Vanaparvan (Chap. 95, verses 13-15) in the following extract:—

"तत्र ते पारंत्व बीराकाम्यात्रस्तत्तश्चतिरिक्ते।
अश्लेघपल्लो महत्य तत्रा स्वतः महान्।
अश्लेघ देवयजने देवध्याय यत्र वेद विद्युः।
वें दुः तत्रोपवासोऽसूत्र चाक्षुषितविद्वस्तः।।

Ksemendra, the great Sanskrit poet of Kashmir (c. A. D. 1020-1080) also refers to the akṣaya vātā at Gayā in his Bhāratamañjari, an abridgment of the Mahābhārata. This reference is found in the following verses of the Aranyakaparvan of the Bhāratamañjari edited by V. R. Nerurkar, Bombay, 1919, p. 57 (पुल्लस्यत्तायताना):—

"गंगोऽदून्य दिनवासोऽवराधोऽस्मिन्तरयुः। ६५॥
तत्र च अक्षयपवेदतो प्रियुपवासोऽस्नायतः। ६६॥"

My friend Shri J. S. Pade of the Oriental Institute, Baroda, in his letter to me of 14-3-1957 has kindly pointed out the following reference to Akṣaya vātā in the Anuṣasana parvan of the Mahābhārata:—

"एक्षय वाष्प: पुष्प: यथेकोपस क्रेण विजेत:।
यशसोऽपितः लोकेन्द्रायनकरणोऽवः।। १४॥"

(See p. 198 of Mahābhārata, XIII, 88, 14 Chitrashala Press, Poona).

My friend Prof. V. M. Bedekar has sent me the following remarks on the above reference:—

"This reference occurs in the 88th chapter of the Anuṣasana parvan. Therein Yudhiṣṭhira asks Bhīma which among the libations offered to the Manes are inexhaustible (अक्षय) or endure for a long time or for eternity.
Bhīṣma enumerates in reply various kinds of non-vegetarian food to be offered in memory of the Manes, which are calculated to secure the satisfaction of the Manes for a period ranging from two months to eternity. While referring to a belief that the offering of a ब्राह्म (goat) to the Manes leads to their satisfaction for all time, Bhīṣma quotes in support a few gāthas, which the revered Sanatkumāra had recited to him in a similar connection. In one of these gāthas (verse 14) the "व्रतः समास्तयकरण्यो वत्" is referred to. This gātha seems to imply that Gaya, the sacred place, is specially auspicious and therefore suited for offering libations to Manes in view of its having been the venue of the "unaging Banyan tree" (ब्रजस्तव्यकरण्यो वत्तत्र). "A reference to the Divine Child resting on the extended branch of a huge Banyan tree in the midst of the Great Deluge occurs in the 186th Chapter of the Aranyakaparvan of the Mahābhārata.

The great sage Mārkandeya is narrating to Yudhishthira the story of the Dissolution of the Universe as he had once witnessed it. The whole world was overwhelmed with floods and the whole creation was submerged. In that predicament Mārkandeya found himself alone walking on the waters of the ocean. Extremely distressed at this awful destruction and feeling lonely and forlorn he kept on swimming to find some refuge (सरणम) where he could rest. Then all of a sudden he espied in the midst of that all-encompassing deluge a huge जमोल tree and there resting comfortably on a gorgeous couch on its extended branch a little child. The pertinent lines run as follows:—


"ततः कदाचित् पञ्चाश्मि तरसिन्दु वलिलंबलेऽ
न्याग्रीप द्रमखान्ते विशालं पुरविषीपते ॥ १ ॥
शास्त्राय तथा व्रतस्तवः बिस्तीपीययं नराधिपः
पर्यं के प्रभवात्तिस्ठतरस्तिस्तुं ॥ २ ॥
उपविष्ट महाराज दूरशत्रेवशशानम्
पुक्का दयाशालार्ध बालों पञ्चाश्मि भारत ॥ ३ ॥"

While Mārkandeya was looking on at this wonderful spectacle in amazement, the child called unto him and gave him shelter inside its stomach. While inside, Mārkandeya saw before him, contained in the boundless stomach of the child a whole world of kingdoms, rivers, mountains, gods, demons. He roamed in amazement through the boundless interior of the child for hundreds of years. Bewildered he prayed to that God with all his soul. After a while the child opened its mouth and out came Mārkandeya to see again the same wonderful sight of the child resting on the branch of the Nyagrodha:—
Márkaṇḍeya soon overcame his bewilderment and took the tender rosy feet of the child on his head and made his obeisance.

While Márkaṇḍeya was inside the stomach of the Divine Child, he saw there inside, as already mentioned, the whole world with its kingdoms, cities and rivers. The relevant lines are:

"सराष्ट्रगर्भाकीर्तिः कुल्ना पद्मस्मिके मेदिनीम्।
गंगा श्रावण शीतोऽव यमुनायम शीतिकोम्।
नर्मश्वरति वेंशवरति चन्द्रभागा वरस्तिम्॥"

(III. 186. 92-93)

The first river that is mentioned as meeting the eyes of Márkaṇḍeya is the Gaṅga. This may perhaps be significant in view of the fact that it is the great Nyagrodha with which the Divine Child is shown associated and that one such hoary Akṣaya Vatā is situated on the bank of the Gaṅga at the confluence at Prayāga, though of course Márkaṇḍeya (or the author of the Márkaṇḍeya-Samāsya) does not explicitly mention it as the Akṣaya Vatā or Nyagrodha.

My friend, Dr. M. M. Patkar, Secretary of Sanskrit Dictionary Department of the Deccan College, Poona, has kindly replied to my query about akṣayavatā on 4-1-1957 as follows:

"I give below a reference to the sacred fig tree at Allahabad from the Śabduratnasamāvanavakāśa of Shahaji (G. O. Series, Baroda, 1932), p. 226. It reads as follows:

"स्थाम: प्रवागास्वम्"

This shows that the name of the tree was स्थाम (syāma). This name also occurs in the Raghuvamśa (XIII, 53) cf.

"त्यां प्रवागास्वमानितो वः सोऽपि वटः स्थाम इति प्रतीकः।
राजियमितो गाहवानि सम्ध्रावः फलितो विमाति॥ ५३ ॥"

These are valuable references which open a further field of inquiry. The name of the akṣayavatā at Prayāga was Syāma as clearly stated by poet Kalidāsa in the verse quoted above. This name has, therefore, an antiquity of more than 1500 years. The tree itself and its history as vouched by the Mahabharata and by Kalidāsa is really very enchanting and it should be our endeavour to investigate it in greater details. For this purpose we must examine the comments on स्थामवट made by the commentators of the Raghuvamśa. G. R. Nandargikar in his edition of
The History of the Akṣayavatā

The Raghuvamsa, Poona, 1897, p. 417, gives us the English Translation of the above verse (XIII, 53) as follows:

"This is the same Banyan tree known by the name of Śyāma, whose help was solicited by you on some former occasion. Covered with fruits it appears like a heap of emeralds mixed with rubies."

The commentator Mallinātha (c. A.D. 1430) comments on this verse as follows:

"लघुमेति। लघुमा व: पुरस्ताल्पर्चुपयाचितः प्रायिषतः।
तथा वा रामायणोऽनि
 न्यायोऽर्थ समुच्चायं वाच्यमार्थित।
 नमस्तेषुतद् महावर्ष पालवेमेव वर्त्त परित: ॥ इति
श्याम हि प्रतीतः । स बहुतें विमुखः सतः। सप्तरागो ग्राहंगान्तो हरिनमगेनां मरकतानां।
 अथिरिः। निंगारिः।"

The reference to श्याम न्यायोऽर्थ or यद् given by Mallinātha occurs in the Rāmāyana, Ayodhyākānda 2, Sarga 55, verses 23-24, which read as follows:

"तेषु स्त्रयु्स्वयमि प्रश्यायमि वसुनावचानात।
श्यामेऽष्ट्रयोऽर्थस्तु: शोलः हि विनात्स्वयमिन।
 न्यायोऽर्थ समुच्चायं वाच्यमार्थित।
 नमस्तेषुतद् महावर्ष पालवेमेव पतितत्दुः।"

Verses 6-7 of Sarga 55 of the Ayodhyākānda also refer to श्याम न्यायोऽर्थ as follows:

"ततो न्यायोमासाद्वः महान्ते हि विनात्स्वयमिन।
 परिते चंद्रसिवेन: श्यामेऽष्ट्रयोऽर्थस्तु:।
तस्मात् श्यामोऽर्थस्तु: श्यामेऽष्ट्रयोऽर्थस्तु।
 समाताय व तं वर्षेऽवसेतु निमिर्दायेत वा।"

Dr. Patkar has drawn my attention to the following remarks of Dr. P. V. Kane on the Akṣayavatā at Prayāga in his History of Dharmasāstra (Vol. IV, p. 614):

"There are several sub-tīrthas that fall under Prayāga. The most important of them is the famous Vata (Banyan tree). The Agnipurāṇa (111.13) states "if a man dies at the foot of the Vata and in the Saṅgama he goes to the city of Viṣṇu". Special reference is made to abandoning one's life at the foot of the Vata. The Kūrmapurāṇa says: 'He, who

1. Dr. Kane's footnote No. 1396 on Kūrmapurāṇa reads as follows:

"वर्षमुल समाधियं वसुन्तः प्रायायमैर्मिर्दायेत।
स्वर्गस्त्रीकान्तिकण्डस्त्रोतोऽसे संमुखविः।"

कृप्त. 1. 37.8-9 quoted by तीर्थकर्म. The same is पर्वतवर्षण,
वादिकान्त 43.11 (reads "सर्वावर्षण")"
abandons life at the foot of the Vāṭa, passes beyond heavenly worlds and goes to the world of Rudra."

The Amarakośa (N. S. Press, Bombay, 1905) contains the word "Śyāma" [p. 69—Kanda I, varga 5 (adhivarga)] mentioned along with words expressive of colours viz. Kṛṣṇa, Nīlā, Āṭita, Āṣa, Śyāma, Bhūka, Pītā, Nīlā, Hātra, etc. (verse 14). It does not mention Śyāma in the sense of the name of Śyāma. Bhānuji Dikṣita (c. A.D. 1630) explains the word Śyāma and quotes the lexicon हैम as follows:—

"श्यामोऽभिप् दितारे | हरिते श्यामवंदे कोकिले दुर्दशाके । etc."

इति हैम:"

This reference to श्यामवंदे by Hemacandra (c. A.D. 1088-1172) needs to be traced in the extant lexicon, the authorship of which is ascribed to him.

The Amarakośa mentions the word "Śyama" again in Kanda III, varga 3 (narmeśvararga) p. 487. Bhānuji explains it and quotes the lexicon Medini (c. A.D. 1300) as follows:—

"श्यामो वर्ते प्रणाम वारिष्ठे श्रद्धालरके । etc."

(इति मेदिनी)

Though Bhānuji does not mention Medini in giving this quotation the editor has traced the quotation in the Medini lexicon. I have also traced it in the edition of Medini by J. Vidyasagar, Calcutta, 1872, p. 148, where it occurs exactly as quoted by Bhānuji.

The poet Bhavañhit (8th cent. A.D.) also refers to श्यामवंदे on the banks of the river Kalindi (Yamuna) in his drama Uttararāmacarita as follows:— Laksmanā says to Rāma:—

"अयमसो भरतजयविदितविष्कृतभग्नथिं कर्मवनस्वतः कलिन्दीकते शर: श्यामो नाम ।"

(Act I, p. 16 of P. V. Kane’s edition of the Uttararāmacarita, 1929). The English translation of the above lines as given on p. 125 by Kane reads as follows:—

"Laksmana:—Here is the banian tree, Śyāma by name on the bank of the Kalindi, by the side of the road leading to Citrakūṭa, pointed out to us by Bharadvāja."

1. P. V. Kane makes the following remarks on p. 26 of his Notes to the edition of the Uttararāmacarita:—

"In भ्रण्याकार (of रामायण) स्याम 54 we see that राम met भरतजय near the confluence of the Ganges and the Jumna. द्रश्याकोश्या इतस्तत्त गिरिस्थिष्ठिभिचकत्वस्वसि | 28....चित्रकूट इति श्यामी शन्यसादनस्वसिः ॥ ।" ।

29. In Sarga 55 we read—

ततः प्रचक्षो वन्धु वचनं स महामुनि: ।

भरतजयो महात्मा राम जयपरक्रमम् || ॥ ॥
The poet Murāri (c.a.d. 1050-1135) in his drama Anargha-Rāghava (Act VII, verse 129) refers to Śrāmatā as follows:—

"श्यामो नाम वाक: सोडयम एतत्त्वाल्प्तकलिण्यः।
श्रामाप्रियस्या स्वास्त्योऽपि ज्योतिनिधित्वे॥
"

In the Gaṇapālīmya of the Vayupurāṇa (ed. in Anandāśrama Sanskrit Series, Poona, 1905, pp. 426-453) we get the following references to Akṣayavaṭa:—

Page 437—"नदी के नज़र:” near भस्मकट्टरी
—"युग्मकट्ट” near युग्मकट्ट

Page 438—"नदी के नज़र:” near सोडाल्क्री
—"शुध्वि वर:” near युग्मकट्ट

Page 440—"कुत्तकट्ट” mentioned along with भस्मकट्ट, युग्मकट्ट, फल्गुनीवं etc.

Page 447—"अश्वत्थराजः” or बोधिसु म” or "सहायोविकः”
at Gayā is mentioned. The mango1 tree was also considered sacred. Verse 37 on p. 447 refers to the mango tree and the Śrāddha performed at its foot as follows:

"एको सुनिः कुम्भकुञ्जामहतः
श्रामाप्रियस्य सृष्टार्याः सृष्टार्याः सदाः।
(v. 1. आवाय सिस्का:) आवाय सिस्का: पित्रायु तुसा
एका किया द्रयथःकर्तिः प्रिवस्वः || ३७ ||
"

Page 449—The following verses refer to the Akṣayavaṭa at Gayā and the Śrāddha performed in its vicinity.

Thus we see that चित्रकटिर was a hill about 10 कोस from the confluence of the Ganges and the Jamuna to the west.”

1. Dealing with the antiquity of the mango tree in India. Shri H.P. Paranjpye quotes the following extract from the Bṛhadāraṇyakopaniṣad, Adhyāya 4. Brāhmaṇa 3):—

“स यथायमणिमान..यथायस्य चेदुर्वर्त वा चिपल वा च बन्धनाद प्रस्तुतस्य एतमेवायं वुढळेत्त्
etc.” || २५ || (See p. 58 of "कायक्षाण्डाया अत, Poona, 1930). आर्क (Mangifera), उल्चुरण and चिपल trees are referred to in this extract.
Studies in Indian Cultural History

“कृते भाङ्क्ष्यवर्त अन्नेनेश प्रयत्नतः
पितृनन्द्वंद्वं वियोलोकमयर्थं ह समातामम् ॥ ५४ ॥
वद्वषुकलिंगेषु ह शाक्तेनाधिके ना ॥
एकोक्षमेव भोजिते किवे कोशिशेदर्शिनि भोजिता: ॥ ५६ ॥
देवन्द वौद्धसमक्ष ग्यायाधिकृतः।
वस्त्र्य गम्भरंरिविश्व: शम्भसंसूज्य यतनत: ॥ ५७ ॥
एकाये व वत्स्याभ्य: श्रीते योगानित्यः।
वालुक्परस्तस्मे नमस्ते योगासायिने ॥ ५८ ॥
सुपार्श्वकर्तारायासङ्गस्यपापहराय स।
अर्थं वाद्यस्त | नमोच्छववदाय वे ॥ ५९॥”

The reference to the Divine Child (बालपर्वत) resting on the extended branch of a Banyan tree in the midst of the ocean as found in verse 82 of the above extract from the Gayamahātmya is also found in the Aranyakaparvan of the Mahābhārata as we have seen above.

Dr. A. P. Karmarkar, Director, Purānic Research Institute, Belgaum, has kindly supplied to me the following references to Aksayavāta from the Purāṇas:

1. Vayupurāṇa—Chap. 105, 45—
   “तथाभिष्कर्त गात्रव विश्रामसमतोषिक्षितः”
   —also Chap. 109, 16
   —Chap. 111, 79-82.

2. Matsyapurāṇa—Chap. 104, 10—
   “तं वर्ण रक्षति मद्रा सुलपायितमेव:”
   —Chap. 106, 11—
   “वद्वषुकलिंगेषु गद्यु मार्गाधिकृतः।
   सवैतैयानितिकृतं र्वत्रैौकं स गच्चित्तः”

3. Padmapurāṇa I—38.2-3 (Gaṇamahātmya)

4. Agnipurāṇa—Chap. 115, 70 (Aṣṭaṣṭchettamahātmya)
   —Chap. 111, 13 (Prayaga)

5. Śkaṇḍapurāṇa—Chap. 58, 5 and Chap. 59 (Gaṇapatha)

6. Naradityapurāṇa—Uttarakhaṇḍa (Gaṇamahātmya)
   —Chap. 63, 141 (वद्वषुकलिंगेषु)
   “निग्रन्थितं जगारों च दद्यये।
   हरिर्भ भगवात्स्त्र प्रज्ञापितं प्रस्थलतः: ॥”


8. Brahmavaivartaapurāṇa—(on Narmadā) III—
   Chap. 33, 32-33 (where Pulastya performed penance).
(9) Kurmapurana 1, 37, 8-9 —
(He who abandons his life at the foot of the Vata, passes beyond heavenly worlds and goes to the world of Rudra) — See also Tirthaántamani, p. 48 — where the above verse from Kurma is repeated.

The references to the Aksayavata in Sanskrit sources recorded above reveal the history of this Vata for about 2000 years. This history is further vouched by foreign travellers to India, Prakṛta texts and some inscriptions as I shall show in papers to be published hereafter. I now close this paper with my best thanks to all those scholar friends who have enriched my present study by supplying references to the Aksayavata known to them. I have further to request the readers of this paper to report to me whatever data pertaining to this subject come to their notice from any sources, especially of the datable type.
42. Studies in the History of Indian Plants—
History of Fenugreek and Alfalfa (Lucerne) in India and other countries
(between c. B.C. 700 and A.D. 1800)

A. K. Nairne in his Flowering Plants of Western India, Bombay, 1894, (pp. 77-78) describes the following plants:

(1) Methi—(Trigonella Faenus) commonly cultivated for haji as it is also in South Europe. It was adopted as fodder by the Romans from the Greeks; hence the specific name.

(2) Lucerne—(Medicago Sativa) Purple medick not wild in India any more than in England, but widely cultivated. According to Hehn this plant medicago came originally from Media and Columella, the Spanish writer on agriculture in the reign of Emperor Claudius (A.D. 41) praises it as a horse-fodder. According to Shorter Oxford English Dictionary (p. 689) Fenugreek (Methi) was called as Greek hay by the Romans. The seeds of Fenugreek are used by farriers. B. Laufer in his Sino-Iranica (Chicago, 1919) devotes two pages (446-447) to the History of Fenugreek and about eleven pages (208-219) to the history of Alfalfa, the Arabic name of Medicago Sativa or Lucerne. I note below some points from Laufer’s account of these two plants:

Fenugreek (Methi) —

(1) According to Stuart (Chinese Materia Medica, p. 442) this plant was introduced into Southern China from some foreign country.

(2) This plant is first mentioned in the Pen ts‘ao (A. D. 1056-1064).

(3) Abu Mansur in his Persian pharmacopoeia mentions the properties of this plant under the name hulbat.

(4) The Persian name of the plant viz. Šamliz current in Shiraz appears also in India as Šami.

(5) The plant occurs wild in Kashmir, the Panjab, and in the upper Gangetic plain. It is cultivated in many parts of India.

(6) The Sanskrit term for the plant is मेथी, मेथिका or मेथिनी. It is


(7) The plant is mentioned by *Theophrastus* the father of Botany in his *History of Plants* (IV, iv 10 etc.) and by *Dioscorides* (II, 124) and also by *Pliny* (XXIV, 120).

(8) According to A. de Candolle (p. 112) this plant grows wild in the deserts of Mesopotamia, Persia and Asia Minor.

*Lucerne (Alfalfa)*—

(1) Aristophanes (B.C. 424) refers to this plant as follows in his "The Knights" (V, 606):—

“The horses ate the Crabs of Corinth as a substitute for the Medic.”

(2) The term "Mēdike" is derived from *Media* as stated by *Strabo* in his description of *Media*. In Greece it was the chief food for horses. According to *Pliny* "Medica" was first introduced from Media in consequence of the Persian wars under King Darius, *Dioscorides* mentions this plant as forage for cattle.

(3) In Italy the plant was disseminated from the middle of the 2nd cent. B.C. to the middle of the 1st cent. A.D. During this period it was also propagated in China.

(4) According to Assyriologists the Iranian name of this plant viz. *aspasti* or *aspastu* is mentioned in a Babylonian text of c. 700 B.C. Possibly this favourite fodder followed the horse at the time of its introduction from Iran into Mesopotamia.

(5) The Greeks allude solely to Media from which the plant was introduced into Greece and not to India. "The cultivation of the plant is not ancient in India but is of recent date, and hardly plays any role in Indian agriculture and economy," says Laufer.

(6) In ancient Iran *alfalfa* was a highly important horse fodder. Words for this plant recorded by Laufer are:—

*Pahlavi* — aspast, aspist.

*New Persian* — aspust, uspust, aspist, ispist, isfist.

*Pustu* or *Afghan* — Spastu, Špěšta.

*Avestan* or *Old Iranian* — aspo-asti (from the root ad to eat).

*Syriac* — aspesta, pespesta.

(7) Khosrau I (A. D. 531–578) levied a heavy tax on it.

(8) Abu Mansur mentions *alfalfa* in his work on pharmacology.
(9) The Arabs derived the word isfist from the Persians and then Arabicized it as fisfisa.

(10) According to Chinese tradition alfalfa was introduced into China from Iranian quarters in 2nd century B.C.

(11) King Darius makes a proud mention of Persian horses in the Persepolis inscription. The Chinese Emperor Wu (140-87 B.C.) sent regular missions to Iranian countries with the motive of importing the Persian horses.

(12) General Can Kien imported the seeds of alfalfa from Fergana and presented them to the Chinese Emperor in 126 B.C. The Emperor cultivated alfalfa near his palaces. Later the plant was rapidly cultivated throughout northern China. This plant is mentioned by Yen Šu-Ku (A.D. 579-645), T'ao Hun-Kin (A.D. 451-536) and other Chinese writers.

(13) The Chinese General Čan K’ien noted the words mu-su (alfalfa) and pu-tao (grape) and transmitted them to China along with these plants. These words were Ferganian i.e. Iranian.

(14) The Chinese of the Han period discovered mu-su (alfalfa) in Ki-pin (Kashmir). In Kashmir as well as Afghanistan and Baluchistan it is probably spontaneous.

(15) Mu-su (alfalfa) gardens are mentioned by Emperor Wu (A.D. 265-290). Post-horses of the T'ang dynasty were fed on alfalfa.

(16) Alfalfa was used as an article of human food during the time of Emperor Yuan Tsun (A.D. 713-755).

(17) Chinese works of the 6th century A.D. refer to the cultivation of mu-su (alfalfa) in different parts of China.

(18) Kou Tsun-si (A.D. 1116) mentions mu-su (alfalfa) as produced in plenty and consumed both by men and cattle.

(19) The Japanese call alfalfa by the name “uma-goyasi” (horse-nourishing).

(20) The Tibetan dialect of Ladakh contains the word Ol for alfalfa. This word refers to the Medicago sativa indigenous to Kashmir or possibly introduced there from Iran.

21) Skattschkoff in his article on Medicago (Paris. Revue de l'Orient, 1864) states that seeds of this plant were for the first time sent from China to Russia in 1840. Laufer questions the suggestion that Medicago should not have been known in Russia prior to A.D. 1840 as there are words in the Russian language which were in use prior to A.D. 1840.
(22) The U. S. A. Department of Agriculture is trying to promote the cultivation of alfalfa and seeds from China have been introduced for this purpose. In Argentine alfalfa has been found very useful for cattle-breeding.

The foregoing notes from Laufer’s scholarly history of the two plants (1) Fenugreek (Methi) and (2) Lucerne (alfalfa) are very interesting as they show these two plants in their world-perspective. As Laufer has not recorded any definite and detailed history of these plants in India I record below some notes bearing on this history which may clarify our knowledge of these plants at least to some extent:—

(1) The Rājanīghañṭu (c. A. D. 1450) by Narahari of Kashmir mentions Methikā and its properties as follows:—

Page 231 (Rājanīghañṭu, Anandashram, Poona, 1896)

“मेथिका ( मेथिकाविषेष:) || ९४ ||
मेथिका दीपनी चोप्पा कुंकिल्का बहुपुश्पिका।
मल्लिका शतवीना च ज्योतिका बहारी शिखरी || ९१ ||
गुणः— मेथिका कटुह्वा च रक्षितप्रीतिपनी।
श्रीरोक्षर दीपिकरी वातप्रक्षिपी || ९२ ||”

(This मेथिका seems to be identical with Fenugreek used as vegetable and seeds in Indian diet).

“मेथिका ( मेथिकाविषेष:) || ९५ ||
मेथिका वातिका सेबुरहित्वो बनमेथिका।
ब्रह्मोपक्षलगुणसत्या वाजिना सदू पूजित: || ९३ ||”

This variety of मेथिका mentioned as "वनमेथिका" (growing wild) seems to be identical with Lucerne (alfalfa). The name ब्रह्मिवि confirms this identification. ब्रह्मिवि was a horse-fodder (वाजिना सदू पूजित:) says Narahari of Kashmir. Evidently in Kashmir Narahari found ब्रह्मिवि growing wild in his time about A. D. 1450. It appears Lucerne was growing in Kashmir in the time of Dallana of Kashmir i.e. about A. D. 1200 or even earlier. A plant of the name अश्वबला२ (asvabalā) is mentioned in the Suśruta Samhita (pp. 406 and 232-233 of N. S. P. Edition, Bombay, 1938). Dallana explains this term अश्ववला by stating that अश्ववला is a variety

1. Vide p. 132 of Indian Historical Quarterly, June 1947—D. C. Bhattacharyya’s article on “New Light on Vaidyaka Literature”—‘Dallana’s, date is about 1200 A. D., being cited by Hemadri and himself citing Halayudha”.

of नेशिका with large leaves (बह्तप्रत नेशिकामेव:) called दिस्तित्व in the गुज़र country. He quotes an earlier commentator ब्राह्मण, who states that अश्कलन is “नेशिकाकारस्य” in the “वाकनभूषिन” (country of Yavanas). The commentator ब्राह्मण seems to be earlier than A. D. 1000.

Both Brahmadeva and Dallana connect the अश्कलन plant with a foreign country (तुदक्कङ्ग, वाकनभूषिन) which I have identified with Persia as the term दिस्तित्व mentioned by Dallana is identical with Aspist (asp=horse+pist=meals) meaning Lucerne grass i.e. alfalfa. The following table shows the chronology of the references to नेशिका recorded above:

<table>
<thead>
<tr>
<th>Before A. D. 500</th>
<th>Before A. D. 1000</th>
<th>c. A. D. 1200</th>
<th>c. A. D. 1450</th>
</tr>
</thead>
<tbody>
<tr>
<td>अश्कलन mentioned by सुश्रुत</td>
<td>नेशिका mentioned by ब्राह्मण</td>
<td>बह्तप्रत नेशिकामेव = दिस्तित्व in तुदक्कङ्ग according to बह्तप्रत</td>
<td>नेशिका भूगोल = दिस्तित्व liked by horses according to वाकनभूषिन</td>
</tr>
</tbody>
</table>

I feel no doubt that दिस्तित्व of the Kashmirian author Dallana (c. A. D. 1200) is identical with दिस्तित्व of another Kashmirian Narahari (c. A. D. 1450). It would thus appear that alfalfa was grown in Kashmir between c. A. D. 1200 and A. D. 1450 as horsefodder.

(2) I am inclined to believe that the plant अश्कलन mentioned by Suśruta is likely to be identical with alfalfa or Lucerne grass described by Dallana as दिस्तित्व of the गुज़र country i.e. Persia for the following reasons:

(i) The term अश्कलन is significant and means a plant that strengthens the horses (बह्तव horse+बल strength). It is possible to suppose that this word is a paraphrase of the Pahlavi term “aspist” or the New Persian “aspist” which Laufer has recorded as terms meaning alfalfa (Lucerne).

(ii) Laufer states that the Iranian name of alfalfa viz. aspasti or aspastu is mentioned in a Babylonian text of about 700 B. C. and possibly this fodder followed the horse at the time of its introduction into Mesopotamia.

(iii) The Chinese Emperor Wu-ti (140-47 B. C.) imported alfalfa for an imported breed of horses and planted it in his famous imperial gardens. He also imported grapevines, oranges, areca and litchi nuts for his garden.3

(iv) Laufer states that the Chinese of the Han period (B.C. 202-A.D. 220) discovered alfalfa in Ki-pin (Kashmir). If this statement is correct we can justify Kashmirian Dallana’s explanation that the plant अल्फाल्फा mentioned by Suśruta (before A.D. 500) is identical with हिस्फिल्फ or alfalfa.

(v) As alfalfa migrated to Mesopotamia sometime before B.C. 700 and to China in the reign of Wu-ti (140-47 B.C.) along with the import of Persian horses to these countries we are warranted in supposing that alfalfa may have migrated to India along with Persian horses even prior to the Han period (B.C. 202—A.D. 220).

(vi) In my paper on Persian Horses in Indian Literature (Poona Orientalist, Vol. XI, Parts 1 and 2 (1946) pp. 1-17) I have proved that Persian horses were imported to India between A.D. 500 and 1800. They are mentioned as पारसिक or Persian horses.

(vii) In the Mauryan times Bāhlīka horses were part of Indian Cavalry (Vide Chapter 47 - अर्थात्य of Kauṭilya’s Arthasastra, Eng. Trans. by R. Shama Sastri, Mysore, 1919, p. 133). The Mahābhārata (VIII,7,11) also mentions बाह्लिक horses (vide p. 263 of शब्दकोष, Calcutta, Vol. IV). H.G. Rawlinson states on p. 18 of his Bactria (Bombay, 1909) that the Bactrians were known as Bāhlīkas according to Hindu accounts. He further states that Bactria was famous for its horses in ancient times (p. 2) and that it was the heart of Iran lying on the great trade route to India. The "Medic herb" (Lucerne) grew all over Iran and made admirable fodder for these horses. In view of this information it is possible to suppose that Bactrian horses must have been imported to India say between B.C. 500 and A.D. 500 and that alfalfa, on which they were fed in Bactria the heart of ancient Iran lying between the slopes of Hindu-Kush and the river Oxus, also followed these horses to India during this period.

(3) According to Laufer alfalfa (Lucerne) was used as human food during the time of Emperor Yuan Tsun (A.D. 713-755). It was also consumed both by men and cattle in China according to Kou-Tsun-si (A.D. 1116). The Suśrutaśamhitā mentions अल्फाल्फा (अल्फा) as an edible vegetable and if Dallana’s equation "अल्फाल्फा = हिस्फिल्फ = alfalfa" is correct we have reason to believe that alfalfa may have been used as food both by men and horses as in China in the time of Suśruta. The Marathi translation of the Suśruta Samhitā by कृष्णासाठी Phadke, Bombay, 1921, Vol. I, pp. 450-451, translates the term अल्फाल्फा by the term मेल्वी or मेल्वीची माजी i.e. Fenugreek which we eat with relish at present.

(4) Seeds of मेल्वी (Fenugreek) are used in Indian cookery today either whole or in a powdered form. In the Mānasollasa (Vol. II, Baroda, 1939)
composed about A.D. 1130 by King Someśvara the use of the powder of मेंथिका seeds (Fenugreek seeds) is mentioned in the following extracts from the chapter on Food (व्रमणमोहा):—

Page 124 — “मेथिकास्मृत्तक तत्त चान्याक्ष्यन्त य पूर्वविकाम। मिथिलायांतरस्त्रो तृते ताम्रस्य तापयेत्॥६॥”

Page 125 — “जीर्णहृद् क चर्चित्तेन मेथिकास्यत्वायं य मिथिलायां ॥६॥”

Page 132 — “एतत्र रामद्वारैमेतिकास्य वर्त्त तत्ता।”

I am not aware of the seeds of alfalfa being used in Indian cookery today. The term मेथाक or मेथिका used in the above extracts means Fenugreek and not the large-leaf मेथिका (स्वहत्तमा मेथिकामेज़स्त) or alfalfa mentioned by Dallana (c. A.D. 1200), who apparently knew Fenugreek or मेथिका with small leaves.

(5) Fenugreek was used in the royal kitchen of Emperor Akbar. Its price mentioned in the Ain-i-Akbari (c. A.D. 1590) [English translation by Francis Gladwin, Calcutta, 1897, page 57] is 10 Dams per Maund.

(6) In the Bhāvaprakāsa of Bhāvamisra (c. A.D. 1550) मेथिका of two varieties is mentioned in the following stanza:—


(7) In the Kṣemakutūhalī of Kṣemaśārā (c. A.D. 1550) we get the following stanzas describing the properties of मेथिकास्त or मेथिका (Fenugreek):—

1. On p. 195 of his edition of Aśṭāngasavīgraha (Sūstrasthāna), Poona, 1940; Pandit Rāmacandraśāstri Kinjavadekar has quoted the following additional stanzas about मेथिका from the कत्वपुरुष:—


(7) In the Kṣemakutūhalī of Kṣemaśārā (c. A.D. 1550) we get the following stanzas describing the properties of मेथिकास्त or मेथिका (Fenugreek):—

1. On p. 195 of his edition of Aśṭāngasavīgraha (Sūstrasthāna), Poona, 1940; Pandit Rāmacandraśāstri Kinjavadekar has quoted the following additional stanzas about मेथिका from the कत्वपुरुष:—

“स्वास्थ्यानुसारिता वहां शास्त्रुपय यथोरितम्।
कि तत्ता कियते भूप्य स्वेतेऽव स्वेतसंबोधितम्॥
मद्यस्नेव सहस्य भोजनागरस्माणम्।
वा हितं मेथिकास्तथे कि स्वास्थ्यानुसारिता॥”
— (See p. 318 of Nighantu Adarsha, Part I, by Bapalal G. Vaidya).

(8) In the Asvacyiksita of Nakula (Before A.D. 1000) (Calcutta, 1886, p. 51) भेंथिकः is prescribed for the पिंडा to be given to horses as tonic food:—

"भेंथिकः धानकी, काली साराणी बीजपुरकः।
पिष्टो दस्तो वराधानां तेजेज्यकिरः स्वतः। उ ॥"

(विविधायय, Chap. 13)

(9) In the Asvavaidyaka of Jayadatta (later than 9th century A.D.) (Calcutta, 1886, p. 334) भेंथिकः is also prescribed for the पिंडा to be given to horses:—

"सीवर्चल तथा हिंसु पुष्करं विविधाविदम्।
श्रीहिंसु भेंथिकारणैः भिष्डु पिष्टो च कायेतु॥ ८ ॥"

(रतासनकाय, Chap. 68)

At this stage of my inquiry about the history of Fenugreek and Alfalfa in India I have to raise the following questions for the consideration of scholars interested in this problem:—

(1) What is the etymology of the word भेंथिकः which appears in Sanskrit works sometime after about A.D. 700? Can we equate भेंथिकः (Methika) with Medica?

(2) If the word भेंथिकः is Sanskrit can we trace its usages in Sanskrit sources prior to c. A.D. 700?

(3) If alfalfa (Lucerne) was introduced into India along with Bactrian (बाहिक) or Persian (पारसीक) horses sometime after B.C. 500, is it possible to suppose that the word भेंथिकः (Fenugreek) came to be transferred to alfalfa on account of the resemblance of Fenugreek with alfalfa?

(4) Is there any evidence in Sanskrit sources to prove that Fenugreek is a native of India? If it is a native of India what was its name prior to the use of the word भेंथिकः in Sanskrit sources?

(5) Fenugreek is mentioned by Theophrastus (died B.C. 287), the Greek philosopher, by Pliny and by Dioscorides. If it was adopted by the Romans from the Greeks is it possible to suppose that it was introduced into Greece prior to the time of Theophrastus like Medica (alfalfa) introduced into Greece from Media in consequence of the Persian wars under King Darius I (B.C. 521—485)?

(6) If Fenugreek grows wild in Mesopotamia, Persia, Asia-Minor as stated by A. de Candolle is it possible to suppose that Fenugreek was
introduced into India from Persia at some stage of the Indo-Persian contact?

(7) *Fenugreek* occurs wild in Kashmir, the Panjab and in the upper Gangetic plain. Many imported plants with definite history of their importation like that of *cactus* have been found growing wild in some parts of India. The mere fact of a plant growing wild in any locality is no proof of its being a native of that locality.

I shall feel thankful if readers of this article can throw more light on the history of *Fenugreek* and *alfalfa* in India than what I have been able to throw so far. Any references to these plants especially prior to c. A. D. 700 are welcome.¹

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¹ I am thankful to my friend Shri K. N. Dave of Nagpur for his remarks on *Fenugreek* communicated to me on 12-11-51:

"S. S. Pade equates *अभिभाषित* with मेहिका (*Fenugreek*) in his वनोपसिद्धार्थसिद्धार्थम्. The भाष्यपरिभाषार्थसिद्धार्थसिद्धार्थ (Chowkhambhi Edition, p. 32) has the following verse:

"मेहिका वालशासनी श्रेष्ठप्रानी ज्यरनाधिकारी ।
तत: स्वल्पगुण वन्या वालिना सा तु पूजिता ।"

The भाष्यपरिभाषार्थसिद्धार्थ with राजसिद्धार्थ (Anandashram, Poona, p. 231) has a corrupt reading of "वालिना सा तु पूजिता," but it helps you by mentioning the synonym अविश्व (अश्वगुण) as a synonym for the second variety of मेहिका or *Fenugreek*. Turning to *Fenugreek* in Webster we find that it is used as medicine in veterinary Science. Evidently this wild species of मेहिका was given as tonic-food to horses in India but was regarded as inferior to the cultivated मेही for purposes of human treatment and also as culinary condiment."
43. Studies in the History of Indian Plants—
Aśvabala or Hisphittha explained by Dallana
as a variety of Methika
in the 12th Century A.D.*

In Apte's Sanskrit-English Dictionary asvabala is mentioned as the
"Name of a vegetable" but no usage of this word has been recorded. This
word occurs in the Suśrutaasamhita (Satrasthana Chap. 46) in the section
on vegetables (शाक्कम) as follows:

"सत्रस्तह्नाय अश्वबलाय भाषिष्यत वास्तुकभूतीनि। २५६॥
"शाक्कमाशवल रूख्व बद्विश्वमून्त्राशमतम्। २५६॥"

The commentator Dallana (c. 12th Century A.D.) in explaining the
above text from Suśruta records vernacular equivalents for these
vegetables current in his time. These equivalents are very important as
they are no less than 800 years old. Some of them may be even now
current in different provinces of India. In fact they are the only links
which might help us to connect the modern names of several plants and

1. Vide pp. 232-233 of Suśrutaasamhita with Dallana's Commentary and Gayadāsa's
2. It would be useful both for linguistic and medical studies to collect all vernacular
equivalents recorded by the earliest commentators on the Carakasamhita, Suśrutaasamhita,
Aṣṭangaśāṅga, Aṣṭangaḥprdaya and other medical texts (prior to A.D. 1000). Dallana records
many such equivalents and introduces them by the words "इसि लोके." I record below some of
these equivalents from his commentary on शाक्कमः:

कलिन्द = कलिन्द
कुमल = तेससा
कर्को = खरचाव
सुरसा = ल्लसी
शालक = दिलिकारी
कर्कस = बौधविका
फैशाक = वाँसुपुष्प
उपकुक्षिका = वृक्षोतवर
श्रीक = कुल्लर
(Marathi कोषकोटू)

cuñ = cuñ
other articles with their ancient names occurring in the earliest medical texts like the Carakasamhita, the Susrutasamhita and others. A systematic glossary of these equivalents is essential for any historical study of Indian plants worth the name. The history of Indian plant-lore means the history of the nomenclature of Indian plants through successive centuries from the first mention of each name of these plants in records that have come down to us from the remotest antiquity.

In the present paper I am concerned with the explanation of the term श्रवणला given by Dallana in the 12th Century. Susruta mentions श्रवणला as a kind of शाक or vegetable and Dallana explains it as follows in his commentary:—

>'श्रवणला तुहङ्करः वहल्पनः मैथिलामेद एव दिसिकश्य इति लोके, तद्रात्तरं मैथिलादिसिकीयो: पुष्पाद्वैष्टिकवर्णः हुतः—

> "वातपितहरा तिल्ला खच्च लेखमिथिरोधिनः।
> मैथिलाततम किंवादिसिकश्य पुष्पं गुहः॥"

>—इति"

We are told by Dallana that in the country of Turuskas श्रवणला is equivalent to a kind of मैथिला with large leaves commonly called "दिसिकश्य". In another text, however, मैथिला and दिसिकश्य are distinguished as having different qualities. Dallana then quotes the Sanskrit verse "वातपितहरा...गुह" in which we are told that मैथिला and दिसिकश्य are similar to each other, though they differ in qualities. Dallana does not name the Sanskrit text from which he quotes the above verse. It is, however, clear that this Sanskrit text is earlier than Dallana i.e. earlier than c. A. D. 1100. According to Dallana श्रवणला=मैथिला (मैथिला)=दिसिकश्य. Evidently the term "दिसिकश्य" is non-Sanskrit and belongs to the country of Turuskas (तुरुस्केश) as stated by Dallana. In early Sanskrit texts the term तुरुस्केश is indiscriminately used to indicate foreigners, like Persians, Turks, Arabs, etc. In the present case the exact identification of तुरुस्केश mentioned by Dallana depends on the identification of the language to which the term दिसिकश्य belongs. In this connection I may note here that Dallana shows acquaintance with the usages of words current in different provinces of India\(^1\) and even outside. Generally a commentator may be regarded as trustworthy.

\(^1\) In his commentary on chap. 46 of Sutrashthana of Susruta he mentions the following countries and places:—

P. 214—अन्तर्बारम.; गाढ़ेले, उत्तरकुशो; अयत्त्वां नम्बरीं, मगधदेशे, दक्षिणात्याः, देशास्ते।

P. 219—हिमवदाद्विषेषतु (कस्तूरियुम्नाः), कास्मरीं, कार्गिकुरेः।

P. 222—पौरे, गे।

P. 226—मगधेश, उत्तरायण, मगधे, कार्गिकपुरे, कामक्षे।
in his record of vernacular equivalents current in his province but when he mentions the equivalents as current in other provinces we have to get them verified and corroborated by other contemporary evidence. This position with regard to the value of these equivalents was recognized by a Bengali commentator of Caraka viz. Cakrapāṇidatta as early as c. A.D. 1060. He observes in his commentary on the शुक्लाध्याय in (Chap. 27 of Śṛtrasthāna of Carakasamhitā, N. S. Press, 1941, p. 153) as follows:—

"इह च इत्यांमाति नानादेशाध्यायिनै, तेन नामानि सामायेऽत्यात् नानासेव युग्नेरायमि ठीकावत, तेन देशावले: नाम प्रायश्चित्यं केवल, यत्र प्रचरति गौड़ तत्कलिंग्यामः युग्नेरायमिति च हेलित ।"

In his inability to know correctly the nomenclature of the several items of Indian MATERIA MEDICA, says Cakrapāṇidatta, he is in line with other commentators, as this nomenclature must be gathered from the different provinces where it is current. He has, therefore, recorded in his commentary whatever names were current in the Gauḍa country, together with a few names current in other provinces. 1 Another early commentator Indu, 2 who is earlier than c. A.D. 1000, makes the following

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1. I note here the equivalents recorded by Cakrapāṇidatta in this commentary on chap. 27 of the Śṛtrasthāna of Carakasamhitā —

observations regarding the importance of vernacular equivalents for terms mentioned in the Aṣṭāngasamgraha¹ of Vāgbhaṭa I:

P. 57 — "प्रायो ग्राह्येमेवावै मर्ये कैचिन्त्वेवश्रूणा इति जापनार्थम्। तेषां च पर्याया निघण्ठेतवात् देशभाषासंस्करणं च विनिमित्तं जानेते.

P. 61 — "अन्य भाषात् इतिकालाणां च येषां नामानि नोकानि तेषां देशभाषाविविज्ञ: अन्यभाष्य अपनेशबास्कराणां उपयोगिशोवात् च जाण्यथानि.

P. 66 — "अन्तःपि फलानामप्रसंस्करणां च येषां नामानि नोकानि तानि नानादेशकलेभ्यो अपनेशस्कराधिनां अन्वितनामथानि.

The above observations of Indu make it amply clear that in his time the necessity of understanding the exact meaning of terms used in the Aṣṭāngasamgraha was keenly felt. To get over this necessity Indu suggests the following means:

1) निघण्ठेत or Knowledge about certain terms acquired by the use of Nighanṭus or glossaries then available.

2) देशभाषासंस्करण or अपनेशबास्कर — Collecting words current in dialects from those who are well-versed in them (देशभाषाविविज्ञ:) or from different families or communities (नानादेशकलेभ्य:) and then tracing through them the Sanskrit equivalents.

3) उपयोगिशप्रसंस्करण — In the case of the names of vegetables the identification of their names given in a medical text is facilitated if we study the current specific uses of these vegetables associated with their dialect names and then compare these uses with those associated with their Sanskrit names mentioned in such a text.

1. Edited by V. R. Kinnaradekar, Poona, 1940 — Sutrasthama of Aṣṭāngasamgraha.
2. Even in a veterinary treatise we find a Nighanṭu recorded e.g. in the अध्ययनमाग्राहि of महाराजसत्र अवधि (Bib. Indica, Calcutta, 1886) Chapter XII is अध्ययनमाग्राहि (77 verses) dealing with the materia medica in the treatment of horses. This chapter begins:

"निघण्ठेत संग्रहचाय एवं भूत्वा संग्रहान्तरस्त: | दीव्यामाग्राहिः सैन समवेतज्जानस्ते ||११||"

Knowledge of materia medica (दीव्यामाग्राहि अवधि:) can be obtained from a निघण्ठेत says Jayadatta. Hence निघण्ठेत was recognized as a necessary preliminary to all therapeutic measures in dealing with the diseases of men and animals. Jayadatta concludes his chapter on निघण्ठेत with the following verse:

"काम्यालिङ्को मोक्षालालाकारवेणेचरानाः | दीव्या नामानि जानात्यां भैवजानि विचाराः ||३५||"

Names of herbs can be learnt from काम्यालिङ्क, गोपाल, मालाकार and वेणेचर classes of people (who are in contact with forest produce).
A physician who studies a medical text should not rest satisfied by merely noting a vernacular equivalent of a Sanskrit term. He must make sure that the uses of an article associated with its Sanskrit name must tally with those associated with its vernacular name. The problem of the correct identification of several items in the ancient Indian *Materia Medica* appears to have been a problem to the physicians of Indu’s time as it is to the physicians of today. Fortunately the modern Ayurvedic physician is now in a better position than his confreres who lived more than a thousand years ago. We can now test the properties of things clinically and chemically and thus verify the statements of ancient medical texts and see how far they are correct. If ancient observations about the properties of certain products are corroborated by chemical and clinical tests the popular belief in the efficacy of these products will be strengthened and *Ayurveda* will get a new lease of life. We should, therefore, examine all ancient observations and explore their practical possibilities for the well-being of humanity with the aid of modern scientific research.

My object in recording in the foregoing lines the remarks of Indu (*between 700 and 1050 A.D.*), Cakrapānīdatta (*c. A. D. 1060*) and Dallana (*c. A. D. 1100*) on the question of the identification of several items of *materia medica* is not merely historical but practical as well. The history of plant sciences is closely connected with the history of *materia medica* and unless the articles mentioned in ancient Indian medical texts are correctly indentified we can never hope to get the fullest benefit of the experience of the ancient medical practitioners as recorded in these texts. In studying the history of Indian *materia medica* it is essential for us to know the *materia medica* of other nations, that were in contact with India in historic and even pre-historic times. Foreign words occurring in early medical texts have, therefore, a peculiar significance. The term हिस्फिल्थ that Dallana (*12th Century A.D.*) as current in अत्यन्तदेश to indicate the meaning of the term अत्यन्तदेश used by Suśruta is, therefore, very important. We have already seen that Dallana regards अत्यन्तदेश as a variety of मेंढिका but with large leaves (हुल्तसा) and then records its current foreign name हिस्फिल्थ. In this connection I made an inquiry of my ever-obliging friend Khan Bahadur Prof. A. K. Shaikh and I have great pleasure in recording below his reply to my inquiry, dated 12th August 1945:

"Your favour of 7th August regarding हिस्फिल्थ. I have already written to you that the word हिस्फिल्थ is neither Arabic, nor Turkish, but it is a Persian word."
hisfisteh is a Sanskritized form of the Persian īṣpist or āśpist (which is sometimes shortened to ीपित) and which is explained in Dr. Steingass’ well-known Persian-English Dictionary as meaning “Trefoil” or “Clover.”

“Ispest” or “Aspist” is called in Arabic “Fasfasat” or “Fasfasat” and in Turkish “Yunja” or “Yuncha.” The latter is a well-known fattening fodder for horses, which in my opinion is no other than what we call here लड़ुघुगार, i.e. “Lucerne grass”, which is so freely given to horses in India, Persia and Turkey for fattening them and making them strong (cf. अखबारता).

There are several varieties of this grass or plant and मेथी is one of them. सुखुन is right and वालत्र is also right.

Another name used for “Lucerne” in English is “alfalfa,” which has directly descended from the Arabic “Fasfasat”, which itself is derived from the Persian “Aspist,” This is what I find in the books that I have in my library. In none of these books I find any attempt made to explain the word etymologically. I am not a philologist; but what strikes me at present is that the word “Aspist” is a compound word made up of “Asp” which means “horse” (cf. अश्व = अष्व horse) and “pist” which means “meals” (cf. Sanskrit अष्टद ; Marathi खैठ).

I believe this short note on hisfisteh will give you what you want for the present."

I have to record here my best thanks to Khan Bahadur Prof. Shaikh for the above learned note on hisfisteh which clarifies and corroborates Dallana’s reference. I have now to request other Persian scholars to throw more light on this word by recording usages of the Persian word īṣpist or āśpist in Persian sources earlier than Dallana i.e. earlier than A. D. 1100. I have also to request Sanskrit scholars to point out to me any mention of the Persian term “hisfisteh” in any Sanskrit sources prior to A.D. 1100 or posterior to it. We must also identify the “तन्त्रान्तर” from which Dallana quotes the verse viz.—

"तात्त्विकस्ते तित्तु तपथविरोधिनी ।
मेथिका तत्समे दिक्तित्तिकस्ते पुरित्वर्य गुरु ॥
"

Evidently the term hisfisteh was known to Sanskrit medical writers earlier than Dallana’s time i.e. earlier than c. A. D. 1100.

In his Patna-Gaya Report (1811-1812) Francis Buchanan devotes a section (VIII-pages 529-530) to “Plants cultivated for feeding cattle.” In this section he mentions two kinds of मेथिका viz. Ban methi (बन मेथी) and Ban metha [बन मेथा (या ?)] in the following extract :—

"There are several plants which grow as weeds among the winter crops that might be cultivated with great advantage as artificial grasses.
They would require two or three waterings in the season but I have no doubt would bear that expense. These, which I observed were as follows:—

Medicago Cordata vel lappacea of the Encyclopédie called here Bokehi.
Medicago lupulina called here Osna and Amrora.
Trigonella monspeliaca called here Banbuti.
Trifolium indicum called here Ban Methi.

A Trifolium allied to the above but not yet described called BANMETHA

Vicia Sativa, called Bara Akta.

An Ervum very like Hipsutum, but it is not hairy. It is called Chhota Akta and Misia."

Buchanan also refers to Lucern as distinct from Ban methi or Banmethi:—

"Lucern I found sold in the markets of Patna, where it is called Maruyan, but I am told that it was brought from the gardens of Europeans, where it has become wild among the herbage that is watered for the sake of verdure, and cut in order to look neat. The workmen sell the cuttings to great advantage."

Buchanan was not only interested in plants of economic value but also in plants of medical value. His remarks on the value of Indian drugs are, therefore, important for any study of the history of European interest in Indian drugs. These remarks are as follows:—


"I have made very considerable progress in ascertaining the plants of this country that are used in medicine, but as the number is exceedingly great, and as all I can say on the subject must be confined to disquisitions strictly scientific, and totally uninteresting and unintelligible except to the physician and botanist. I shall not here detail any of the information I have procured. I can, however, recommend the subject as highly deserving the attention of government as well as of men of science. From the state in which European practitioners of medicine are here placed no very great discoveries can be expected, although some useful practices of the native physicians, by mere chance, as it were, have been brought into notice. It appears to me, however, probable that among a farrago of useless drugs, they possess several of very considerable powers and that in many cases they apply them with skill. I am further persuaded that with
a very little assistance from Government these useful practices might soon be brought to light, which never, I suspect will be done by translating their books, owing to the terrible confusion and uncertainty that prevails both in their pharmaceutical and nosological nomenclature. What is wanted is a native physician to prescribe and a European to give an account of the symptoms of the diseases and of the effects of the practice. Such substances as have been actually employed, where the practice seems to have been successful, are then to be carefully ascertained. If they are the produce of the vicinity, this may be done by sending them to the botanical garden for investigation or if they have come from a distance, by accurately describing them and endeavouring to trace them to the country, where they have been produced, a labour which ought, of course, to fall entirely on the superintendent of the Botanical Garden.²

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1. Dr. Girindranath Mukhopadhyaya in his Introduction to History of Indian Medicine, Vol. II, 1926, p. 13 ff. has described the work done by Government to resuscitate knowledge in Ayurveda from A.D. 1807 onwards.

2. In A.D. 1877 Royal Botanic Gardens were founded at Calcutta through the exertions of Lt. Col. Robert Kyd, Secretary to the Military Board. Kyd was also its First Superintendent (Vide p. 435 of Cultural Heritage of India, Dr. G. P. Majmudar’s paper on Botany in India, Past and Present). I may note here the Chronology of Government efforts to revive Ayurveda:

A.D. 1811 — Lord Minto recommended the establishment of Colleges at Nadia and Trihnit.

A.D. 1813 — East India Act authorized the Governor-General to set apart more than a lac of rupees for the revival and improvement of Sanskrit literature and the promotion of knowledge of European Sciences in India.

A.D. 1824 — Sanskrit College, opened at Calcutta on 1st January, 1824 — Calcutta Madrassa was founded in A.D. 1781 and Hindu College was founded in 1817. — Medical Science, European and Indian, was taught in the Sanskrit College.

A.D. 1826 — Dr. Tytler began his lectures on European Medicine and Professors were appointed to teach Caraka, Susruta, Bhava Prakasa etc.

A.D. 1827 — Classes opened for Ayurvedic Students — Madhusudan Gupta, a student of these classes becomes Professor of Medicine Professor Wilson was satisfied at the progress of these classes (Vide p. 994 of Affairs of the East India Company, 1832).

A.D. 1831 — Dr. J. Grant began his lectures on Anatomy, Physiology, Diagnosis and Surgery.

A.D. 1833 — Lord William Bentinck appointed a Committee for the revision of the question of medical education in Bengal.

A.D. 1834 — The General Committee working under Rev. Dr. Grant decided to introduce English as medium of instruction and abolished the medical classes in the Sanskrit College and Madrassa. Dr. Tytler was against this abolition.
I should, therefore, propose that a skilful native physician should be employed under the Superintending Surgeon of the Presidency, who in the different native hospitals under his inspection should point out patients proper for the physician's management, and who should direct the surgeons, under whose care the patients may be, to take careful account of all the proceedings of the native physician and of the symptoms of the diseases that he treated, which accounts, together with specimens of the drugs employed should be transmitted to the medical board, and this should make an annual report on what had been observed, and publish for general benefit any useful discoveries that may be made. The expense of a salary to the native physician, and of the drugs, with perhaps a clerk to make a fair copy of the cases, seem to me all that could reasonably be charged, and should not exceed 100 R. a month.

There are indeed three chief sects of native physicians, the Yunani (Ionians), among the Muhammedans, the Sakadwipi Brahmans in Bihar, and the Baidyas in Bengal. Even if one of each of these was employed, which might be satisfactory, each treating different patients in his own manner, the expense would be altogether trifling. More effectual means might no doubt be proposed for bringing to light the medical science of the natives but they would be attended with some considerable expense as a young surgeon, who should dedicate his time to the study of the languages and science of the natives must relinquish his other views and would require a considerable allowance."

In spite of this early European interest in Indian Medical drugs and Indian Medicine about A. D. 1807, and the subsequent efforts to revive Ayurvedic studies through the Sanskrit College and Madrassa of Calcutta after 1824, the study of Ayurveda under Government patronage came to an end in 1835, when Government ordered the abolition of Native Medical Education and the Medical classes at the above institutions.

A. D. 1835 — Famous minute of Lord Macaulay (2nd February, 1835), introduced English as medium of instruction.— On 20th February 1835 the Medical College of Bengal was founded with Dr. Bramley as Superintendent.— On 28th January, 1835 Government ordered the abolition of Native Medical Institution and the Medical Classes of Sanskrit College and Madrassa.

In this way the study of Ayurveda under Government patronage came to an end although this study was kept alive by the zeal and spirit of physicians without any help from the state, says Dr. Girindranath Mukhopadhyaya (Vide p. 18 of his Introduction to History of Medicine, Vol. II, Calcutta, 1926).
The Sanskrit Worterbücher (Petersburgh) records no other references to अश्वचोला except those in the सुश्रुता सामिता. If अश्वचोला is a kind of मेघिका called in Persian दिल्लित्त (दिल्लित्त or दिल्लित्त) we must investigate the antiquity of the word मेघिका or मेघी. In this connection we may note here the remarks of A. K. Nairne in his "Flowering Plants of Western India", London, 1894. These remarks are as follows:—

Page 77 — T. Foenugroecum — Erect, robust, stipules entire, leaflets lanceolate oval or obovate, flowers pretty, pod long, thin and pointed.

Μεθή.

Commonly cultivated for baft, as it is also in S. Europe. It was adopted as fodder by the Romans from the Greeks; hence the specific name."

If मेघिका or मेघी was adopted as fodder by the Greeks and Romans, it is no wonder that it should be mentioned as अश्वचोला in the सुश्रुता सामिता. In the two veterinary treatises dealing with horses called the अश्वबन्धक by Jayadatta and Nakula we find the word मेघिका in the following extracts:

P. 334 (of अश्वबन्धक ed. by Umesh Chandra Gupta, Bib. Indica, 1886, Calcutta)—(अश्वबन्धक by जयदत्त)

"शेरचल तथा हिरु पुकर विद्यदिमम्।
श्रिभिः मेघिकाः भैश्चर्यम् विषदं च कारयेत्॥८॥"

(सारायनक्रम—chap. 68)

1. "अश्वचोला — (von शौम + बल) i. n, einer Gemüse-pflanze-susruta, 1, 220, 12; 2, 48, 10,

2. Keith (History of Sanskrit Literature, Oxford, 1928, p. 465) refers to अश्वचोला of अश्वचोला and अश्वचोला of नकुल but does not give their chronology. Dr. Girindranath Mukhopadhyaya (History of Indian Medicine, Vol. II, Calcutta, 1926, pp. 356—399) has written a big chapter on शालिहीत्र in which he refers to the works of जयदत्त and नकुल but does not discuss their chronology. Nakula's शालिहीत्र is also called शालिहीत्र. जयदत्त quotes from शालिहीत्र, नकुल, शार वर्तमान और जयदत्त (p. 375 of chap. 10) by Mukhopadhyaya). In the Glossary of Drugs mentioned by जयदत्त, given by Umesh Chandra Gupta at the end of his Edition of अश्वचोला, we find अश्वचोला or अश्वचोला (p. 3). Thakore Saheb of Gondal (p. 126 of Aryan Medical Science, London, 1896) states that Opium (अश्वचोला) was imported into India from Arabia synchronously with the advent of Mahomedans. अश्वचोला (Poona, 1917, ed. by Y. Dikshit) refers to अश्वचोला (p. 75—"अश्वचोला प्रभावमपूर्ण") and p. 165—"अश्वचोला प्रभावमपूर्ण"). According to Hobson-Jobson the word Opium is Greek in origin. The Arabic word afyən is derived from a Greek word. Dioscorides (c. A. D. 77) and Pliny (c. A. D. 70) refer to Opium—Usages recorded in Hobson-Jobson are dated c. A. D. 70 (Pliny) and 1511, 1513, 1516, 1563, 1568, 1598, 1610 etc. Opium-poppy was taken to China from Arabia at the beginning of 9th Century. Possibly it was introduced into India after 9th century A. D. जयदत्त's अश्वचोला is possibly later than 9th Cent. A. D.
Page 51 (of अश्वनिकिस्त्तत् by नक्कल) Bib. Ind., Calcutta, 1886—

“मेथिका धानशी, काली धानशी बीजपूक्त:
पिएडी दच्छ बराधाना तेजोबिरोधिकरः स्मुति: ||7||”

(पिएडीच्याय, chap. 13)

This use of मेथिका in the treatment of horses supports Dallana's explanation of अश्वशिला as a kind of मेथिका called in Persian तिस्तल (तिस्तल or तिस्तल) which means fodder for horses.

I have already quoted Khan Bahadur Prof. Shaikh's opinion that तिस्तल (अश्वशिला) is no other than what we call “Lucerne grass” so freely given to horses in India, Persia and Turkey. In this connection I reproduce below the remarks of A. K. Nairne on the antiquity of Lucerne grass (Page 77 of Flowering Plants of Western India):—

"5. Medicago (M. Sativa).

Purple medick or Lucerne, not wild in India any more than in England, but widely cultivated.

Hehn says that the name medicago (originally medike poa) shows that the plant came originally from Media and quotes the following strong eulogy from Columella¹, a Spanish writer on agriculture in the reign of Emperor Claudius:—

"Lucerne once sown lasts ten years; it is sown four times a year regularly, sometimes six; it does not exhaust the soil, but rather enriches it, it makes lean cattle fat, and heals the sick; one acre of it will keep three horses the whole year."

The above description or Lucerne of Medicago of c. A. D. 41 establishes clearly the antiquity of this plant for more than 2000 years. If Lucerne is not wild in India and if its home was originally in Media, we have to see how it has migrated to India. If Lucerne is a variety of Methika can we establish any relation of the word मेथिका with medick² or


Columella, L. Junius Moderatus, a native of Gades in Spain and a contemporary of Seneca. We have no particulars of his life, but Rome appears to have been his ordinary residence. He wrote a work on agriculture (De Re Rustica) in 12 books which is still extant. His style is easy and ornate.”

Seneca (L. Annaeaus), the philosopher was one of the early instructors of the Roman Emperor Nero (A. D. 54-68). Nero was adopted by Claudius I (A. D. 41-54). Seneca was born a few years before Christ and died after A. D. 65 by order of a tribune.

2. See Shorter Oxford Dictionary, p. 1227:—

Medick—late ME. [ad. L. medicus, ad Gr...meaning 'Median grass']. Any plant of the genus Medicago, especially M. Sativa, Purple medick or Lucerne.
Medicago or Media? The word मेधिका used by जयदत्त and नकुल in the अध्यायपार र अध्यायुसिद्ध, which are evidently later than the 9th century A.D. is not found in early medical texts. The only equivalent of मेधिका in early medical texts is the term अध्यायपार, which in itself is adjectival, being a compound of अध्याय and बल meaning “giving strength to horses.” Perhaps the word मेधिका is connected with the names Media, the home of Lucerne or मेधिका and the consequent names medick and Medicago. Can any linguist explain how the word मेधिका is derived historically or otherwise? As मेधिका with its different varieties, whether used by men or by cattle, has migrated from its original home Media, are there any linguistic traces of this migration in the name मेधिका used by जयदत्त and नकुल (later than A.D. 800) and तम्रास (c. A.D. 1100) who mentions its Persian name हिसिफ़ (or इसिफ़)?

Though मेधिका appears to have been introduced early into India as fodder for horses as the term अध्यायपार used by सुरूता indicates, a variety of it came to be used in Indian diet. Accordingly in later medical texts it was mentioned as an edible vegetable with its properties as illustrated in the following verses quoted by Pt. Ramachandra Shastri Kinjavadekar on p. 195 of his edition of अध्यायपार (तम्रास), Poona, 1940 (Appendix):

मेधिका — “स्वास्थितिसा नाह क्षत्रिय वंदीरतिमु।”
कि तुझे कित्वेने भूया स्वास्थितिसा मंगोमनिचर।
महानेवाह संभव जीनागार मन्नियाम।
वाहिते मेधिकास्ये कि स्वास्थितिसा निरीमित।
मेधिकासां पत्तिसंवृत्त संवेदिते पीविद्वित हि
प्राणीं स्वास्थे जरायणाहिते मेलिते मजित्विद्वित हि
काळोज्यावसांनत्र मयसंघटित कपियो जात्राविशेषं
यें नामु गुणविनंतं महत सूत्योपते भूयः।”

P. 1174—Lucerne, Lucern-1626 (In 17th and 18th centuries agricultural books, often la lucerne with Fr. definite article) [a F. lucerne ad. mod., Pr. lucerno; etym. unknown]. The leguminous plant Medicago Sativa resembling clover, cultivated for fodder; purple medick.

1. Pt. Kinjavadekar has recorded extracts in his Appendix to अध्यायपार (तम्रास) pertaining to the following eatables and vegetables:—भाज्य, सूप, मुख्यकल्याण, मामकल्याण, पूजा of cow, buffalo, the goat, पप्पे (Marathi पप्पे). कुप्प, कळ्ळी: Vegetables and Fruits:—शूर्तिक, ब्रह्मीक, शिवक्री, कौशलक्ष, पटोल, उन्नीस्फल, कुम्भार, सुश्वेतसुद्धा a preparation of कुम्भार, गुलिका, बहुवक्रमासंह, कालक्रमासंह, आंद्रो, आरामकर, कालक्रमासंह, कालक्रमासंह, हरितवत्ता, उत्तरासंह, आंद्रकर, कालक्रमासंह, क्षेत्रफल, कुलकर, कदसीफल, राजसहारिंद्रफल, उपज्याक, बालक, तत्तत, शातुरास, मेधिका, पप्पाट, नोंकीक, कालक्रमासंह, पालिका, चुलक, दोमुम, कुलकर, शोभणाश, क्षेत्रफल, कालक्रमासंह, आरामकर, उपज्याक, कदसीफल, साहिबदेख, लुकक, कदसीफल, दुर्गा, सुरासा.”—The extracts pertaining to these edibles are useful for the history of Indian dietetics, as they describe the manner of preparing dishes from them, and also describe their medical properties.
As regards the migration of नेबिकर to India I have to observe that it may have followed the importation of Persian and Turkish horses from early times. Some of the foreign breeds of horses were very popular in India. Jayadatta\(^1\) in his अग्रवेयक has recorded in a special chapter the several kinds of horses according to their native places. Among these kinds he states that Persian and Tajika horses are the best (उत्तमासाविविदः श्रेयस्वायत्व पारसिकाय न रे.). He also refers to Turkish horses (हर्रै जाता:) and describes them (हर्रै: कौतितो बाजी स्त्रुतकमुक्खत न:.). Nakula\(^2\) in his अग्रविदकिरितित refers to a few kinds of horses in which Tajika and Khuraśaṇa horses are stated to the best (ताजिकः खुराशाण उत्तमासाविविदयत हस:.). In view of these explicit references to Persian and Turkish horses in Sanskrit treatises on horses it is possible to suppose that the regimen of these horses as current in Persia and Turkey may have been adopted by Indians with a view to keeping them fit and consequently नेबिकर or इस्पित्तर Lucerne grass must have been imported to India and cultivated on Indian soil from the time, when these horses began to be imported to India.

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1. Vide Chap. VI of अग्रवेयक (Bib. Indica) pp. 70-73—I note the kinds of horses according to जन्मदेश mentioned by जन्मदेश in this chapter:—ताजिकः: पारसिकः: केकागः: तुर्तुजः: कौतितो मूलचः: मान्भः: पार्वतितः: स्त्रुतितः: सारस्तः: समुद्रः: कुषः: जटदेशोदः: वारदिगिण्डः: कोशः: प्रतिकोशः: द्वाराकाः: पूर्णदेशथमुदः:

2. Vide chap. II of अग्रविदकिरितित (Bib. Indica)—pp. 4-7—Nakula mentions the following kinds of horses:—ताजिकः: खुराशाणः: उत्तरः: गोकागः: केकागः: मान्भः: राजस्वः: गोदुरः: सार्वः: सिन्धुपासः:—It is worth-while studying the history of the foreign horse-trade in India from early times, if such a study has not been attempted already by any scholar. The materia medica for the treatment of horses as recorded in the treatises of जन्मदेश and नकुल is likely to contain some foreign elements, which need to be ascertained.
44. Studies in the History of Indian plants—
Some References to Āśvabala in the Carakasamhitā
and the Suśruta-Samhitā

I published in Bharatiya Vidya (July 1946) a paper on "Āśvabala" a vegetable mentioned by Suśruta in the Śakavarga of Sūtrasthāna (pp. 232-233 of N. S. Press Edition, 1938) Chap. 46 in the following lines:—

"तपस्विनीसम्—उदयेदिका—अथवा—पालक्या—
वास्तुक्—प्रभुववि || २५.६ ||" and
"शाकमास्तिवेले रून्ज च ददतिमृघमास्तम || २६.१||"

The commentator Dallana (c.A.D. 1100) explains "अश्ववला मेधिकामेद" known as हिस्सित्व in हर्मन्देस्व. Dallana further states: in a तन्त्र नार्दर मेधिका and हिस्सित्व are described as having different गुण or properties as follows:—

"नातिनित्तरा तिका लधी अन्तविशिष्टविची।
मेठिका तस्मं कितिचिन्हिस्ति पुढिर्द गुणः।"

According to Prof. A. K. Shaikh "हिस्सित्व" is same as the Persian word "हस्सिस" or "हस्सिस" which is called in Arabic "Fasīsat" and in Turkish "yunja" or "yuncha." Prof. Shaikh thinks that हिस्सित्व = Aspist (asp, i.e. horse+pist, i.e meals)=Lucerne grass (मेधी is one of the varieties of this grass).

We have no means of knowing the exact meaning of the term "अश्ववला" used by Suśruta except Dallana's explanation recorded above. It is, therefore, premature to make any definite assertion about the accuracy or otherwise of Dallana's equation

"अश्ववला=हिस्सित्व=हृदच्छ मेधिकामेद।"

We must, however, see if there are any other references to अश्ववला in Suśruta. If such references are found we must see what explanation of these references is offered by Dallana in his commentary. Since the publication of my paper on Āśvabala in the July 1946 issue of the Bharatiya Vidya (pp. 67-80) I was fortunate in coming into contact with Mr. B.C. Deb, M.A., B.L. of Calcutta. I sent to him my paper on Āśvabala, which interested him very much. He lost no time in studying it closely

*Journal of the Oriental Institute, Baroda, Sept. 1951, pp. 1-5.*
and making his observations on it. I requested him to put these observations in the form of a paper so that they will be of immense use to brother scholars interested in this subject. In spite of his busy life as an Advocate Mr. Deb responded to my request and sent me his paper on Aśvabala. I have great pleasure in publishing it along with this paper.

I agree with Mr. Deb in the following remarks in his paper:

“So, it seems Suśruta’s Aśvabala is a variety of Mēhipka (Mēhipkasēṃ), being the first of the above two varieties, i.e. Mēhipka proper or officinalis, T. Fœnum Graecum.”

As regards Mr. Deb’s other remarks I am not quite competent to evaluate them as I don’t possess the required botanical knowledge or the reference books pertaining to a specialised study of botany. I have however, to keep at the disposal of Mr. Deb the following additional references to Aśvabala:

(1) Mr. Deb states that “the word Aśvabala is found in Suśruta but seems to be absent in Caraka.” I have to point out that the term Aśvabala is mentioned by Caraka in the following extract¹:

Carakasamhita (p. 387 of N. S. Press Edition, 1941) Cikitsāsthana, Chapter 1, Pada 4 (रसायनग्रह):

ब्रह्मचर्या... नारी नाम-
ीयङिः: “अश्वबला” हृति विग्राहयेते
या बल्केनवदयोऽपि,.............दरवर्तः
सहस्राणि श्रामुरुपदेव चेति”

(for “बल्केन” the foot-note records the variant “दुरज”). According to Manusmṛti II, 43 बल्केनः-जाः = A kind of coarse grass (Apte’s Dict.)

Cakrapāṇidatta (c. A. D. 1060) does not explain the term Aśvabala in the above extract as will be seen from the following extract from his commentary:

“ब्रह्मचर्या प्रभुत्स्य यथोक्तल<!--[endif]-->.विवृत्योऽधिशास्त्रीयः:
नातिमिश्रिता: | श्रावित्यक्षणं सर्वावसमेव
देशनिष्कृतं बेलवश्रृंखल || अश्वबलेति
शा ते हृति श्रावित्यमर्वेतामनं नान्ना शायेते
न स्पष्टं: लोकायतिवमलात् । । ।”

¹. I owe the reference to this extract to my friend Dr. Shrinivas Murri, Director, Adyar Library, who sent me an 22-11-1946 some extracts bearing on my studies for which I record here my best thanks. Without such voluntary co-operation it is impossible to tackle or clarify complicated problems of history and philology.
It will be clear from the above extract from the *Carakasamhitā* that a plant of the name नारी1 was known as "अन्धकार" to Caraka.

If now the अन्धकार plant mentioned by Caraka is identical with the अन्धकार mentioned by *Suṣruta* and if further Dallana’s explanation of अन्धकार as हिंसित्य is true to facts we can put down the following equation:—

नारी = अन्धकार = मेधिकामेड = हिंसित्य

I hope Mr. Deb will examine the correctness or otherwise of the above equation in the light of his study of medical commentaries and works on botany and *materia medica*. I would also like to know from him if he has noted any references to the plant नारी in medical or non-medical texts.

(2) In Chapter I of *Cikitsasthāna* of the *Suṣrutasamhitā* (p. 406 of N. S. P. Edition) the use of the leaf of अन्धकार (अन्धकार पत्ता) is prescribed against wounds as this chapter deals with the treatment of wounds (विषसंचित). The verse (113) of this chapter reads as follows:—

"पत्रमाधवत यथा काश्मीरोपनेत्र न || ११३ ||"

"पत्रमाधवत यथा काश्मीरोपनेत्र न || ११३ ||"

The expression "अन्धकार उपोदिका," which appears to explain अन्धकार = उपोदिका, seems to me textually faulty as in Chapter 46 of the *Suṣṭhāna*, *Suṣruta* mentions उपोदिका and अन्धकार as two different vegetables.

("तघुलीपक = उपोदिका = अन्धकार = पालक्या-नार्तक = प्रमुखी || २५६ ||" — pp. 232-233

Dallana comments on this passage as follows:—

"तघुलीपक: ‘खुलाल’ ह्रति लोके; उपोदिका पोष; अन्धकार तुहुस्तेश्वरे ‘खुलाल’ मेधिकामेड एव हिंसित्य ह्रति लोके""

If उपोदिका = पोष according to Dallana, he should not be made to equate it with अन्धकार. If we drop "उपोदिका" from the passage on p. 406 and merely read "अन्धकार तथ्या इममाधवतर" we can get better sense, as Dallana is explaining the adjectival form "अन्धकारम्."

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1. See p. 604 of *Vaidyaka-Sabdasindhu*, revised and enlarged by Kaviraj Nagendranath Sen, 1888:

"नारी, श्री। तत्तमानीपितिशोभे या अन्धकारलीत कस्ते| ग्रहणः पत्रमाधवत शङ्करः| व. भ. १ ॥ रमायणः। मैथी मातुरः। या मातुरलीपितोत्तरः। विश्वमित्रीनाटकः। सुखमोचः।"

See also pp. 843-844 — मेधिका (का, श्री) श्री (Trigonella Foenum Graecum) Fenugreek......

सा ध्रुवम् सेवीन्त ध्रुवम्याः। तत्योऽपि। पुरासै। निर्विभ. ६ ॥

अन्याः। "तत स्वर्गुपात कायम् वाणासह ततु दूषिता " भवा। (भावमकर रूपः)।

"मेधिका वातसमानी वेजिका बालवता मता।) भ्रम, १६ व. ॥"
Dallana quotes an earlier commentator ब्रह्मदेव in explaining the reference to "आश्रयवल्ल पत्रम्" and states that according to this commentator आश्रयवल्ल is "सेविकाकार विज्ञा" in the स्वयंभूमि. The "स्वयंभूमि" mentioned by Brahmadeva corresponds to the "तुक्क्तेश" mentioned by Dallana. The expression—"सेविकाकार विज्ञा" may mean "Having the आकार (state or appearance) and बीज (Seed) of सेविका." If Dallana's statement is correct ब्रह्मदेव appears to have known much earlier than Dallana (c. A. D. 1100) the relation of आश्रयवल्ल with सेविका. The connection of आश्रयवल्ल with स्वयंभूमि referred to by Brahmadeva is also very significant chronologically as Brahmadeva appears to have flourished earlier than c. A. D. 1000.¹

(3) The third reference to आश्रयवल्ल in Suśruta is in Chapter 6 of चिकित्सास्तान, which deals with the treatment of piles (आर्द्रां चिकित्सितम्). See p. 431 of N. S. Press Edition, 1938. It is as follows:—

"......यथा देशे शाक्केवास्तुक—नबुद्धीयक —जीवक्षेत्रोहिद्रका—
आश्रयवल्ल। .....वल्लिमित्यमियवै।"

Dallana explains:—

"II आश्रयवल्ल हिष्कीर्यो सेविकामेदः II"

It would be clear from this reference that आश्रयवल्ल of Suśruta was identified in Dallana's time with a variety of सेविका, called by its foreign name हिष्कीर्य or हिष्कीर्य. Whether the आश्रयवल्ल of Suśruta is identical with the आश्रयवल्ल of Caraka, is a problem, which needs to be investigated.² In the absence of Word-Indices to our voluminous early medical texts the study of individual words and their explanations given by early commentators is much handicapped. Recently many Ayurvedic institutions have been started in India. If the authorities of these institutions really care to stimulate a critical study of early medical texts they must organize their work on modern lines and publish not only the critical editions of these texts but other ancillary compilations like word-indices etc. which would help a close study of the enormous linguistic material and thus bring it within the domain of exact scholarship.

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¹ Vide my paper in Indian Culture (1944) Vol. XI, pp. 36-39. Cakrapāṇidatta (c. A. D. 1060) mentions ब्रह्मदेव as an earlier commentator (पुरुषोत्तर कृपा) in the following extract:—

"अश्रयचेत पतः: पुरुषोत्तरकृपिः: मातस्त: —स्वास्थ्यदासास्तानस्मात-प्रतिश्रव-प्रमूर्तिचिमं
स्वास्थ्यास्ताने न प्रतीतिद्वृतं। चर्मादानानि समादेऽस्त्रं पात्र:।"


² We want to know from Persian scholars the exact meaning of हिष्किक (स्फो) त्व from Persian sources earlier than A. D. 1100.
45. References to Tobacco in some Sanskrit works between A. D. 1600 and 1900*

During the last twelve years I have published many papers on the history of Indian plants especially of medical and nutritive value. All these papers will now appear in Vol. IV of my Studies undertaken for publication by the Vedic Research Institute of Hoshiarpur. Many of the Indian plants which have enriched Indian life and culture were imported into India at different stages of India's age-long history as my papers have amply revealed. A study of the migration of plants from their native homes is as entertaining as the study of human migration. Among the American plants that have migrated to the other parts of the world including India the potato and the tobacco are important ones. These two plants though introduced into India about the beginning of the 17th century have influenced Indian life and culture to such an extent that many people have forgotten their foreign origin. I intended to write an elaborate paper on the history of one of these plants viz. tobacco. Accordingly I have collected some material especially from Indian sources. A part of this material is released in the present paper which records some references to tobacco in Sanskrit works composed between c. A. D. 1600 and 1900. Though tobacco entered India about A. D. 1600 its use and production spread rapidly to such an extent that India is to-day one of the three largest tobacco-producing countries of the world.

In the Subhaṣītaratnakāndāgāra: (N. S. Press, Bombay, 1911) the following seven Sanskrit verses of unknown date and authorship are recorded:—


1. The editor has recorded in foot-notes on page 104 the meanings and double meanings of some of the words in the seven verses on tobacco recorded by him. They are:—

Verse 1—अध्यापनम् = आध्यापकविक: बाह्यन वस्त्र
— मा = लक्ष्मी:
अभावादाय तस्मादप्रत्र मा गज

Verse 3 — निद्राजा: = हन्द
— प्रायोगिकम् = प्रशदवर्म

Verse 5 — सुप्रसैन गर्भेन सेिवतः; (पत्रे) सुध्याप्वेण नाववली—
दलेन यह परिसेिवितः
References to Tobacco in some Sanskrit works

Page 104 — तमाशा

“तमासूपनः राजेन्द्र भजमानादायकम्।
तमासूपनः राजेन्द्र भजमानादायकम्॥ १॥
दारिवदुश्मिनारस्तमासू। नैव सुवर्णः।
निवारिपातिनः मारजारस्तमासू। नैव सुवर्णः॥ २॥
दिव्यज्ञा: पुरा पुराणवाचयोऽनि
धरिचीत्वे सारस्वत विषयेति।
सर्वमिश्रेयार्त्यवच्चविनिश्चित।
स्त्राचारुक्त्वर्तमासूकलंतमासूधुः॥ ३॥
न स्त्रां नीरवामिनः न च वा सुवर्णः।
नारिपातिनः किमिनः सुण्डरातमासूवृंपृभुः।
किं चाविरोजनम् किं च कर्मय भोगे
वीजं नुस्त्रां नहिः नहिः व्यवहरणविनायत्॥ ४॥
सुचिर्पिनिसिद्धस्वत्तद्वृत्तमासूत् साहूपाविवितो।
विज्ञानमहापादः तद्वत् चारसंघानमासू।
स्वेत अतपायानां भवति वसं।
सर्वस्त्राकुलिनितिः सृव्यतां सहितवति क्रृिया यतो रणिता।॥ ५॥
श्रीकपला: पुराणमाः: स्त्राचारुक्त्वस्वाक्कलंपर् नूतः।
प्रसकन्या भूमिकेदी किमिनः किं पित्रीं तथादा तस्य वक्तवः॥
तस्यायः सर्वमासूः: सुवर्णपवर्मोक्तिश्चतदत्तुर्ताः
स्त्रां नतत्त्वा विपत्तम् हानिकालमिति सुभा सेवते बुधाधार्यः॥ ६॥
अति: कैलयं तमासूपूर्णमासिन्न कुलो वारिखे: पुरानपरात्
केल्यं दुर्दार्यानि नहिः तच्च किंतु क्रृियामये राजः।
From the foregoing verses we learn the following details about the use of tobacco:

**Verse 2** — Howsoever poor a man may be, he does not leave the use of tobacco.

**Verse 4** — "शुष्कतमालांचूरूणाः" or dried powder of the tobacco leaves was used for smoking and chewing.

— "सुधा त्यधार्म्या" i.e. the chewing of tobacco powder mixed with chunam had become common.

— Reddening (संतिल) of the mouth was caused by the chewing of tobacco mixed with chunam (सुधा).

— The users of पूर्ण (betel leaf) and the betel-nut (पूर्ण) with सार (बर्दसार) i.e. powdered catechu also used to chew the tobacco powder in combination with these ingredients of tāmbūla.

Though the authorship and chronology of the verses recorded above is unknown, I have reason to believe that they were composed at a time when the use of tobacco had become very popular in India and all prejudices against its use even in orthodox circles were fast disappearing.

In the *Rājavyavahārakośa*, a lexicon prepared by Raghunātha Paudita by the order of Shivaji the Great about A.D. 1676, many foreign words are recorded and explained. Among these words we find the following references to tobacco (tamākhā):

**Verse 89** on p. 8 of *Rājavyavahārakośa*, Poona, 1880 —

"शूष्कवत् गुडगुडी तमाखुधेमपन्रथम्॥"

This line records two words viz.

1. गुडगुडी = Hookah for smoking.
2. तमाखु = tobacco leaf used for smoking.

This reference clearly shows the currency of the tobacco smoking in Mahārāṣṭra about A.D. 1676. This popularity of tobacco in the Deccan is further vouched by other references recorded in this paper.

The use of tobacco in Shivaji’s army had become current in the middle of the 17th century. In his order to his officers issued in A.D. 1673 he warns them against the careless smoking of tobacco pipes, which was likely to result in the breakout of fire destroying the fodder for horses etc. (see p. 114 of *Source-Book of Indian History* by K. S. Kini, Mangalore, 1933 — Document No. 61 taken from *Shivaji Souvenir* by G. S. Sardesai). The pertinent extract in this order reads as follows:
"Some will take away live coal for smoking their tobacco-pipes with, without minding the direction in which the wind might be blowing or the grass that might have been lying about, thus causing ruinous fires unexpectedly."

Lolimbaraja, a physician of Junnar in the Poona District, lived between c. A. D. 1575 and 1625. He composed several medical works in Sanskrit, one of which is Vaidyavatamsa represented by a MS in the Govt. MSS library at the B. O. R. Institute, Poona (No. 601 of 1899–1915). The MS is dated Śaka 1724 = A. D. 1802. On folios 6 and 7 of this MS the following verses about तमाजु (tobacco) are found:—

"भूमाल्यो भूतकृत्य वहनता शुरूः।
तमाजु कुचक्कलो भूमाल्योदयाः। ॥ ५५ ॥
बहुतीवन् बहुक्कं भूमाल्यो दोषेः। ॥
दोषेनापरेव उच्च मुखण्या । ॥ ५६ ॥
तत्व वत्र तीक्ष्ण्यो यथायताः। ॥ ५७ ॥
शामकाराय नैव कोषालातः। ॥ ५८ ॥
वातावरणो मनक्र बहस्तो भोजननुमतं। ॥
दंतरकास्मि नैव कुमायुक्तिविद्यायां। ॥ ५९ ॥
सदिकपत्भमकर वमन रचन्त स्पष्टं। ॥
हन्तित्यादिकर नैव क्रममाणुकरं परं। ॥ ६० ॥
तत्वैव भूमाल्येन विशेषावशिष्यते। ॥
देशांत्वमनवेदन तीक्ष्णावशविद्याया। ॥ ६१ ॥
वननस्य प्रभावेन व्रतिकादिविभें हरेत। ॥
रचनाशंभरेदायं श्लेष्मायां न विनस्यति। ॥ ६२ ॥

इति तमाजुनामयुगां वर्णयोगालोकंहि॥"

The above seven verses do not appear to form part of the Vaidyavatamsa of Lolimbaraja as tobacco had not become very popular in the Deccan during the life-time of Lolimbaraja (c.A.D. 1575—1625). This supposition is further supported by the statement of the colophon at the end of the verses viz. "आयुर्विदीय संग्रहः" i.e. "gathered from another work." We have now to find out the source of these verses interpolated in a MS of the work dated A.D. 1802. In this connection the following facts may be noted:—

(1) These seven verses are found in the medical compendium Yogaratnakara which was composed between c. A.D. 1625 and 1750 and a MS of which is dated A.D. 1746. Very probably the copyist of the MS of the Vaidyavatamsa dated A.D. 1802 has

1. This MS of Vaidyavatamsa records the properties of ब्राह्म, ब्राह्म, आयुर्विदीय, बुद्धिस, वेदरोफल, मारिग, राजादन, वक्तुहल, वारोफल, करणक, शुचि, शुद्धिश, कागदिनितु, विच, आदि (आले), आसलक, भोकरे, कमरे, कदलीफल, कांच.
taken these verses from the *Yogaratnākara*.

(2) Some of the properties of tobacco mentioned in these verses are also mentioned in the verses about tobacco recorded in the work *Śaligramaśāntu*.

(3) Whether these verses were composed by the author of the *Yogaratnākara* cannot be determined with certainty. It is, however, clear that they were composed prior to A.D. 1746, the date of one of the MSS of this work used by the editor for the edition of the work in the Ānandaśrama Sanskrit Series.

The anonymous medical compendium *Yogaratnākara* (ed. Ānandaśrama Sanskrit Series No. 4, Poona, 1900) was composed between c.A.D. 1625 and 1750 as I have shown in my paper on the date of this work published in the *Bharatīya Vidya* (1943) Vol. IV, No 2, pp. 154—156. One of the MSS used by the editor of this work is dated Śaka 1668 (= A.D. 1746). The following Sanskrit verses about tobacco are found in this compendium:

_Pages 17-18 — ब्राह्मण तमामकुमारः _

"भूमिहालो धूमकक्षक धूमकक्षक धूर: |
तमामकुमारे बुधलं सुधम्मकक्षक दीर्घकं |
दैवी पालनिपण्डु च पुरुष तस्य प्रकृतितम् |
तस्य पत्रे न दुतीषणे कर्मवाहकः परम् |
शाहकाम्बरे हृद वीरवाहकः तथा |
वातावरणालोकारण सतिद्रोहः प्रतितम|
द्वत्तसर्वस्मां चैव किरिका निदित्वानाशनम् |
मद्विशक्रमकरं वर्णम रेण्यन रूपमातः |
हृद्यामांकरं हृद नीस्वातुकरं तथा |

_"_
We get the following information about tobacco from the above verses:

(1) **Description of the tobacco plant.**

(2) **Its use for smoking in a Hookah (धूमयन्त्रकाशिक).**

(3) **Its medical properties**—**Its use against tooth-ache, its germicidal properties (v. 4)**—**its use against scorpion bites (v. 7).**

Panta Viṭṭhalā (Viṭhoba Anna Paradkar) composed a work called *Suslokalāghava* with “Sadbhaktītīka” in Śaka 1775 (= A.D. 1853). In the second edition of this work by K. N. Sane, 1895 we find the following reference to tobacco (तमाल्षः):

p. 115 — “धूमपत्री तमाल्ष्युदः भारायाः। तां वर्णधिति—
सर्वपूर्णार्थित्वाऽलितो मवत्ति साधित्युपालितः।
करोति सुहोत्त्विति हिर्ज्यान्याः सङ्कल्पितः।
सदा स्थिरते सुधामिति सुधा गदास्तृतम—
सत्तमाल्ष्युदः सेव्यतां न बिन्तनौति रागम् यतः। || ५२२ ||”

Com. सुपूर्णिति। सुप्पुर्णिति वांढुलीलिति हैः: भीतिति: सेव्यति:। साधु पूर्ण तत्पर्यं धिर्ज्यान्याः दंतनां दृष्टित्वादि दृष्टिपति दृष्टिपति दृष्टिपति। धूमपत्री दंततदंतप्राणदा विचरकी सरा (भता इ०)’ इति वैद्यकावः। सारः चवदसारः। सुधा चूँदः। ध्रृष्टं (गदास्तृतम्) सुधा चूँदः। दिवां चांदां... || ५२२ ||”

Vaidya Bapalal G. Shah in his *Nīghantū Adarśa* (Vegetable Materia Medica) Part II (1928) devotes pp. 159-163 to Tobacco and records the following Sanskrit verses about tobacco:

Page 159 — “तमाल्षः विचलस्तीतिभिः वर्तितिविश्वाचारः।
मदद्रुमायन्तिकों इत्यामित्वकः। सरः।||
वामकः कठुको चन्द्रो चांदायां नितिकेलमः।||
कनकालायांकोवङ्काकालः।||"
Page 160 — “कल्याणसंवेदनाध्यमपानात्
स्वाहित्वशुद्धिसुधीरस्यागानि:।
कपालमानवरह्नेनिन्द्य
गाम्यविबोधवीक्षितेनेवम्।।” — विभूतिविद्वानराजार्थी

Raghunātha Indraji alias Katabhat in his Nighañṭa-Samgraha (Junagad, 1893) records the following verses about Tobacco:

Page 594 — अथ तमाकुणि नामयुणा ४८६
“वज्रभ्राजचारपथा कृमिः तायामुक्तः।।

|| गुणाः:।। 1. तमाकु: पिचलस्तीत्वश्रोषी वर्तितविरोधनः।।
2. मदकुरामकस्तिको दुष्किमांशकः करः।।
3. वामकः कठोरो रग्यो वातस्त्रातुमित्रोपकः।।
4. कपालास्वाजवाकौतकस्वाकौतकमेष्येत्।।
5. दन्त्युक्तप्रकृतिः कृतायूकादिकानु गदाच।।
6. दुष्किमादिविविष शोभं नाश्येदिति कौतितः।।

|| निर्देशदर्ताकः प. २३२
7. वज्रभ्राजः तु कठोरुकः चोप्याध्याससजापाः।।
8. हिकां कठोरों वातः गुर्मं च पीनन्त॥
9. प्लीषां जैत्यामसुमुदरस्थं रज्जे जयेतु॥”

|| निर्देशदर्ताकः प. १७७”

1. Possibly this work is identical with निर्देशदर्ताकः published at Bombay in 1868.
Lines 1-6 in the above extract are quoted by Bapalal Shah in his *Nighantu Adarsa*, Part II, p. 159. The source of these lines is *Saligramanighantu* according to Bapalal. Lines 7-9 are also quoted by Bapalal and their source is mentioned as *Nighanstratnakara*. Katabhat also mentions this source for these three lines.

The tendency of Indian medical works was towards incorporating new plants into them and mentioning their properties as will be seen from the extracts about *tobacco* recorded from these works in this paper. I shall feel thankful if any readers of this paper point out to me any more references to *tobacco* in Sanskrit sources than what I have discovered and recorded above.
46. References to Tobacco in Marathi Literature and Records between A. D. 1600 and 1900*

Owing to my interest in the history of Indian plants, I have published more than twenty papers on their history. No correct history of Indian plant-lore can be written unless the history of every Indian plant is reconstructed and recorded. Among the plants of medical and nutritive value there are many plants, which have migrated to India from different and distant parts of the globe like America. Tobacco, an American plant, migrated to Europe in the middle of the sixteenth century and thence to India about A. D. 1600. The history of this migration as reflected in the regional literature of India ought to be reconstructed. I am struggling in this direction and have collected some material which though scanty would be useful to other scholars interested in this subject. Accordingly I have sent for publication in the Dr. Jadunath Sarkar Volume to be published by the University of Panjab, a paper on "Some references to Tobacco in Sanskrit Works between A. D. 1600 and 1900." In the present paper I have put together some references to tobacco in Marathi records and literature for the above period (A. D. 1600 — 1900). Many more such references can be found by students of Marathi sources. I have, therefore, to request such students to record them with a view to supplementing my references. In particular I would like to know any references to tobacco in Marathi sources prior to A. D. 1600.

Some of the published Marathi documents contain references to tobacco and the duties imposed on its export and import into and from the Maratha country as will be seen from the following evidence kindly supplied to me by my friend Shri V. S. Bendre:—

(1) Sources of Maratha History by V. K. Rajawade, Khanda 20, pp. 108-109—Document dated 12th December 1695 refers to duty on


1. All my papers on the history of Indian plants are reprinted in the present volume of my Studies in Indian Cultural History.

2. This has since been published in 2 Parts, Price Rs. 50/-.
References to Tobacco in Marathi Literature

419

तुंबा, cloth etc. (This volume was published by the B. I. S. Mandal, Poona, in 1915).

(2) श्रीमंतराजकस्थी पत्रन्यवहार (B. I. S. Mandal Quarterly, Vol. XXVIII, Nos. 3 and 4, Jan.—April 1948, pp. 70-71). Document No. 81 dated 13th August 1773 refers to तुंबा.

(3) Ibid, pp. 15-16—Document No. 10 dated about A. D. 1730 or a little earlier—Reference to the Portuguese conversion of Hindus to Christianity—Reference to तुंबा.

(4) दित्रांचिन साहित्य Khaṇḍa 10, Sources of the History of Konkan, B. I. S. Mandal Series No. 86, pp. 8—15—Document No. 6 (17th Century) contains a long statement of various goods exported from and imported into Pen in the Kolaba Dist., and the duties imposed on them—Reference to duty on तुंबा.


(6) Ibid, pp. 157-161, Document No. 919—Rates of duty on तुंबा are given.

(7) —Ibid—Khaṇḍa 7, B. I. S. Mandal Series No. 50—Document No. 54 dated 15th February 1671—References to तुंबा (pages 84, 89).


(9) —Ibid—p. 117 and 121. Document No. 66 dated A. D. 1689—Reference to revenue charges on तुंबा and राजाले crops.


(11) In the work called पुरुषक मेल्स्सक or मेल्स्सकविभाषा published by the historian V. K. RAJAWADE in the B. I. S. Mandal Ahavāl, 1912, pages 28-56) we find a reference to the cultivation of the tobacco crop in the Deccan in the following lines:

Page 39—“तुंबा आशिए अक्रीम | हे ही जिनत गहन | सामाहीमाजिस प्रजानन | विशेष फिकूची | २७ ||”

Tobacco and opium are mentioned as being produced by the people twice a year. The MS of this work used by RAJAWADE is dated Śaka 1667 (=A. D. 1745) but the work itself belongs to the time of King Rajaram (A. D. 1670—1700) according to RAJAWADE (p. 27). In the Proceedings of the B. I. S. Mandal for Śaka 1833 (A. D. 1911) RAJAWADE
has published another \textit{Mestak} (pp. 131-41). \textit{Tobacco} (तंबाकू) and \textit{opium} (\textit{Aphim}) are also mentioned in this work (p. 132).

The Maratha King Shahu, who was brought up at the Mogul Court in his early life, was in the habit of smoking \textit{tobacco} of two kinds viz (1) \textit{Surati} (obtained from Surat) and (2) \textit{Bagdadi} (obtained from Baghdad). In a list of articles ordered by him from the English through Kanhoji Angria on 3rd August 1715 we find "तमाखू सुसती" and "तमाखू बाहळी" (See Document No. 53 in Vol. 8 of the \textit{Peshwa Daftar} p. 38, Bombay, 1931).

In a document dated 21st December 1741 in the \textit{Selections from Vaidya Daftar, Khanda 3}, p. 50 (B. I. S. Mandal, Poona) there is a reference to "तमाखूभुजा." Possibly "गूल" in this reference means the charcoal ball used in a \textit{Hukka}. The Editor explains "गूल" as "गुलकादी" or a match to light the Hooka or a Cigar.

The Marathi poet Madhva Munishvara refers to \textit{tobacco} and smoking accessories in his songs. His poems have been edited by P. V. GUBBI (सत्यमुनिशवार्ती कक्षा, B. I. S. Mandal, Poona, 1933). GUBBI says that he died in \textit{Saka} 1653 = A. D. 1731 (p. 17 of his \textit{Caritra} at the beginning of the volume). According to Shri V. S. BENDRE this poet is later than saint Tukarāma and before 17th December 1733, the date of his death. I note below some references to \textit{tobacco} in the above edition of his poems:—

\textit{Page 2} — "जीवो जीवो संक्षे महुरते ते आराहात यांे सुखे।
भाऊ भाऊ तमाखू सेिकते तथा ते तल बोधू सुखे॥"

These lines mention the use of ाफू (opium) भाग (hemp) and तमाखू (tobacco) current before A. D. 1733 among the \textit{Jogis} and \textit{Jangamas} etc. of Mahārāṣṭra.

\textit{Page 146} — \textit{Abhanga No. 499}

"गूलमुरू भोग तांबाकू नले मंदाकिनी।
जीर मेिशकामि उतरते॥१६॥
\textit{Aphim} गांजा तंबाकू भूम।
भूसातीसम सेिक तभे॥१॥"

These lines refer to गूलमुरू (Hukka) and the smoke of गांजा (hemp) and तंबाकू (tobacco) which was regarded as \textit{Aphim} (unholy) in religious circles.

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1. See article on \textit{BHANG} in \textit{Hobson Jobson} by \textit{Yule and Burnell}, London, 1903, p. 59. References to \textit{Bhâng} from A. D. 1563 (Garcia, f. 26) onwards are recorded in this article. About \textit{आफू} (opium) see article on \textit{Opium} (p. 641) where references to \textit{opium} from c. A. D 70 are recorded.
References to Tobacco in Marathi Literature

Page 130 — No. 445 (Śloka)

“तो दैत्यसे हिंग जिरे सुगारी।
पानी तमालु कर्दा अफारी
... ... ... ... \[श्\]

The above lines refer to तमालु (tobacco) and जरदा (tobacco used for chewing). The adjective अफारी applied to जरदा indicates a special variety of it. I have not been able to know exactly the meaning of this adjective.

The reference to Jarada used for chewing is important as it shows that the use of tobacco for chewing purposes had become current in the Maharashtra long prior to the date of the death of Madhya Munisvara viz. A.D. 1733. Very probably smoking and chewing of tobacco had become current in the Deccan simultaneously in the 17th century.

Page 155 — No. 528 (pada) refers to the following articles:—

1. तमालु — tobacco.
2. बैँची — A wallet used for keeping betel nut, betel leaves, nutcracker, tobacco etc.
3. बटवा — A pouch for holding tobacco etc.
4. गाड़में — An earthen vessel for keeping Chunam used with betel or tobacco for chewing purposes.
5. फड़के — A small piece of cloth used for being fixed at one end of the tobacco pipe through which the smoke is inhaled by the mouth.
6. कोष्ठक चुना — Chunam kept in a box (a mango stone of which the interior is cleaned and made hollow for admitting the Chunam through a small hole). Metallic receptacles of the size of a mango stone for holding Chunam were also current as they were more durable.

1. The name जरदा means "of a yellow or tawny colour" in Persian. In the Rajaivajoharaka of Raghunatha Pada (c. A.D. 1676) several kinds of horses and their name are recorded in the Caturangaavarga, verses 164—168 (Poona Edition, 1886). In verse 165 a tawny-coloured horse is mentioned as ‘जरदा’ (‘जरदा पिठल: स्तुर्ति’). The tobacco used for chewing today is also of this tawny or yellowish colour.

2. References to the chewing of tobacco are rare. Two years ago Dr. Khanolkar, the Director of the Cancer Research Institute, Bombay, inquired about such references personally. I could not then give him any reference to Jarada, which I discovered later and reported to him.

Thomas Bowrey in his Account of Countries round the Bay of Bengal (A.D. 1669 to 1679), London, 1905, p. 303, refers to the chewing of tobacco, a habit then current in India and South Sea Islands. At Achin city in the north of Sumatra he was honoured with "Betelie Areas to eat and tobacco to chew, a custom used all India and south seas over."
Page 156 — No. 529 (Pada) refers to the following articles:—

(1) गुड्दी — Hukka
(2) विक्षम — An earthen tobacco pipe
(3) तंबूल — tobacco

Page 94 — No. 325 (Pada) refers to the use of the betel after dinner:—

"साउन्य जेलुनी विक्षम लेबुनी वानस्पतिक लार्बारे।
मुसली मुगिसारे देस्थान शंगनेच्या रंगा रे॥ २९॥"

In this stanza the word विक्षम possibly means small betel-leaf rolls with betel etc. At present विक्षम means a cigarette and विक्षम means a tambula (betel, betel-leaf with catechu, chunam etc.). In the present stanza the uses of विक्षम and पानस्पतिक (betel-leaf and betel-nut) are separately mentioned. It may be possible to interpret विक्षम as small country cigarettes which people smoke while chewing पान (leaf) and मुसली (betel-nut bits).

My friend Shri V. S. BENDRE has kindly supplied to me a very interesting extract about the condemnation of the habit of smoking tobacco by a Marathi religious Muslim poet of the 17th century. According to Shri BENDRE this poet of the name SHAHIK MAHOMAD flourished between A.D. 1570 and 1655 at Shrigonde village of the Ahmadnagar Distt., of the Bombay State. He composed a work called the योगसांग्राम (Yoga-Sangrama) which was completed on 28th July, 1645. In Prasanga 16 of this work we find the following vigorous condemnation of the use of tobacco which was pervading in all ranks of the society in the Maharashtra in the 17th century:—

1. The Colophon of the Yogasaṅgrama recording the date reads as follows:—

"परंतु नाम संक्षेप — श्रुद्ध पृष्ठिमा सोमवार | गुद्ध महापुरूषो राज इति ॥ ३१॥ श्रुद्ध श्रावणांशास्पद विक्षम तथा प्रकाशित पवित्रांशिकां सोमवाराणि ठेवा। . . . . ॥ ३१॥ समुद्रतंत्रमंत्रिष्ठा प्राप्तकाल | चढली रविचन्द्राची प्रकाशकाला। . . . . ॥ ३२॥ सम्पूर्ण संघाची अवस्था | ऐका पृष्ठिचे धेषी पृष्ठिचे | शर्य शेष महामदवका | सत्यरुपणर्यी॥ ३३॥ ते विद्यानी गांध संपूर्ण = २८व्यथां १६४५ अनुसार होते॥"

[In the Madhyayayugīna Carittrakosa by S. Chitra, Poona, 1937, pp. 782-783 there is an article on Shaikh Mahomad. His works recorded in this article are:— (1) योगसांग्राम (A.D. 1696) (4) निकलतंत्रभाद्र (3) ज्ञानस्याद, and (8) प्रात्तिकल्प. This article is based on the information about this poet in महाराष्ट्रकीि, Vol. I, pp. 236-248. The date A. D. 1696 for the Yogasaṅgrama recorded here conflicts with Shri BENDRE’s date for the work viz. A. D. 1645 (28th July).]
प्रसंग १६ वा—
“शहादे चतुर गुलाम भिले | योगी ब्राह्मण मन्त्रयिता चांगले | सुनसोफी तलावर नानावेळ घरले | रात लागुनाचं || १६ ||
बा बेचले राजसी दंभारी | कुलद श्यामाविली परापड़ि | जसांत बेचे महाराज, नेतीं मिरवी शोरी | श्रविचार कहलावणां || १७ ||
ऐसं संसारीय काय कारण? सदृश जीवनाची कोईं मदसुदन | त्यांचे कायमित्र वाकी वहन | तमालुंचे वाकवडी || १८ ||
एक नगर दुबारिल्याचं हिंसा | एका विचारींचं घब ऐसा | सांगेन तो भाव परिवेसा | समस्त ही तुम्ही || १६ ||
जेव्हा शुरुका श्रीविली वाकवडी | तेव्हा मुखऱ्यों पहती लम्ब कोडी | मारूता जेव्हा धूर उड्डवांची कोडी | तेव्हा भ्रान्त प्रत्यं || २० ||
tैसे भा-नावाचे भाऊ उड्डीत | ल्याहून कोंडाले श्राबंधवाली | श्राबंधवा लजम काथांनें सुदुर्म | श्रविचार | विषांकी कोंडाली ||२१||
लक्ष्मिनारायण बोलवान जनी विचारांनी | हे व्यास हूंत तो भ्रान्तानी | येथे उद्दंक कथात वेषांनी | भेंगे मराठी ||२२||
विश्व महा श्राचारं तत्त्वां || संकटहार उंच माळी कुठली | मुखां वाळी गुड्गुढीची | नभें || हिंसा इतरांचं ||२३||
या बेचले पडतीं श्रावक श्राचारं | शेंगून शेरंचा मुखावर उन्नीत धूरं | श्रीविली परि नेतीरहित बिचार | परमार्थबुद्धींचे ||२४||
श्रांगों श्रोत्रेन धूर फण्डेक | उठवावांचें श्रीविली वाहरं पुंक | संग भांत जाव न नेती विचेक | उन्नीताच्या पैं ||२५||
विश्व शुद्ध मस्तीव्याय श्रेष्ठ यात्री | एके गुड्गुढीची स्वरें करती | श्राबंधवा त्या महावृट नारी मेंगीती | एका ब्रताराच्या श्रास्तूं ||२६||
शेंगे नालीबव बुहुं श्रातांचें चुंबन | गरती महावृट लाभावती वदन | परदार पडल्यें ते नेतीरहितं | खूंच | नारिजनच बेंजेनींचा ||२७||
सुंदर मनुष्यांत वेकलं वदन | ल्यागूं धूम बालतं कथां कारसं | परमार्थांचं उपचारं | श्रामाणी न करती ||२८||
कोरडधार चवदत्तंत्र श्रास्थि | बाण न होयच तुम्ही | तैसें जन विपयपतं नगरं | तमालुं श्रीविली ||२९||
उदरांत कठमलीनं वेते वेही | दुरांच उठे मुलामितीं || नेत्र वंद मोटी श्रविचारी | क्रेशं नालींचा ||३०||
कोरडी विपय लाभिक नाहीं | द्रव्य वृतून शकलं पाही | मानापमाणा नयोजी कोंडी || बांढर न पाहती ||२१||
From the above extract of 32 stanzas we get the following information about the use of tobacco in the 17th century in the Maharashtra:

(1) The habit of smoking tobacco had become current in all ranks of society.

(2) The use of tobacco was not confined only to men but to women also (Stanza 26).

(3) The evil effects of tobacco are noted by Shaikh Mahomad (st. 30).

(4) Tobacco was not viewed with favour in religious circles to which Shaikh Mahomad belonged.

(5) Shaikh Mahomad condemns vigorously the habit of smoking tobacco and exhorts people to adopt a spiritual mode of life.

(6) The above extract contains references to —

(i) तमाखु — tobacco
(ii) गुंडूली — Hookah
(iii) चिन्चू — (Earthen) tobacco pipe.

(7) The same Hookah or tobacco pipe was used by men and women of different castes without any sense of cleanliness. Even the Brahmins were addicted to its use.

The Maratha saint Tukārama (A. D. 1608—1650 March) also condemns the use of tobacco in the following extract:

"प्रेमसंत हाअे खण्डी | तेंडी तमाखुखी नली || १ ||
स्नान संयम शुद्धिली | पुढे भाग वोटिली || २ ||
मांगुळा हें साधन | पन्हो पडे मद्यपान || ३ ||
तुका महणे अवतें संग | तेथे कैत्यां पाण्युल || ४ ||
"

(See Tukārama Gatha published by Bombay Govt Abhanga No. 2857).

1. Shri Bendre has sent me the following extract about the use of tobacco among Brahmins condemned by Shaikh Mahomad:

"तमाखुखु धुर इतरात्या वोगळ ||
द्वित पोडळ लाल्क हुरका मागे || १ ||
"

(See शेख महमद मठ संप्रद — शेख महमद काव्यसंप, कडी नं. १, क. ४)
St. Tukarama condemns the use of *tobacco*, *bhäng* (hemp) and the drinking habit (*madyapana*) in the above song.

In the *Caturntha-Sammelan-Vrta* (Śaka 1838 = 1916) of the Bharata-Ijhāsa-Samshodhak Mandal, Poona, the Maratha Historian V.K. RAJAWADE has published an article on "*Dāmāji Panta and Viṭhya Mahār* (pp. 53-67)". In this article RAJAWADE reproduces a Marathi document (*Mahajar*) about which we are told that the original document was written during the days of Bedar empire. The document was revised in Hijari era 1051 = Śaka 1563 = A.D. 1641. The document reproduced by RAJAWADE is a copy of the revised copy of A.D. 1641. This second copy of the original with its revision was made about 100 years before 1916 i.e. about A.D. 1816. At the end of this copy there is reference to ELPHINSTONE (एल्फिंस्टोन) at Poona. This copy mentions some products and crops of the Maratha country as follows:

| Page 58—(1) | गाह—Wheat | तंबाह—Tobacco (p. 59) |
| (2) हरसरे—Gram (Cicer) | (20) सुपारी—Betel-nuts (p. 59) |
| (3) लखन—Garlic | (21) चारण—Betel-leaves (p. 59) |
| (4) शाले—Ginger | (22) तीत्र—Sesamum (p. 59) |
| (5) वित्त | (23) सावे | लागे |
| (6) नागली | (24) राजङ | बरया |
| (7) मिरस्त्र्या—Chillies | (25) कावु—Cotton |
| (8) सुंग | (26) झांसी—Ground nuts |
| (9) काहार्वले | (27) शेठ—Rice |
| (10) हुङ्गा | (28) पौड्रे—Plantains |
| (11) किन्नल गाह | (29) जैतु—Turmeric |
| (12) जोरी—Jawar | (30) लिङ्गू—Rice |
| (Sorghum) | (31) नोखाक—Coconuts |
| (13) युभर—Turmeric | (32) नासोत—Plantains |
| (14) तोडूल—Rice | (33) गूढ—Rice |
| (15) वेळ | (34) काक्सी |
| (16) सादु | (35) लडा |

We specially note in the above list the mention of *Tobacco* (No. 20) and Chillies (No. 7) introduced into India after about A.D. 1550. The reference to *Ground-nuts* (No. 29) is also important. The *Ground-nuts* (सूर्वगुणास्थ्या शेती ) are also referred to in a document of A.D. 1813 (see p. 155 of *मालबाई माता सायकली* by N.G. CHAPEKAR, Poona, 1937).

My friend Shri V.S. BENDRE has drawn my attention to the following references to *tobacco* in Marathi records:—
Expenditure on the articles and tobacco etc., supplied to Samsher Bahadar (лекснк No. 52—स ग. जोकिसंगह—p. 34 of B. I. S. M. Quarterly Poona, Vol. 35, Nos. 1-2—April-July 1954—B. I. S. Mandal, Sviya Granthamaiva No. 87) mentions the following items:—

23rd May 1759 —“गुड्गुडीची नेध्याची तोटी”
25th August 1759 —“गुलाबयायी” rose-water
“गुडाकु” —tobacco
24th October 1759 —“चिलीम”—earthen tobacco-pipe
“हुका” —tobacco-pipe
15th November 1759 —तमाखू (tobacco) for Madansing

Samsher Bahadar (A.D. 1734-1761) was the illegitimate son of Peshwa Baji Rao I. His mother was Mastani, the Muslim mistress of this Peshwa. Madansing was the illegitimate son of the Maratha King Sambhaji, the son of Shivaji the Great. He was in confinement for 30 years with the Moghul emperor. He was released on 23rd February 1719 (See pages 795 and 597 of the Madhyayugima Caritra Kosa by S. Chitra V Sastri, Poona, 1937).

It appears from the foregoing references that the use of tobacco had become current in royal circles during the Peshwa period.
47. A Reference to Tobacco in the Poems of Senā Nhāvi and its Bearing on his Date
(Later Than c. A. D 1550)*

Recently I published two papers on the history of Tobacco in India and outside. One of these papers records references to Tobacco in Marathi literature and documents. All these references are later than A. D. 1600. No references to Tobacco earlier than c. A. D. 1590 have yet been found by me. I have been asking for such references from scholars who have closely studied Marathi records and literature. One of these scholars, Shri. V. S. Bendre who has already helped me in my present inquiry, reported to me the following reference to Tobacco from the Gāthās of the Maharāṣṭra Saint, SENĀ NHĀVĪ:


“४२. वैशेषिक कौरवसत | गोडी संगतो निकित | ॥१॥
द्वी भ्राम प्रति खरा | देरिङ्गियां हूर करा | ॥२॥
तमालू ग्रोडिन्या सोी धूर | दुह दुह दुराराचर | ॥३॥
पान खाय कौरवसत | सचिर विटाठशोधे वीत | ॥४॥
त्वाचि संगति जयाः | सेना मुखो नरबाहु | ॥५॥”

In the above song Sena Nhāvi condemns the smoking of तमालू (Tobacco) and the chewing of betel leaf (पान) at devotional meetings. This condemnation is similar to that by another Maharāṣṭra Saint Shaikh Mahomad in his work, “Yogasangrāma” (c. A. D 1645) as also that by Saint Tukarāma (A. D. 1608–1649). Now let us record the views of Marathi scholars about the date of Sena Nhāvi.

(1) Shri S. Chitrav Shastri in his Madhyayugina Caritrakosa (Poona, 1937), p. 814, gives some information about Sena, according to which his date is “about A. D. 1448.” As tobacco was introduced into India about A. D. 1600 Sena’s reference to tobacco in the extract quoted above would lead us to conclude that his date is later than c. A. D. 1575 and consequently the date recorded by Shri Chitrav viz. “c. A. D. 1448”

will have to be rejected. If, however, we regard "c. A. D. 1448" as the correct date for Senā we are constrained to regard his reference to tobacco as spurious. I have, therefore, to request Marathi scholars to give their decision on this point after proper evaluation of the data now existing for fixing Senā's date.

(2) Prof. S. G. Tulpule has made some remarks on Senā Nāvī in his Supplement to the 4th edition [1951] of the Mahārāṣtra Sāraśvata by V. L. Bhave [pp. 912-913]. The following points from these remarks may be noted here:

(i) Senā belongs to the group of saint poets to which Jñāneśvara belongs.

(ii) He was a barber by caste and was in the service of a king of Bandogad near Jabalpur.

(iii) His mother-tongue was Hindi but being a devotee of god Vithobā of Pandharpur he knew Marathi very well.

(iv) There are many followers of Senā in Northern India from Panjab to Rajputana.

(v) The "Granth Sāheb" of the Sikhs contains a song of Senā.

(vi) According to Shri S. P. Joshi (pp. 25-26 of his book "पंजाबांतिल नामदेव") Senā did not originally belong to Mahārāṣtra. It is however, surprising that all the extant poems of Senā (about 150 abhaṇgas) are in Marathi.

(vii) He died on "Śrāvana vadya dvādasī" but the year to which this tithi belongs is not known.

(viii) According to Shri S. P. Joshi and Shri V. L. Bhave Senā's date is not as old as Jñāneśvara but he is somewhat later.

It will be seen from the views regarding Senā's date quoted above that no sure criterion has been found by Marathi scholars for fixing his date even within reasonable limits. Under these circumstances the reference to Tobacco in Senā's poems recorded in this note, if genuine, would enable us to conclude that he is later than c. A.D. 1550. This view would confirm the views expressed by Shri Joshi and Shri Bhave that Senā is somewhat later than Jñāneśvara (13th Century, though they don't give us the exact later terminus to Senā's date).
48. The History of Tobacco in India and Europe
Between A. D. 1500 and 1800*

No complete history of Tobacco in India has been published so far. I have collected some references about this history during the last fifteen years. Though my search for these references is not yet complete, I have thought it advisable to publish the references so far collected with a view to clarifying my investigation to some extent.

In the *Encyclopædia Britannica* (14th Edition, 1929) Vol. 22 we find only the following note on the history of Tobacco:

"Historical:—The tobacco plant was brought to Europe in 1558 by Francisco Fernandes, who had been sent by Philip II of Spain to investigate the products of Mexico. Jean Nicot, the French Ambassador to Portugal, sent seeds of the plant to the Queen, Catherine de' Medici. The services rendered by Nicot in spreading a knowledge of the herb have been commemorated in the scientific name of the genus Nicotiana. At first almost miraculous healing powers were attributed to the plant, and it was designated "herba panacea", "herba santa", *Sana Sancta Indorum*. "Divine tobacco" it is called by Spencer, and "our holy herb nicotian" by William Lilly.

While the plant came to Europe through Spain, its use for smoking purposes spread to the continent from England. Ralph Lane, the first Governor of Virginia, and Sir Francis Drake, brought to the notice of Sir Walter Raleigh the habit of smoking tobacco. Lane is credited with having been the first English smoker and through the influence and example of the illustrious Raleigh "Who took a pipe of tobacco a little before he went to the scaffold" the habit became rooted among Elizabethan countries. During the 17th century the indulgence in tobacco spread with marvellous rapidity through all nations." In the article on Tobacco in the *Hobson-Jobson* (by Yule and Burnell, London. 1903) we get the following information about Tobacco in general and about its introduction into India and the East:

Pages 924-926 —

*c. A. D. 1550 —

*Tobacco* is mentioned in Burton’s *Arabian Nights*, vii, 210 along with meat and vegetables but this is the insertion of

some scribe according to the editors of the Hobson-Jobson.

1542-1556 —

Girolamo Benzoni in his Travels (translated by W. H. Smyth, Hak Soc. 1857, p. 81) states: —

"going through the provinces of Guatemala and Nicaragua I have entered the house of an Indian, who had taken this herb (tobacco), which in the Mexican language is called tobacco and immediately perceived the sharp fetid smell of this truly diabolical and stinking smoke, I was obliged to go away in haste and seek some other place"

J. T. Platt in his Dictionary of Urdu, Classical Hindi and English, London, 1884 states: — "The word tobacco is from the language of Hayty and meant first the pipe, secondly the plant, thirdly the sleep which followed its use"

1558 —

Tabaccam and Tabaccane mentioned (Gul. Camdeni, Annal. Rerum, Anglicanum, regn. Elizabetha, ed. 1717, ii, 449)

1592 —

"divine Tobacco"

— The Faerie Queene, III, v. 32

1597 —

Earl of Essex at Villa Franca uses tobacco — Commentaries of Sir Francis Vere, p. 62

1598 —

"this roguish tobacco .... .... four died .... .... with taking of it .... .... its little better than rats-bane or rosaker"

— Every man in his humour, iii, 2.

1604 —

"now Impost of 6s. 8d., and the custom of 2d. per pound on tobacco"

— Calendar of State Papers, Domestic, James I, p. 159.

1604-1605 —

Visit of Asad Beg (Akbar's Ambassador) to the Bijapur Court. Asad Beg states: — "In Bijapur I had found some tobacco. Never having seen the like in India, I brought some with me and prepared a handsome pipe
of jewel work. His Majesty (Akbar) was enjoying himself after receiving my presents, and asking me how I had collected so many strange things in so short a time. When his eye fell upon the tray with the pipe and its appurtenances he expressed great surprise and examined the tobacco, which was made up in pipefuls; he inquired what it was and where I got it. The Nawab Khan-i-'Azam replied: 'This is tobacco, which is well-known in Mecca and Medina, and this doctor has brought it as a medicine for your Majesty.' His Majesty looked at it and ordered me to prepare and take him a pipe-ful. He began to smoke it, when his physician approached and forbade his doing so" .... (omitting much that is curious). "As I had brought a large supply of tobacco and pipes I sent some to several of the nobles, while others sent to ask for some; indeed all, without exception, wanted some, and the practice was introduced. After that the merchants began to sell it, so the custom of smoking spread rapidly."

— Asad Beg in Elliot, vi, 165-167.

1610 —

"The Turks.....also delight in tobacco, they take it through reeds that have joyned unto them great heads of wood to containe it. I doubt not but lately taught them, by the English:...... no question but it would prove a principall commodity. Nevertheless they will take it in corners, and are so ignorant therein, that that which in England is not saleable, doth passe here amongst them for most excellent."

— Sandys, Journey, 66.

1615 —

"tobacco"

— P. della Valle, i. 76.

1616 —

"miraculous omnipotence of our strong tasted Tobacco" (virtues of tobacco described)

— K. James I., Counterblast to Tobacco in Works, pp. 219-220

1617 —

"As the smoking of tobacco (tambāku) had taken very bad effect upon the health and mind of many persons, I ordered that no one should practice the habit. My brother Shah Abbas, also being aware of its evil effects had issued a
of Western India, Bombay, 1894, p. 210, refers to the cultivation of "Several species of Nicotiana, tobacco which Lamb calls "plant divine of rarest virtue". Such species are cultivated also "in England as garden and conservatory plants."

John Borthwick Gilchrist published his "Dictionary, English and Hindoostanee" in 1810. In the 2nd edition of this Dictionary published in London, 1825, we find the following information about tobacco:

Vol. I, P. 658 —

"tobacco, tumbakoo, bhelsa, gal, Sendhee, Soortee from Soorat (Surat) whence it was first introduced into Hindoostan, and Bhelsa is the name of a village where the best tobacco is produced, (bad) phuskoo, (cut) soolfa, (house) bhidee khanu—tabaconist, tumbakooogur."

The Gazetteer of the Poona District [Bombay Gazetteer, Vol. XX (revised edition, Bombay, 1954)] p. 202, states that tobacco is grown mostly in the villages of Junnar Taluka and also in Indapur, Purandar, Dhond, Sirur, Ambeigun, Poona City and Baramati. We are further informed that "Tobacco cultivation was introduced before 1841 by the Government who imported Syrian tobacco seeds into this district." In the late days of the 19th century Poona was the largest Snuff and tobacco market in the Deccan (p. 361). Part I of the Poona Gazetteer deals with Medicinal Plants. On p. 153 there is a note on tobacco plant (Nicotiana Tabacum Linn.) which gives its names, habitat, properties, uses, etc. Tobacco is extensively cultivated in upper Gujarat (Kaira Dist.) and in the area West of the Deccan and the S. M. Country (Satara and Belgaum Districts).

Francis Buchanan in his Patna-Gaya Report, Vol. II (1811-1812) published by the Bihar and Orissa Research Society, Patna, records the following information about tobacco:

Page 629 —

"Those who prepare the tubes used for smoking tobacco are reckoned better workmen than those in Bengal but not equal to those of Lucknow. Very few of the tubes made here are ornamented with gold and silver. Most of the tobacco is here prepared for smoking by Modis who retail provisions. Some tobacco is prepared as in Bhagalpur by the Halwais.

1. Tobacco, an American plant, came to be cultivated in India rapidly after its introduction long before 1812. About potatoes Buchanan observes as follows on p. 680 of his Report Vol. II. "The vegetables for eating consist of potatoes sent to Banaras and Bengal and of various sorts imported to Patna from the country beyond the Ganges."
(confectioners) and by those who sell paper-kites and a good
deal by those who make this business their sole profession.
Charcoal balls used in smoking are prepared by old women and
inn-keepers."

In the Baroda Gazetteer (Bombay Gazetteer, Vol. VII, Bombay, 1883)
there is a note on the cultivation of tobacco in Baroda division (p. 89).
Tobacco is differently prepared for smoking, chewing and for being taken
as snuff. If gadaku tobacco is to be prepared the plants are cut off at the
root but if jarda is to be made only the leaves are clipped.

In the Hibbert Journal for July, 1955 there is an article on 'Tobacco
as a Sacred Plant' by Lewis Spence (pp. 394-399). Some points in this
article are noted below:—

(1) Not a single instance of native testimony about the evil results of
tobacco has been noticed by Spence.

(2) The Red Man had employed tobacco for centuries as incense to
be burnt before the images of his gods. He also employed it
against bodily inflammations.

(3) The Mexican priesthood regarded tobacco as a sacred substance.

(4) In 1907 Walter Fewkes excavated some ceremonial rooms at
Casa Grande in Arizona with hundreds of tubes used for
smoking tobacco.

(5) In Mexican manuscript paintings many of the gods are re-
represented with the tobacco pouch worn by the priests.

(6) The Mexican priests were in the habit of chewing tobacco for
inducing prophetic visions.

(7) Thomas Heriot, servant to Sir Walter Raleigh, in his Brief and
True Report of the New Found Land of Virginia composed in
A. D. 1587 refers to the superstitious use of tobacco by the
natives of that province.

(8) The North American Tribes attributed magical protective
efficacy to tobacco.

(9) It is possible to suppose that a large and important body of
belief associated with a definite cult of the tobacco must have
existed among the American tribes.

The Annual Report of the Patna Museum (1942-1952) published in
1954 gives a Catalogue of objects added to the museum's Art Section
(Appendix E—pages 120-216). Among these objects we find the following
of special interest for our present paper:—
"Painting depicting a man smoking "Gargara" (hukka) and a male attendant standing before him."

"Painting on paper depicting a man making "Hukkas" (hubble bubbles) from coconut shells. A customer bargaining for a "Hukka". Patna School. 19th Century A. D."

"Painting on paper depicting a tobacco dealer weighing tobacco (for smoking) on a scale. Two 'gharas' (Jars) probably containing tobacco covered by a red cloth, and a bamboo basket containing 'Tikya' (charcoal cake for igniting tobacco) and three 'Hukkas' (hubble bubbles) on the platform. Patna School. 19th Century A. D."

"Painting on paper of a nobleman smoking Hukka and enjoying dance and music performed by a party of five women. Seven other persons are also in the group. Jaipur Qalam. 19th Century A. D."

"Painting on paper of a lady seated on 'Takht' and smoking Hukka ... Kangra School. 19th Century A. D."

"Painting on paper depicting a soldier with a gun on his shoulder and smoking Hukka. Southern India School. 19th Century A. D."

"Painting ... nobleman in company of a lady smoking Hukka. Pahari School. Late 18th Century A. D."

Painting .....lady resting on a cushion. Hukka and Spittoon near her. Delhi School. 19th Century A. D."

"Painting Nur Jahan Begum.....Hukka in the left hand"..... Delhi School. 19th Century A. D."
"Painting.....Nur Jahan with Hukka...Delhi School. 19th Century A.D."

Painting on ivory—Muhammad Mirza Fakhru holding Hukka in his right hand. (4) Ivory Painting — Mohammad Bahadur Shah II holding Hukka in his right hand.

Ivory painting — Akbar Shah II with Hukka in his right hand.

"Ivory painting—Nurjahan with Hukka in her left hand. Delhi School. 19th Century A.D."

Ivory painting — Akbar II, son of Emperor Shah Alam holding Hukka in his left hand. Delhi School. 19th Century A.D.

Ivory painting — Bahadur Shah II with Hukka in his left hand. Delhi School. 19th Century A.D.

Ivory painting — a king holding Hukka by his right hand... Delhi School... 19th Century A.D.

Ivory painting — Nobleman holding Hukka in his left hand. Delhi School... 19th Century A.D.

Ivory painting—Nobleman with Hukka in Company of a lady... Delhi School... 19th Century A.D.

Ivory painting — Nobleman with Hukka—two inscriptions mentioning Raja Balawand Singh Bahadur of Banaras... Painter's name Lala Mihar Chand is recorded...Delhi School... 19th Century A.D.

Ivory painting — Nobleman with Hukka — Date "1227 Fasli" (= A.D. 1820) recorded. Delhi School.

Painting on paper — lady with Hukka. Delhi School.
Studies in Indian Cultural History

Pages 181-182 — Nos. 1233-1245 —
Cut glass Hukkas (No. 12—Blue glass, No. 1244—Red glass).

Page 182 — Nos. 1250 and 1251 —
Marble Hukkas.
— No. 1252 and 1253 —
Black Stone Hukkas.

Page 188 — No. 1309 —
Silver enameled Hukka with copper base.
— No. 1310 —
Silver enameled base of the above Hukka. 17th Century A.D.

Page 189 — Bidri Hukkas (Nos. 1386-1388; 1393-1398; 1400-1402).

Page 207 — No. 1597 —
Painting on mica of a bearded man holding Hukka (Patna Style of painting).

In the Account of Countries round the Bay of Bengal (A.D. 1669 to 1679) Thomas Bowrey has given us pictures of two different types of Hookas with pipes for smoking tobacco (see plate VIII facing p. 104 of this Account published by the Hakluyt Society, Cambridge, 1905). These are the only datable pictures of hookas in use in India about A.D. 1670.

My friend Prof. Dr. E. Sluszkiwicz of Warsaw (Poland) informs me in his letter of 30th March 1956 that tobacco was introduced into Poland in A.D. 1590 by Uchanski from Constantinople in Turkey, where he was then Poland’s envoy.

Another friend, Dr. Vittore Pisani of Milan (Italy) writes as follows about the introduction of Tobacco in Italy in his letter of 12th February 1956:

“As to the introduction of Tobacco in Italy I can only say that this event might have taken place about A.D. 1560. Some years before that seeds had been taken to Spain and Portugal and in 1560 the famous Jean Nicot sent them to King Francois II and to Caterina de’ Medici, the French Sovereigns. As Caterina came from Florence and in her court Italians were very numerous, it is possible that through them the plant became instantly known in Italy, where tobacco was named after the Cardinal Nicolo Tornabuoni that was the nuncio at the French Court and probably first introduced in Italy the plant that received his name.”
49. History of the Art of Grafting Plants
(Between c. 500 B.C. and A.D. 1800)*

In the *Encyclopaedia Britannica* (1929, Vol. 10, pp. 598-600) there is an article on *Grafting in Animals* which begins with the following remarks:

'Every gardener is well acquainted with grafting in plants. But it is less well known that pieces of animals too may be joined in permanent union. Grafting in animals is practised mainly for scientific purposes or for the restoration of weakened or lost parts etc.'

In the article on *Horticulture* (Enc. Brit., Vol. 11, 774 ff) we are told that the term *Horticulture* is derived from the Latin *hortus* — a garden and *Culture* — cultivation. *Horticulture* originally meant the cultivation of a garden in contrast to agriculture or the cultivation of fields. In the remarks on *Plant Raising* in this article we are informed that 'some plants give their best when grown on roots which are not their own.... ...This is a very convenient method of increasing plants, for the stocks may be grown and got ready to receive the particular variety, which is joined on by grafting or budding. Grafting is a spring operation, etc.' In the above article I don't find any reference to the history of grafting.

In the article on *Chimaera* (Enc. Brit., Vol. 5, p. 502) we are informed that this term is used in botany to apply to certain types of plants formerly known as 'graft-hybrids'. These *Chimaeras* have been known in gardens for some time but their nature was understood in 1907 by H. Winker, who produced many *Chimaeras* by *cleft-grafting* of main shoots.

In this article also I don't find any history of the art of grafting practised by nations of antiquity.

In his Marathi book* on horticulture Prof. H. P. Paranjpe, retired Govt. Horticulturist, makes some remarks on the *history of grafting* (कलमंत्रा इविष्कालसः) which are pertinent to the present inquiry. I note below some points from these remarks:

(1) It seems that the art of grafting may not have been current in ancient India.

(2) There is no doubt that the Portuguese first introduced this art in India.

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(3) Under the rule of the Marathas and that of the Bijapur kings much attention was paid to mango cultivation and several varieties of mango were cultivated but there is no evidence to prove that grafting was practised in this connection.

(4) Rao Bahadur C. V. Vaidya in his work महाभारताचा उपांतिक (p. 349) quotes the following line from the Dronaparva of the Mahābhārata:

"चूलारामो वधा भग: पंचगप्प: परमेयग:।"

This line refers to the destruction of a mango garden, in which the trees, five years old, are bearing fruit. According to R. B. Vaidya this simile brings to our mind the idea of gardens of small grafted mango trees bearing fruit, now current. Prof. Paranjpe states that it would be too bold a presumption to conclude from the above reference that the art of grafting was current in Mahābhārata times.

(5) Ordinary seed-grown mango trees, if properly cultivated, are capable of bearing fruit within five or six years. It is a matter for surprise how the art of grafting disappeared from India, a preponderantly agricultural country, if it was once known. It is also surprising why this art, if it existed, did not spread and further why we should not find Desī or Sanskrit words for the terms खल्नाम and टा now in vogue.

The mango fruit and tree have been very popular in India and any art which can make this tree bear fruit early would be welcome to all. If such an art was once known it seems impossible that anything could have made it extinct.

(6) There is a tradition at Ratnagiri that Mount Stuart Elphinstone (A.D. 1779-1859) planted a grafted mango tree at this place at the close of the Peshwa period. This tree is still pointed out by the local people. Though it is a very old tree we cannot say how far this tradition is true to history.

It is clear from the above remarks that the art of grafting was unknown in India before the Portuguese advent in India (A.D. 1498) according to Prof. Paranjpe.

Maharaja Daulatram Scindia of Gwalior (A.D. 1780-1827) was a great lover of gardens and gardening. He laid out the famous Phool Bagh of Gwalior. Śiva Kavi, a court-poet of this Maharaja, composed a Hindi
work called Bag Vilas in which he refers to the four types of roses and many other fruit and flower trees worth planting in a model garden. In the following lines he refers to the कलम of roses (शुलाच) :

“जल देव ब्राह्मणारमे; पुनि सुन लेव जाव।
पूर्त मास मे कलम कर सींचो ग्रस्तगुलाब।
ग्रामे कली गुलाब मे, तबको सुनो विधान।
क्रियायद भरि माष मे, नीर न दीजे जान।”

The reference to the कलम of roses in the month of Pasa or Pauṣa (January-February) is worth noting. I leave it to our horticulturists to say if the term कलम here refers to the grafting of roses or merely ordinary cutting taken for transplantation.

In the Shorter Oxford Dictionary we get the following information about the term GRAFT and its derivations :

**GRAFT** = 1483 (a modification of Graff)—the nature of —i is uncertain
  = a shoot inserted in a slit made in another stock
  = (1626)—to insert a graft or grafts
  = (1624)—to produce (fruits) by grafting.

**GRAFTER** = (1616) one who grafts trees.
  = (1884) a kind of hand-saw used in grafting.

Graff—arch. ME (OF. grafe, greffe (mod. greffe), late L. graphium, etc.). The usages of the term Graft recorded above begin from A.D. 1483, i.e. 15 years earlier than the Portuguese advent in India (A.D. 1498). We must record the usages of the term कलम in the sense of ‘grafting’ in Hindi literature, if any, between, say, A.D. 1500 and 1800.

In the article on Mango in the Hobson-Jobson (Yule and Burnell, London, 1903, pp. 553-555) we find a record of references to Mango by foreigners from c. A.D. 1328 to 1883. In these references Goa mangoes are praised as follows :

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1. My friend Subhedar B.R. Bhalerao of Gwalior has published an article on Bag Vilas. I am quoting from an offprint of this article kindly supplied by him. (See also my article on Manufacture of Rose-water, etc. in New Indian Antiquary, Vol. VII, pp. 180-183.)

2. In the Marathi S'abdakosa by Date-Karve, Vol. II (1933) pp. 621-622, the term कलम and its several meanings are recorded. Among these meanings we find कलम explained as the art of grafting. Six kinds of grafting recorded here are :

   (1) फिल्हाली कळम, (2) पाशेक कळम, (3) दाबाचे कळम, (4) गुंटीचे कळम, (5) गुंटीचे कळम, (6) नेटकळम—No usages of the term कलम have been recorded in this dictionary. Hence it is difficult to say when the term कळम came to be applied to the art of grafting.
A.D. 1663—Bernier in his Travels states that the best mangoes 'come from Bengale, Golkunda and Goa and these are indeed excellent.'

A.D. 1673—Fryer refers to Goa mangoes as follows:

‘When ripe the apples of the Hesperides are but Fables to them; for taste the Nectarine, Peach and Apricot fall short.’

A.D. 1727—A. Hamilton praises Goa mangoes:

‘The Goa mango is reckoned the largest and most delicious to the taste of any in the world and I may add, the wholesomest and best tasted of any fruit in the world.’

Evidently the above references to Goa mangoes are to the grafted varieties, which were produced by the care and skill of the Jesuits (see Annes Maritimos, ii, 270) we must collect and record references to Goa mangoes in Indian sources between A.D. 1550 and, say, 1800. I propose to record in a special paper the history of grafted mangoes in India. In the present paper I am concerned with the history of the art of grafting, which has revolutionised horticulture in all countries of the world.

Though the Jesuits of Goa practised the art of grafting on Indian mango trees and produced its best varieties they were not the inventors of this art. In his chapter on the 'Spread of the Mohammedan Power', Davies speaks of the contribution of the Mohammedans to science and culture. In this connection he quotes an extract from Europe in the Middle Ages (Thatcher and Schwill) published by Murray. In this extract, a reference is made to the art of grafting practised by the Mohammedans as follows:

‘They (Mohammedans) practised farming in a scientific way. They had good systems of irrigation. They knew the value of irrigation. They knew the value of fertilizers. They fitted their crops to the quality of the ground. They excelled in horticulture. They knew how to graft and were able to produce some new varieties of fruits and flowers. They introduced into the West many trees and plants from the East.’

1. Vide p. 286 of An Outline of the History of the World by H. A. Davies, Oxford University Press, London, 1937. The Mohammedan or Arabic civilization during the five centuries following the death of Mohammed evolved a civilization much superior to anything that existed in Europe at the time. This civilization was greatly indebted to the civilization of Greece, Persia and perhaps India as well; but it added something of its own to what it received from these sources ... ... ... The conquests of the Turks were fatal to this civilization ... ... ... Spain was beyond the orbit of Turkish influence and the Moorish civilization in Spain maintained its vigour and power for centuries longer.
If the above remarks are correct the history of the art of grafting goes back to the period of Arabic or Mohammedan civilization, say between A.D. 650 and 1150 and as this civilization was indebted to Greece, Persia and perhaps India as well, we have to trace references to grafting in all these sources. For this purpose I note below the following information about grafting gathered by me from A Short History of Plant Sciences by Howard S. Reed, Waltham, Mass., U.S.A., 1942:—

Page 35—Theophrastus of Eresus was the founder of the botanical science. He was born c. 371 B.C. He was a disciple of Aristotle who had the highest esteem for this disciple. Aristotle in his Will gave Theophrastus his garden and library. Theophrastus took Aristotle's son under his care after his father's death. Theo. wrote 200 treatises of which two botanical works—(1) The History of Plants and (2) The Causes of Plants—have survived. His knowledge of plants included many plants brought from Asia by Alexander's followers.

Prof. Reed quotes Green's Landmarks of Botanical History (Part I—prior to 1562 A.D.), Smithsonian Institution, 1909:—

'He (Theo.) wrote from the midst of an advanced civilization ... a time when many cultivated varieties of all sorts of things had been derived through cultivation and when it was perfectly well known that such improved varieties cannot be depended on to come true to seed, but may be preserved, and the stock of each increased by division of roots, by cuttings, and by grafting.'

P. 38—De Causis Plantarum (The Causes of Plants) of Theophrastus contains less of scientific interest than the Historia (The History of Plants). ... ... The subjects discussed are:—

(1) propagation of plants by seeds, grafting and budding,
(2) the effects of weather and soil,
(3) the arts of cultivation,
(4) growth and periodicity in plants,
(5) heat and cold in plants.

P. 39—Theo. studied under Plato and Aristotle and witnessed the careers of Philip and Alexander of Macedon and knew the latter personally. He died about 285 B.C. having remarked 'We die just when we are beginning to live.'

P. 91—Edme Mariotte (c. 1620—1684) developed research in France ... ... He made some very pertinent observations stating that the sap of the original trunk acquires different qualities in each graft as shown by the character of the fruits.
It appears from the references to grafting in the works of Theophrastus (B.C. 371-285) that the art of grafting was an established feature in Greek horticulture in the fourth century B.C. We may, therefore, safely take the antiquity of grafting up to about 500 B.C.

Pliny the Elder (A.D. 23-79) was one of the most meritorious of the Roman writers. He had extraordinary capacity for work and described the way in which he continuously studied, read, or dictated to his secretaries. His Natural History in 37 books is a very elaborate encyclopaedia, containing a wealth of information not to be found elsewhere. He said it was compiled from some 2,000 volumes most of which have since been lost. His principal authorities were Greek. Aristotle and Theophrastus were frequently mentioned.

In view of the above information about Pliny recorded by Prof. Reed (Plant Sciences, pp. 41-43) I have begun to study Pliny’s Natural History in its English Translation by H. Rackham (Loeb Classical Library, William Heinemann, London, MCMXLV). In Book XV Pliny makes the following remarks about grafting:—

Page 327—Grafting.

XVII. This department of life has long ago arrived at its highest point, mankind having explored every possibility inasmuch as Virgil (Georg. II, 69) speaks of grafting nuts on an arbutus, apples on a plane and cherries on an elm. And nothing further can be devised— at all events it is now a long time since any new kind of fruit has been discovered. Moreover religious
scruples do not permit us to cross all varieties by grafting; for instance, we must not graft upon a thorn, inasmuch as it is not easy to expiate thunderbolts when they have struck them, and it is declared that the same number of bolts will strike it in a single flash as the kinds of trees that have been grafted on it.'

Page 359 — 'XXX. Before the victory of Lucius in the war against Mithridates, that is down to 47 B.C. there were no Cherry trees in Italy. Lucullus first imported them from Pontus and in 120 years they have crossed the ocean and got as far as Britain ... ... ... ... It is less than five years ago that what is called laurel-cherry was introduced, which has a not disagreeable bitter flavour and is produced by grafting a cherry on a bay-tree'.

The above extracts of the first century A.D. clearly prove that the art of grafting had reached its highest point in Rome in this century. We have seen above that Pliny quotes Virgil, the first of all the Roman epic poets (B.C. 70 — A.D. 19) on grafting. When Pliny wrote, there was a revival of intellectual energy in every field. Geographical horizons were enlarged, London was established as a Roman Settlement, Agricola sailed for the first time around Britain and an ocean route of India was opened up through the Red Sea. We have already noted above the Indian plants noted by Pliny, viz., the banyan, banana, flax, pepper, ginger, etc. In view of this Roman contact with India as also the earlier Graeco-Indian contact and the Greek occupation of the Panjaban (between 190 B.C. and 40 A.D.) we are tempted to inquire if the fame of the art of grafting current in Greece and Rome between, say, 500 B.C. and 100 A.D. had reached India prior or posterior to the composition of the earliest medical treatises of Caraka, Sushruta and others, which show a deep knowledge of plants of medical and nutritive value. The question now arises: Did the Indians develop the art of grafting at any stage of their botanical history?

1. Vide pp. 152-153 of Dr. R. N. Saletore's Life in the Gupta Age, Bombay, 1943. Here trees mentioned in Gupta inscriptions are recorded as follows: A.D. 423-424—[हूललाल], [कबूक], [नाला]; A.D. 472-474—[रोष्ठ, ब्रम्बा, लक्ष्मी, नाभा, शाकीक, शिठुचार, केलक, अतसुक]; A.D. 482 [हूल, अभ्या]; Kaiidasa mentions the following plants: केविन्दर, गुर्नाग, सत्यार्थ, सम्पूर्ण, पुष्प, अध्यात, ताली, झल, सत्यार्थ, पारिज्ञान, शाखा, शाखा, स्याम, तमाल, तरल, केल, लक्ष्मी, देवमार, शालकृ, नीय, साल, हणाणागु, ताल, हरिनात्य, शालमुक, — trees; creepers like सियाह, लक्ष्मी, माघवी, मिलुल, etc.; flowers such as गोड, सत्यार्थ, केलक, मालक, बकुल, शूष्कक, शिरीष, मनमक, करुण, शाशीक, लक्ष्मी, भूषण, पझज, बकुलबा.
The only evidence about the Indian knowledge of grafting so far pointed out by scholars belongs to the sixth century A.D. It is as follows:—

Dr. G. P. Majumdar in his chapter on *Plant Physiology* (pp. 39-40 of *Vanaspati*, Calcutta, 1927) records the following evidence of the *Bṛhatāṇhitā* of Varāhamihira (c. A.D. 500):—

'Methods of plantations by cutting and graftings: In addition to the ordinary method of propagation by seeds the methods of propagation by cuttings and graftings were known from time immemorial, so much so, that the plants to which these methods can be applied are definitely named.'

The following verses from the *Bṛhatāṇhitā* distinctly name the plants and these methods:—

'Kāntāl (Jack fruit tree), Aśoka, Kadali (plantain), Jambu, Lakoocha, Dādima, Drākṣhya, Pālivata, Vijāpura (Matulanga), Atimukhtaka — these are the plants to be propagated by means of cuttings besmeared with cowdung (एते हुमाम कांडा रोपया: गौमेयन प्रलेपिताः)

'Better than this method is the method of propagation by grafting. This can be done in two ways — the cutting of one plant is either inserted on the root of another plant, or on the stem of another plant (भूतोऽवेदेयवणो रक्ति एऽरोपया: परं ततः).'

'Grafts should be smeared with cowdung. For transplanting (कच्चे नोत्वारोपयवणीः) the plants should be smeared from root to the top (आपूलकत्त्वपरिश्रवेयाः) with ghee (clarified butter), sesame oil, the honey of the Khudra variety of the bee of the Ushira (Andropo-

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1. On p. 62 of *Vanaspati*: Dr. Majumdar refers to the various methods of propagation of plants, viz. (1) बीजात्वन, by fruits and seeds, (2) मुख्यत्व by roots, (3) स्कन्धत्व by cuttings, (4) स्कन्धत्व रोपयीः by graftings, (5) अभावित्व by apical portions, (6) परवृत्तिः by leaves, (7) सीनेंद्रिय (2). Here also Dr. Majumdar refers to only the *Bṛhatāṇhitā* passage regarding grafting (chapter 54 of *भूतसंहिता*, stanza 6).

2. Vide p. 303 of *Bṛhatāṇhitā* (Calcutta, 1865):—

   "पूवालारोपकश्वीजुज्ञकलृदिष्टः।
   द्वारकायत्वेत्तावृत्तिः बीजपथरोपकश्वाः हि हि
   एते हुमा: कावःरोपया गोमेये प्रलेपिताः।"

3. *Ibid.*—"भूतावेदेयज्ञो रक्ति एरोपयीयाः प्रयत्नतः। हि हि"

*Variants.—D.N.—मूल; E—मुख्यत्व without अभावः; C—in the text चिरं ततः; E—परेंतप; for प्रयत्नतः: it seems after the expl. that Cr. चिरं ततः.)
gon Laniger or Andropogon citrarum), the *Vidanga* (Embelica ribes) milk and cowdung.  

The above reference to grafting recorded by Dr. Majumdar has been reproduced by Prof. R. Gangopadhya in his book on *Agriculture and Agriculturists in Ancient India*, Serampore, 1932, on page 69. In referring to this evidence Prof. Gangopadhya observes:—

Cutting and grafting:—

'The method of propagation by cutting and graftings was also known to India from very early times. The following lines from the *Brhatsamhitā* (chapter 55) will be illustrative.'

We must try to record more evidence in support of the evidence of the *Brhatsamhitā* regarding grafting as practised in India about A.D. 500.

The reference to grafting in the *Brhatsamhitā* is made 450 years later than Pliny's passage on grafting quoted by me and so far as I know it is the only reference advanced to prove the Indian knowledge of grafting prior to the use of the grafting method on Indian mango trees by the Jesuits of Goa about A.D. 1550. Are we to suppose that the art of grafting was known to Indians, say, up to A.D. 600 but later fell into disuse and consequently no references to it were made in the numerous literary works, medical or otherwise?

Any popular practice like grafting having a direct bearing on agriculture is not likely to remain silent if it was widely practised in all the

1. *Ibid* — "अहळानाशांतिविहिरे जाताशांति हिमालमे।
वर्षामेव च सुस्कन्धाचन्द्रावधिक प्रतितिपिपेता॥१६॥
चुतोशुर्तविन्दुविन्दुविन्द्रविन्दुगमे।
आरामुलस्तन्विहित्वकोः सहक्रमाश्चिवेवपामे॥७॥"

2. Compare the following remarks about plastic surgery of Indians on p. 178 of *Aryan Medical Science* by the Thakore-Saheb of Gondal, London, 1896:—

'They (Indians) were experts in forming new ears and noses. This operation has been practised for ages in India, where cutting of the nose and ears was a common punishment, and "Our modern Surgeons have been able to borrow from them (Hindoos) the operation of rhinoplasty" (Waber). On this subject Dr. Hirschburg of Berlin says: "The whole plastic surgery in Europe had taken its new flight, when these cunning devices of Indian workmen became known to us. The transplanting of sensible skinflaps is also an entirely Indian method."
provinces of India through centuries. The Indians developed large gardens and practised horticulture for pleasure and profit as proved by the evidence of Jain, Brahmanical and Buddhist texts. We must, therefore, make a thorough search in these and allied texts and see if there is any additional evidence about grafting to corroborate the Brahmasamhita reference noted above.

As the art of grafting is connected with horticulture we have to trace its history in the history of the Plant lore of Assyria and Egypt, which is earlier than the Plant lore of the Greeks and Romans. The Assyrians cultivated fruits in the alluvial plain deposited by the Tigris and Euphrates rivers. Agriculture developed early in Assyria and was successfully prosecuted for many centuries. When and where the Assyrians got their crop plants is not known. Some were indigenous while others came from the Iranian plateau. In addition to cereals the Assyrians cultivated fruits, including apricots, figs, olives, pomegranates, quinces, and grapes. The Egyptians began the cultivation of food-plants 'possibly ten thousand years ago'. The records of the botanical achievements of the Egyptian are scanty. What we know has been obtained indirectly from the pictures on the walls of tombs and the funeral wreaths and fragments of plants preserved in these tombs. Herodotus, the Greek historian, travelled in Egypt about 465 B.C. and recorded an account of the cultivation of crops and fruits as he observed it personally. In addition to cereals the Egyptians cultivated plants such as beans, lentils, radishes, melons, onions and garlic. Herodotus mentioned several of them as articles given to labourers who constructed the Great Pyramid. Many ideas of the Materia Medica of the

1. See p. 54 of Arthasastra (Eng. Trans. by Shama Sastry, Mysore, 1929), chap. on 'Buildings within the Fort'.

'Families of workmen may in any other way be provided with sites befitting their occupation and field work. Beside working in flower gardens, fruit gardens, vegetable gardens and paddy fields allotted to them, they (families) shall collect grains and merchandise in abundance as authorized.'

Prof. Reed in his Plant Sciences (pp. 113 ff.) deals with the history of (1) Roman Gardens, (2) North European Gardens (from the time of Charlemagne onwards), (3) Post-Renaissance Developments in European Gardens, and (4) Plant Introductions.

2. Vide pp. 8–15 of Plant Sciences by H. S. Reed.


The Arabs inherited from the Persians the system of canalization, which joined the lower courses of the Euphrates and the Tigris making the sawad or alluvial plain one of the richest countries of the East. Ya'qūb (A.D. 1225) says that Ṯaṣibin (Roman Nisibis) was celebrated for its white roses and its 40,000 gardens. Dates, oranges, lemons were grown at Jabal Barimma.
Egyptians appear to have been borrowed later by the Greeks. The oldest Egyptian medical papyrus was written about 1900 B.C. This record implies a long development of Egyptian botany and medicine probably from 3000 B.C. The Egyptians domesticated plants or introduced them from Chaldaea.

The foregoing points about the Egyptian and Assyrian plant lore noted by me from Prof. Reed's book on the *History of Plant Sciences* lead us to inquire: Was the art of *grafting* practised by the Greeks and Romans inherited by them from the Assyrians and Egyptians? My cursory perusal of Reed's book has not been successful in locating an exact answer to this query in his most scholarly account of the history of the Plant lore of the ancients, though it is possible to suppose that the Greeks, who borrowed some ideas from the Egyptian Materia Medica, may have borrowed the art of *grafting* from them or from the Assyrians, who were pioneers in horticulture many centuries prior to the blossoming of Greek culture and civilization.

We in Western India have been cultivating the grafted mango trees for more than 100 years and eating their fruits every season but the history of the art of *grafting* plants, which has revolutionized horticulture during the last 2,500 years, is absolutely unknown to us. I have, therefore, recorded in this paper some facts about this history and am sure they will be supplemented by other scholars with references to *grafting* in India and foreign sources. I would specially welcome the evidence of *Pehlvi*, *Persian* and *Arabic* texts on the art of *grafting* from scholars who have made a close study of these texts, both published and unpublished. The following table will show at a glance the chronology of references to *grafting* recorded in this paper:

<table>
<thead>
<tr>
<th>Chronology</th>
<th>Source</th>
<th>Reference G=grafting</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.C. 37—285</td>
<td>Theophrastus (Greek), father of botanical science</td>
<td>Refers to G in his <em>The Causes of Plants</em>. Theophrastus was a pupil of Plato and Aristotle.</td>
</tr>
<tr>
<td>B.C. 70—A.D. 19</td>
<td>Virgil (Roman poet)</td>
<td>Refers to G of nuts, apples and cherries (Georg. II, 69) according to Pliny.</td>
</tr>
<tr>
<td>A.D. 23—79</td>
<td>Pliny the Elder (Roman)</td>
<td>Refers to G 'at its highest point' in his <em>Natural History</em> (Book XV). He also refers to many Indian plants like banyan, banana, flax, pepper, ginger, etc</td>
</tr>
<tr>
<td>Between A.D. 600 and c. 1100</td>
<td><em>History of the world</em> by Davies</td>
<td>Refers to G practised by Mohammedans (during the 500 years following the death of Mohammed). They introduced many plants into the West from the East. They were indebted in this respect to <em>Greece</em>, <em>Persia</em> and perhaps <em>India</em>.</td>
</tr>
<tr>
<td>Chronology</td>
<td>Source</td>
<td>Reference G=grafting</td>
</tr>
<tr>
<td>------------</td>
<td>--------</td>
<td>---------------------</td>
</tr>
<tr>
<td>A.D. 1483</td>
<td>Shorter Oxford Dictionary</td>
<td>Usages of the term 'graft' dated 1483, 1624, 1624, 1616 (grafter); and 1884 (grafter=a hand saw used in grafting).</td>
</tr>
<tr>
<td>A.D. 1498</td>
<td>Portuguese contact with India</td>
<td>Picture of graftage in a printed work. Jesuits of Goa practise G on Indian mango plants and produce some new varieties of mangoes.</td>
</tr>
<tr>
<td>A.D. 1548</td>
<td>P. Crescentus (Basil, 1548)</td>
<td>He observed that the sap of the original trunk acquires different qualities in each graft.</td>
</tr>
<tr>
<td>Between A.D. 1550 and 1575</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A.D. 1663</td>
<td>Bernier’s Travels</td>
<td>Describes Goa mangoes as largest and most delicious to the taste.</td>
</tr>
<tr>
<td>A.D. 1673</td>
<td>Fryer</td>
<td>Refers to Goa mangoes: ‘mango—An exquisitely delicious fruit of which the finest species grows in Bombay, called the Miasagao mango. Goa produces several fine species of this super-excellent fruit which in that article is the only superiority India can boast over England.</td>
</tr>
<tr>
<td>A.D. 1727</td>
<td>A. Hamilton</td>
<td>Nawab Wallajah II of Carnatic visits the garden of Lord Edward Clive, Governor of Madras, the son of the celebrated Lord Clive. Edward Clive became Governor of Madras in 1798. He garden is described as ‘full of mango trees and grafted varieties of the best quality.’</td>
</tr>
<tr>
<td>A.D. 1794</td>
<td>Edward Moor (Narrative of the operations, etc., London, 1794, p. 506)</td>
<td></td>
</tr>
<tr>
<td>A.D. 1795—1801</td>
<td>Muhammad Karim (Sawanihat-i-Mumtaz, Eng. Trans. by S.M. H. Nainar, Part I, 1940, Madras University, Islamic Series, No. 5, page 151)</td>
<td></td>
</tr>
</tbody>
</table>

P.S.—Since this paper was drafted I have received the following information regarding grafting from two learned friends of mine:—

(1) Rao Bahadur K. V. Rangaswami Aiyangar writes on 3-4-1946 from Delhi:—

‘As regards grafting, the Tamil name for it is ottu, i.e. gumming up or dovetailing, which is descriptive. The mango known to Tamil literature is the ordinary ungrafted one. I believe the Musalmans introduced it in South India. The process of rejuvenation and acceleration of growth that grafting causes could not have been missed by our poets, when they wanted figures of speech, if it was known to them. Till recently the only grafted plant was the mango......... Most grafted mangoes now bear Arabic names.’

1. I shall deal with the reference in detail in my proposed paper on the history of grafted mangoes in India.
(2) Mr. M. S. Randhawa, I.C.S., Imperial Council of Agricultural Research, New Delhi has kindly sent to me on 16-4-1946 some extracts about mango cultivation and grafting. I quote below the following extracts gathered by Mr. Randhawa about the antiquity of the Art of grafting:

'The art of grafting is an old one. Readers of the Bible may recollect St. Paul’s sustained simile of the grafting of wild olive tree on to the good olive tree, Romans, XI-17—24'.

(Firminger’s Manual of gardening, p. 86.)

'Grafting is of ancient origin as a horticultural practice. In his Natural History (Vol. 2), Pliny about 2000 years ago wrote about it as common practice.'

(Kains and Mc Questen—Propagation of Plants, p. 264).

'Pliny, writing before the birth of Christ, recognized graftage as horticultural practice and it is known that it was practised before his time. Columella, who died shortly after the birth of Christ, mentioned certain kinds of graftage, particularly the bark graft, cleft graft and patch bud, which he said had been practised by the ancients.'

(Adriance and Brison—Propagation of Horticultural Plants, p. 149.)

I am extremely thankful to Rao Bahadur Aiyangar and also to Mr. Randhwa for their interest in the subject of this paper. It is really a matter for pride that Randhwa should answer my queries regarding grafting with wonderful alacrity and promptness in spite of his administrative preoccupations.

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1. Columella, L. Junius Moderatus was a native of Gades in Spain and a contemporary of Seneca. He lived in Rome and wrote a work on agriculture (De Re Rustica) in 12 books which is still extant. (Vide p. 162 of Smaller Classical Dictionary by Smith, Every Man’s Library, London, 1913).

In the Bible (New Testament, Romans, XI, 17—24) the word graft is used for grafting as will be seen from the following extract:—

'24. For if thou wilt cut of the olive tree which is wild by nature and wert grafted contrary to nature into a good olive tree: how much more shall these, which be the natural branches, be grafted into their own olive tree?'
50. References to Grafted Mangoes in India between A. D. 1550 and 1800*

In 1946 I published an article¹ on the History of the Art of Grafting Plants (between c B. C. 500 and A. D. 1800), in which I have recorded references to grafting from the time of Theophrastus onwards from Indian and foreign sources. Among these references I have noted the following references from Indian sources:

(1) Varāhamihira (c. A. D. 500) is supposed to refer to grafting in his Brhaśaṁhitā (Chap. 54, stanza 6) in his remarks on plant propagation.

(2) Edward Clive, the son of the celebrated Lord Clive, became Governor of Madras in 1798. His garden was “full of mango trees and grafted varieties of the best quality” (see p. 151 of English Trans. of Sawañihat-i-Mumtaz of Muhammad Karim, Part I, 1940 — Madras University Islamic Series, No. 5).

(3) The Jesuits of Goa practised grafting on Indian mango plants between A. D. 1550 and 1575 and produced some new varieties of mangoes.

Except the references noted above I have no material about grafting in India. If the art of grafting was current in Varāhamihira’s time (c. A. D. 500) why should there be no continuity of evidence about it in Indian sources? On the contrary the following extract from Bernier’s Travels² in the Mogul Empire (A. D. 1656-1668) clearly states that the gardeners in Kashmir “do not understand the culture and grafting of trees”:

In his description of the fruits of Kashmir Bernier observes:

“The fruit is certainly inferior to our own, nor is it in such variety; but this I am satisfied is not attributable to the soil but merely to the comparative ignorance of the gardeners, for they do not understand the culture and grafting of trees as we do in France. I have eaten, however, a great deal of very excellent fruit during my residence in Kashemire (Kashmir), and should entertain no doubt.

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of its arriving at the same degree of perfection as that of Europe if the people were more attentive to the planting and soil of the trees and introduced grafts from foreign countries."

I have referred to the grafting practised by the Jesuits of Goa on Indian mango trees between A.D. 1550 and 1575. They produced different varieties of grafted mangoes which were sold in India in the 17th century. The following evidence about these varieties from the Travels of European travellers is noteworthy:

(1) Giovanni Francesco Gemelli Careri was born of a noble family of Radicena (Calabria) in A.D. 1651. He was in India in 1695. His Travels in several volumes were published in Italy between 1699 and 1728. In these Travels Careri has recorded a chapter on the Fruit and Flowers of Indostan. Speaking of the varieties of mango Careri observes:

"Some are called Mangas Carreiras and Mallaias, others of Nicholas Alfanso, others Satias, and others by other Names, all of them exceeding any European fruit in delicate taste."

(2) Another traveller from Italy, Manucci (A.D. 1639-1717) was in India between A.D. 1656 and 1717. In his Travels, Vol. III, p. 180, he refers to several varieties of Goa mangoes as follows:

"The best mangoes grow in the island of Goa. They have special names which are as follows:

mangoes of Niculae Affonso, Malaiasses, Carreira branca, Carreira vermelha, Of Conde, of Joani Pereira, Babia (Large and round) of Araup, of Porta, of Secreta, of mainato, of Our Lady, of Agua de Lupe."

In the article on Mango in Hobson-Jobson (by Yule and Burnell, London, 1903, pp. 553-555) dated references to mango are recorded. Among these references I find the following reference to Goa mangoes, which are evidently grafted mangoes:

(1) A.D. 1663 — Goa mangoes are excellent, says Berneir (see extract from Bernier’s Travels quoted by me already).

1. Edited by S. N. Sen. New Delhi, 1949 (Indian Record Series). Introduction, pp. XXI-XXV.
2. Ibid., pp. 199-206.
4. See note No. 37 by Dr. S. N. Sen, on p. 358 (ibid). Dr. Sen remarks: "of the four varieties mentioned by Careri only one the Satias does not occur in Manucci’s list, unless it is to be identified with Secreta. Niculao Affonso otherwise known as Afuz or Hafuz still retains its popularity and fetches a very high price."
(2) A. D. 1673 — Fryer also refers to the Goa mangoes as the best ones.

(3) A. D. 1727 — A. Hamilton says:—"The Goa mango is reckoned the largest and most delicious to the taste of any in the world and I may add the wholsomest and best tasted of any fruit in the world."

It will be seen from all the data recorded above that the art of grafting was introduced into Indian horticulture only after about A. D. 1550 but its operation was confined to Goa say between A. D. 1550 and 1790. It was absent in Kashmir in the 17th century as vouched by Bernier's remarks quoted above. It appears at Madras about A. D. 1798, when it was introduced there by Clive, the Governor of Madras.
51. The Plant Lore of Ancient India*

In any history of the plant sciences of the world on a comprehensive scale the contribution of ancient India deserves a distinct place but in the absence of special monographs dealing with the history of each nutritive or medicinal plant, this contribution hardly gets recognition in standard books on the plant sciences published outside India. This fact was pointedly brought to my notice by Dr. Birbal Sahni, F. R. S., our famous botanist of international reputation, who happened to read with appreciation my paper on the History of the Fig (Añjira, Ficus Carica) and desired me to publish similar studies on the history of other Indian plants of medicinal or nutritive value. He also brought to my notice a valuable book on the History of Plant Sciences by Howard S. Reed, a review of which he published in 1942 in Current Science, Calcutta (p. 369). While this book has two chapters

On the history of the plant lore of the ancients where Egypt and Assyria, Greece and Rome, China and early America are all adequately treated ... one looks in vain for a bare mention of Ancient India which was certainly well abreast of the times and gave much that the West has assimilated, though not always gracefully acknowledged.

Dr. Sahni rightly observes that the "Retrogressive Period" (Chapter IV of Reed's book) was retrogressive only so far as Occidental nations were concerned.

Side by side with my numerous studies pertaining to the history of

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4. Ibid., pp. 7-30.
5. See Bibliography of my 202 Research Papers published in 1941: Items Nos. 15, 17, 20, 21, 23, 42, 60, 96, 100, 112, 113, 131, 135, 138, 151, 165, 170, 171 and 198 pertaining to Indian medicine. Other papers published since 1941 will be included in my Revised Bibliography, to be published shortly.
different branches of Sanskrit learning. I have been studying during the last fifteen years the history of Indian medicine and allied subjects and have published about forty papers¹ on this history in several Oriental journals. I, therefore, lost no time in studying Reed's book and was convinced of the justice of Dr. Sahni's observations on it, both in his review and in his letter of 12th January 1943.² This incentive to my studies was further enhanced by inquiries about the history of Indian crops from Dr. B. S. Kadam, then Assistant Agricultural Commissioner to the Government of India and now Director of Tobacco Research, deputed by the Government to the U. S. A. and Canada for further study of this subject. Last but not least came the inquiry from Dr. Sadgopal, chief chemist of the Hindustan Aromatic Company of Naini (Allahabad) about the history of Indian aromatics, which involved a study of the history of aromatic plants and their products. The cumulative effect of all these inquiries coming from responsible scholars was to encourage me to continue my studies in these subjects with greater zest. Some results of these studies have already been published in my papers on the "History of Jawar (Holcus Sorghum),"³ "History of Canaka (Cicerarietinum or Gram),"⁴ and the "History of Indian Cosmetics."⁵

My studies in the history of Indian plants on the strength of Indian sources have convinced me that so far this branch of Indology has been almost neglected by our Indologists and consequently our ancient Indian plant lore, for a systematic history of which there is abundant material in Jain, Buddhist and Brahmical texts, has remained unnoticed in responsible Oriental journals during the last hundred years or so.

1. A complete list of these papers is given in my Introduction to an edition of the Carakasamhita to be published at Jamnagar by Dr. P. M. Mehta, Chief Medical Officer of the Jamnagar State, on behalf of his Ayurvedic Association.

2. Dr. Sahni wrote to me: "I have read with much interest your Notes on the "History of the Fig (Ficus Carica)." I think you would be doing a great service to Indian Botany if similarly you were to work out the history of our knowledge of other common Indian plants of medicinal or nutritive value. Our own ignorance concerning this subject is colossal and we can scarcely blame the Western writers if they ignore the ancient Hindu knowledge of the plant sciences."


5. Vide Journal of the University of Bombay (1945), Vol. XIV, Part 2, pp. 41-52 and New Indian Antiquary (February-March 1945), Vol. VII.
In recent years a serious attempt to meet this deficiency has been made by Dr. G. P. Majumdar of Calcutta by the publication of his numerous papers and three important books. Dr. Majumdar’s studies are very valuable for all serious students of ancient Indian culture as they reveal this culture in plant perspective. In fact a perusal of these studies will not fail to impress the reader with Dr. Majumdar’s spirit of reverence for plants, as the indebtedness of humanity to plants is too deep for words and too mystic to be understood by our present-day botanists. It is no wonder that certain plants were worshipped by the ancient Indians and are worshipped in India today.

The foregoing lines will, I believe, amply show the necessity of studying the history of ancient Indian plant lore on the strength of original sources, both Sanskrit and non-Sanskrit. For such a history the efforts of one or two scholars will be of no avail. Personally I have come to realise the importance of this study rather too late in my research career of thirty years. I am, therefore glad to find that a scholar from Lahore, Pandit Ramesh Bedi, Āyurvedālāṅkāra, has been independently working in this field and has already published the three learned monographs in Hindi under notice, for the benefit of students of Indian botany and Indian medical science.

Their author has not only studied Āyurveda thoroughly but has been practising it at Lahore. He has planned a series of monographs on many plants of medicinal value, of which these three give us a fair idea. Pandit Bedi was for six years Superintendent of the Botanical Gardens of the Gurukul University at Kangri (District Saharanpur, U.P.) and in this capacity he made a close study of Indian medicinal plants. It is no wonder, therefore, that his books should be very highly spoken of by professors of Āyurveda in the Gurukul University and the Hindu University, Benares, as also by eminent Āyurvedic physicians like Acharya Yadavji Trikamji of Bombay and others.

In these monographs — on Aṇjira, Somthā and Triphalā — the last-named on the fruits of three plants, Harād (Terminalia Chebula), Bahedā (Belaric myrobalan) and Āmlā (Emblic myrobalan) — Pandit Bedi records exhaustive information on such points as the names of the plant in Hindi, Sanskrit, English and Latin and in different modern Indian languages; the plant’s original habitat and where it is grown at present in India; its botanical description; its history, whether indigenous to India or imported.

1. These books are (1) Vanaspati (Calcutta University, 1927); (2) Upavana-Vinoda, a treatise on arbori horticulture. (Indian Research Institute, Calcutta, 1935) and Some Aspects of Ancient Indian Civilization. (Author, Calcutta, 1938).
and incorporated into the Indian materia medica; its varieties and their medicinal properties; its chemical analysis, showing its therapeutic value; its properties as specified in Ayurvedic texts; the current uses of the different parts of the plant, and the seasons at which the parts of medicinal value should be removed and stored; the proportions in which the parts of the plant are to be used in medical preparations; the processes of manufacturing medicines from the plant; the general therapeutic value of the different parts and the effect of medicines prepared from the plant on the different parts of the human body; the testing of these medical preparations in the light of modern medical research; instructions for cultivation of the plant; its economic value and its importance in national commerce; and gives a bibliography pertaining to the plant with reference to the foregoing aspects. These monographs are prepared by Pandit Bedi to enable him later to publish an encyclopædic work on Indian materia medica under the title "Bharatiya Dravyaguna."

This is really a scholarly approach, as no lasting literary edifice can be built unless all its bricks are properly shaped and well baked in the kiln of our investigation. I feel no doubt that these monographs will prove useful not only to the students and professors of Ayurveda but also to laymen, whose knowledge of Indian medicinal herbs is at present much confused, in the absence of authoritative monographs on each of these herbs, fully documented with extracts from standard ancient Ayurvedic texts and other literature, which give these healers of mankind their proper scientific and cultural perspective.

Though written in Hindi, these monographs deserve to be translated into English for wider circulation, as medicine is not the preserve of one nation but is for mankind in general. If disease is concomitant with life on this globe, the Science of life (Ayurveda) which provides remedies for disease in all its varieties, is the concern of the entire humanity. We live now in the age of atom-bombs, aeroplanes and radios and not in the age of Caruка and Sūrūta. The dissemination of useful knowledge is a sacred obligation to be discharged by the scholars of the whole world and any medium which effects the widest possible dissemination of this knowledge deserves to be used for this purpose without any pride or prejudice.

Pandit Bedi’s monographs, as mentioned, have already received scholarly approbation. His Tripnāla has won him the award of the Nawab Sir Jamālkhan Gold Medal of Rs. 250/- from the All-India Ayurvedic Congress. Let me hope that these tokens of appreciation from brother-workers in the Ayurvedic field will encourage Pandit Bedi to continue his valuable monograph series (Bharatiya Dravyaguna Granthamala) so that we shall have before long an exact knowledge of our ancient
Indian plant lore properly evaluated in the light of modern botanical and medical writings, a list of which Pandit Bedi has recorded in each of these monographs.

To a student of the pure history of Indian plants like myself, Pandit Bedi’s monographs will prove valuable as they contain under one cover many textual data, facilitating investigation into a plant’s history by bringing together the available historical sources in all countries. For some of Indian plants have migrated far from their native habitat and are recognized as respectable residents of the modern civilized world, like the human confrères of the present-day nations. It is the business of the historian to investigate this migration of plants, which will be as enchanting a story as that of human migrations when it is completely studied and recorded with care and patience by a band of scholars working in unison in different parts of the world.
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INDEX

By A. D. Pusalker

Note: — "Asterisk(*)" refers to the particular page number and the footnote thereon, while "n" to the footnote on that page.

A

Abbé Raynal 172 n.
Abdurrazak 220 n.
Abhidhanacintamani 67, 193, 206 n, 220 n, 275, 277, 281, 323.
Abhyanga 58, 66.
Abu Bakr 126.
Abul Fazl 19, 23, 337, 353.
Abu Mansur 363, 369, 384, 385.
Abyr Akhisir 19.
Abyr Mayeh 18, 21.
Adaratan 135, 136.
Account of the countries round the Bay of Bengal 438.
Acharya, Vaidya Jadavji Trikamji 393 n.
Acharya, Dr. P. K. 255.
Account of the Kingdom of Nepal 122.
Achin 19.
Actuariash, Johannes 29, 32.
Acyutaraya Modak 168.
Ajaque (areca-nut) 14, 171, 175, 178.
Ajasitt (nut-cracker) 14, 121 n, 171, 172, 175, 177, 178.
Aden 12, 225.
Adhobtanana Yantra 19 n.
Adikandga 379 n.
Adiparvan 273.
Adriance and Briston 451.
Afghanistan 295, 303, 363, 386.
Africa 12, 286.
Agnivesasahhita 279.
Agniweyagrhyasutra 342.
Agra 185 n, 353.
Agravala, Dr. V. S. 130, 179, 251 n.
Agriculture and Agriculturistics in Ancient India 447.
Aguru 9, 38, 48, 49, 50, 51, 52, 73, 77 n, 78 n,
82, 83, 84, 85, 92, 106.
Akharastra (in Marathi) 196 n.
Ahiphena 357, 402 n.

Ahirbuddhnya Sathhita 334, 344.
Ahiththa 387, 388, 392 n.
Ahmad, Mr. N. L. 100 n.
Ahmedabad 9.
Ahmednagar 95.
Ahhikaparaksa 211 n.
Ain-i-Abbari 11, 17, 24, 33, 185 n, 221 n, 270, 282, 337, 346, 353, 361, 390.
Aitchison, Dr. 295.
Aiyangar, R. Bahadur K. V. Rangaswami 450, 451.
Aiyangar, Dr. S. K. 349.
Ajanta 223 n.
Akashabhairavakalpa 201, 213.
Akbar, Emperor 11, 17, 18, 124 n, 185 n, 346, 361, 390, 430, 431.
Akbar Shah 432, 437.
Akseda 358, 359.
Aksota 445 n.
Aksisir 18, 19.
Alba 362.
Albuquerque 218, 241.
Alchemy 3.
Alexander the Great 216, 230, 265, 443, 444 n.
Alexandria 228.
Allahabad 375, 378.
Aloes 352.
Aloewood 9.
Amalaka 56, 102, 103, 105, 106, 109, 110.
Amara 9.
Amarasinha 185.
Ambar 10.
Ambara 9, 12, 13.
Amber 11, 12;
Ambergris 5, 9, 10, 11*, 12, 13*, 14 n, 18, 19, 20.
America 283, 284, 285, 287, 288, 289, 290, 294.
American Indians' Gifts 288.
Anâla 457.
Amra 381 n.
Amritsar 31.
Anarghârâghâvâ 381.
Anatolia 31.
Anbar 32.
Ancient Egyptian Materials and Industries 287 n., 347.
Anekârthasângraha 186 n.
Anekârthasîlaka 10.
Anemone 21.
Anjîtra (See Fig) 455 n., 457.
Anjîtra Purâna 99 n.
Annabhoja 133, 226 n.
Annam 156.
Antiochus Soter 216, 310, 311, 360 n.
Antìqués: their Restoration and Preservation 347 n.
Anuvâsana-pâravan 376.
Aparâraka 238, 321, 345.
Apa-stamba Dharmasâstra 368.
Apa-stamba Ghyasâstra 343.
Aphn 419, 420.
Apte (V. S.) 178, 264, 302, 348, 365 n, 366, 393, 407.
Arab Geographers’ Knowledge of Southern India 13 n.
Arabian Nights 429.
Arabs 9, 14, 29, 32.
Aranâla 55.
Arâya-kaparvâ 58 n., 65, 376, 377, 382.
Architecture 3.
Areca-nut 53, 116, 120, 121, 122* 126, 127, 166, 167, 175, 178, 182, 260.
Argekh 18.
Arikamedu 239.
Aristobulus 265.
Aristophanes 385.
Aristotle 347, 371 n., 443, 444, 449.
Arthasâstra 64 n., 163, 193, 203, 205, 214, 221 n., 222, 224, 230 n., 244, 246 n., 251, 265 n., 312, 316, 317, 336, 337, 343, 389, 448 n.
Āryânaprîśvîkâlpa 330, 331, 332, 344.
Aryan Medical Science.
See also Short History of Aryan Medical Science 357 n., 447 n.
Asad Beg 124 n., 430, 431.
Āśādhyarûma 409 n.
Ashubodh 272 n.
Asia Minor 26, 363, 385, 391.
Asiatic Society of Bengal, Government Collection 168.
Asita 370.
As'oka 445 n., 446*.
As'oka, Emperor 23 n., 216, 310, 312, 360 n.
Aspist 388, 398, 402, 403, 406.
Assam 175.
Assyria 230, 266, 286, 448.
Aṣṭâdhyâya 203, 254 n., 326.
Aṣṭâvakragga 179.
Aṣṭavâdhyaka 389.
Aṣṭavâganda 54.
Aṣṭavâghoṣa 279 n., 332, 342.
Aṣṭavalayana 134, 135, 136, 169.
Aṣṭavâstra-nîghanâtu 396 n.
Aṣṭavâvidyâha 193, 220, 222, 224, 232*, 242, 244, 245, 246 n., 249 n., 391, 396 n., 402*, 404, 405.*
Index

Asvayurveda 204 n., 208, 209, 210, 213, 214
   234, 235, 238, 239 n., 240, 243, * 244, 245, *
   246, 249, 250, 251.
Athalaye, J. H. 109, 329.
Athanaseus 265.
Athravaveda 67, 198, 199, 259, 316, 327.
Athravavedyapatrisista 254 n.
Atimukta 445 n., 446.
Atri 169, 253.
Attar (a) (s) 4, 15, * 16, 17, 19, 27, 31, 33,
   36, 38, 40.
Audumbara 302 n., 303 n., 308, 309.
Aufrecht 146.
Aurangzeb 128, 363.
Ausanas 129.
Avate, Tryambak Hari 427.
Avicenna 40 n., 174.
Ayodhyakanya 379, 380 n.
Ayurveda 5, 397, 400 n., 401 n., 457, 458,
   459.
Ayurvedadanyitaiki 341 n., 350 n.
Ayurvedaratraya 272.
Ayurvedastrara 357 n.
Ayyar, Justice A.S.P. 339.

B

Baber 97, 297.*
Bactria 359 n., 389.
Badam 357, 361 n., 362 n., 363, 364.
Badaraya 335, 344.
Bagda 29, 32, 97 n.
Bag Vilas 42, 441.*
Baha 245, 457.
Bahadur Shah II 437.
Bahar-i’-Ajam 432.
Bahlita (Bactria) 359 n., 389, 391.
Bahrain 20.
Baidyanath Babu 41.
Bajirao I 426.
Bajree 269, 270 n.
Baker 349.
Bakula 445 n.
Balbaja 407.
Balban 174.
Ball, V. 11 n., 127.
Baluchistan 386.
Bammanaya 117.

Bapa 63, 65, 173 n., 189, 190, 328, 329, 344,
   366, 367.
Banana 444 n., 445, 449.
Bandhujiva 445 n.
Bandhuka 445 n.
Banks, Sir Joseph 34.
Ban Methi 398, 399.
Bantam 127.
Banyan 374, 379, 444 n., 445, 449.
Bapat, Dr. P.V. 311.
Bapat, Vishnu Shastri 336.
Bar 37, 39, 41.
Barani 174.
Barbosa 162, 203, 213, 338, 346.
Barjar 19.
Barrett, Wm. 346.
Basa purana 175, 178.
Basra 13, 31.
Basu, Dr. B.N. 189.
Basu and Ghosh 173 n.
Batavia 11 n.
Battuta 126, 127, 174, 297, 305, 360.
see also Ibn Battuta.
Baudhayana Dhamasutra, 368.
Bedellium 55.
Beal, Samuel 259 n.
Bedekar, Prof. V. M. 376.
Bedi, Pandit Ramesh 254 n., 455 n., 457,
   458, 459.
Bednere 17.
Bekhur, 19.
Bel 39.
Benares 185, 293.
Bendre, Prof. D. R. 273 n.
Bendrey, V. S. 418, 420, 422, * 424 n., 425
   427.
Bengal 27, 34, 39 n., 41, 118, 119, 120, 175,
   187, 211, 212 n., 218, 228, 261, 264 n.
Bengal Inscriptions 118, 119.
Bentinck, Lord William 400 n.
Benzoni, Girolamo 430.
Berner 11, 157 n., 185, * 302, 360, 433, 442,
   450, 452, 453, 454.
Betel-chewing 181, 182, 183.
Betel (leaf-vee) 37 n., 52, 53, 113, 114, 116,
   117, * 118, 119, 120, 121, 124, 126, 127,
   133, 139, 140, 141, 142, 143, 149, 150, 155,
   164, 181, 183, 422, 427.

Bhagalpur 41, 61 n., 434.

Bhágavagita 316.

Bhágavata 67.

Bhágwat, H. R. 179.

Bhairavañanda 50 n.

Bhalerao, Subedar B. R. 441 n.

Bhāmaṇa 124 n.

Bhandarkar 173 n.

Bhandarkar, Dr. D. R. 117.


Bhānuji Dikṣita 118, 185, 194*, 195, 301 n.

308, 319*, 380.

Bharadvaśa 169, 170, 380*.

Bhāradvaśa Gṛhyaśutra 342.

Bharata 204, 212.

Bharatamaṇjarī 376.

Bhāratīya Dravyāgṛha 458.

Bhāravi 264.

Bhārthari 190.

Bhāsmakīṭa 381.

Bhātavadekar, Krishna Shastri, 145 n.

Bhattacharjee, B. S. 27.

Bhattacharya, Prof. Dineshchandra 159, 357*, 358, 359, 387 n.

Bhhattacharyya, Benoytosh 201.

Bhaṭṭa Mathurānātha 99 n.

Bhaṭṭoji Dikṣita 179*, 181 n.

Bhavabhūti, 380.


Bhavana 7, 69 n., 75 n., 76.


Bhāvapradhāna-gīti 392 n.

Bhāvasuddhadeva 117.

Bhave (V. L.) 293, 428.

Bhāvapakṣa 155 n.

Bhelasūkhitā 205, 212, 214, 216, 233, 262 n., 279*, 281, 323, 324, 326, 343.

Bhīma-Kavi 175, 178.

Bhīṣma 376, 377.

Bhojanabhoga 131 n., 133.


Bhojanasāra 270 n.


Bhojavarmā 119, 120*.

Bhīṣṭu 253, 330.

Bhūpālavallabha 44, 45.

Bhusari, Prof. R. M. 165 n., 177.

Bhuyan Chumpa 22, 24.


Bihar 61 n., 293.

Bijapur 99 n., 124 n., 440.

Bilhāpa 152, 208, 242, 243, 244, 335, 336*, 345.

Bindu Kavi 58 n.

Bindusāra 216, 310, 311, 312.

Bindusāra 357 n.

Bishop, Carl Whiting 290.

Blakeney, E. H. 295 n., 311 n., 362 n.

Blochmann 221 n., 270, 432.

Blondel, R. 28.

Bluteau 218.

Bocarro 346.

Bodha 7, 69 n., 75 n., 76.

Bodhayana 253, 256.

Bodhayanāgya-gītasūtra 161 n.

Bodhidharma 371.

Bodhidruma 381.

Böhtlingk and Roth 67.

Boitard, M. 28, 33.

Bombay Gazetteer 150, 231 n., 232.

Bombay-Karnatak Inscriptions 116.

Borneo 183.

Botany 5.

Bower MS 101 n., 200, 201.

Bowrey, Thomas 421 n., 433, 438.

Brahmadeva 388, 408, 409*.

Brahmagopadpaṇa 254 n.

Brahmapuraṇa 211 n., 321, 382.

Brahmapuri 116, 238 n., 239.

Brahmavaiśānapuraṇa 254 n, 382.

Bramley, Dr. 401 n.

Brassica 365 n., 369.

Brewer 67, 300*, 349.

Bṛhadāraya Upaniṣad 198, 81.
Index

Bhidhārma-prāṇava 254 n.
Bhidgargīya-saṃvīhita 203.
Bhkanāradīya 135, 136.
Broach 15 n.
Brooke, Geoffrey 229 n., 230.
Bucephalus 230 n.
Buchanan, Francis 36, 37*, 40, 41, 42, 61 n., 63, 66, 72, 210, 214, 224 n., 293, 337, 346, 398, 399, 434.
Bucholz, J. P. 28.
Buddha 57 n., 187, 188, 190.
Buddhacarita 279 n.
Buddhist Bible 372 n.
Bühler 242, 335, 368.
Bulgaria 26, 31.
Bulsara, S. J. 305 n.
Burma 34, 127, 290, 296 n.
Burton 429.
Byzantium 228.

C

Cactus 392.
Cakradhara 273*, 282.
Cakrapānīnatha 155 n.
Calcutta 375.
Calendar of State Papers 430.
Caliph Mamoun 29, 32.
Cambay 162.
Cameli 38, 39, 41.
Campaka 6, 37, 54, 55, 57*, 58*, 59*, 60, 61*, 62, 63, 64*, 65, 66, 67, 68, 72, 78 n., 90, 95 n., 96, 256.
Camuña (Kāyastha) 50 n.
Caṇḍakāmāla 233, 235*, 236.
Caṇḍakya 206 n., 312.
Caṇḍi 123 n.
Candahar 193 n.
See Sandal-wood.
Candles 97.
Candolle, de 216, 267, 295, 385, 391.
Candragupta Maurya 216, 312.
C. J. Can Kien, General 386.
Canton 27.
Cape Guardafui 12.
Capitularies 29, 32.
Carcopino, Jerome 183 n.
Cardamum 6, 39, 55, 444 n.
Cardinal Pole 306.
Careri, Giovanni Francesco Gamelli 453*.
Carota 175, 176, 178.
Carruthers 231 n.
Caruncara 148.
Castanheira 219, 241.
Catalogue of Hindi Mss 99.
Catalogus Catalogorum 146.
Caterina de' Medici 438.
Cato 362*.
Caturvarga-cintamani 169.
Caurapānīkāra 67, 336 n.
Cenna Kesava 117.
Central Asia 34, 174 n., 369.
Ceremonial Usages of the Chinese 230 n.
Ceylon 183, 227, 228, 371.
Chakrabarty, Tapo Nath 334.
Chaldaeans 449.
Chamberlain 432.
Chao Shyne-meng 35.
Chapekar, N. G. 16, 297 n., 425.
Charlemagne 29, 32.
Chaudhuri, Dr. J. B. 58 n., 209.
Chawwa 15 n.
Chelteh 21, 23.
Chempah 21, 23.
Chempelah 22, 24.
Cheng Ho 372.
Cherry 445
Chesul 19.
Chih-wuming-Shih-tu-K'ao 35.
Chick-peas 202, 203.
Chilappatikaram 337.
Chillum (Chillum) 422, 423, 424, 426, 432.
Chinam 156, 157.
Chinese Materia Medica 163, 384.
Ching dynasty 35.
Chois 19.
Chotka 363.
Chuwah 18, 19, 20.
Chyun-fan-pu 35.
Gikitsasthana 72, 407, 408, 409*. 
Gikitsāvaidya 259.
Cinnamon 444 n.
Citakūta 380*, 381 n.
Citrus 38.
Civet 18, 19, 20.
Classical Sanskrit Literature 274 n.
Claudius, Emperor 384, 403*.
Clive, Lord Edward 450, 452, 454.
Clove 6, 39, 127, 129, 150*, 181, 183.
Cochin-China 122.
Cocoanut 118, 119, 121.
Colbert 11 n.
Colloquies 337.
Columbus 283, 284, 285, 287, 289.
Columella 384, 403*.
Commercial Products of India 369.
Complete Story of Tea 371*.
Concordance (to Up.) 316, 331 n.
Constable 11 n.
Constantine 228.
Constantinople 448.
Coomaraswamy, A. K. 182.
Coriander 55.
Corkin 385.
Cornwalis, Lord 17 n.
Coromandel 11, 33, 123.
Cosmetics and Perfumery 3, 4, 5, 6, 7, 8, 9, 15, 25, 57, 60, 62, 72, 74, 115, 347, 351 n., 456.
Cosmos 338.
Costus 54.
Cowell and Thomas 186 n., 190.
Crescentus 444, 450.
Custard apple 352.
Cutting 446, 447.
Cyclopaedia of Perfumery 28.
Cyprinum 347.
Cyprus 14 n., 19, 350.
Cyrus 295*. 

D

Dādima 446.
Daily Life in Ancient Rome 183 n.
Dakṣa 135, 169.
Dalgado, Prof. 10, 203.
Dalimba 119 n.
Dāmodara 207.
Dāmodara-gupta 152, 207, 212, 319.
Danavrita 149.
Darbar 17.
Darius 216, 230, 385, 386, 391.
Das, Syam Sundar 99*.
Date, Y. R. and Karve, C. G. 15, 149, 155, 171, 177, 183, 296 n., 348, 357, 375, 441 n.
Daulatabad 98 n.
Daulatrao Scindia 42.
Daveji (Dave), K. N. 180, 392 n.
Davies, H. A. 442*, 449.
De distillatione liber 30, 33.
Deb, B. C. 406, 407, 408
Delhi 185 n. 375 n.
De methodo medendi 29.
De orra 162.
Derrhoop 19.
Destanamalam 204, 206, 209, 213, 274, 275, 281.
Devadaru 445 n.
Devagiri 146, 169, 261, 272, 273 n.
Devala 169.
Devapala 228.
Dhalla, M. N. 305 n.
Dhanapala 329, 345.
Dhanesvara Sriji 276 n.
Dhanika 115.
Dhanvantari 323.
Dhara 52.
Dharmapala Bodhisattva 26*.
Dharwar 17, 116.
Dhatupatha 203, 326.
Dhaturatnakaara 271.
Dhofar 126.
Dhonwontor 22, 24.
Dhupdrija 211, 214.
Dhupa (s) 45, 46, 63 n., 69*, 77*, 82, 83, 84, 85, 86.
Dhupabhoga 132.
Dhupana 7, 69 n., 75 n., 76.
Diary of Peshwa Bajirao II 140 n.
Dictionary: English and Hindoostanee 434.
Dictionary of Commercial Terms. 296.
Dictionary of Dates. 27.
Dictionary of Foreign Phrases and Classical Quotations 299 n.
Dictionary of Phrase and Fable 67, 300 n., 349.
Dictionary of Urdu, Classical Hindi and English 430.
Dikshit, Dr. M. G., 239*, 239 n.
Dikshit, S. B. 115, 139 n., 146.
Dikshit, Y. 402 n.
Dikshitar, Prof. V. R. Ramachandra 277 n.
Dioscorides 215*, 385, 391, 402 n.
Dirom 219, 241.
Divall 4.
Dewanji, P. C. 316.
Dolayatra 37 n., 91 n.
Domestic Manners 314.
Drake, Sir Francis 429.
Draksya 446.
Dravyagunasaarahra 205, 213.
Drnapanara 440.
Drummond 270 n.
Dupahrya 22, 24.
Duthie and Fuller 215.
Duwalck 20.

E

Early History of Bengal 118 n., 119 n.
Early History of Ceylon 227 n.
Early History of India 310 n., 311, 360 n.
East India Company 10, 34.
East Indies 122*, 187, 196 n.
Ebn Baitchar 388, 346.
Edgerton, Prof. Franklin 280, 304 n.
Edwards, Richard 15 n., 33.
Elliot, Sir Walter 267, 431, 432.
Elliot and Dowson 232.
Elliot Smith 347.
Elphinstone 425.
Elphinstone, Mount Stuart 440.
Encyclopaedia (Parry) 31.
England 17, 25, 27, 32, 34.
Epic India 318, 319 n.
Erskine 297 n.
Essex 26.
Ethnographic Museum, Stockholm 14 n.
Euphrates 448.
Evans-Wentz 372 n.
Every Man in his humour 430.
Fa hsiien 187, 333 n., 344.
Studies in Indian Cultural History

Factory Record 433.
Faerie Queens 430.
Farsistan 29, 31, 32, 33.
Fasfasat 398.
Faulkner, Alexander 296*.
Fawkes, Walter 435.
Fazl, Abul 270.
Fenugreek 384, 386, 389, 390, 391, 392*, 444 n.
Fergana 386.
Ferishta 156.
Fernandes, Francisco 429.
Feytloeh 19.
Fez 16.
Fig (Ficus Carica) or Aljira 266*, 295*, 296, 297, 298, 299, 300*, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313.
Field and Garden Crops 215.
Filliozat, J. 367 n.
Fir 55.
Firdousi 40 n.
Firminger 451.
First Triennial Report on Search for Hindi Mss 99 n.
Firwood 6.
Fistoca S. J. 122.
Flanders 27.
Flax 444 n., 445, 449.
Fleet, J. F. 114*, 278 n.
Florence 438.
Flowering Plants of Western India 57 n., 249n., 304n., 315, 361n., 384, 402, 403, 433.
Forbes 163, 350.
Forster 30.
Foster 162.
Foundation of Muslim Rule in India 174.
Francois II 438.
Frankincense 18, 19, 20.
Frederich, Col. 17.
Fryer, J. 10*, 156, 185, 432, 433, 442, 450, 454.
Fuchs 285, 288.
Führer, A. A. 368.

G

Gadaka 426, 435.
Gadre and Mukherji 31.
Gâgabhajâ 131*.
Gai, G. S. 116, 175 n.
Gambir 124.
Ganapâtha 203, 254 n.
Gâpapati 6.
Gânaratnamahodadhi 180.
Gandha 8.
Gandhadraya 5, 6.
Gandhajala 69 n.
Gandhaphali 62, 65.
Gandharva 6, 7.
Gandhasara 3, 5, 6, 25, 43, 46, 47, 52, 57, 59, 61*, 62, 66, 68*, 69 n., 70 n., 71*, 72, 73, 74, 75 n., 76 n., 77 n., 78 n., 82, 83, 87.
Gandharasara 3, 5, 6, 7, 8, 9, 25, 35 57, 60, 62, 68, 74, 83 n., 87, 93.
Gandhavada 3, 5, 15*, 25, 45, 43, 46, 47, 49, 52, 57, 60, 61 n., 62, 66, 68*, 73, 74, 77 n., 82, 89 n., 90 n., 92 n.
Gandhavada (Section) 88, 89, 93.
Gandha Yakṣa 7.
Gandhayukti 3, 59 n., 61*, 68, 71, 72, 74, 75 n., 76 n., 78 n., 81, 82, 87, 109, 115.
Gângâ 375, 378, 381 n.
Gângâdhara 3, 5, 6, 7, 8, 25, 43, 46, 47, 52, 57, 59, 61, 66, 68*, 69 n., 71, 72, 73, 74, 75 n., 82, 83 n., 87.
Gângâvâyavallī 209, 213, 214, 234.
Ganges 16, 31, 375 n., 381 n.
See also Gângâ.
Gangopadhyaya, Prof. R. 447.
Garcia 156, 174, 420 n.
Gâtha 184.
Gâthapañcaka 427.
Gâtha Saptasati 99 n., 206, 212, 233.
Gauḍâvaho 345.
Gaurasarasâpa 365, 366, 367, 368.
See "Siddhârtha" and "White Mustard".
Gaurītantra 254 n.
Gavaresvaradeva 117.
Gayâ 41, 374, 375, 376, 377, 381.
Gayâdâsa 393 n.
Gayamahâmya 381, 382.
Gayatrîtrahusyopanîṣad 66.
Index

Georgics 28, 32.
Germany 31, 40.
Ghazipur 16, 31, 40 n.
Ghaṭakarpāra Kāvya 38 n.
Ghee 6.
Gibb, H. R. 113, 126, 297 n, 360 n.
Gilchrist, John Borthwick 434.
Gingell, W. W. 230 n.
Ginger 444 n, 445, 449.
Giradharī 270 n, 271 n.
Girīvāna pada mañjarī 181 n, 211, 214.
Gitabhoga 131 n, 132 n.
Gladwin, F. 11 n, 17, 18, 185 n, 353, 361, 390.
Glimpses of Singhalese Social Life 121.
Goa 11, 203, 302 n, 441, 442, 447, 450, 452, 453, 454.
Godbole, Pandit Vishnu Vasudev 351.
Goddard, Dwight 372 n.
Gode and Karve 366.
Gode, Mr. R. B. 267 n.
Gold 17.
Gondhalekar, G. G. 96 n.
Goodrich, L. Carrington 287, 388 n.
Gopīcandana Upaṇiṣad 316.
Gopikabai Peshwa 98 n.
Gorhāl 21, 24.
Gorocanā 366.
Goulāla 36, 65, 95 n.
Gowda, M. 113 n.
Gracia 315.
Graham, John 269, 282.
Grant, Dr. J. 400 n.
Granth Sahib 428.
Gṛdhraṅgūta 381.
Green, Thomas 122*, 443.
Gṛphaṭharaṁtanakara 211 n.
Griﬃth 163.
Groeneveldt, W. P. 130 n.
Guava 352.
Gubbi, P. V. 420.
Guḍguḍi 412, 420, 422, 423, 424, 426.

Gāgābhāṣṭa 53.
Guggulu 48, 55, 61 n, 69, 77, 92.
Guhyaśaṁjataṇṭara 201, 212, 233, 333, 343.
Gujarat 175, 237, 238, 265, 274, 290 n, 363.
Gulab (a) 15, 36, 42, 94 n, 95, 96, 97*, 98*, 99, 100, 301, 304, 441.
Gulal 23.
Gulati, Shri A. N. 113 n.
Guleri, S. S. 115.
Gulistan 305.
Gul Kameh 18.
Gulkand 36, 99.
Gune, Vaidya Gangadhar Sastri 95.
Gupta Inscriptions 114.
Gupta, Madhusudan 400 n.
Gupta, Umesa Chandra 220 n, 402*.
Gupte, K. T. 131 n.
Guvāśa 118*, 119.
Guzerat 20.
Gwalior 440, 441 n.

H

Haafner 16.
Habbesvara 118.
Habibullah, Dr. A. B. M. 174*.
Haﬁz 30.
Haima 380.
Hakim Pharasās 36, 97 n, 98*, 99*.
Hāla 212.
Hālāḍrī-Kuṇāk 253 n.
Hālayudha 359 n, 387 n.
Halhead 219, 241.
Hamilton, A. 442, 450, 454.
Handiqui, K. K. 152, 175, 176.
Han dynasty 35.
Hanoi 156, 165.
Han period 389.
Harāḍ 457.
Haradatta 368.
Hargovindadas 206, 209, 264 n, 276 n, 329.
Hargovindadas and Bechardas 271 n.
Harib 29, 32.
Harībhaktivilasā 254 n.
Historical Grammar of old Kannada 116, 175 n.
History of Aryan Medical Science 351.
History of Ayurveda 278 n.
History of Bible Plants 268.
History of Dharmasastra 129, 169, 211, 379.
History of East and West Indies 172 n.
History of the Great and Mighty Kingdom of China 289.
History of Hindu Chemistry 3, 236.
History of India 223 n.
History of Indian Astronomy (Marathi) 115 n, 139 n, 146.
History of Indian Literature 330.
History of Indian Medicine 401 n, 402 n.
History of Persia 223 n.
History of Plant Sciences 33, 266, 288, 385.
History of Sanskrit Literature 402 n.
History of Sukla-Yajurvediyya Brahmans (in Marathi) 143.
History of Sumatra 122.
History of Zoroastrianism 305 n.
Huen-Tsang 259*, 260, 263, 318, 323.
Hitopadesa 315, 320 n, 337.
Hoernle, A. F. R. 101 n, 105, 159, 200, 272, 277, 278, 357 n, 358.
Hoffmann, Dr. Jules 27.
Holland 34.
Homer 215*, 216, 305.
Honaij Baś 149.
Honey 6.
Hookah 412, 415, 420, 424, 426, 432, 433. See also Huwka.
Horace 215*, 216.
Horticulture 439.
Hosur 116.
Howe, Sonia E. 12 n, 13 n.
Hsü Jen, Prof. 34, 35.
Hua-Ching 25.
Hugli 187.
Hukka 420, 422, 424, 436, 437, 438. See also Hookah.
Index

Hung-Vuong 167.

I

Ibn Battuta 11, 359, 360.
See also Battuta.
Ibn Khaldun 29.
Ibn Serapion 448 n.
Idrisi 13.
Hanko-Atikal 337.
Incense 4, 9, 60, 347.
Indian Companion 375 n.
Indian Literature 276 n.
Indian Literature in China and the Far East 156, 163 n, 373 n.
India Office Library 113.
Indigo 105.
Indo-China 50, 121, 122, 123 n, 156, 167 n, 178.
Indonesia 53.
Indu 198, 199 n, 278*, 307, 354, 397.
Indus 20.
In Quest of Spices 12 n, 13 n.
Instruction Pour Les.
Iran 359 n, 363, 385.
Irvine, William 128.
Isfahan 128.
Isfist 386, 398, 402, 403.
Ispititha 405, 406.
Istakhri 29.
Itihasopaniṣad 135.
I-tsing’s Record 370 n.

J

Jabāli 135.
Jacob 316, 331 n, 334.
Jaḍīvasaha 278, 281.
Jagadeka malladeva 116.
Jagannātha Paṇḍitarāja 134.
Jagatsīṁha 117.
Jagan Nath, Prof. 186 n.
Jaggery 117.
Jaṭāp, Rajavaidya Shankarrao 292.
Jahāngīr 16, 30.

Jain, Dr. Banarsidas 184.
Jait 22, 24.
Jakkesvara 117.
Jalhaṇa 147.
Jambudvīpa praprajñapti 206, 212, 214, 264 n.
Jang Yū-Shé 35.
Janse, O. R. T. 156.
Japan 34, 162, 371.
Jāphārā 15.
Jaraḍa 421*.
Jasmine 18, 19, 20, 21, 22, 23, 38, 41, 55, 353, 354.
Jatakas 228, 333, 337, 342.
Jātāśītakātanāndi 62, 66.
Jātāvarman 120 n.
Jātī 54, 55, 90
Jatry 24.
Jaunpur 40 n.
Java 20, 123 n, 127, 129, 371.
Jayāśīla Siddhārāja 237*, 238.
Jejjāra 357 n.
Jenghiz Khan 231 n.
Jesuits 442, 450, 452, 453.
Jewky 21, 23.
Jhalikkar 322.
Jhaveri, Diwan Bahadur K. M. 175, 362 n.
Jia-your-pen-tso 35.
Jinaprabhasūri 198*, 213, 214.
Jinavijaya, Muni 198 n.
Jinesvarasūri 276 n.
Jnānabhidhagamasyaṭra 343.
Jivakacintamani 277*, 281.
Jivaka Komārābhacca 138.
Jivānanda Vidyāsāgara 209.
Jñāna Kātyā 252, 253, 256.
Jñāna Kosa (Marathi) 290, 303.
Jñānesvarā 428.
Jñānesvara 66.
Johanna 10.
John Marshall in India 10 n, 15 n.
Johnston, E. H. 332.
Studies in Indian Cultural History

Jones, H. P. 299 n.
Joshi, Dr. P. M. 347 n.
Joshi, S. P. 428.
Jumna 375 n, 381 n.
Junagad 95.
Junnar 413.
Jyeṣṭhākalasâ 243.
Jyotînirbandha 134, 139*, 142, 143, 146, 151 n.

K
Kaçañip 51, 52, 100.
Kâcapâtra 51, 52, 90.
Kâdalit 446*.
Kadam, Dr. B. S. 456.
Kadamâ 445 n.
Kadambaka 366.
Kaempfer 16, 29, 30, 33.
Kabwa 29.
Kains and Mc Questern 451.
Katyavdanaghatu 254 n.
Kâkodumbarikâ 301 n, 302 n, 308, 309.
Kalam 42, 440, 441*.
Kalamâ 257, 258, 261, 262, 263, 264*, 265.
Kallapa 208, 242, 243*, 244.
Kalidasa 38 n, 115, 263, 264 n, 320 n, 332, 337, 343, 345 n.
Kalika Purâna 82, 83, 87.
Kalindi 380, 381 n.
Kalpadru Kosa 201, 213, 302 n.
Kamalakaraâbañâta 138.
Kamasâstra 73, 189.
Kamasâstra 124 n, 129, 151, 173 n, 332, 343.
Kanauj 31, 40 n.
Kane, M. M. Dr. P. V. 129, 135, 136, 169, 211, 379*, 380*.
Kanga, Mr. M. F. 305 n.
Kanhoji Angria 36, 97*, 420.
Kanjika 278, 279 n.
Kannak 339.
Karapâvyaûha 63, 65, 323, 332, 343.
Karkbatus 13.
Karman 31, 33.
Karmarkar, Dr. A. P. 382.
Karnab 369.
Karpeles, Mme S. 165, 178.
Karpûra 9, 44, 45, 47, 71, 77*, 79*, 80 n, 82, 83, 84, 85, 86, 89, 90, 91, 92, 115, 253, 254, 318 n, 319, 330, 331*, 333, 334, 344.
See also 'Camphor'.
Karpurîya Sûvadatta 363.
Karïrâ 180.
Kârtika Mahatmya 254 n.
Karve, Prof. R. D. 196 n.
Kâshgar 187, 188.
Kasika 203.
Kâsimbazar 15 n.
Kasyapa 253, 326.
Kasyapasañkîta 115, 205, 212, 214, 216, 233, 252, 253, 279, 281, 324, 343.
Katibhâ 95, 96, 293*, 294, 362, 416, 417.
Kathakalpataru 149, 296 n.
Kathasastisagara 181 n, 182.
Kâtyâyana 169.
Kâtyâyana-Uârtika 203, 326.
Kauñîla 64 n, 163, 193, 203, 205, 206 n, 214, 221 n, 222, 230 n, 244, 246 n, 251, 265 n, 312 n, 316, 317, 336, 337, 340, 389.
Kavi, M. Ramakrishna 204.
Kaviratna, Pandit Harichandra 355.
Kavyâdarsa 124 n.
Kâvyâlankârasûtragati 322, 341, 345.
Kâvyaprakasa 322, 345.
Kâvyasthâdharmapradipa 131 n.
Kazanlik 31.
Kedarnath 173 n, 332.
Keer 27.
Keith 173 n, 221*, 402 n.
Kelkar, Mr. D. G. 123 n.
Kolumbek 20.
Kenañyr 21.
Kenwrel 21, 24.
Kenyar 24.
Kepurbeyl 21, 23.
Kerneh 23.
Keroyl 22, 24.
Kerundeh 22.
<table>
<thead>
<tr>
<th>M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maasir-i-Rahim 432.</td>
</tr>
<tr>
<td>Ma'bar 11.</td>
</tr>
<tr>
<td>Macaulay, Lord 401.</td>
</tr>
<tr>
<td>Macdonell and Keith 221 n, 222.</td>
</tr>
<tr>
<td>Macfarlane, E. J. W. 288.</td>
</tr>
<tr>
<td>Madagascar 12.</td>
</tr>
<tr>
<td>Madana 55, 91.</td>
</tr>
<tr>
<td>Madanamihitā 272, 282.</td>
</tr>
<tr>
<td>Madanapala 272, 275, 282, 297, 298, 299, 300, 302 n, 305, 308, 309, 313.</td>
</tr>
<tr>
<td>Madanapala Nighañṭu 360, 361, 362.</td>
</tr>
<tr>
<td>Madanaratna 135.</td>
</tr>
<tr>
<td>Madanavinoda 201, 297, 298*.</td>
</tr>
<tr>
<td>Madanavinodanihantu 305, 313.</td>
</tr>
<tr>
<td>Madansing 426.</td>
</tr>
<tr>
<td>Madayantit 106*.</td>
</tr>
<tr>
<td>Madayantika (=Mendi) 351, 352, 353, 354 355*, 356.</td>
</tr>
<tr>
<td>Mādhavakara 357 n.</td>
</tr>
<tr>
<td>Mādhavi 445 n.</td>
</tr>
<tr>
<td>Mādhavīya 135.</td>
</tr>
<tr>
<td>Mādhuka 118 n.</td>
</tr>
<tr>
<td>Mādhūka 445 n.</td>
</tr>
<tr>
<td>Madhva Muniśvara 420, 421.</td>
</tr>
<tr>
<td>Madhyayugīnacaritabodha 99 n, 242 n, 292 n, 422 n, 426, 427.</td>
</tr>
<tr>
<td>Magadha 257, 260, 261, 262, 263, 264 n.</td>
</tr>
<tr>
<td>Magellan 338.</td>
</tr>
<tr>
<td>Māgha 340, 344.</td>
</tr>
<tr>
<td>Mahābhāratāca Upasattahara (in Marathi) 440.</td>
</tr>
<tr>
<td>Mahābhāṣya 179*, 203.</td>
</tr>
<tr>
<td>Mahābodhi 373 n.</td>
</tr>
<tr>
<td>Mahādeva of Devagiri 273 n.</td>
</tr>
<tr>
<td>Mahānubhava 121 n, 195 n, 177, 206, 213, 273*, 282.</td>
</tr>
<tr>
<td>Mahāraṣṭra 139, 149, 184, 270, 292, 296, 303 n.</td>
</tr>
<tr>
<td>Mahāraṣṭra Sarasvata 293, 428.</td>
</tr>
<tr>
<td>Mahāraṣṭrīya Śīnākosā 371 n.</td>
</tr>
</tbody>
</table>

| Landmarks of Botanical History 443. |
| Lane, Ralph 429. |
| Langles 30, 33. |
| Lassen 280, 281. |
| Laudan 18, 19. |
| Laukika Nyayañjali 334. |
| Lavall 445 n. |
| Lavañga 445 n. |
| Law, Dr. B. C. 223*. |
| Lekhapaddhati 108. |
| Les produits odorants des Rosiers 28. |
| Leuze lauz 363. |
| Life and Hymns of Milarepa 372*. |
| Life and Work in Prehistoric Times 287. |
| Life in the Gupta Age 113 n, 445 n. |
| Life of Huien Tsiang 259 n, 260, 262, 264 n, 318, 323, 333 n. |
| Lignum aloes 18, 19, 20. |
| Lilacarita 121 n, 165 n, 177, 206, 213, 273*, 282. |
| Libe 121 n. |
| Lime 38, 121, 177 n, 183. |
| Lime pot 155, 156. |
| Lindblom 14 n. |
| Ling Roth, H. 183. |
| Li shee-tsin 35. |
| Li Shih-Chen 287, 289. |
| List of Northern Inscriptions 117. |
| Livre des Campagnes 29. |
| Livy, 299, 305. |
| Loan Words in Tibetan 163. |
| Lodhra 55, 445 n. |
| Lokesh Chandra, Dr. 113 n. |
| Lolimbarāja 292, 293 n, 264, 413. |
| Lorimer, E. O. 183 n. |
| Lowe, W. H. 297 n. |
| Lucas, A. 287 n, 347*, 348, 351 n. |
| Lucius 445. |
| Lucknow 434. |
| Lusiades 12. |
| Luxembourg 27. |
Mahavagga 188, 190.
Mahdhar 198, 199.
Māhāvīr's Account of the Kingdom of
E(
Methika See Methil.
Mexico 285, 435.
Mickle, W. J. 12.
Midas 26, 31.
Milarepa, Jetsun 372.
Milburn 346.
Ming dynasty 156, 163.
Mint 352.
Minto, Lord 400 n.
Mitakṣara 170, 210, 213.
Mithilā 209.
Mithridates 445.
Mitra, Rajendralal 334.
Mohammad Bahadur Shah II 437.
Mohammed Achem 30.
Mohan, Raviraj Balwant Singh 101 n.
Mohan 11.
Molesworth and Candy 150.
Mongol Court 25.
Mongolia 369.
Monier Williams 180.
Monographie de la Rose 28.
Mookerji, Dr. Radhakumud 370.
Moor, Edward 17, 33, 124 n, 172*, 193 n.
269*, 274, 282, 302 n, 450.
Morocco 26, 29.
Motiya 39.
Moulvi, S. A. F. 143.
Mouvra 21, 23.
Mozambique 11.*
Mṛchakatika 129 n.
Muhammad Karim 450, 452.
Muhammad Mirza Fakhru 437.
Mujmuda 39.
Mujumdar, Sardar G. N. 291.
Mukerji, Asutosh 205, 279*, 323.
Mukherji, Prof. P. K. 156, 163 n, 373 n.
Mukhopadhyaya, G. 23 n.
Mukhopadhyaya, Dr. Girindranath 400 n,
401 n, 402 n.
Muktesvara 184.
Mulageer 20.
Multan 359.
Muni Puruyavijayaji 9, 107.
Munroe 219, 241.
Muntakhab-ut-Tawarikh 297.
Murti, Dr. Shrinivas 407 n.
Musala 180.
Musk 5, 6, 17, 18, 19, 20, 26, 76 n, 133, 161, 164.
Mustard 55.
Mu-su 386.
Myd 19, 20.
Myrrah 55.
Myrtle 349.

N

Nägakesara 55.
Nagaṇa 445 n.
Nagarasasvatya 74, 78 n, 79 n, 80 n, 82, 125 n.
Nagar inscription 115.
Nageshir 22, 24.
Nahta, Agarchand 197 n.
Nainar, S. M. H. 13 n, 450.
Nairne, A. K. 57 n, 249 n, 304 n, 315,
361 n, 384, 402, 403, 433.
Naigadhacarita 152, 186*.
Nakula 193, 202, 208, 212, 214, 220, 221,
222, 223, 224*, 225, 226*, 228, 230 n, 232,
241, 244, 245, 246*, 247 n, 250, 251, 391,
402*, 403, 404, 405*.
Nalanda 259, 260, 263.
Namaliūgaṇasārṣana 186.
Namero 445 n.
Nana Phadnis 16, 33.
Nandhāravavasankṣepa 10, 274, 281.
Nanasheb Peshwa 36, 96, 297 n, 305, 312.
Nandargikar, G. R. 378.
Nandipurāṇa 129 n.
Nārādīvaṇaṇa 382.
Narihari 146, 149, 158 n, 159, 199, 201,
213, 219, 220, 227, 241, 249 n, 271, 272,
282, 321, 346, 360 n, 387.
Nārāyaṇatīrtha 158.
Narcisus 23.
Nārī 407, 408*.
Naro Appaji 373 n.
Narrative of the Operations against Tipu
Sultan 124 n, 172, 193 n, 269, 302 n,
450.
Natives of Sarawak and British North
Borneo 183.
Natural History 320 n, 444*, 449, 451.
Index

Natural Rose Society’s Catalogue 27.
Natural History 28, 32, 361.
Natyasastra 204, 212, 233.
Navahasta, Raghunath Ganesh 270, 282, 292, 293, 294.
Navamahabaktisara 15.
Naville 347, 348.
Nawab WalaJah II 450.
Neb Amun 85 n.
Neelofar 22.
Neem 54.
Neepah 126.
Nene, H. N. 165 n, 206, 273 n.
Nene and Bhavalkar 177.
Nepal 61 n. 122.
Nero, Emperor 403 n.
Nerurkar, V. R. 376.
Newary 21, 23.
Newberry 348.
New Encyclopaedia 349.
New Guinea 183.
Nicobar Islands 128, 129, 334, 345.
Nicot, Jean 429, 438.
Nicotiana 429, 434.
Nicula 445 n.
Nihangataratnaker 199, 351, 360, 362, 416*, 417.
Nihangatrasahgraha 293, 362, 416.
Nihangatrasāstra 146.
Nihangā 6, 160, 289, 293.
Nihangā śadarsa 360, 365, 390, 391, 415.
Nihangā Ratnakara
See Nihangā Ratnakara.
Nikocaka 358, 359.
Nile Tribes, Abyssinia 349.
Nīpa 445 n.
Nīrayasindhu 129 n, 138.
Nisca 357 n.
Nisvāpa 198*, 199, 252.
Nīśhṭvā-patra (Spittoon) 190.
Nityānanda Siddha 88, 93, 101.
Nityānāthasiddha 350.
Nosherwan 231 n.
Notes on Malay Archipelago 130 n.
Nīśīnhabhāṣṭa 168, 169.
Nūr-Jahān 16, 27, 30, 33.
Nutcracker 114, 121*, 123 n, 124 n, 135 n, 139, 155, 165, 171*, 174, 175*, 176, 177, 178, 179, 181.
Nutmeg 6, 39.
Nyagrodha 377, 378, 379, 381 n.

O

Odyssey 304 n, 305.
Oke, K. G. 327 n.
Ol 386.
Oldenberg, H. 188.
Olivier 31, 33.
Omar 40 n.
Opera Medico Chymica 30.
Opium 402 n, 419, 420*.
Oppert, Gustav 276 n, 354.
Oriental Memoirs 350.
Oriental Silverwork, Malay and Chinese 183.
Origin of Far Eastern Civilizations 290.
Orleans 11.
Ormus 224, 225.
da Orta, Garcia 337, 346.
Outline of the History of the World 442 n, 449.
Ovington 157.
Owpteneh 18.

P

Paandun 172 n 173.
Pacana 7, 69 n, 75 n, 76.
Pade, Shri J. S. 168, 170, 376.
Pade, S. S. 392 n.
Padel 21, 23.
Padmapuraṇa 254 n, 379 n, 382.
Padmasīhā 209.
Padmasīr 74, 125 n.
Padyavēṇī 58 n.
Paestum 26.
Page, Courtney 26.
Paia-Lacchi-nāma-mala 264 n.
Paia-Sadda-mahṇāyavo 206, 209, 264 n, 276 n, 329.
Painting 3.
Pālakāpya 203, 213, 246 n, 250.
Paláśa 355.
Palermo 16.
Palgrave 219, 241.
Pallvata 446*.
Pampabhārata (or Viśvamārjunaṉīvajay) 273 n, 281.
Pan 113, 114.
Fana 446 n.
Phācataṇṭa 4, 40 n, 89, 201, 212, 233, 320 n, 337, 344.
Pandanus 38, 39.
Pandit, Kedarnath 73 n.
Pandit, Vaidya Bindu Madhav 97 n, 98.
Pāṇini 179, 203, 254 n.
Pāṇkajā 445 n.
Pāṇ-Supāri 139.
Pāṇa Viṭṭhala 415.
Paper 444 n.
Parakar, Hari Shastri 143 n, 198 n, 246 n, 257 n, 272 n, 273, 277 n, 308 n, 321, 341.
Paranjipa, Prof. H. P. 296, 381 n, 439, 440.
Parśibhāṣanavaṣana 184.
Pārijāta 445 n.
Paris 26, 30.
Parpaṭa (Papaṭ) 404 n.
Parry 28, 31.
Parthasarathi, Pandit R. 252 n, 253.
Patadṛgaṇā 184, 185, 186*, 188, 189, 190.
Patañjali 64 n, 65, 179*, 326, 342.
Patkar, Dr. M. M. 186 n, 378, 379.
Patna 15 n, 37, 38, 40, 41, 42, 61 n.
Patna-Gaya Report 37, 61 n, 53, 66, 72, 210, 214, 293, 398, 399, 434.
Patola in Gujarat 113 n.
Pattisorwam 120.
Patvardhan, P. N. 96 n.
Paul, P. L. 118 n, 119 n, 228 n.
Pauamacariya 200, 212, 233.
Penang 123, 124, 128 n.
Pen ts’ao 384.
Pen-tsao-kangmu 35.
Penzer, N. M. 181 n, 182.
Pepper 6, 117, 44 n, 445, 449.
Perera, Arthur A. 121.
Perfumes and Cosmetics 53, 54, 347.

Pergamum 444 n.
Periplus 76 n, 114, 265, 280, 337, 342.
Persepolis 29, 386.
Pēsavāṭcyā Sarallīt 16.
Peshwa Daftar Selections 97 n, 98 n, 297 n, 373 n.
Peshwa’s Diaries 205 n.
Pererson, P. 336, 366.
Petrie, W. M. Flinders 348.
Phadke, Krishna Shastri 64 n, 80 n, 307 n, 308, 389.
Phalajīhaḍanac Bag (in Marathi) 381 n, 439 n.
Phalgu 307, 308, 309.
Phalgutirtha 381.
Pharmacology 5.
Pharmaepoea 365 n.
Philip 443.
Philip II 429.
Philips, Geo. 372.
Phīṭṣ̪tra 326.
Phoenicia 231 n.
Phool Bag 42.
Phulsery 21, 23.
Pikdār 181, 183, 184, 185, 186.
Pine-apple 352.
Pin-lang 128 n, 129.
Pippala 381 n.
Pisani, Dr. Vittore 438.
Pṛṭāmbara 139 n.
Plaka 445 n.
Plant Sciences 444, 448 n.
Plants growing in Bombay and its vicinity 269, 282.
Plato 443, 449.
Platt, J. T. 430.
Poestum 28, 32.
Political History of India 367 n.
Pollier, Capt. 17, 31.
Pomegranate 444 n.
Pompeius Flaccus 362.
Poona 96.
Pophal-phoḍaṇa 121 n, 177.
Pornt 30.
Portugal 11, 438.
Portuguese Vocables in Asiatic Languages 10 n, 203.
Potato 410, 434 n.
Prabandhacintamani 236, 237 n.
Practical Rose Growing in India 27.
Prasastisangraha 134.
Prastavaratnakara 145, 145.
Pratigraha (—graHa) 185, 186, 188.
Pravaccanasaroḍhāva 209.
Pre-Buddhist India 333.
Priyāla 358.
Priyagā 445 n.
Proc. Indian History Congress, Calcutta (1939) 100 n.
Propagation of Horticultural Plants 451.
Propagation of Plants 451.
Ptēvīrāja 232.
Przyluski 182 n.
Pūga 445 n.
Pūga-Sphoṭi 177, 178.
Pulakesin II 223 n, 231.
Punṣaṇa 54, 55, 72, 445 n.
Punyavijaya, Muni 9, 107.
Purandar 373 n.
Purandare, N. V. Vaidya 143.
Puranic Records 68 n, 200.
Purseram Bhow 17.
Pusalker, Dr. A. D. 228 n.
Puspastā 15.
Pyrard de Laval 219, 241.

Q
Quintinye, La 34.
Quintus Curtius 359 n.
Qu'rān 307.

R
Rabhasa 366, 367.
Rackham, H. 320 n, 361, 444.
Rāḍḍi Collection 43, 69 n, 76 n, 89 n.
Raddi, R. 124 n.
Radi Kantadeva Bahadur 348 n.
Rāgahvānanda 368.
Rāgahvanabhava 254 n.
Raghunātha 240 n.
Raghunātha Gangesa Navahasta 94.
See
Navahasta, Raghunātha Gangesa.
Raghunātha Indrajit 293, 416.
See "Katābhāri".
Raghunātha Paṇḍita 15, 33, 64, 66, 94 n, 155, 172, 177, 184, 353, 412, 421 n.
Raghuhira, Dr. 180.
Raja Balawand Singh Bahadur 437.
Rajādkarma 68, 81.
Rajaguru, Paṇḍita Hemarāja 205, 279, 324.
Rajaguru Purusottama Rāo Kāvāle 143, 144.
Rajamartanda 254 n.
Raja Mitrajit 41.
Rajaram Chhatrapti 313, 419.
Rajasaras 367.
Rajasekhara 337, 345.
Rajaturāgīti 67.
Rajavaidya Jagṭīp 94.
Rajavallabha 254 n.
Rajayayavahara-Kosa 10, 15*, 33, 36, 64, 69, 94 n, 155, 156, 172, 177, 184, 353*, 412, 421 n.
Rajiwade Samshodhan Mandir. Dhulia 97 n.
Rajiwade, Prof, V. K. 374, 375.
Raktacandana 325, 326, 334, 340 n, 341, 344, 345, 346.
Raktaśali 258, 261.
Raleigh, Sir Walter 429, 435.
Rāma 380*.
Rāmacandra 368.
Rāmacandra of Devagiri 273 n.
Rāmacandra Vastra 237 n.
Ramanujacharya, M. D. 334.
Rāmarahasyopaniṣad 254 n.
| Sanskrit-English Dictionary 118 n, 178, 264, 302, 348, 365 n, 366, 393 |
| Sanskrit Wörterbuch 67 |
| Santanaka 445 n |
| Saptapartha 445 n |
| Sara 11 |
| Saraf, Kashi Prasad 99 n |
| Sarala 445 n |
| Sarasamucaya 208, 209, 210, 242, 243, 244 |
| Sarasvati 6 |
| Sarauta 176 |
| Sarawak 183 |
| Sardesai, G. S. 412 |
| S'arigadharapaddhati 61 n, 202, 207, 213, 336, 346 |
| S'arigadharasanyhita 254 n, 322, 346, 402 n |
| Sarapa 365 |
| Sarvananda 186, 302 n, 308 |
| Sarvaśgasundara 272 |
| S'asilekha 278 n, 307 n |
| Sastr, H. M. 129 n |
| Sastr, K. A. Nilakanta 340 |
| Sastr, R. Shama 389 |

See also Shama Sastry

S'asstr, T. Gaṇapati 186

Sastr, V. Subrahmanya 148, 158

| Šavvatā-Kosa 10, 327 |
| Satara 36 |
| Š'ātata 169 |
| Sattavalkar, S. D. 327 |
| Satsai 36. 99 |
| Saubhagyavati-Kalpadruma 168 |
| Saundarananda 332, 342 |
| Saundaryalakshmi 129 n |
| Savdi, S. N. 203 n |
| Sawanīhīt-i-Mumāz 450, 452 |
| Sayapa 198, 199 |
| Š'ayyābhoga 131 n, 133 |
| Schoff 114 |
| Scindia, Daulatrao 42, 440 |
| Seeris 123, 124 |
| Seleukos Nikator 216, 311 n |
| Senā Nhāvi 427, 428 |
| Seneca 403 n, 451 n |
| Senggarhar 21, 23 |
| Sen Gupta, Dr. N. N. 370, 372 |
| Sen, Kailasa Chandra 205 |
| Sen, Kaviraja Gapaṇātha 341 n |
| Sen, Kaviraj Nagendranath 408 n |
| Sen, Dr. N. 543 n |
| Sen-mung 371 |
| Sentouk 18 |
| Soriss 22, 24 |
| Serry Khendy 24 |
| Sesame oil 4 |
| Sesamum (-me) 39, 40, 53, 55, 56, 63, 64, 104 |
| Sevai Jaising 270 n, 282 |
| Sewiy 20, 23 |
| Shah Abbās 431 |
| Shah Alam 437 |
| Shah Jahan 36, 100 n, 134, 432 |
| Shahjāi 378 |
| Shah Mahomad 422 n, 424, 427 |
| Shah Nama 40 n |
| Shah, Vaidya B. G. 160, 360, 436, 390, 391, 415, 417 |
| Shahu (Raja) 36, 97 n, 420 |
| Shaikh Abdul-Kadir-e-Sarfaraz, Prof. 306, 309, 352, 397, 403, 406 |
| Shāman Hwui Li 259 n, 260, 318, 320 n, 321, 322, 323, 333 n, 344 |
| Shama Sastry 205, 221 n, 312 n, 316, 448 n |

See also Sastry, R. Shama.
Sharma, Dr. H. D., and Sardesai, Dr. N.G. 62 n, 207, 227.
Sharma, R. S. 88 n.
Shastri, K. Bhujabali 134.
Shastri, Sheshgiri 148.
Shelley 57 n, 67.
Shen-nung-pên-tsao-Ching 35.
Shiáb-ud-din 232.
Shiraz 29, 30, 31, 33, 384.
Shivaji, the Great 53, 64, 94 n, 172, 184, 291, 412.
Shivaji Souvenir 412.
Shorter Oxford Dictionary 15, 33, 300 n, 403 n, 441, 450.
Short History of Aryan Medical Science 52, 65 n, 94 n, 278 n, 297 n, 298 n.
Short History of Chinese People 388 n.
Short History of Plant Sciences 443, 444, 448 n, 449, 455.
Shrigondekar, G. K. 226 n.
Shrigondekar, G. N. 356.
Siddhanta-Kaumudi 179*.
Siddhārtha (—White Mustard) 365, 366.
Siddhiyoga 341, 345, 356.
Silappadhikāram 277 n, 339, 343.
Simhagad 373 n.
Śiśuśāva 163.
Sinapis alba 369.
Sind 352.
Sinduvāra 445 n.
Śīṅghaṇa (deva) 50 n, 52, 117.
Sino-Iranica 119 n, 163, 363, 369, 384.
Sircar, Dr. D. C. 279 n.
Śīrīsā 445 n.
Sīrīkhundū 22, 24.
Śīśupālavadha 340,* 344.
Śīvādri 381.
Śīva 6.
Śīvacakītakapradipa 172.
Śīva dāsa 276 n.
Śīvādasasena 205.
Śīvādatta 362, 363.
Śīvāji, the Great 10.
Śīva Kavi 42, 440.
Śīva Kosa 363.
Śīvapurāṇa 134.
Śīvarāja (=Śīvadāsa) 139 n, 146, 151 n.
Śīvarāma Tripāthi 179.
Śīva-Sahhitā 157.
Skandapurāṇa 254 n, 332.
Skottsberg 386.
Sluszkiewicz, Dr. E. 438.
Smith 216, 230 n, 268, 281, 362 n, 403 n, 451 n.
Smith, Elliot 347.
Smith, Vincent 223 n, 273 n, 310 n, 311, 360 n.
Smoking 37.
Śnīticandrika 169.
Śnītimāṇjari 169.
Śntiprapakṣa 134.
Śntyarthasāra 127 n, 136.
Smyth, W. H. 430.
Soares, A. X. 10 n.
Social and Political Life of Vijayanagar 117, 120.
Socotra 12.
Śoḍhala 160, 254 n.
Soleiman 363.
Some Aspects of Indian Civilization 61 n, 457 n.
Somītha 435 n, 457.
Soooderson 22, 24.
Soon 22, 24.
Soorpun 22, 24.
Source-Book of Indian History 412.
Sources of Maratha History (in Marathi) 217, 291, 373 n, 418.
Sources of the Medieval History of the Deccan 50 n.
South Indian Inscriptions 116.
Spain 29, 32, 362, 436, 442 n.
Spence, Lewis 435.
Spencer 429.
Spikenard 18, 22, 24, 54.
Surti 420, 434.

Susilokalaghava 415.

Susruta (Samhita) 5, 64, 65, 67, 80 n.

Stëddha 381.

Stëdbara 127 n, 136, 137

Stëbara 152, 186.

Stëktadhatta 341, 345, 346, 356.

Stëkhaça 43, 49, 55, 65, 86, 95 n.

Stëgarëntalakya 152.

Stëgarasata 190.

Steingass 398.

Storax 20.

Storica do Megor 128.

Strabo 265.

Strange, Guy le 448 n.

Stuart 163, 384.

Sturtevant 286.

Subhësitaratranabhënde 57 n, 147, 264, 317, 410.

Subhësitaratranakara 61 n.

Subhësita-Ratna-Kosa 145 n.

Subhësitavall 61 n.

Successors of the Satavahanas 279 n.

Sudberg 21.

Sudersun 24.

Süd 175, 178.

Sugandhabhoga 131 n, 132.

Sugandhi dravya 10.

Sugär 117.

Sugar candy 19, 99.

Sugendhukula 20.

Sëkra 330.

Sëkrantissara 209, 210, 213.

Saktankhan, Dr. V. S. 301*, 376.

Saktimuktavall 147.

Su Kun 369.

Sultan Saladin 40 n.


Sundaragä 271, 272, 282.

Sun-flower 21, 24.

Sung dynasty 35, 156.

Swasanañacarita 206, 213, 214, 276 n, 282.

Surasû (Sâh=Tulasì) 254 n.

Surasundaricarita 206, 213, 214, 276 n, 281 345.

Surat 97 n, 128.

Surgical Instruments of the Hindus 23 n.

Tadpatrikar, S. N. 336 n.

Tajika (Arabian horse) 222, 223, 225, 226, 232, 241, 250, 251, 405*.

Takakusu 333, 370*.

Täla 445 n.


Tamäla 445 n.

Tamboli 118 n, 131 n, 172.


Tambulabhoga 131 n, 132, 138.

Tambulakalpasamgraha 168, 169, 170.

Tambulla-manjari 168, 170.

Tambuli 445 n.

Tang dynasty 373, 386.

Tanjore 120.
Studies in Indian Cultural History

Tansen 98 n.
Tantrantara 398.
Tantrasara 254 n.
Tantubha 366.
Tao Hung Ching 35.
Tao Hui-Kin 386.
Tarracina 362.
Tartary 23, 361.
Tarykh Montakhub Lubab 30, 33.
Tastari 184.
Tavernier 11, 127, 172 n, 202, 213, 300 n, 363.
Tawney, C. H. 181 n, 182, 236.
Taylor, Genge M. 25.
Tea 370*, 371*, 372*, 373*.
Teli 118 n.
Thackeray 15.
Thakore Saheb of Gondal 52, 65, 94 n, 278 n, 297, 298, 351, 357 n, 447 n.
Thanaṅgasutta 206, 212, 214, 233.
Thasos 362.
Theophrastos 25, 32, 265, 347, 351 n, 385, 391, 443, 444, 449, 452.
Thepe 85 n.
Third Dynasty 203.
Tibet 224, 287, 363, 369, 370.
Tibetan Yoga 372 n.
Tigris 448.
Tikāravaccsa 302 n.
Til (a) 39, 63, 64.
Tilopa 372.
Tilopyapaññatti 278, 281.
Tipoo Sultan 17 n, 269.
Tirthacintāmaṇi 379 n, 383.
Tomb of Two Sculptors 85 n.
Tooth powder 37.
Tornbuoni, Cardinal Nicolo 438.
Trailokyapraśaśa 88 n.
Trailokyasundari 120 n.
Tran Ham Tran 165, 166.
Travel of Ippolito Desideri of Fistoia S. J. 122.
Travels (Batutta) 126, 127.
Travels (Benzoni) 430.
Travels (Bernier) 11. 157 n, 302*, 360 n, 433, 450, 452*, 453.
Travels (Buchanan) 337.
Travels (Careri) 453.
Travels (Fa-hsien) 333.
Travels (Fryer's) 10 n, 432.
Travels (Ibn Battuta) 11, 360 n.
Travels (I-tsing) 128.
Travels (Manucci) 453.
Travels (Marco Polo) 334.
Travels (Varthema) 297.
Travels (Wright) 187.
Travels in India (Fa-hsien) 187.
Travels in India (Hiuen Tsiang) 250.
Travels in India (Tavernier) 11, 127, 202, 213, 300, 363.
Travels of Marco Polo 12*, 223, 226.
Tribes in Ancient India 288 n.
Triennial Report 148.
Trifolium 399.
Trigonella Foenugroecum 384.
Trikāṇḍavaśa 10, 67, 319 n.
Tripad-vibhatī-mahanārayaṇopaniṣad 254 n.
Tripathi, T. M. 79 n, 125 n, 152*, 153, 207.
Triphala 455 n, 457, 458.
Tripiṭaka 156.
Triprurt 117.
Triveṣṭ 375 n.
Tukārāma 184, 424, 425, 427.
Tulasī 54, 254*, 255*.
Tulasīyuvaniṣad 254 n.
Tulpule, Prof. S. G. 428.
Tunis 31.
Turkey 352, 398, 438.
Turkomania 223*
Turmeric 54, 56, 355.
Turuška (Turkish horse) 222, 223, 226.
251, 388, 394, 395 n, 397.
Turuškadeva 406, 408, 409.
Tusbe Gual 21, 23.
Tusculum 362.
Tytler, Dr. 400 n.

U

Uchanski 438.
Udayana 333 n.
Udumbara 381 n.
Index

Varadarāja 181 n.
Varaja 119.
Varaha Carita 62*, 66.
Varma, Dr. Siddheshwar 179, 180.
Vartiṣma 297, 305.
Vasana 7, 69 n, 75 n, 76.
Vasiṣṭha 134, 135, 169, 170.
Vasiṣṭha ṇaḥraṇastra 368.
Vastropabhoga 132.
Vasudeva 341 n.
Vasudevapaniṣad 254 n, 316.
Vāja 374, 375, 378, 380, 382, 383.
Vātsyāyana 73, 151, 152, 173 n, 189, 206 n, 332.
Vāyupurana 228 n, 254 n, 381, 382.
Vedic Index 221*, 222.
Vepābal 66.
Vegetable Materia Medica 365.
Veudatta 58 n.
Veṇkaṭanātha 151.
Venkataramanayya 203.
Vere, Sir Francis 430.
Verma, Prof. B. D. 176.
Vicia Sativa 399.
Vidāṅga 447.
Vidhipra 197, 205, 213, 214.
Vidē (Skr. Viḍī, betel-leaf roll) 149, 150, 153.
Vidyāindhi Pañcita 116.
Vidyāpati 209.
Vidyāsaṅgara, J. 380.
Vidyāvīlāsa 179.
Vigrahapāla 120 n.
Vijapura 446.
Vijayanagar 203, 213, 219, 241, 297.
Vijayasena 120 n.
Vijñānesvara 200, 201, 203, 204, 233.
Vijñānesvarīya 169, 170.
Vikramāditya 385.
Vikramādīkaṇḍevacarita 152, 243, 335.
Vikramasila 370.

Ýkṣers, William H. 371*.
UMa-goyasi 356.
Upadhye, Dr. A. N. 62 n, 181 n.
Upadhye, Dr. A. N. and Jain, Dr. H. L. 278 n.
Upaniṣadvakyaśāhakēsa 66, 135, 331 n.
Upavāna-Vineda 457 n.
Upodīkā 408.
Ushira 446, 447 n.
Ushnē 18.
Uttara Kamakhyā Tantra 67.
Uttarāparatha 359, 360*.
Uttararamacarita 380*.
Uvasagadāstō 264 n.

V

Vādikhyāda 350*.
Vaiḍīya 169, 170.
Vaiḍīya, Shri Bappalal G. 321, 326.
Vaiḍīya, C. V. 318, 319 n, 440.
Vaiḍīya, K. M. 104 n, 163, 199, 219 n, 227a 249 n, 320*, 321, 354, 357.
Vaiḍīya-Saddleśindhu 408 n.
Vaiḍīyanarāmar 254 n.
Vaiḍīya, P. L. 207.
Vaiḍīya, P. L. and Dikshit Y. G. 322.
Vaiḍīya, Raghunathji Indrajī 95.
Vaiḍīya, R. S. 139 n.
Vaiḍīyavatarka 291, 292, 293 n, 413*.
Vaijayanīta 160, 186 n, 207, 213, 276, 277, 354.
Vaiṁkaṇasa Kalpastra 253.
Vaikānasa 252, 253.
Vaiṣajaneṇyī Sūkhita 198, 199.
Vaiṣrasena 373 n.
Valle, F. della 431.
Vāmaṇa 322, 323, 341, 345.
Vanaṇarva 376.
Vanaṇpati 446*, 457 n.
Vanaṇṣadhiṇapakāra 392 n.
Vandiyagāthāya Sarvāṇanda 204, 213.
Vāṅgasena 321, 345, 365.
Vaniṭabhoga 131 n, 132.
Wright, W. 187.  
Wu, Chinese Emperor 386.  
Wu-Chi-Chun 35.  
Wu-ti, Chinese Emperor 388, 389.  

X  
Xenophon 230.  
Xerxes 305.  

Y  
Yādava, Bhagavantrao 36, 96*.  
Yādavaprakāśa 213, 276, 277, 281.  
Yajñavalkyaṁśtri 210, 238, 321, 368.  
Yajurveda 327.  
Yakūt 448 n.  
Yamunā 375, 380, 381 n.  
Yaqubi 13.  
Yasāḥpāla 242, 243.  
Yasahprakāśasudhakara 19 n.  
Yasodhara 20 n, 189.  
Yava 193, 200, 201, 202, 204*, 208, 209, 214.  
220, 221*, 222, 224, 234, 238, 241, 244,  
Yavanāla 270, 271, 272, 274, 277, 278*, 279,  
281, 289*, 290, 292, 293 n, 294.  
Yemen 13.  
Yi Tsin 369.  
Yogaratnakara 145, 164, 254 n, 296, 297 n,  
413, 414.  
Yoga-Saṅgrāma 422*, 427.  
Yogasiddhāntacandrīka 158.  
Yogavikṣopanisād 331 n.  
Yogataraṅgini 254 n.  
Yogavāsiṣṭha 334 n.  
Yosibhoga 132.  
Yū, T. T. 34, 35.  
Yuan Tsin 386, 389.  
Yudhīṣṭhira 376, 377.  
Yuktikalpataru 202*.  
Yule and Burnell 15, 52, 115 n, 172 n, 185,  
207, 218, 242, 255 n, 265, 270, 314, 349,  
372 n, 429 n, 429.  
Yunnan 35.  
Yūthikā 445 n.  

Z  
Zanzibar 12.  
Zaraftshan 363.  
Zeerbad 20.
Subject Index
(Com., Commentator or Commentary)
(By N. A. Gore)

Abhilasitardha-cintamani of Hemacandra, date of, 193.
Abhyanga, meaning of, 58.
Adhaapatana-yantra, 19n.
Adhikata, dated references to, 172; etymology of, 171.
Agniipura, contents of, 68n; date of, 69n, 74, 200, 233; gandhayukti verses in, 75; manufacture of cosmetics and perfumes in, 68-73.
Ain-i-Akbari, date of, 11, 17.
Akashabhaarava-kalpa, date of, 201.
Aksayavaya at Prayaga and Gayä, history of, 374-83.
Alexander the Great, date of invasion of India by, 216.
Alfalfa, history of, 384-92; = Lucern grass, 398.
Almond in India, some notes on the history of, 357-64.
Amarakosha, date of, 9, 62, 185, 194.
Ambar, references in Arabic sources to, 13.
Ambara, an aromatic ingredient, 9, 10; in Indian perfumery, references in Sanskrit works to, 13; Sanskrit words for, 10.
Ambergris in India, history of, 9-14; date of its introduction into India, 14; see also Ambar and Ambara; references from non-Sanskrit sources—three theories about its origin, 11.
Anekath-tilaika, date of, 10.
Anjitra, a monograph on, 457; does the word 'Phalgu' mean-, 307-310; see also Fig.
Anjuli-purana, a work on medicine, 99n; dated MS of, 99n.
Antiquity of the use of lime and catechu in Tambula, 155-67.
Aparaksa, com. of the Yajnavalkya-smriti, date of, 238, 321.

Apastamba-dharma-sutra, date of, 368.
Arab geographers and ambergris, 13.
Arikamedu, an Indo-Roman trading centre, 239.
Aromatic ingredients current at Akbar's time, 18 ff; eight classes of, 6; mentioned by Varahamihira, 61, 76n.
Arthasastra on food for horses, 205, 221n; on varieties of candana, 316f; of horses, 222; references to fruits in, 312n; to rice in, 265n.
Arunadatta, date of, 198, 257.
Arya-manjusriti-mula-kalpa, date of, 330; references to white sandal in, 330f.
Aryan medical science, 94n.
Asthaga-hridaya of Vagbhata II, date of, 104n, 198.
Asthaga-sangraha of Vagbhata, date of, 159, 197.
Asura form of marriage and Tambula, 137.
Asvabala, Alfalfa and, 387; a variety of methikā, history of, 394-405; = Hisiphitha, 406; = Methi, 389; references in Caraka and Susruta to, 406-409.
Asvaciiktita of Nakula, date of, 232, 391.
Asvamedha and use of Capaka, 233-239.
Asvavastra, five Sanskrit works on and Capaka as horse-food, 240-44.
Asvavaidyaka of Jayadatta, date of, 232, 391.
Asvayurveda, date of, 208, 238, 250, 251; dated Ms. of, 208, 245n.
Atardan (atardan), 16.
Attar of roses, 16; process of making, 17.
Avatatas of Vishu, ten, 256.
Ayurveda, chronology of Govt. efforts to revive, 400n.

B

Bag Vilas of Síva Kavi, 42.
Bhaja, see Vagbhata.
Studies in Indian Cultural History

Bapa, date of, 189, 328.
Barley as food for horses. 220, 220n, 221, 222.
Basava-purāṇa, a Canarese work, date of, 178.
Bath, ten qualities of, 148.
Bedas, royal, different kinds of, 133.
Bengal, period of Pala dynasty in, 228.
Bernier, date of, 11; references to ambergris by, 11.
Bernier’s travels in India, period of, 433.
Betel-chewing, romance of, N. M. Penzer’s article on, 181n, 182; see also Tāmbula.
Bhānuji Diksita, Com. of Amarakosā, date of, 118, 185, 194n, 319n.
Bhavabhūti, date of, 380.
Bhāvanā, meaning of, 7.
Bhavaprakāśa, date of, 199, 235n, 298n.
Bhogas (objects of enjoyment), eight, 53.
Bhoja of Dhārā, king, date of, 52.
Bhojana kutahala, dated Ms. of, 94, 270.
Bhojanasatra of Giriḍhari, date of, 270n.
Bhojavarman, a Bengal king, date of, 120.
Bhīṣa, date of, 243.
Bodha, meaning of, 7.
Bodhāyana, date of, 253.
Bodhayana-grhīṭhā-śevasūtra, date of, 161n.
Botanical science, date of the founder of, 443.
Bṛhad-gṛgīṭhā-saṃhīta, dated Ms. of, 203.
Bṛhatasaṃhīta, a chapter on cosmetics in, 59n; aromatic ingredients mentioned in, 61; date of, 3, 68, 76n, 200.
Buddha, campaka wood sacred to, 67; images carved from campaka wood of, 57n.
Buddhacarita, date of a Chinese translation of, 279n.
Buka (bukkā), 44, 45, 46, 49, 50.

C
Cakrapāṇidatta, com. of Caraka, date of, 188, 194, 261.
Campaka Caturdastī, worship of Śiva with Campaka flowers on, 57n.
Campaka, chronological table of references to, 65,66; Francis Buchanan on, 61n;
(Campaka) oil and its manufacture, 57-67; references in Gandhasāra to, 59; in Gandhavāda to, 60; in Vyakaraṇa Mahābhāṣya to, 64n; properties of tooth-brush made of, 65;
(-wood) images of Buddha carved from, 57n; (-wood) sacred to Buddha, 67.
Camphor, dated references to, 76n, 113, 117n; properties of, 89.
Caṇaka, a brief resume of its use in India, 234; a story of a trader in, 237; and Āśva—as horse-food, 238; as horse-food acc. to Sanskrit treatises on Āśva-śāstra, 240-44; as horse-food, chronological table of references to, 241; as horse-food, history of, 218-32; food value of, 196n; references in Kasyapa-pancahitā to, 252, in Manasollasā to, 226n, in Matsyapurṇa to, 238; references to charred gram seeds (Caṇaka) in an excavation account, 238, 238n; some notes on the history of, 193-217.
Caṇakānāla, references in Rasaratnakara to, 235, in Rasaratnasamuccaya to, 236, in Rasarṭha to 236.
Candana, antiquity of carving images in, 333n; Indian origin of, 337f; references in the Paharpur Copper-plate inscription to, 315; some notes on the history of, 314-46; Śvetā, 318ff; used for making furniture, 329; varieties mentioned in the Arthasāstra of, 316f; white, 318ff.
Carakasaṃhīta, date of, 278n, 279n; medical oils mentioned in, 72n.
Careti, a European traveller in India, references to mangoes by, 453.
Carucarya of Bhoja on the qualities of Tāmbula, 148.
Castes, mixed, a list in the Kasyapa-pancahitā (Jānaka-praśa) of, 256.
Casting of metal images, use of wax-moulds for, 255.
Ceremonial usages of the Chinese, B.C. 1121, 230n.
Ceylon, Greek traders in, 228.
Cheng Ho’s expedition to Indian Coast, date of, 372.
Index

China, ancient, six varieties of horses in, 230n.
Chinese, Ceremonial usages of, B.C., 1121, 230n.
Chinese roses, notes on, 34 f.
Chinese translation of the Buddhacarita, date of, 279n.
Corn, see maize.
Cosmetics, a chapter in the Bṛhatasamhitā on, 59n.
Cosmetics and perfumery, Indian Science of, 3–8; Pañcatantra on the dealers in, 4; Studies in the history of, 88–93; Studies in the history of Indian, 15–35; scope of the Indian science and art of, 4.
Cosmetics and perfumes, eight classes of aromatic ingredients used in manufacture of, 6; eight processes in the manufacture of, 69n; index to cultural development, 6; presiding deity of, 7, presiding planet of, 88n; Raja-vyvaharakosa on, 353n; six processes used in the manufacture of, 7, 69n; Rasaratnakara and the preparation of, 89-93.
Cultural development, an index of, 6.
Cultural gleanings from Jñānakāṇḍa of Kasyapāpasamhitā, 252-56.
Cūrtaprapakaraṇa, dated Ms of, 99.
Custom, matrimonial, of cutting betel-leaf roll, 149-154.

D
Dālīma (dādīma), period of transplantation in India of, 119n.
Dallaṇa, date of, 195.
Dated Ms or Mss of Anjulipuraṇa, 99n; Asvayurveda, 208-245n; Bṛhad-gārgya-samhitā, 203; Cūrtakaprapakaraṇa, 99; Dhanvantarinighaṇṭu, 146, 211.
Desṭnāmanda, date of, 204.
Devagiri, King Mahādeva of, date of, 273n.
Dhanvantari-nighaṇṭu, dated Mss. of, 146, 211.
Dharmaśāstras and the use of Tāmbula, 131-38.

Dhaturatnakara of Śādhu Sundaragani, date of, 271.
Dhupa, different kinds of, 77n; as used in worship of deities, 84f; Divya, preparation of, 92; Manasottasa on the use of, 132.
Dhūpana, meaning of, 7.
Dikṣita Bhānuji, date of, 318n.
Dioscorides, the Greek physician, date of, 215n.
Dolā-yantra, 37n; a picture of, 94n.

E
Enjoyment (Bhoga), eight kinds of, 53.
Erotics, Nargarasavasva, a work on, date of, 74.
Etymology of ajākīṭṭa, 171.
Excavation at Kolhapur and Cāpaka, 238, 238n.

F
Fa-hsein, date of, 333; date of his travels in India, 137.
Fast, things to be avoided on Ekādaśī; 137; religious and Tāmbūla, 134.
Fenugreek and alfalfa, history of, 384-92.
Festival, see Rose-water festival.
Ficus carica, see fig.
Fig, notes on the history of, 295-306; 307-10; vernacular names of, 295n, 296n.
Flower gardens in Bihar, 41f.
Flowers to be avoided in worship of Viṣṇu, 256.
Flowers to be used in worship of Viṣṇu, a list of, 256; used in Akbar’s court, a list of, 20ff.
Francis Buchanan on Cāmpā flower, 61n.
Fruits mentioned in the Arthasastra, 312n.
Furniture of Candana, 329.

G
Gāgabhaṭṭa, date of, 53.
Game of Indian Polo, 226.
Gandhamadana forest, description in the Mahabharata of, 58n.
Gandhasara and Bhātisāṅkhita, 59n, 61; contents of, 7; date of, 3, 25.
Gandhasāstra, meaning of, 3; some subtle topics connected with, 8.
Gandhavada and its Marathi commentary, critical analysis of, 43–52; date of, 52, 57.
Gandhavada, date of, 3, 13, 25.
Gandha-yakṣa, the presiding deity of Gandhasāstra, 7.
Gandha-yuktī, meaning of, 3, 73.
Gāṇesā, references to, in the Māṇakāṇḍa of the Kaśyapapassāṅkhita, 255.
Garments, Mānasāra on the use of, by a king, 132.
Gṛvāpapadaśeṣyai, date of, 211.
Glass vessels and perfumery, 52.
Gouḍābha = rose flower (?), 36.
Grafted mangoes in India, references to, 452–54.
Grafting, chronology of references to, 449–50.
Grafting plants, history of the art of, 439–51; six varieties of, 441n.
Grease, ingredients of a soap for removing, 55.
Greek traders and Ceylon, 228.
Guhyasamājata-tantra, date of, 201, 333.
Gulāb, see rose.
Gulābdānya, 16, 17.
Gulakanda, preparation of, 99.
Gupta inscriptions, trees mentioned in, 445n.
Gupta period, early, and Tambūla, 154.

H

Hair-dye, Varāhamihira’s recipe for, 109.
Hair-dyes and ink-manufacture, close affinity between recipes for, 104–107.
Hakim Pharasis, a work on medicine, 97n, 98; dated Mss of, 97, 98, 99; written in a mixture of many languages, 98.
Hālādā-kūnkuku, a ceremony of married women in the Deccan, 253n.
Harṣa, King of Kashmir, date of, 242.
Hemacandra, date of, 220n, 225.
Hemadri, date of, 169, 198, 257, 261.
Henna, history of Mendī or, 347–56.

Hurst, references in the Mahānubhāva literature to, 274.

I

Ibn Batuta, date of, 11, 359; his references to ambergris, 12.
Import of Persian horses into India, date of, 231; of plants, roots and fruits in Asoka’s time, 23n.
Incense, use of, in Egyptian sacrifice, 85n; see also Dhūpa.
Indian alchemy = rasa vidyā, 3.
Indian corn, see maize.
INDEX

Indo-China, use of Tāmbūla in, 156.
Indo-Roman trade centre in the South India, 239.
Indu, com. of the Aśṭāṅgasaṅgraha, date of, 395n.
Ink-manufacture, history of, in India, 101; in India and other countries, 89n.
Inscription, Canarese and Jwāri, 274; Gupta, trees mentioned in, 445n; Indian and Tāmbūla, 110-120.
Itr, itra=perfume, 16.
Itsing, date of, 371.

J

Jardā=tobacco used for chewing, 421.
Jātakas and horse-food, 229; and horses, 228f.
Jawār (Jondhaḷa), antiquity of, 266-282; chronological table of references to, 281ff., earliest of the wild plants to be domesticated, 267; and Kannada literature, 273n; Lassen on introduction into Italy of, 280; and Lilacarita, 273; Tamil words for, 217.
Jayasiṃha Siddharāja, Solanki king of Gujarat, date of the reign of, 237.
Jewels, Rasaaratnakara on the manufacture of, 88; sun, the presiding deity of, 88n.
Jivakacintāmaṇi, a Tamil work, date of, 277n.
Joshi, Rāma, see Rāma Joshi.
Jondhaḷa see Jawar.
Jūrṇāvīja see Jawar.
Jyotirnibandhā of Śivarāja, date of, 139, 146.

K

Kalama variety of rice, references in Sanskrit works to, 263f.
Kālidāsa’s references to Kalama rice, 263.
Kalpadrumakosa, date of, 201.
Kamasūtra, date of, 173n.
Kāñcharadeva, king, date of, 273n.
Kaniṣka, king, date of, 278n., 279.
Karpurīya Śivadatta, date of, 363.

Kasyapasamahīta, Jānakāḍa, cultural gleanings from, 252-56; references to Čapaka in, 252.
Kāyaśṭha Cāmuṇḍa, date of, 50.
Ketaka (kt) plant, 38n.
Kewda=Ketaka, 39n; Soap, perfumery, cosmetics and, 39n.
Khobarem=coprah or dried kernel of coconut, 52.
King and eight objects of enjoyment, 131-33.
Kṣemakutahala of Kṣemās’arman, date of, 36, 299n, 390.
Kṣemendra, date of, 376.
Kṛrasvāmin, com. of Amarako’sa, date of, 204.
Kunhuma, preparation of, 91.
Kuṭṭanimata of Dāmodara, date of, 152, 207.

L

Lac, dated references to, 76n.
Lakṣmapasena, King of Bengal, date of, 120.
Lassen on introduction of Jawār into Italy, 280.
Lilacarita, a Mahānubhava work, date of, 177, 206.
Linguistics, Indian, importance of Hakim Pharasī to, 98.
Lolimbarāja, date of, 292, 413.
Lucerne grass=alfalfa, 398; =lasūpa ghāsa, 398.

M

Madanaṅghaṭṭu, date of, 272.
Madanapāla, King, date of, 272.
Madanavimoda, date of, 201, 298.
Madansing, illegitimate son of Sambhaji, date of, 426.
Madayantika=Mendi S.V.
Madhva Muntivara, poet, date of, 420.
Māgha, poet, date of, 340.
Mahādeva, King of Devagiri, date of, 273n.
Mahānubhāva work, references to Jandhaḷa and Hurḍā in a, 273; word for nut-cracker in a, 165n.
Mahīdhara, date of, 199.
Mahārattas as horsemen, 193n.
Maize (Makā), history from non-Indian sources of, 284-87; home of, 289, 290; in India, history of, 283-94; words in different languages for, 290, 294.

Makā see Maize.

Makuṣṭa = Maṭki in Marathi, 249, 249n.

Malyāsirī, a Jain commentator, date of, 9.

Mammat, date of, 322.

Mānasolasa, date of, 3, 53, 85, 117n., 157, 226; on the eight objects of royal enjoyment, 131-33; on the game of Indian Polo, 226; on varieties of horses, 226.

Mangoes, grafted in India, 452-54.

Mānucchi and mangoes in India, 453.

Marathi (rare). Commentary on the Gandhāvāda, critical analysis of, 43-52; date of, 47.

Marco Polo; and ambergris, 12; and different kinds of horses, 223; and food for horses, 225; date of, 12.

Marriage ceremonies of Patāpe Prabhu caste, 150.

Marriage with the step-mother, 311n.

Massage, perfumed oils for, 54.

Masūdi, Arab geographer, date of, 173n.

Matrimonial custom of cutting the betel leaf roll, 149.

Mātasyapūraṇa, references to Cāpaka in, 238.

Medical oils in the Carakasaṃhitā, 72n.

Medical science see Aryan medical science, 94n.

Medical writers, chronology of Sanskrit, 259.

Medical works, dates of Some Indian, 357n.

Medicine, a work on, Anjulipūraṇa, 99n; Hākim Pharas, 97n.

Medini-Kosa, date of, 10, 380.

Mendt (Henna), history of, 347-56; names in various languages for, 354.

Mercury, reference in Jayanakata of Kasyapasaṃhitā, 255.

Metal images, use of wax-moulds in the casting of, 255.

Methi, history of, in India and other countries, 384-92.

Milaṃpa, Tibetan saint, date of, 372.

Mujmua, a perfume, ingredients of, 39.

Murāri, poet, date of, 381.

Musk, dated references to, 76n.

Muslim conquest of Sindh, date of, 352.

Mukteśvara, Marathi poet, date of, 184.

Mustard, white, Bapa’s references to, 366f; medical properties of, 365; Sanskrit words for, 366; use in ancient and mediaeval India of, 365-69.

N

Nagarasavasva, date of, 74, 80n, 125.

Naiṣadhyacarita, date of, 152; reference to spittoon in, 186.

Nāḷaka-yantra used in perfumes preparation, 52.

Nānarthaya-saṃkṣepa, date of, 10, 274.

Navahasta, Raghuṇātha Gajēva, date of, 270.

Nāvancākā, date of, 101.

Nīghaṇṭu-saṃghraha of Vaidya Raghuṇātha ji Indrajī, 95.

Nīrāyasindhu, date of, 138.

Nītyāṇātha Siddha, author of Rasaratna kara, 88.

Nīśānhabhaṭṭa, author of Tambilakalpa- saṃghraha, date of, 168-170.

Nut-cracker, a genuine Marathi word for, 165n: earliest dated reference in a Canarese work to, 175; etymology of Hindi word for, 180; Indian, 114; its date, 171-176; of Marathi word for, 171; of the Sanskrit word for; words in various languages for, 171, 175, 177-80.

O

Opium, Sanskrit word for, 402n.

Otter, Otto, 15, 16, 17.

P

Pācana, meaning of, 7.

Padyavent of Vundatta, date of, 58n.

Paharpur copper-plate, reference to Candana in, 315n.

Pālalacchināmālā, date of, 329.

Pala dynasty in Bengal, period of, 228.
<table>
<thead>
<tr>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>493</td>
</tr>
</tbody>
</table>

**Index**

**P**

Pan-chewing in India, the story of, 111n (=113n).

Pañcatantra, reference to dealers in cosmetics and perfumery in, 4; to perfumery trade in, 40n.

Paraśa, see mercury.

Pārśvibhāṣānusāsana, a lexicon of Persian terms, date of, 184.

**Patna-Gaya Report of Buchanan,** 37.

Pātālayantra, meaning, 52.

Patañjali, date of, 179.

Perfumery, Indian Science of cosmetics and, 3-8.

Perfumery, industry, An up-to-date survey of Indian, 40n.

Perfumery see also cosmetics.

Perfumes and cosmetics in the Royal Bath, c. A.D. 1130, 53-56; references to, in the Varāṅga-carita, 62n, 63n.

Perfumes used at the court of Akbar, compositions of, 18; for the worship of gods and goddesses, 82f.

Persian horses, date of their import into India, 231.

Peshwas, a Marathi poem in praise of, 96n.

Pharas, Hakim, see Anjuli-purāṇa and Hakim Pharas.

Pictures (paintings), three kinds of, 255.

Placet, Roman author, date of, 280.

Pomegranate tree, period of transplantation in India of, 119n.

Portuguese advent in India, date of, 440.

Prabandha-cintāmaṇi, date of, 236; story of a dealer in Capāka in, 237.

Prāstava-ratnākara, date of, 146.

Punjab, period of Greek occupation of, 216, 234.

**R**

Rājaṇīghaṭṭu of Narahari, date of, 146, 158n, 159, 201, 220, 271.

Rājavyāhara-kosa of Raghunātha Paḍīta, date of, 10, 15, 155, 177, 184, 353, 412.

Rām Joshi, the Marathi poet, date of, 292.

Ramāyana, reference to Capāka in, 233.

Rasaratnakara, date of, 88; reference to Capāka in, 235.

Rasaratnasamuccaya, date of, 236; reference to Capāka in, 236.

Rāṣṭrapāla, date of, 236, 355; reference to Capāka in, 236.

Rāyamukula, date of, 194n.

Rice, Mahāsāli variety in Magadhā, of, 257-65.

Rice, references to, from B.C. 320 to 90 A.D., 265; in the Arthasastra, 265n.

Rice varieties of, 257f, 262.

Rose and rose-products, dated references to, 32f.

Rose and rose-water in India, some points in the history of, 97.

Rose, remarks on, by H.S. Reed, 34.

Rose, rose-water and attar of roses, notes on the history of, 15-35.

Roses in China, notes on, 34f.

Rose-water and other perfumes, Buchanan's account of the manufacture of, 36-42; Bhojanakutthi la on the manufacture of, 94-5; description of the festival of rose-water at the court of Shahjahan, 100n; reference to in 1723, 97; Sanskrit verses on the manufacture of, 94-100.

Royal bath, Mānasollasa on, 54; beds of seven kinds, 133.

**S**

Sabhuratna-samuccaya-kosa, date of, 10.

Sālīhovra of Bhojarāja, dated Ms. of, 247n.

Samsher Bahadur, illegitimate son of Peshwa Bajirao I, date of, 426.

Sandal, the Aın-i-Akbari on, 20; dated references to, 76n; preparation of, 89; see also Candana.

Sandal-wood, the Aın-i-Akbari on the use of, 18, 19.

Sāṅkaracārya, date of, 129n, 335.

Sanskrit words for rose-water, 37n.

Sanskrit writers on medicine, chronology of, 259.

Sarasamuccaya, date of, 209.

Sāṅgardhara, author of the medical work Sāṅgardhara-Saṅhita, date of, 207.

Sāṅgardhara-paddhati, Sanskrit anthology, date of, 202.
Sugar from Yavanâla (Jondhâla), 272.
Sundarâgaî, Sadhu, date of, 272.
Suvastana-çarîya of Laksmâya Gaipin, date of, 206, 276.
Surasundari-çarîya of Dhanesvara, date of, 206, 276.
Susâloka-çaghava of Viśhâla, date of, 415.
Susvutesaînhita, date of, 278n.
Syrian figs, early Indian interest in, 311-13.

T
Ts, three of Indian social life, 154.
Tâmbûla, a study of the use outside India of, 121-30; and Âsura type of marriage, 137; and Pitryajîta, 137; and the house-holder, 137; and the piñjâs to the ancestors, 137; and the religious fast, 134; antiquity of the use of lime and carechhu in, 155-67; beliefs about the number of ingredients in, 134-44; Bernier's reference to, 157n; Caruçarîya of Bhoja on, 148; Customs associated with, 149; date of its introduction into India, 129, 130, 154, 177; dated references to, 76 n; etymology of, 182 n; five kinds of 125n; history of the verses re. the 13 qualities of, 145-48; in Indo-China, 156; no reference in the Ghyasaturas to, persons who are prohibited from its use, 134f.; qualities acc. to Varahamihira of, 148; references in Indian inscriptions to, 111-20; references in the Kasyapa-sainîhita (Jînânakî) to, 254; Romance of betel-chewing by N. M. Penzer, 181n; story about the origin of, 165 f; thirteen qualities of, 141, 141n, 142, 145-48; translation of 24 verses in the Jyotirmihanda on, 139. 42; the Manasollasa on the use by the king of, 132; use acc. to the Dharmavâstras of, 133-38; see also Pan-chewing.
Tambalakalpasainîgraîha of Nâsimhabhadra, authors and works quoted in, 169; date of, 168-70.
Tambulamañjari, date of, 170.
Tavernier, date of, 11: references to ambergriess by, 11.


Thana coast and foreign commerce, 231n.

Tibetan Saint Milarepa, date of, 372.

Tiloyapaṇḍati, a Jain Prakrit work, date of, 278.

Tobacco, date of its introduction into India, 154, 313: Department of Bijapur Sultans of, 313: its history in India and Europe, 429-38: references in Marathi literature to, 418-26: in Sanskrit works to, 410-17: in Sena Nāhāvi's poems to, 427-28.

Tooth-brush of Campaka, properties of, 65.

Triphala, a monograph on, 457.

Tukārma, Maratha Saint, date of, 181, 424.

Tulasi plant, reference in Kasāyapasaṇhita (Jāmakaṇḍa) to; in other Sanskrit works to, 254n.

U

Udābatti, references in the Gandharvada to, 45, 46.

Unguents, for a king, preparation of, 54-55: the Mānasollasa on the use of, 131.

V

Vāgbhaṭa I, author of Aṣṭāṅgasanaṇgraha, date of, 246, 278, 358.

Vāgbhaṭa II, author of Aṣṭāṅgaḥdyāya, date of, 246, 278, 358.

Vāgbhaṭa, author of Rasaratnasamuccaya, 246.

Vaiṣṇavatānasa, dated Ms. of, 413.

Vaiṣṇayanti-kosa, date of, 160, 207.

Vaikāhānasas, a Vaiṣṇava sect, 252.

Vaiṣṇavas, Vaikāhānasas, a sect of, 252.

Vāmanā, author of Kavyālakārasatrasālī, date of, 322.

Vāṅgasena, date of, 321.

Vairāhamihira, date of, 113, 147, 242; on the qualities of tāmbūla, 148.

Vairāga-carita, date of, 63.

Vāsana, meaning of, 7.

Vedha, meaning of, 7.

Vedic plants, Dr. G. P. Majumdar's paper on, 58 n.

Vegetables, vernacular equivalents acc. to Dālāṇa for, 393n.

Vidhiprāpa, date of, 197.

Vijñānesvara, date of, 170, 210, 233.

Vikramāndkadeva-carita of Bilhaṇa, date of, 152-335.

Vīṣyudharmottara, gandhayuktik section of, 74-81.

Vīsgva-kosa, date of, 10.

Vīsvalocana-kosa, date of, 10.

Vīsvarūpasena, a king of Bengal, date of, 120.

Vyākaraṇa Mahābhāṣya, date of, 64n.

W

Wax-moulds for casting metal images, 255.

Weighing oneself against gold etc., 7.

Weights, Indian system of, in the Manusmṛti, 367.

Women, Mānasollasa on the qualities of, whom a king should marry, 132.

Y

Yaddavaprakāśa, author of Vaiṣṇayanti-kosa, date of, 276.

Yajñavalkya-smṛti, date of, 368.

Yakṣa, see Gandha-yakṣa.

Yava and Caṇaka as horse-food acc. to Vāgbhaṭa's Asvayurveda, 245-51.

Yogaratnakara, a medical compendium, date of, 145, 164, 413, 414: dated Ms. of, 413; on the ingredients of tāmbūla, 164.

Yogasamigrāma, a Marathi poem of Shaikh Mahomad, date of, 422.

Yuktikalpataru, date of, 202.